Annual Report
2012 - 2013

Bhoochetana

Mission Project on Rainfed Agriculture: **Bridging Yield Gaps** through Science-led Interventions for Sustainable Use of Natural Resources in Karnataka


Submitted to
Commissionerate of Agriculture, Government of Karnataka

ICRISAT
Science with a human face

International Crops Research Institute for the Semi-Arid Tropics

Contents

Executive Summary

The Government of Karnataka has supported a mission-mode project "Bhoochetana" to improve the livelihoods of small farm holders by increasing agricultural productivity through science-led development. ICRISAT provided technical backstopping to the Department of Agriculture for implementing Bhoochetana in 30 districts during 2009-12. The specific objectives are as follows:

1. To identify and scale-up best-bet options (soil, crop and water management) including improved cultivars to enhance productivity of the selected crops by 20% in the selected 24 (later extended to 30) districts;
2. To train DoA staff in stratified soil sampling at villages, analysis of macro- and micronutrients, preparation of GIS-based soil maps; to guide DoA to establish high quality soil analytical laboratory at Bengaluru to undertake stratified soil sampling and analyses; and sharing results in nine districts; and
3. To build capacity of the stakeholders (farmers and consortium partners) in the sustainable management of natural resources and enhancing productivity in dryland areas.

During 2012, all the 30 districts covered an area of 3.72 million ha with 26,293 villages and 4.39 million farmers. Soil test-based nutrient management recommendations were provided for rainfed as well as irrigated crops along with farmer participatory selection of improved cultivars, integrated nutrient management techniques using azolla, bio-fertilizers and organic manure through vermicomposting, integrated pest management practices and rainwater conservation measures. During the year, 46 districts level training courses, 271 taluk-level training courses and 8800 village level training courses were conducted to benefit 5751 farmers at the district level, 14,647 farmers at taluk-level, and 464,696 at village level. Under Bhoochetana, 9700 farm facilitators along with 45,000 lead farmers helped millions of farmers with improved technologies. To strengthen the dissemination of improved technologies with the support from Digital Green, farmer-to-farmer videos have been piloted in two districts, namely Hassan and Dharwad. During the rainy season of 2012, improved technologies enhanced yields of various crops in different districts by 22-52%.

Economic assessment of increased gross value of production with improved technologies during rainy season 2011 worked out to be Rs. 636 crores across the 30 districts. In 2012, gross value of increased/additional production with improved management practices during rainy and Rabi season worked out to be Rs. 518 crores at the state level.

Bhoochetana as a model for scaling-up research for impact was presented as a case study at the CGIAR Fund Council meeting held in Delhi with a central theme of "Partnering for Impact". In order to strengthen the delivery mechanism through public private partnership a brain storming session was held at Hyderabad during the workshop on Action Platform for shared values. The platform has a membership of 80 companies and is coordinated by Enterprise Solutions to Poverty (ESP). It aims to organize PPPs so as to reach 20 million farmers in India by 2020.

A number of success stories from all the districts have been compiled and published. Similarly, the results of soil samples collected from irrigated areas in districts of Karnataka revealed that, compared to rainfed areas, percentage of critical deficiency in farmers' fields in available zinc, boron and sulphur was low (36-51%). Similarly, phosphorus and nitrogen deficiency based on organic carbon status showed a state-level deficiency of available

phosphorus in 26%, farmers' fields and nitrogen in 43% of farmers' fields. However, percentage of critical deficiency in zinc, boron and sulphur in different districts varied by upto 100% suggesting that there is an urgent need for developing soil test-based, taluk-wise recommendations. This must be done to enhance economic returns for the farmers through increased nitrogen in the soil and improved water use efficiency with irrigated paddy, sugarcane, maize, wheat and vegetable crops also.

In conclusion, Bhoochetana during 2009-12 has successfully demonstrated the power of the science-led approach for unlocking the potential of rainfed as well as irrigated agriculture in Karnataka by increasing yields of different crops by 22-52% with improved management practices. This mission-mode project, Bhoochetana, has become a unique example of an up-scaling model and has attracted the attention of policy makers and development investors not only in the other states of India but also globally. The international press, for example The Guardian, BBC and Portfolio magazine has covered the success stories of Bhoochetana. The neighboring state of Karnataka, namely Andhra Pradesh, as well as the Government of Philippines has adopted Bhoochetana for increasing the productivity of agricultural crops.

Background

Rainfed areas across the world are notable for poverty, malnutrition and degradation of natural resources. With a burgeoning population, the importance of dryland agriculture to the Indian economy cannot be disputed. In India, out of 142 million ha of arable lands, 60% (85.2 million ha) is rainfed. Karnataka has the second largest area under rainfed agriculture after Rajasthan in the country. Crop yields in dryland areas are quite low (1-1.5 t ha^{-1}); lower by two to five folds of the yield as per researcher-managed plots. The comprehensive assessment of water for food and water for life revealed that the 'business as usual' approach in global agriculture will not be able to meet the goal of food security and poverty reduction (Molden 2007). It cautions that if the situation continues, it might lead to crises in many parts of the world. This particularly doubts the ability of irrigated agriculture to support the expanding food requirements of a global population, particularly those in the developing world. Food production can be increased substantially in rainfed areas through enhanced water use efficiency measures by adopting the watershed management approach. Current rainwater use efficiency in dryland agriculture varies between 35-45% and the vast potential of rainfed agriculture could be unlocked by using available scientific technologies including improved cultivars. The immense opportunities existing in dryland areas can be harnessed for improving rural livelihoods.

An innovative partnership between the Government of Karnataka and ICRISAT has been built on a strong foundation laid during the Sujala-ICRISAT Initiative in 2005, for enhancing the impact by translating strategic research into research for development and impact. It is a holistic and an end-to-end approach for scaling-up development. It is refined and scaled-up by the watershed consortium team by adopting a research for development and Inclusive Market Oriented Development (IMOD) approach. During 2005 through the Sujala-ICRISAT initiative, the consortium demonstrated the power of science-led development to benefit a large number of small farmers through productivity enhancement, increasing profitability and sustainability in the micro-watersheds. The yields of crops increased by 33-58 percent through the implementation of soil-test based balanced nutrient management, use of improved cultivars, seed treatment, soil and water conservation measures and the use of improved machinery, which translated strategic knowledge into farmer-friendly information resulting in large-scale adoption in the target districts (ICRISAT 2009). Based on this experience during 2009, the DoA, Government of Karnataka requested ICRISAT to

provide technical support through a mission-mode approach, which was christened *Bhoochetana*, for increasing productivity of crops in rainfed areas and for unlocking the potential of rainfed systems in the state. By adopting a holistic mission approach and through convergence of various schemes, capacity building of stakeholders, and collective action the potential of rainfed agriculture was unlocked in Karnataka.

Goal of the Mission-Mode Project

The goal of Bhoochetana is to make a difference in the lives of farmers in all 30 districts of Karnataka (Figure 1) through increasing average productivity of selected crops by 20% in four years.

Objectives

The overall goal of this mission project is to increase average productivity of selected crops in the 30 districts by 20% in four years. The specific objectives are as follows:

1. To identify and scale-up best-bet options (soil, crop and water management) including improved cultivars to enhance productivity of the selected crops by 20% in the selected 24 (later extended to 30) districts;
2. To train DoA staff in stratified soil sampling at villages, analysis of macro- and micronutrients, preparation of GIS-based soil maps; and to guide DoA to establish a high quality soil analytical laboratory at Bengaluru which can undertake stratified soil sampling and analyses, and share results in nine districts; and
3. To build capacity of the stakeholders (farmers and consortium partners) in the sustainable management of natural resources and enhance productivity in dryland areas.

Consortium Partners

The consortium is comprised of the Karnataka State Department of Agriculture, with its Commissioner and Director as the nodal officers for implementing the project; and other partners include:

- Watershed Development Department with its Commissioner as focal person to co-ordinate activities;
- Four Universities of Agricultural Sciences (Bengaluru, Raichur, Dharwad and Shimoga) in the state of Karnataka with their Vice-Chancellors as SCC members being supported with technical help from university scientists;
- Community-based Organizations (CBOs);
- Watershed Committees, user groups and watershed associations;
- International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), for facilitation of improved technologies to all stakeholders along with participating farmers.

The Bhoochetana project's annual Review and Planning meetings were conducted to build the team. Following the annual Review and Planning meeting, state level, district level and taluk level meetings were conducted to build the team at all levels, internalize the project strategy, plan activities for the next season, and share experiences among team members.

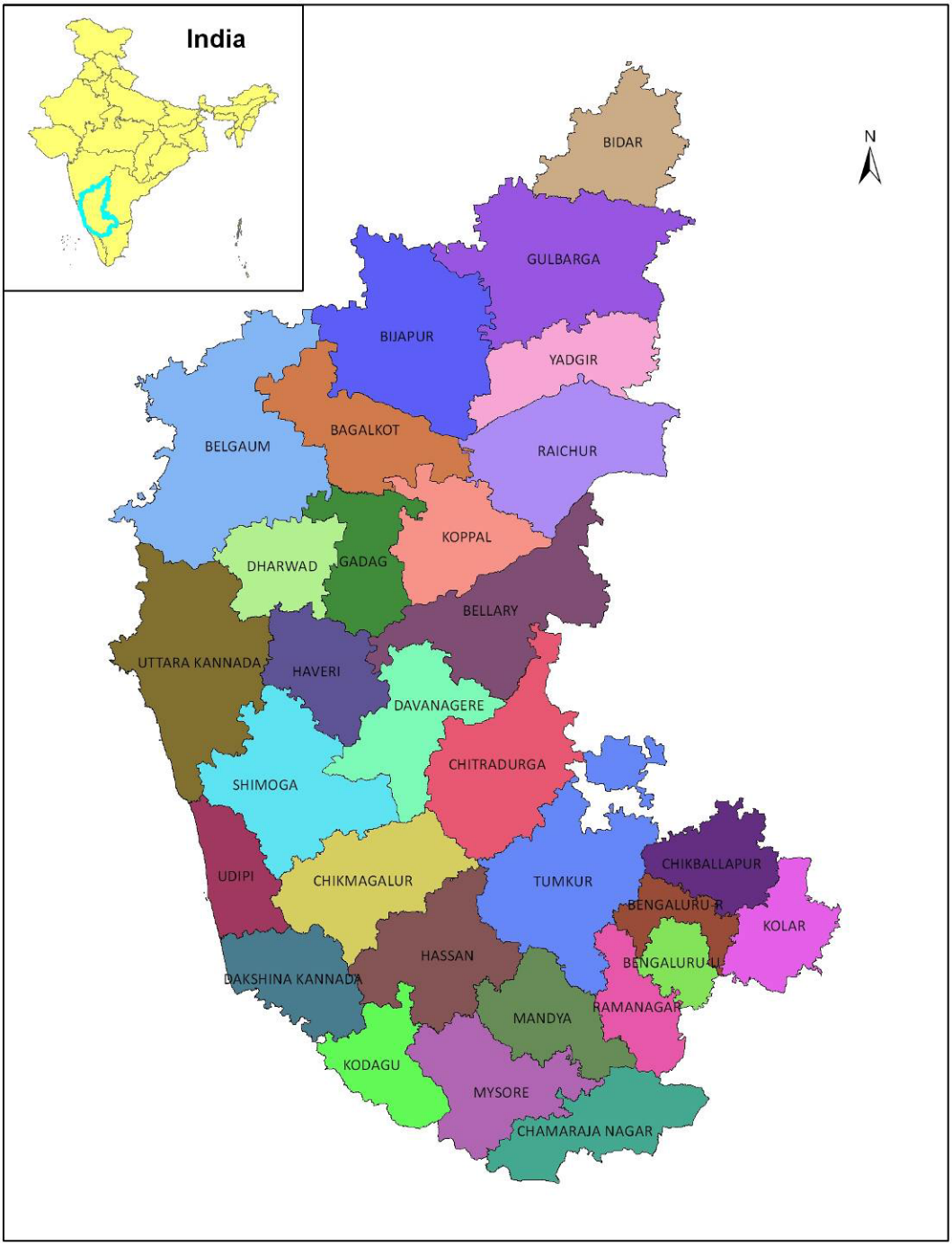

Figure 1. All 30 Districts included for productivity enhancement under the Bhoochetana program.

Project Planning and Monitoring Mechanism

The nodal officers took the responsibility to bring together all consortium partners for their inputs, constituted coordination committees at different levels and related activities for successful implementation of the mission project. The project has been implemented in a mission mode and coordination at different levels starting with a cluster of villages in each taluk, linking-up with taluk-level coordination committees (TCCs) and TCCs linking-up with district level coordination committees (DCCs), and eventually with the state level co-ordination committee (SCC). Roles and responsibilities of each consortium partner have

been defined clearly as given in the project document for implementation. The details of planning and monitoring the implementation process at different levels for Bhoochetana are presented in Figure 2 below. The proposed plans of action and responsibilities of different partners were clearly outlined in the project document as a guide for following timelines.

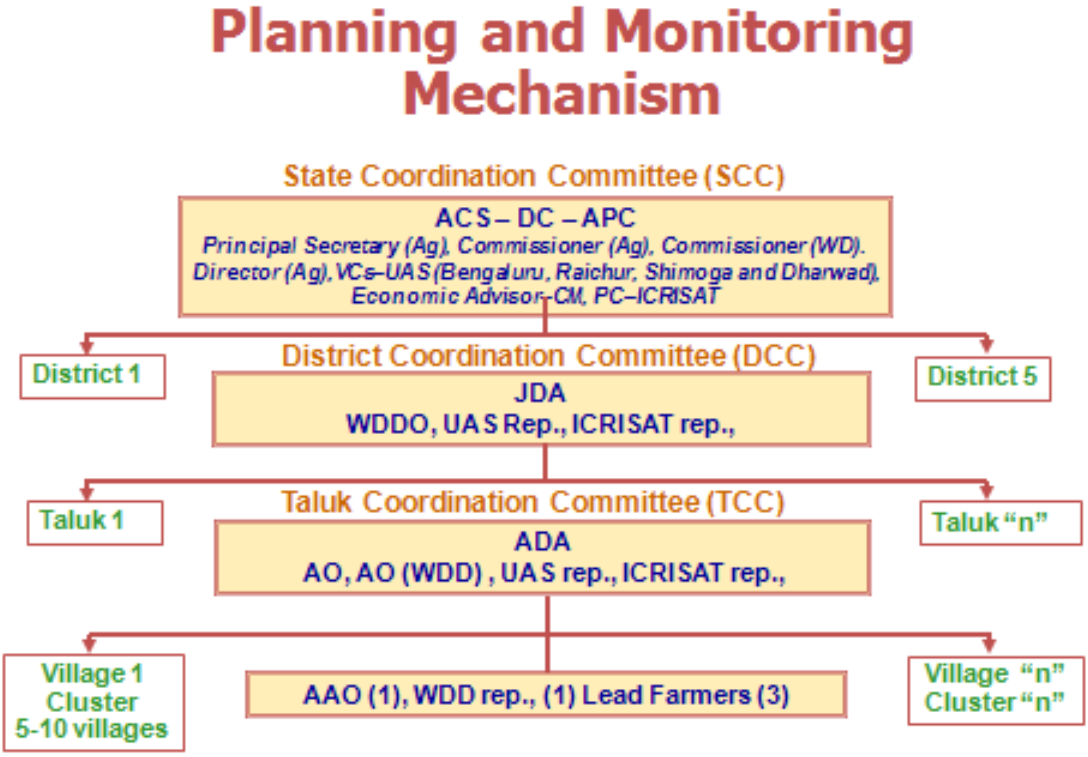

Figure 2. Planning and monitoring mechanism for implementing Bhoochetana mission-mode project by DoA, Karnataka, facilitated by ICRISAT.

The project was initially approved for 20 districts covering 4 million ha; later the cabinet committee expanded the reach additionally to four more districts making it to 24 districts, and later on extended it to the remaining six districts. Overall Bhoochetana encompassed all 30 districts of Karnataka by the third year of project implementation. During the fourth year irrigated crops viz., paddy and sugarcane were also included.

Project Strategy

Farmers' Participatory approach for enhancing crop productivity:

- The most important strategy for this initiative is to adopt the mission mode through convergence of different schemes of the Department of Agriculture, line departments of the Government of Karnataka along with academic institutions like University of Agricultural Sciences-Bengaluru, Dharwad and Raichur, along with the international institute working worldwide in the area of dryland agriculture (ICRISAT);
- The Government of Karnataka has constituted a State-level Coordination Committee (SCC) for the Bhoochetana program headed by the Additional Chief Secretary & Development Commissioner to review the performance of the program at regular intervals.

The salient points of the mission-mode approach are as follows:

- The Mission will adopt the principle of 4 Cs – Consortium, Convergence, Capacity-building and Collective action. The consortium will be made up of development

agencies, such as line departments of the state government and Field Facilitators (FFS) along with academic and research institutions who are generators of new technologies for improving the livelihoods of the rural poor in dryland areas;

- By adopting the principle of 4 Cs we will address the Mission goal through 4 Es – Efficiency, Economic gain, Equity and Environment protection, which are the important pillars of sustainable and inclusive development in the country;
- The approach of the Mission will be to ensure all backward linkages to meet the 4 Es through 4 Cs by ensuring timely supply, availability and access to necessary vital inputs such as knowledge-based soil nutrient management options, acquiring micro nutrients, availability of good quality seed and other best practices necessary including financial incentive, to undertake best-bet options for increasing agricultural productivity;
- The purpose is to undertake improved best-bet management practices on a large scale and share knowledge through the peer group. The body of knowledge held by the lead farmers in the districts where work has already been done in the last four years under the Sujala-ICRISAT initiative with the trained NGOs, is an added strength for undertaking such a Mission in a short time.
- The scientific approach of mapping soil nutrient deficiencies in the remaining 15 districts enabled scaling up the soil analysis-based integrated nutrient management practices for sustainable growth in the dryland areas of Karnataka. The DoA is being empowered to adopt a soil test-based approach for developing site specific fertilizer recommendations. This approach not only increases the productivity of the land but also reduces the cost of cultivation by advising the farmers not to apply those fertilizers, which are not required by their soils.
- Along with improved nutrient management the other best-bet practices, such as rainwater management, pest management options and organic matter building practices will support the long term sustainability and enhance productivity of this approach.
- The most critical constraint in dryland areas is the establishment of a good crop stand and availability of good quality seeds of high yielding, improved cultivars. The Mission is guiding the establishment of village seed banks for self-pollinated crops, such as groundnut and chickpea as well as cross pollinated crops such as sorghum, pigeonpea etc., by training the farmers and establishing seed villages and village seed banks to ensure timely supply of seeds at reasonable prices for the farmers.
- Time lines are defined clearly for covering productivity enhancements in 30 districts, soil sampling and nutrient analysis mapping and capacity building of stakeholders during the project period as shown in Table 1 (timelines).

Table 1. Timeline for execution of activities in Bhoochetana districts

Activity	Year	% activity coverage in districts		
		1-6	7-15	16-30
Productivity enhancement	2009	25		
	2010	50	33	
	2011	75	66	50
	2012	100	100	100
Nutrient status mapping	2009	100		
	2010		100	
	2011			100
	2012			
Capacity-building	2009	100		
	2010		100	
	2011			100

Women are the important stakeholders for various activities such as developing village seed banks and vermicomposting, and they are deeply involved in this Mission to ensure sustainability.

- In addition to the strength of convergence through consortium, the Mission has planning and monitoring mechanism at cluster, taluk, district and state levels. The SC includes the decision makers from the different consortium partners including line departments in order to take necessary and timely action through suitable government orders to all the concerned Mission staff.
- The Mission has a simple principle of accountability and delegation of authority at different levels without diluting individual accountability while meeting Mission goals collectively.

The Mission adopts, in addition to the above, a rewarding mechanism for the best performers i.e., the farmers at cluster, taluk, district and state level with appropriate personal recognition. Similarly, the Mission staffs who exhibit outstanding performance are also recognized by the state government.

Appropriate Rainfed Agricultural Technologies

Farmers evaluated some of the improved watershed technologies during 2005-2008 crop seasons in ICRISAT facilitated science-led Sujala-ICRISAT project which covered an area of 3500 hectares in 46 micro-watersheds of six districts of Karnataka. Some of the technological options were found to be appropriate for enhancing productivity and income to farmers and rural poor. The technologies listed below have been popularized and recommended during the crop season 2009 to 2012 in Bhoochetana project districts.

In-situ Soil and Water Conservation Techniques

1. **Conservation furrow system**
   Contour furrows are simple and efficient for conserving moisture. These are laid with the help of country ploughs on a gradient of 0.2 to 0.4% at the time of sowing.

2. **Cultivation across slope**
   Cultivation across the slope, or contour cultivation, is the most common practice for conserving soil moisture. In this method, all field activities including ploughing, planting, and intercultivation are done across the slope.

3. **Broad bed and furrow (BBF)**
   For *in-situ* soil and water conservation, broad-bed (1 m) and furrow (0.5 m) system (BBF) has been found to be satisfactory on deep black soils. The BBF system is laid out on a slope range of 0.4–0.8% with an optimum of 0.6% slope. The BBF system (Figure 3) facilitates draining of excess rainwater as runoff and furrows act as traffic zones for plough bullocks. On Alfisols, raised beds are well-suited for groundnut cultivation as beds facilitate good aeration, store more moisture for the roots resulting in good crop growth. Deep tillage, shallow cultivation and application of organic residues are some of the other promising *in-situ* moisture conservation practices.

4. **Tropicultor**
   The ICRISAT-designed multipurpose wheeled tool carriers known as 'tropicultors', had been supplied to farmers during Sujala-ICRISAT watersheds initiative. So they were

familiar to the farmers in Chitradurga, Kolar and other districts. Tropicultor usage saves not only hours of work in land preparation but it is also good for properly turning the soil as desired (Figure 3). Its use during sowing is effective as it has a metered mechanism for uniform application of fertilizer and for sowing of seed at uniform depth and uniform distance.

During sowing operation, labor saving is critical as sowing opportunity in rainfed areas occur intensely for a short period and this equipment is quite useful to complete sowing of large holdings in a short period, as it has a hitching arrangement to hook it to a tractor for speedier operations (Figure 3).

Figure 3. Applying fertilizer and seed at a time with tractor mounted with a Tropicultor in Kottur watershed, Dharwad

Integrated Nutrient Management Techniques

1. **Balanced nutrient application**
   Balanced use of plant nutrients involves correcting nutrient deficiency, restoring soil fertility of degraded lands (due to over exploitation), increases nutrient and water use efficiency, enhances crop yields and farmers' income, and improves crop and environmental quality. Hence we used soil analyses results and seasonal rainfall as the basis to recommend fertilizer doses. Availability of organic manures, crop residues, and biofertilizers, was also considered in order to provide taluk-wise recommendations for different crops in all districts.

2. **Biofertilizers**
   Biofertilizers are very important, low-cost, eco-friendly organic agro-inputs, supplementary to chemical fertilizers. *Rhizobium, Azospirillum*, Azotobacter add nitrogen to the soil, and phosphate-solubilizing bacteria make citrate soluble phosphorous available to crops and also secretes certain growth promoting substances. Biofertilizers are considered a harmless and eco-friendly low cost agro-input, supplementary to chemical fertilizers. It improves soil structure (porosity) and water-holding capacity. It also increases soil fertility, fertilizer use efficiency (FUE) and ultimately helps by increasing yield by 15-20%.

Due to a higher concentration of calcium in alkaline soils, large quantities of applied phosphatic fertilizers get fixed as citrate soluble tri-calcium phosphate and become unavailable to the crops. ***Phosphate solubilizing bacteria*** (PSB) are useful for all crops i.e., cereals, cash crops, leguminous crops and vegetables, by secreting certain organic acids to make citrate soluble tri-calcium phosphate available to the crop in alkaline soils. The effective strains of PSB used increase the level of available P_2O_5 in the soil. About 10 to 15% increase of crop yield can be achieved with the use of this culture.

Seed Treatment with 250 g 10 kg^{-1} of seed is advised. However, as suggested, PSB and *Trichoderma viride* were applied to soil in Bhoochetana project as seed treatment along with *Rhizobium* and fungicides for groundnut and soybean.

3. **Biocontrol agents**
   Trichoderma viride is a fungus used for seed and soil treatment for suppression of various diseases caused by fungal pathogens through seed and soil. The procedure to treat seed is to mix *Tricoderma viride* with cooled rice gruel or Jaggery solution and thoroughly mix this solution with seeds required for an acre to have a uniform coating over the seeds. Dry these seeds for 30 minutes in shade and sow the treated seeds within 24 hours.

Integrated Pest Management

Farmers across all districts were trained on adopting cultural (Figure 4) and biological methods of pest control, insect monitoring using pheromone traps, chemical control of insects on crossing threshold levels and growing tolerant cultivars.

Figure 4. Shaking pigeonpea plants to drop Helicoverpa larvae from the plants

Figure 5. Soaked chickpea seed infected with NP virus as feed to Heliothis larvae.

Training modules on controlling the damage caused by major insect pests such as *Helicoverpa sps* in pigeonpea and an epidemic-causing red hairy caterpillar in groundnut; and several approaches including spraying of Nuclear Polyhedrosis Virus (NPV) early stage larvae and its preparation in house (Figure 5) were also included for the benefit of farmers' groups. Cost-effective eco-friendly biological control methods like shaking pigeonpea plants at flowering and pod formation was suggested, if *Heliothis* sps. infestation is severe in these stages. Field advisories were organized during crop season with the assistance of UAS, Bengaluru and Dharwad staff coordinating with DoA officials in the districts.

Income-generating Rural Livelihoods

1. **Custom hiring centers for agricultural machinery**
   Tropicultors, either animal drawn or tractor drawn; and animal drawn Penugonda ferti-cum-seed drill (Figure 6) were placed in the control of each ADA to provide it to needy farmers on hire basis. This approach helped farmers who cannot afford to buy them in the season, but use them based on their operational efficiency and to reduce dependence on labor for timely operations, such as sowing-cum-fertilizer application.

Figure 6. Tropicultor and Penugonda kurgi available for farmers at custom-hiring centers.

2. ***Glyricidia* planting on field bunds**
   - Farmers were encouraged to plant 3-4 month-old plants acquired from nursery or cuttings taken of tender branches of *Glyricidia,* at a spacing of 50 cm apart on field bunds.
   - *The Glyricidia* plant produces green leaves and succulent green branches abundantly (Figure 7) which are rich in Nitrogen.
   - Green leaf and loppings can be harvested, leaving one-year-old 1 m tall plants in place, and apply that to the topsoil for enriching organic carbon and nutrients in the soil.
   - *Glyricidia* on bunds can be harvested thrice in a year and applied before sowing of rainy season crop, *Rabi* season crop, and summer season crop.

Figure 7. Glyricidia planting on field bunds as green manure and for reducing soil erosion

3. Vermicomposting

A method known as vermicomposting that converts farm residues and organic waste in villages with the help of earthworms into valuable manure was introduced to farmers and rural women as a technology through the Sujala-ICRISAT project. Several compost pits were constructed in the watershed villages during the project period. Technology components mainly include selection and use of non-burrowing type of earthworms (*Eisenia sp.*, *Eudrilus sp.*), and the use of materials like weeds, crop residues and sericulture residues, animal and poultry manure, and rock phosphate.

During trainings, farmers and field facilitators were briefed about the benefits of vermicomposting for enriching soil organic carbon and raising productivity, good storage quality of produce without toxic residues, and thereby fetching a higher price for organic produce in the markets. Training on scientific methods of vermicompost preparation were provided to rural women SHG members (Figure 8), and field facilitators during training programs under Bhoochetana project as a rural livelihood option.

Figure 8. Adoption of vermicompost preparation methods by rural women in Bhoochetana project.

4. Azolla Fern

Farmers grow azolla fern in small ponds to use as soil fertilizer as well as to enrich the feed for their livestock. Given the current drought in the state that has affected their livestock and deprived them of extra income for the family, farmers are enthusiastic to adopt this method as this has improved milk yield as well as fat content in the milk (Figure 9).

Figure 9. Farmers growing duckweed (azolla fern) in ponds as natural fertilizer and animal feed

Farmers' Preferred Varieties

High-yielding short-duration varieties of major rainfed crops were evaluated by a large number of farmers in six districts through Sujala-ICRISAT project during crop seasons from 2005 to 2008. Farmers preferred some of these suitable crop varieties based on its economic yield, satisfactory quality of grain or pod and fodder.

1. **Ragi (finger millet)**
   Ragi is a staple food crop and is widely grown in Kolar, Chickballapur, Tumkur and Chitradurga districts. Based on some preferred traits, improved varieties of ragi released for Karnataka – GPU 28, HR 911, L 5 and MR 1 – were evaluated by farmers during 2005-2008 crop seasons under Sujala-ICRISAT initiative. In these evaluations farmers preferred L 5 and MR 1 varieties based on yields and these were subsequently recommended to farmers in Bhoochetana project.

2. **Groundnut**
   Short-duration cultivars of groundnut – ICGV 91114, Kadiri 1375, Kadiri 6 and GPBD 4 – were evaluated by a large number of farmers in their fields for three seasons in these six districts under Sujala-ICRISAT initiative during 2005-2008 crops seasons. Farmers expressed interest to adopt ICGV 91114 in Kolar, Chickballapur, Tumkur and Chitradurga while farmers in Haveri and Dharwad expressed interest to adopt GPBD 4 for their cropping season.
3. **Soybean**
   Soybean cultivars JS 335 and JS 9305 were evaluated by a large number of farmers in Dharwad and Haveri during 2005-2008 crop seasons under the Sujala-ICRISAT initiative. JS 9305 showed good growth and was found to give higher yields despite drought. The variety has been introduced in Haveri and Dharwad as preferred by farmers in these districts.

4. Maize and Sunflower

Some commercially released high-yielding private hybrids and varieties were accepted by farmers.

In addition to the above crop varieties, ICRISAT has tested different crop varieties for their performance on farmers' fields during rainy season 2012.

1. PNB-long and N87 medium pod cluster bean varieties were given to farmers of 24 districts of Karnataka during rainy season 2012-13. Results were received for PNB long pod variety from 9 districts but due to drought farmers harvested green pods and sold them. The average yield was 2509 kg ha^{-1} (463-4750 kg ha^{-1}). Results were received for N87 medium pod variety from 7 districts and the average yield achieved was 2878 kg ha^{-1} (513-5063 kg ha^{-1}).

Figure 10. Cluster bean PNB and N87 grown in farmers' fields of Bengaluru-R and in Ramnagar district which has given good crop yield during rainy season 2012-13.

2. Pigeonpea Hybrid ICPH 2671 Pushkal was supplied to 19 districts and results were received from 7 districts. The average yield of pigeonpea ICPH 2671 was 819 kg ha^{-1} (120-1100 kg ha^{-1}).

Figure 11. Pigeonpea Hybrid ICPH 2671 (Pushkal) at villages in Ramnagar and Mandya districts during rainy season 2012-13

3. Castor Hybrid DCH 177 was supplied to 19 districts and results were received from 7 districts. The average yield of Castor Hybrid DCH 177 was 807 kg ha^{-1} (196-2450 kg ha^{-1}). Farmers are very happy as they got good yield from growing it as an intercrop with pigeonpea and groundnut.

Figure 12. Castor Hybrid CSH 177 in Bengaluru Rural district during rainy season 2012-13.

4. Maize fodder variety Pusa -3 was supplied to 10 districts and results were received from 5 districts, but the other 5 districts did not get any results due to drought. The average yield of maize fodder grain yield was 3263 kg ha^{-1} (2013-4750 kg ha^{-1}) and fodder yield was 7563 kg ha^{-1}. This is very good for fodder and farmers are very happy with its performance.

5. Pearl millet hybrid HHB67 was supplied to 9 districts and results were received from 6 districts. The average yield of pearl millet hybrid HHB67 was 1709 kg ha^{-1} (750-2950 kg ha^{-1}). Farmers are very happy and interested in growing it as it is high yielding, and a good crop stand was seen in Gulbarga and Raichur district.

Figure 13. Finger millet crop MR-1 variety in the villages of Mandya and Ramnagar districts during rainy season 2012-13.

6. Groundnut ICGV 91114 was supplied to 6 districts and results were received from 3 districts, and 3 districts did not get any results due to drought. The average yield of groundnut ICGV 91114 was 608 kg ha^{-1} (450-750 kg ha^{-1}). Farmers are happy and the seeds were multiplied and grown in Rabi season.

7. Groundnut ICGV 00350 was supplied to 6 districts and results were received from 3 districts, and 3 districts did not get any results due to drought. The average yield of groundnut ICGV9114 was 708 kg ha^{-1} (435-1000 kg ha^{-1}).

8. Finger millet MR-1 was supplied to 9 districts and results were received from 2 districts, but 7 districts did not get any results due to drought. The average yield of finger millet MR-1 was 2250 kg ha^{-1} (2250 kg ha^{-1}). The farmers are happy with the performance as it is a dual type variety, good for both fodder and grain.

9. Pigeonpea ICPL 85063 (Lakshmi) was supplied to 13 districts and results were received from 7 districts, and 6 districts did not get any results due to drought. The average yield of pigeonpea ICPL 85063 (Lakshmi) was 655 kg ha^{-1} (125-1575 kg ha^{-1}).

Project Activities

Review and Planning Meeting 2012-13

A Review and Planning Meeting of the Bhoochetana project was held at ICRISAT from 28 February to 2 March to review the progress made during the last four years and also to draw up a detailed plan for the GoK-CGIAR initiative and Bhoochetana Mission Program (Bhoochetana II). The workshop reviewed key drivers of success and identified critical areas for building on earlier successes during Bhoochetana II which included targeting livelihood improvement and strategies to address climate-related risks.

The meeting was attended by dignitaries such as M/S. SV Ranganath, IAS, Chief Secretary; Kaushik Mukherji, IAS, Additional Chief Secretary & Development Commissioner; Dr. KV Raju, Economic Advisor to Hon. Chief Minister of Karnataka; M/S. Shankarlinge Gowda, Principal Secretary (Ag & Hort); GV Krishna Rau, Principal Secretary (Cooperation); V Chandrasekhar, Commissioner (Agriculture); Dr. KV Sarvesh, Director (Agriculture); Dr. SA Patil, Chairman, Karnataka Krishi Mission; district CEOs, JDAs and ADAs of all the districts; Farm Facilitators; representatives of SAUs, CGIAR centers, Private Corporates; and ICRISAT team members.

Dr Suhas P Wani presented in a nutshell the journey during the last four years of Bhoochetana implementation. He identified the drivers of success, key areas which need to be build further, such as strengthening of Farm Facilitators which is a novel mechanism to reach millions of farmers, inputs delivery system, data recording, effective convergence and establishing climate change researchers network in the state, inclusive livelihood approach and value addition for linking farmers to the market. He also spoke of the progress of baseline characterization of the selected four benchmark sites (Bijapur, Raichur, Tumkur, and Chikmagluru) and described the plan of works to be undertaken by different CGIAR partner institutions.

Mr Kaushik Mukherji appreciated the benefits of Bhoochetana and stressed the need to strengthen the extension system for sustaining Bhoochetana possibly through public private partnerships and address the challenges during Bhoochetana II. Dr William D Dar congratulated both the DoA team and the team led by Dr. Wani for their rigorous team work, which led to the impressive achievements of Bhoochetana. Dr. Sarvesh stressed the importance of collective action in Bhoochetana I for operationalizing the holistic solution at farm level and in facing the challenge of improving timely supply of quality inputs to cover all 7.4 m ha in the state. Mr Chandrashekhar highlighted the importance of holistic

approach, and Dr SA Patil highlighted the need to ensure regular/sustainable income for the farmers. Mr Shankarlinge Gowda identified the missing link – of farmers to the market – and suggested that due attention must be paid to address the missing link for sustainability.

Figure 14. Dr. William D Dar addressing participants of the workshop

Mr SV Ranganath, Chief Secretary, lauded the success of Bhoochetana which enabled Karnataka to achieve 5-6% annual growth rate in agriculture during the last four years as compared to the earlier stagnant growth rate of 2%, and put on record his appreciation for ICRISAT and the DoA team. He stressed the need to address the missing links in the system, such as livestock, horticulture, agro-forestry and market linkages. He also identified the persistence and the persuasive tactics of the team in ensuring inclusiveness of small farmers in agricultural development, which are seen as the drivers of Bhoochetana success. He also ensured full support and help of the GoK for Bhoochetana II and GoK CGIAR initiative. He also recommended that the GoK-CGIAR initiative be named **Bhoochetana Plus.** He highlighted a need to strengthen the involvement of private players in extension system and also address the issue of reducing the gap between rural and urban incomes for reducing migration.

In the Technical session, co-chaired by Dr KV Raju and Mr Kaushik Mukherjee, detailed presentation on baseline characterization, including GIS layer maps of four benchmark sites for Bhoochetana Plus was presented by Dr Suhas P Wani along with different activities to be undertaken. Good discussion took place on the ex-ante economic benefit analysis and it was suggested that benefits from Bhoochetana Plus could be far more than projected, however, it was indicated that conservative calculations are made with adoption ceilings and ground realities. Dr KV Raju appreciated the progress made by the partner institutions and suggested specific interventions be identified through measurable monitoring indicators with timeline. The role of SAUs was clarified and it was made clear that the SAUs are involved in all the programs at various levels and their participation was appreciated in taking a science-led approach to farmers' doorsteps.

In the parallel sessions groups deliberated on Convergence, Inputs, Capacity building, Interventions and demonstrations, and public private partnerships (PPP) for extension. The PPP session was for the private corporate representatives and the group discussion was steered by Kaushik Mukherjee and KV Raju with support from Suhas Wani. During the sessions presentations were made by the corporate sector and what is expected by the GoK was highlighted. It was stressed that extension be bundled with inputs supply, machine hiring is expected, and payments need to be based on performance and partial recovery of charges as per the GoK guidelines. Suggestions were sought from the private corporates on what they can provide, what they expect from the government, and how it can be made an exemplary system in the country.

Brainstorming Workshop on Soil Test-based Nutrients including Boron and other Micronutrients

In order to facilitate availability of recommended micro-nutrients along with macro-nutrients to the millions of farmers in Karnataka on the specific soil test-based recommendations, a 1-day brainstorming workshop was held at Bengaluru on 22 September 2012 with major fertilizer producers, development workers, policy makers and researchers to discuss the ways and means to develop new formulations and make it available to farmers. Sixty participants of the workshop were welcomed by Dr KV Sarvesh, Director, Department of Agriculture, and the workshop was inaugurated by Dr Kaushik Mukherjee, Additional Chief Secretary & Development Commissioner who stressed the need to meet the inherent deficiencies in soils in the most effective manner so as to ensure sustainable agriculture in the region. He also emphasized the need for enabling farmers with appropriate formulations to address deficiencies in their soils and called upon the industry to come up with right formulations to help farmers. Dr KV Raju, Economic Advisor to the Honorable Chief Minister of Karnataka stressed the need to develop the right type of formulations in a time bound manner for pilot testing in the selected states and charged the participants to work out the modalities with action plans through discussions during the day. Dr. Sarvesh spoke of the widespread deficiencies and the existing mechanisms for making fertilizers available and the bottlenecks in the current system for making it available at the village level. He sought the co-operation of the fertilizer manufacturers and dealers network to help Bhoochetana to expand the coverage of balanced fertilizer management options based on the soil test analysis which has been undertaken by ICRISAT.

Figure 15. Dr. Suhas P Wani addressing the participants of the workshop at Bengaluru

Dr SP Wani presented the challenges in terms of assessing soil health, demonstrating the benefits of providing balanced nutrient management based on the soil test analysis to a large number of farmers, and development of new formulations and technologies to ensure availability of knowledge and material to the farmers. A number of presentations were made by the experts in three technical sessions addressing the diagnosis and assessment of soil fertility status, new formulations and PPP supply chains and decentralized recommendations. The workshop was jointly organized by ICRISAT, the Department of Agriculture-GoK, and Rio Tinto.

Kharif season planning workshop in Bengaluru

A workshop for kharif season planning was organized for the team members of Bhoochetana project on 20-21 April 2012 at Bengaluru (Figure 16) with an objective of establishing good coordination among team members from the districts and to discuss the technologies implementation strategies during the kharif season. The participants in the workshop included JDAs, ADAs, nodal officers of different districts from DoA, scientists from Universities of Agricultural Sciences in Bengaluru, Dharwad and Raichur, and scientists and scientific officers from ICRISAT.

District level trainings were organized in the months of April and May in all the districts following the team building workshop at Bengaluru, which was completed before the season started in all the 30 districts with the participation of JDAs, ADAs, scientists from Universities and KVKs, and scientists and scientific officers from ICRISAT. District level trainings were attended by Agricultural Officers, Assistant Agricultural Officers, Agricultural Assistants, Field Facilitators and Lead Farmers. Topics included in the training program were: participatory soil sampling, soil nutrient status in their respective taluks of each district, nutrients recommendations based on soil nutrient deficiencies for major crops, suitable high-yielding varieties and integrated disease and pest management for different crops, livelihood options for rural landless poor, and best-bet management options for enhancing the productivity of agricultural crops. Forty-four trainings were organized at district level in all 30 districts and about 5751 field staffs were trained through these (Table 2). In five districts, more than two trainings were arranged to capacitate all the staff with required training.

Figure 16. Dr K.V. Sarvesh, Director, DoA, Karnataka addressing Bhoochetana team at kharif season workshop in Bengaluru.

Training of Trainers (ToTs) – Several ToTs were conducted in Bengaluru, Dharwad and Raichur with the respective scientists from the Universities of Agriculture leading the training programs along with participation of scientists and scientific officers to provide information on Bhoochetana technologies and operational strategies for program implementation.

Taluk level trainings were arranged for Agricultural Assistants, newly appointed Field Facilitators and lead farmers in each taluk during May and June in all the districts. These trainings were arranged with the objective of hands-on training and demonstration of technologies, such as seed treatment, soil sampling, use of Tropicultor, crop harvest sampling, and village level record-keeping by field facilitators. In all the 30 districts, 271 taluk-level trainings were conducted and a total of 14,467 men and women were trained on Bhoochetana technologies (Table 2). In as many as 9 districts, more than 10 taluk level trainings were organized for each district (Figure 17).

Figure 17. Taluk-level Field Facilitators training at Gonikoppalu in Kodagu district

Cluster/Village level trainings were organized by AOs of DoA and research technicians of ICRISAT who were sometimes assisted by resource persons, either scientists or scientific officers from ICRISAT (Figure 18). These were even informal gatherings of a group of farmers in a village to discuss the issues of input distribution or specific soil/crop related issues in their villages.

Figure 18. Village level trainings with farmers in Haveri district

These cluster/village meetings were conducted in large numbers covering more than 4.6 lakh farm men and women (Table 2) before the start of the season and during crop season in 30 districts which were generally very effective in communicating technologies.

Table 2. Trainings conducted in all districts under Bhoochetana program during (Kharif & Rabi) 2012-13

District	Taluks	District-level		Taluk/village-level			
		No. of Trainings		No. of trainings			
		District level	Partici-pants	Taluk level	Partic-pants	Village level	Partici-pants
Bagalkote	Badami, Bagalkot, Bilagi, Hungund, Jamakhandi, Mudhol	1	100	12	960	172	8600
Bellary	Bellary, Kudligi, Sandur, Hospet, Siryguppa, H.B.halli, Hadagali	2	225	14	712	595	11970
Bengaluru Rural	Devanahalli, Nelamangala Doddaballapura, Hoskore	1	50	8	294	114	4230
Bengaluru Urban	Anekal, Bengaluru (S), Bengaluru(N), Bengaluru(E)	1	65	4	218	37	1258
Belgaum	Athani, Bailhongal, Raibag, Chikodi, Belgaum, Gokak, Hukkeri, Ramdurg, Khanapur, Soundatti	2	651	19	775	581	29245
Bidar	Bidar, Bhalki, Aurad, Humnabad, Basavakalyan.	2	370	10	609	338	16238
Bijapur	B. Bagewadi, Bijapur, Indi, Muddebihal, Sindagi	2	800	14	852	240	12,150
Chamaraja nagara	Chamarajanagara, Kollegal, Gundalpet, Yelandur	1	75	04	325	46	2200
Chikkaballa-pur	Chickballapur, Bagepalli, Shidlagatta, Chintamani, Gouribidanur, Gudibandae	1	324	12	1404	219	14121
Chikkaman-galuru	Chikkamangaluru, Kadur, Tarekere	1	95	7	598	100	3950
Chitradurga	Challakere, Chitradurga, Hiriyuru, Holalkere, Hosadurga, Molakalmuru	2	213	12	720	1332	53280
Davangere	Davanagere, Harapanahalli Harihar, Honnali, Jagaluru Channagiri	1	150	12	363	998	210150
Dharwad	Dharwad, Hubli, Kalghatgi, Kundgol, Navalgund	*2*	*540*	*7*	*845*	*177*	*4449*
Dakshina Kannada	Mangalore, Bantwal, Belthangady, Puttur, Sulia	01	70	05	245	63	2690
Gadag	Gadag, Ron, Mundargi, Shirahatti, Naragunda	1	NA	5	NA	33	NA
Gulburga	Aland, chincholi, Gulburga, Sedam,	3	137	15	7	86	6
Hassan	Alur, Arklgud, Arsikere, Belur, Chanrayapatna, Hassan, Holenarsipura	1	105	8	734	350	22920

District	Taluks	District-level		Taluk/village-level			
		No. of Trainings		No. of trainings			
		District level	Partici-pants	Taluk level	Partici-pants	Village level	Partici-pants
Haveri	Haveri, Hangal, Savanur, Hirekerur, Ranebennur, Byadagi, Shiggaon	2	200	13	900	158	4526
Kolar	Kolar, Mulbagal, Malur, Srinivaspura, Bangarpet,	1	60	8	5	187	32
Kodugu	Somwarpet, Madikeri, Virajpet	1	25	3	130	16	305
Koppal	Gangaavathi, Koppala. Kustagi, Yalburga	2	NA	4	NA	146	NA
Mandya	Mandya, Malavalli, Maddur, Pandavapura, Srirangapatna, K R Pet, Nagamangala	1	48	7	305	244	12852
Mysore	H D Kote, Piriyapattana Hunasuru, Mysore, K R Nagara, T Narasipura, Nanjanagudu	1	123	7	564	262	14068
Raichur	Manvi, Lingasugur, Raichur, Sindhanur, Devadurga	2	440	6	535	175	2259
Ramnagara	Ramanagera, Magidi, Chanapatatna, Kankapura	1	88	4	310	206	10300
Shimago	Bhadravathi, Hosanagar, Sagara, Shikarpur, Shimago, Soroba	1	72	7	362	229	5890
Tumkur	Tumkur, Tiptur, Turuvekere, Cnhalli, Gubbi, Kunigal, Sira, Koratagere, Madugiri, pavgada	3	195	16	752	445	10367
Udipi	Udupi, Kundapura, Karkala	2	143	6	301	69	2658
Uttara Kannada	Karwar, Ankola, Bhaktal, Kumta, Honnavar, Sirsi	2	172	11	822	77	3982
Yadgiri	Shahapur, Shorapur, and Yadgiri	2	215	11	NA	1105	NA
	Total	**46**	**5751**	**271**	**14647**	**8800**	**464696**

Farmer-to-Farmer videography through Digital Green

As part of the use of new technologies in extension system, an effort was made to introduce farmer-to-farmer videography technology to transfer this knowledge. This system was developed and tested by Digitial Green and has taken up the initiative in association with Government of Karnataka and ICRISAT under the Bhoochetana mission project in two districts i.e., Hassan and Dharwad. On 23 September 2012, the new extension system was inaugurated in Hassan. Ms Alina Paul, Dr SP Wani, Digital Green representatives (Mr Rikin Gandhi Nadegowda) Dr Krishnappa, Dr Shivaraj (JDA), farmers, ICRISAT and GoK officials participated in the program (Figure 19).

Figure 19. Dr. Suhas P Wani addressing the participants during the inaugural session of Digital Green initiative at Halasinahhali village, Hassan district.

In continuation of this initiative, a Digital Green Orientation program was held at DTC Arkalgudu, Hassan district on 5 January 2013 (Figure 20). The program was organized for FFs, Agricultural Officer and computer staffs (28 members) of three talukas (Hassan, Holenarshipura and Sakaleshpur) for orientation on new extension methodology of videography (Digital Technology) to transfer knowledge to farmers. A training-cum-orientation program was organized with the support of Mr Kempegouda, Deputy Director of Agriculture and in-charge of DTC Arkalgudu, Dr Nadagouda, Deputy Regional Manager of Digital Green (DG), Ms. Rashmi, Program Coordinator-Digital Green, Dr Shivaraj, Joint Director of Agriculture-Hassan, and Mr Jangawad LS,Lead Scientific Officer-ICRISAT.

Figure 20. Digital Green Orientation program at Arakalagudu, Hassan

The program started with an initial note on training and then went on to a new method of extension, objectives, stockholders and target group coverage. Mr Jangawad from ICRISAT addressed the group and informed all on how ICRISAT is helping farmers to get the new knowledge with Digital Green support in a faster manner. He also told how ICRISAT is working in improving farmers' livelihood with a consortium approach by involving different types of expertise to help farmers. The FFs were informed that they are key to transfer of improved technology and information to farmers in perfect manner. They were also given knowledge of ICRISAT work done for dryland agriculture, improved varieties,

and Bhoochetana involvement in Karnataka for betterment of farmers. Dr Nadagouda gave details of the new extension technology through digital system. He had a discussion with participants on sharing existing agricultural extension systems, advantages and disadvantages, and illustrated it with various examples. He also gave a presentation on the advantages of traditional models and their experiences and achievements in Karnataka and other parts of India. The program mainly covered the roles and responsibility of key stakeholders under this project. Monitoring mechanism at various levels and action plan for the next 3 months for fixing training dates was also discussed during the meeting. Dr Shivaraj, JDA-Hassan, addressed the group highlighting the importance of new extension technology for faster transfer of technology. He told the group to take this opportunity to learn and actively participate and FFs of each village were told that their participation is very important to get full knowledge for helping farmers of their respective villages. He also told FFs that they will be suitably rewarded for the services they will render in future.

Bhoochetana presented at the CGIAR Fund Council Meeting on "Partnering for Impact"

Reforms in the CGIAR have spawned new ways of thinking about agricultural research for development, innovative ways of doing science and broader partnerships to reduce rural poverty, improve food security, enhance nutrition and health, and sustainably manage natural resources. A step in this direction is the Government of Karnataka (GoK)-CGIAR's Bhoochetana initiative for improving rural livelihoods through innovative scaling-up of science-led participatory research for development. The Bhoochetana initiative's synergistic and participatory approach was showcased during a session of the CGIAR Fund Council "Partnering for Impact" donors meeting in New Delhi on 26 April (Figure 21). One of four program initiatives selected for presentation to the Fund Council, it drew appreciation for its innovation and scaling-up of benefits of strategic research for development. Presenting the initiative was a panel consisting of Dr SP Wani, Assistant Research Program Director - Resilient Dryland Systems and Principal Scientist (Watersheds), ICRISAT; Dr KV Raju, Economic Advisor to the Chief Minister of Karnataka, and Mr GVK Rau, Principal Secretary, Cooperation, Government of Karnataka. Elaborating on the novelty of the initiative, Dr Wani highlighted its Inclusive Market-Oriented Development (IMOD) approach and how impacts could be achieved by: (1) adopting a consortium mode for building partnerships; (2) convergence of schemes for a holistic approach; (3) capacity building to empower stakeholders; and (4) collective action for sustainability. Dr Wani added that the initiative had reached more than three million smallholder and marginal farmers in Karnataka, contributing substantially to enhancing the State's agricultural growth rate with an estimated gross value of products for the 2011 season amounting to US$ 130 million. While Dr GVK Rau explained the institutional arrangements in place for the convergence of different government schemes, the innovative monitoring and evaluation arrangements and line department activities, Dr KV Raju highlighted GoK's strategy to take the initiative forward. Dr Raju made a case for strengthening the GoK-CGIAR partnership through a coordination committee, independent monitoring and impact assessment and by providing matching grants from the Consortium. Commenting on the presentation, Dr Frank Rijsberman, CEO, CGIAR Consortium said, "Bhoochetana is a very good success story and one needs to listen carefully to understand its nuances as it has contributed to system level outcomes." "This is one of the best examples to convince that more investments in strategic research benefit development," said Dr Juergen Voegle, World Bank, Fund Council. "The

impact and cost benefit ratios are very good and the way the case has been presented logically is very convincing," he added.

Under the GoK-CGIAR initiative led by ICRISAT, seven members of the CGIAR Consortium (ICRISAT, IWMI, ILRI, IRRI, CIMMYT, ICARDA, IFPRI, ICRAF and AVRDC) have joined hands to provide technical support in establishing four benchmark sites in Karnataka, based on the success of the Bhoochetana program, the state's flagship initiative on science-based agricultural development.The presentation was well received by the World Bank, European Union and other participants who sought more details on the initiative.

Figure 21. Dr. Suhas P Wani highlighting the benefits of Bhoochetana at a session of the CGIAR Fund Council donors meeting at New Delhi (Dr. S. Ayyappan, DG, ICAR; Drs. KV Raju and GVK Rau are also seen in the picture).

Action Platform for Shared Values Explores Public-Private Partnership in Bhoochetana

The Action Platform to Create Shared Value in Agribusiness is exploring a possible public-private partnership (PPP) initiative for the ICRISAT-GoK Bhoochetana project. The platform has a membership of 80 companies and is coordinated by Enterprise Solutions to Poverty (ESP). It aims to organize PPPs to reach 20 million farmers in India by 2020.

Following a session during the Bhoochetana project's review and planning meeting at ICRISAT in February, the Action Platform held discussions at ICRISAT on 9 May, attended by 10 companies (Mahindra and Mahindra Ltd., United Phosphorus Ltd., Coromandel International Ltd., Jain Irrigation Systems Ltd., ITC Limited, ADM Agro, Star Agri, Nuziveedu Seeds, ESP and ICRISAT). The companies indicated their strengths, possible contributions and the preferred geographical regions in Karnataka where they would like a role in the partnership. The group will now put together a brief proposal to be presented to the Government of Karnataka when invited for further action. The meeting was chaired by Dr SP Wani, ICRISAT's Principal Scientist (Watersheds) as task force chair for natural resources of the Action Platform. Ms Nancy Barry of ESP facilitated the meeting.

Facilitation of Project Activities in the Mission-mode

- To provide good beginning for the fourth year activities, a kharif season planning workshop was held at Bengaluru for understanding of the mission-mode approach to the project. Planning of activities, execution of trainings schedules, awareness campaigns and field publicity was organized in quick succession with the active participation of DoA and ICRISAT staff.
- Coordination with DoA staff for inputs mobilization, especially expediting the procurements or placing inputs at the disposal of field staff for easy distribution to farmers in a timely manner was harmonized. ICRISAT facilitated timely procurement of groundnut (ICGV 91114), pigeonpea cultivars, bajra hybrids, and soybean cultivars by DoA.
- ICRISAT staff participated and facilitated weekly review meetings in each district to provide update of field activities and to provide any assistance for farmers' problems.
- ICRISAT developed a format for weekly progress reporting and ICRISAT staff facilitated regular feedback weekly from districts to ICRISAT and SCC through a comprehensive checklist format.
- Intense monitoring of field trials by DoA and ICRISAT SCC members through direct contact with ICRISAT staff, farmers and field facilitators, and DoA officials in districts using the pocket telephone directory published by DoA in Bengaluru.

Awareness and Field Publicity Campaigns on Bhoochetana for Farmers

The DoA staff ensured that wall writings (Figures 22 and 23) and exhibition of posters in the local language were set up in all villages within a short period before the onset of monsoon, pointing out the main objectives of the program and areas to be covered by the program. Additionally thousands of brochures and handouts were published and distributed widely in each district on improved management practices, information on nutrients status, and nutrients recommended taluk-wise.

Print media news coverage was extensive – it introduced the Bhoochetana program to farmers and also focused on activities during the season in all districts. This was in addition to what field facilitators and lead farmers were doing with individual farmers.

Figure 22a. ***Wall writings in Kannada, on Bhoochetana goal and extent of its spread in the district.***

Figure 22b. Wall writings in Kannada on technologies appropriate to implement in farmers' fields for enhancing productivity.

Figure 23a. Wall writing in Kannada on IPM technologies and their use in farmers' fields for enhancing productivity

Figure 23b. Awareness program on seeds in Hubli, Dharwad district

Soil Nutrient Diagnostic Studies and Nutrient Input Recommendations

Stratified Soil Sampling in the 30 Districts

In each district, 20% of the villages were selected randomly for sampling and in each village 20 representatives' fields were sampled, based on the stratified sampling technique considering topo-sequence of the fields in a watershed village. All these samples were processed by grinding and sieving, and then these samples were analyzed in the ICRISAT laboratory for their nutritional status. During 2008, soil samples from around 11,609 farmers' fields in several taluks of each district were collected from 6 districts. These samples were analyzed for diagnosing macro and micronutrients status. Based on the established critical limits for each nutrient, fields were categorized as deficient or sufficient**.**

During the year 2009-10, with the active participation of farmers and coordination of DoA staff, ICRISAT staff collected 35,460 samples from 1773 villages of nine district from June to December. Samples from fifteen districts totaling around 45,070 were analyzed at Central Analytical Services Laboratory in ICRISAT-Patancheru.
Soil Health Cards were provided to individual farmers in the local language (Kannada) with details of individual nutrient status and critical limits along with a comment on nutrients status of the field. The second side of the card contained recommended dose of nutrients for each crop as well as quantity of nutrients available in commercial fertilizers for better understanding of farmers.

During 2010-11, staff of DoA with participation of farmers in the villages collected soil samples from farmers' fields in 15 districts which were introduced for scaling-up of Bhoochetana activities based on the decision taken at the review and planning meeting. A total of 47,794 samples were collected from farmers' fields and these samples were analyzed in various soil testing laboratories of Department of Agriculture, Government of Karnataka. These results were distributed to individual farmers in each taluk through staff of DoA and field facilitators appointed for the Bhoochetana program in villages.

At the beginning of the third year, the Bhoochetana project achieved the activity target for nutrient status mapping for entire Karnataka, including five districts that were added to the project from the initial target of 25 districts.

Irrigated Regions Soil Analysis Results

During the year 2012-13, it was decided to include irrigated crops in addition to rainfed crops under the Bhoochetana program. As a result, soil samples were collected from farmers' fields under irrigated regions in Karnataka and analyzed at CRAL, ICRISAT-Patancheru. As such, the soil samples were collected from fields under paddy cultivation in 13 districts (Table 3) and under sugarcane cultivation in 8 districts (Table 4). For taluk-wise recommendations please refer to Appendix 1 and 2.

The irrigated regions are usually heavily fertilized as compared to other semi-arid tropical regions, but the usual practice by farmers is to add only macronutrients. This and other such findings were revealed in the soil analysis results also. The results for samples from paddy fields in 13 districts as a whole showed that the majority of fields were adequate in available contents of macronutrients like N (derived from soil organic C), P, K and S; while majority were deficient in micronutrients, such as Zn and B (Table 3). However, there were specific districts in which most of the fields were deficient in macronutrients also, such as Chamrajnagar, Hassan, Raichur, Tumkur and Yadgir in available-N; Belgaum in available-P; Belgaum and Shimoga in available-S. However, as regards micronutrients, 9 out of 13 districts were deficient in available-Zn and 6 out of 13 were deficient in available-B. Similarly the results for samples from sugarcane fields in 8 districts as a whole showed that the majority of fields had adequate contents of macronutrients like N (derived from soil organic C), P, K and S and also micronutrient B. However, the majority of fields were deficient in micronutrient Zn (Table 4).

Specifically, the majority of fields in Bagalkote, Gulbarga, Hassan and Shimoga were deficient in available-N; Belgaum and Shimoga in available-P; Hassan and Shimoga in available-S; Hassan, Mysore and Shimoga in available-B; while in Bagalkote, Belgaum, Gulbarga, Hassan, Mysore and Shimoga it was in available-Zn.

Table 3. Soil health status of farmers' fields under paddy crop cultivation in 13 districts of Karnataka

		% deficiency w.r.t. available nutrients					
S. No.	**District**	**Org C**	**P**	**K**	**S**	**Zn**	**B**
1	Belgaum	13	53	1	51	28	44
2	Bellary	36	23	1	11	53	16
3	Chamarajanagar	62	17	1	37	63	47
4	Chikmagalur	31	27	36	49	51	100
5	Hassan	54	20	16	44	64	76
6	Haveri	44	30	1	34	47	49
7	Koppal	30	7	3	5	27	35
8	Mandya	38	12	12	32	50	69
9	Mysore	42	17	11	28	46	66
10	Raichur	69	13	1	17	54	10
11	Shimoga	34	27	30	73	50	71
12	Tumkur	81	40	7	36	53	84
13	Yadgiri	70	20	2	22	70	36
	Total (paddy fields)	46	21	12	36	52	59

Table 4. Soil health status of farmers' fields under sugarcane crop cultivation in 8 districts of Karnataka

S. No.	District	% deficiency w.r.t. available nutrients					
		Org C	P	K	S	Zn	B
1	Bagalkote	**55**	46	0	18	**62**	4
2	Belgaum	45	**62**	2	32	**63**	27
3	Bidar	20	38	0	40	38	24
4	Bijapur	22	31	0	21	38	4
5	Gulbarga	**51**	47	0	23	**70**	29
6	Hassan	**67**	16	9	**58**	**61**	**84**
7	Mysore	48	8	9	39	**52**	**62**
8	Shimoga	**100**	**80**	0	**93**	**93**	**95**
Total (sugarcane fields)		39	37	3	37	**50**	33

Taluk Wise Nutrient Recommendations, Fertilizer Dosage for Kharif Crops

Soil analysis-based nutrient recommendations were provided by ICRISAT at taluk level for the major crops selected in all 30 districts. The reference nutrient recommendations for each crop were taken from UAS, Bengaluru; or UAS, Dharwad; or UAS, Raichur for the respective operational regions (Table 5).

Table 5. Reference nutrient recommendations for selected major crops during kharif and rabi seasons in the operational districts under the University of Agricultural Sciences, Bengaluru.

S No	Crop	Nutrients recommendation (kg ha^{-1})						Zones
Kharif Season		**N**	**P_2O_5**	**K_2O**	**S**	**Zn**	**B**	
1	Hy. maize (Rainfed)	100	50	25	30	5	0.5	6,7,8,9
2	Hy. sorghum (Rainfed)	65	40	40	30	5	0.5	6,7,8
3	Hy. Pearl millet (Rainfed)	50	25	0	30	5	0.5	6
4	Ragi (Rainfed)	50	40	25	30	5	0.5	6,7,8,9
5	Paddy (Kharif)	100	50	50	30	5	0.5	
	Paddy (Summer)	125	62	62	30	5	0.5	
	Paddy (Kharif)	75	75	90	30	5	0.5	
	Paddy (Coastal)	60	30	45	30	5	0.5	
6	Pigeonpea	25	50	25	30	5	0.5	6,7,8
7	Greengram (Rainfed)	13	25	25	30	5	0.5	All zones
8	Blackgram and Cowpea	40	50	0	30	5	0.5	All zones
9	Lab Lab	25	50	25	30	5	0.5	6,7,8
10	Soybean (Irrigated)	30	80	38	30	5	0.5	6,7,8
	Soybean (Rainfed)	25	60	25	30	5	0.5	6,7,8
11	Horsegram	25	38	25	30	5	0.5	6,7,8
12	Groundnut (Rainfed)	25	50	25	30	5	0.5	6,7,8
13	Sunflower (Rainfed)	37.5	50	37.5	30	5	0.5	6,7,8
14	Cotton	150	75	75	30	5	0.5	6,7,8
15	Chilly (Irrigated)	150	75	75	30	5	0.5	All Zones

	Chilly (Rainfed)	100	50	50	30	5	0.5	6,7,8
Rabi Season								
1	Paddy (Rabi)	125	62	62	30	5	0.5	
2	Hy. maize (Irrigated)	150	75	40	30	5	0.5	6,7,8,9
3	Hy. sorghum (Irrigated)	100	75	40	30	5	0.5	6,7,8
4	Rabi Sorghum (Rainfed)	50	25	0	30	5	0.5	6
5	Hy. Pearl millet (Irrigated)	100	65	25	30	5	0.5	6
6	Ragi (Irrigated)	100	50	50	30	5	0.5	6,7,8,9
7	Greengram (Irrigated)	25	50	50	30	5	0.5	All zones
8	Groundnut (Irrigated)	25	75	37.5	30	5	0.5	All zones
9	Sunflower (Irrigated)	62.5	75	62.5	30	5	0.5	6,7,8
10	Chickpea (Irrigated)	25	50	50	30	5	0.5	6,7,8
11	Chickpea (Rainfed)	13	25	25	30	5	0.5	6,7,8

Based on farmers' affordability, local adjustments were made as agreed upon by UAS scientists, DoA subject matter specialists and ICRISAT scientists.

Table 6. Reference nutrient recommendations for selected crops during kharif and rabi seasons in the operational districts under the University of Agricultural Sciences, Dharwad.

S No	Crop	Nutrients recommendation (kg ha^{-1})						Zones
Kharif Season		**N**	**P_2O_5**	**K_2O**	**S**	**Zn**	**B**	
1	Maize (Rainfed)	100	50	25	30	5	0.5	All zones
2	Sorghum (Rainfed)	60	40	40	30	5	0.5	All zones
3	Pearl millet (Rainfed)	50	25	0	30	5	0.5	1,2,3
4	Ragi (Rainfed)	50	40	25	30	5	0.5	8
5	Paddy	100	50	50	30	5	0.5	1,2,8
	Paddy	150	75	75	30	5	0.5	3
	Paddy	75	75	90	30	5	0.5	9,10
6	Pigeonpea	25	50	12.5	30	5	0.5	1,2,3,8
7	Greengram	25	50	0	30	5	0.5	1,2,3,8
8	Blackgram	25	50	0	30	5	0.5	1,2,3,8
9	Cowpea (Alasandi)	25	50	25	30	5	0.5	1,2,3,8
10	Soybean (Rainfed)	25	60	25	30	5	0.5	1,2,3,8
11	Horsegram	10	30	0	30	5	0.5	1,2,3,8
12	Groundnut (Rainfed)	25	50	25	75	5	0.5	1,2,3,8
13	Sunflower (Rainfed)	35	50	35	30	5	0.5	1,2,3,8
14	Cotton (Irrrigated)	150	75	75	30	5	0.5	2,3,8
Rabi Season								
1	Chickpea (Rainfed)	10	25	0	30	5	0.5	1,2,3,8
2	Rabi Sorghum (Rainfed)	50	25	0	30	5	0.5	All zones
3	Sunflower (Irrigated)	60	75	60	30	5	0.5	1,2,3,8
4	Ragi (Irrigated)	100	50	50	30	5	0.5	8
5	Maize (Irrigated)	150	75	37.5	30	5	0.5	1,2,3,8
6	Sorghum (Irrigated)	100	75	40	30	5	0.5	1,2,3,8
7	Pearl Millet (Irrigated)	100	62	25	30	5	0.5	1,2,3
8	Groundnut (Irrigated)	25	75	25	75	5	0.5	1,2,3,8

These recommendations were disseminated through JDAs-DoA in all 30 districts by all possible communication methods, such as wall writings, pocket diaries, soil health cards, brochures, and daily news publications in local language. The JDAs of thirty districts were provided with taluk wise crop specific nutrient recommendations for all major crops grown in the districts along with fertilizer dosage at the beginning of the crop season.

Karnataka: Rainfall Situation in 2012

In 2012, Karnataka state as a whole received only 618 mm of rainfall during the southwest monsoon period (Jun to Sep) compared to the normal of about 835 mm (Table 7). Thus the percentage of departure from the normal was -26% and is classified under deficit category. This kind of deficit rainfall was the second lowest in the last 42 years (1971-2012); the first lowest was in the year 2002 when the percentage of departure was -33%. If the departure of actual rainfall received from normal is more than 20%, then it is classified as "Excess", if between -19 and +19% it is classified as "Normal", if between -20 and -59% it is classified as "Deficit" and if it is between -60 and -99% it is classified as "Scanty". Out of the 30 districts, only seven districts received normal rainfall while the remaining 23 districts received deficit rainfall. Out of the 176 taluks, only one taluk received excess rainfall, 32 taluks received normal rainfall (departure between -19 to +19%), 139 taluks received deficit rainfall (departure between -20 to -59%) and four taluks received only scanty rainfall (less than -60%) (Figure 24). During October to December 2012, Karnataka as a whole received rainfall of 146 mm against the normal rainfall of 189 mm. The percentage of departure from normal was -23% and this season were classified under "deficit" category. Thus, in both the seasons, Karnataka received deficit rainfall, thus impacting the availability of water resources for agriculture, livestock, human consumption, electricity generation and industry.

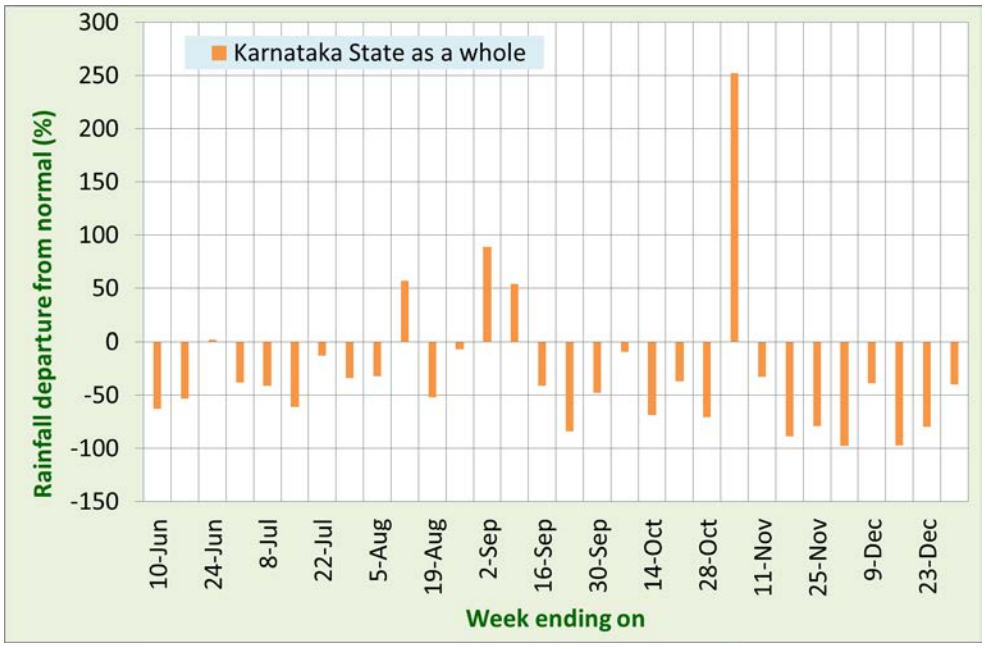

Figure 24. Rainfall departure from normal in Karnataka

Table 7. Region wise rainfall in Karnataka for the year 2012

Region	Southwest Monsoon (Jun-Sep)			Post-monsoon (Oct-Dec)		
	Normal (mm)	Actual (mm)	Percentage departure	Normal (mm)	Actual (mm)	Percentage departure
South Interior Karnataka	357	232	-35	211	162	-23
North Interior Karnataka	493	327	-34	146	125	-14
Malnad	1469	1146	-22	230	148	-36
Coastal Karnataka	3048	2449	-20	267	197	-26
State	835	618	-26	189	146	-23

Table 8. District wise rainfall in Karnataka for the year 2012

District	Southwest Monsoon (Jun-Sep)			Post-monsoon (Oct-Dec)		
	Normal (mm)	Actual (mm)	Percentage departure	Normal (mm)	Actual (mm)	Percentage departure
Bagalkote	351	216	-39	144	114	-21
Bengaluru-Rural	445	245	-45	228	204	-11
Bengaluru-Urban	457	235	-49	236	199	-15
Belgaum	601	431	-28	152	130	-15
Bellary	361	205	-43	154	126	-19
Bidar	683	562	-18	120	123	3
Bijapur	428	272	-36	141	146	4
Chamarajanagara	317	155	-51	264	212	-20
Chikkaballapura	399	291	-27	222	192	-14
Chikkamagalur	1239	1003	-19	229	141	-38
Chitradurga	276	223	-19	163	106	-35
Dakshina-Kannada	3441	2921	-15	367	277	-25
Davanagere	362	265	-27	171	148	-14
Dharwad	499	266	-47	165	125	-24
Gadag	382	205	-46	162	150	-7
Gulbarga	608	437	-28	131	107	-18
Hassan	689	546	-21	226	100	-56
Haveri	496	288	-42	172	141	-18
Kodagu	2333	1595	-32	293	243	-17
Kolar	387	314	-19	236	280	18
Koppala	374	226	-39	145	144	-1
Mandya	297	159	-46	220	149	-32
Mysore	377	210	-44	219	134	-39
Raichur	450	289	-36	143	101	-30
Ramanagara	433	200	-54	238	189	-20
Shimoga	1869	1528	-18	204	147	-28
Tumkur	360	260	-28	201	129	-36
Udupi	4460	3241	-27	324	207	-36
Uttara-Kannada	2374	1953	-18	201	156	-22
Yadgir	592	394	-33	150	104	-31
State	**835**	**618**	**-26**	**189**	**146**	**-23**

It is observed from the weekly rainfall departures from normal during June to December 2012, that except for four times in the 30-week period, the rainfall was always lower than normal, which affected the various agricultural operations and crop performance.

Monitoring and Evaluation by State Coordination Committee (SCC)

The state level coordination committee is a high-powered committee composed of state level senior administrators from the Government of Karnataka, Directors of the Departments of Agriculture and Watershed Development, Vice-Chancellors of the three Universities of Agriculture in Bengaluru, Raichur and Dharwad, the Economic Advisor to the Chief Minister-Karnataka, and the Project Coordinator from ICRISAT.

The committee meets frequently during the beginning of the season to take stock of arrangements for inputs procurement and distribution, monsoon progression and crops sown statistics. To collect complete information from cluster villages, taluks to district, a checklist of activities for the weekly progress report was prepared and improved by ICRISAT so as to ensure weekly follow-up reporting and this was synchronized by the JDA office and ICRISAT staff.

The state level committee reviews the progress of project activities and interacts with district level officials instantaneously through video-conferencing and takes stock of solutions to address problems arising in the field and to issue directives for each district (Figure 25). Mr SA Ravindranath, Minister of Agriculture attended a district level committee meeting and found out the progress of implementation and success achieved in enhancing the crop yields of ragi and groundnut during kharif season.

Figure 25. State level coordination committee (SCC) reviews the progress in the districts through video conferencing from Bengaluru.

Rainfed Crop Planning during 2012-13

Target Area Sown to Major Crops in Rainy Season

During the crop season, farmers were motivated to cover a large area under Bhoochetana activities for possible benefits to participating farmers in the technology uptake of the project. Accordingly, Bhoochetana activities were targeted to cover an area of 44.3 lakh hectares with improved management to enhance rainfed and irrigated crop productivity in 30 districts during rainy season 2012-13. The project implemented crop productivity enhancement technologies on 36.5 lakh hectares in Karnataka, which was 82.5% of the target

area with five major food grain cereals (paddy, finger millet, maize, sorghum and pearl millet), five major grain legumes (pigeonpea, green gram, black gram, field beans and cowpea) and four major oilseed crops (soybean, sunflower, cotton and groundnut). During 2012 kharif season, monsoon rains were scanty all through the season. Therefore, farmers could achieve only an overall 82.5% sowing of the target area (Table 9) under major crops in all the 30 districts of Karnataka. Maize, paddy, and pigeonpea crops are most preferred by the farmers as seen from 100% target area sown in most of the districts. Groundnut, green gram, finger millet and sorghum crops were chosen, based on seasonal conditions as evidenced by low and variable sowing percentage achieved with these crops in different districts during Kharif season.

Table 9. District wise target cropping area (hectares) sown to major crops during kharif crop season 2012-13

S.No.	District	Major rainfed	Target area	Area	%
1	Bagalkot	Jowar	1500	500	33
	Bagalkot	Bajra	22000	7845	36
	Bagalkot	Maize	34000	24165	71
	Bagalkot	Red gram	5000	160	3
	Bagalkot	Green gram	26500	1200	5
	Bagalkot	Groundnut	500	100	20
	Bagalkot	Sunflower	5000	1090	22
	Bagalkot	Soybean	3000	250	8
	Bagalkot	Sugarcane	25000	16280	65
2	BengaluruRural	Ragi	44000	39439	89.4
	BengaluruRural	Maize	10000	8813	88.1
3	Bengaluru Urban	Ragi	20000	18808	94
4	Belgaum	Maize	10550	17979	170
5	Bellary	Cotton	15000	19036	127
	Bellary	Groundnut	56000	51287	92
	Bellary	Maize	59000	74840	127
	Bellary	Paddy	50000	50000	100
	Bellary	Pearl millet	12000	18722	156
	Bellary	Pigeonpea	9000	5961	66
	Bellary	Sorghum	25000	2262	9
	Bellary	Sunflower	28000	12305	44
6	Bidar	Blackgram	40000	33754	84
	Bidar	Green gram	36000	30233	84
	Bidar	Maize	2300	3782	164
	Bidar	Pearl millet	7500	6718	90
	Bidar	Pigeonpea	65000	66768	103
	Bidar	Sorghum	60700	55191	91
	Bidar	Soybean	74500	91509	123
7	Bijapur	Maize	35000	33168	94.8
	Bijapur	Bajra	28500	26059	91.4
	Bijapur	Redgram	175000	75315	43
	Bijapur	Green gram	12000	2550	21
	Bijapur	Sunflower	20500	13523	66
	Bijapur	Groundnut	27000	14625	54

S.No.	District	Major rainfed	Target area	Area	%
8	Chamarajanagara	Ragi	14550	8000	55
	Chamarajanagara	Maize	26450	23458	89
	Chamarajanagara	Sorghum	18000	17368	96
	Chamarajanagara	Groundnut	18000	7560	42
	Chamarajanagara	Sunflower	16050	9040	56
	Chamarajanagara	Green gram	2600	2600	100
	Chamarajanagara	Blackgram	5000	5000	100
	Chamarajanagara	Cowpea	3000	1963	65
	Chamarajanagara	Cotton	5100	4698	92
	Chamarajanagara	Paddy	8000	3970	50
	Chamarajanagara	Sugarcane	2000	1832	92
9	Chikkaballapur	Ragi	41000	43645	106
	Chikkaballapur	Maize	39000	44440	114
	Chikkaballapur	Pigeonpea	8000	5543	69
	Chikkaballapur	Field bean	5000	4440	89
	Chikkaballapur	Groundnut	32500	21812	67
10	Chikkamagaluru	Maize	14000	14000	100
	Chikkamagaluru	Paddy	11000	11770	107
	Chikkamagaluru	Ragi	2750	2500	91
11	Chitradurga	Groundnut	146000	67096	46
	Chitradurga	Maize	81000	80920	100
	Chitradurga	Ragi	35000	30350	87
	Chitradurga	Redgram	11000	6049	55
12	Dakshina	Paddy	25000	25000	100
13	Davanagere	Jowar	11000	7990	73
	Davanagere	Ragi	11000	6460	59
	Davanagere	Maize	147000	159650	109
	Davanagere	Redgram	4000	7961	199
	Davanagere	Dolicus lab lab	1000	432	43
	Davanagere	Groundnut	12000	13420	112
	Davanagere	Sunflower	4000	1966	49
	Davanagere	Cotton	30000	14510	48
	Davanagere	Paddy	45000	43330	96
	Davanagere	Sugarcane	1500	3368	225
14	Dharwad	Soybean	33000	25785	78
	Dharwad	Groundnut	30000	10329	34
	Dharwad	Green gram	25000	3023	12
	Dharwad	Maize	30000	17087	57
	Dharwad	Hy cotton	24000	11000	46
	Dharwad	Paddy	24000	15441	64
	Dharwad	Soybean	33000	25785	78
	Dharwad	Groundnut	30000	10329	34
15	Gadag	Groundnut	60500	18947	31.3
	Gadag	Maize	6000	19250	321
16	Gulbarga	Pigeonpea	237200	360537	152
	Gulbarga	Black gram	54000	29742	55
	Gulbarga	Green gram	41000	18379	45

S.No.	District	Major rainfed	Target area	Area	%
	Gulbarga	Sunflower	117000	16944	14.5
	Gulbarga	Bajra	18000	17121	95
17	Hassan	Ragi	74000	62500	84.5
	Hassan	Maize	70000	60500	86
	Hassan	Green gram	11000	11000	100
	Hassan	Black gram	4000	4500	112
	Hassan	Cowpea	11000	11000	100
	Hassan	Avare	5000	5100	102
	Hassan	Sun flower	4500	160	3.5
	Hassan	Jowar	2000	2350	117
18	Haveri	Sorghum	8000	6042	76
	Haveri	Soybean	10000	8100	81
	Haveri	Cotton	79000	78250	99
	Haveri	Groundnut	15000	14200	95
	Haveri	Maize	125000	120676	97
	Haveri	Paddy	16000	16000	100
	Haveri	Pulses	8000	5806	73
19	Kodagu	Paddy	29500	29500	100
	Kodagu	Maize	3000	3000	100
20	Kolar	Ragi	60000	55448	92
	Kolar	Redgram	4000	3550	89
	Kolar	Avare	9000	5850	65
	Kolar	Cowpea	2000	1500	75
	Kolar	Groundnut	12000	8550	71
21	Koppal	Cotton	19000	4242	22
	Koppal	Greengram	16000	1575	10
	Koppal	Groundnut	16000	6717	42
	Koppal	Horsegram	9800	4732	48
	Koppal	Maize	30000	34675	116
	Koppal	Paddy	25000	24944	100
	Koppal	Pearlmillet	63000	53110	84
	Koppal	Pigeonpea	10000	5971	60
	Koppal	Sorghum	7000	317	5
	Koppal	Sunflower	18000	7504	42
22	Mandya	Ragi	62500	31408	50
	Mandya	Cowpea	4500	2450	54
	Mandya	Maize	4000	2593	65
	Mandya	Groundnut	1000	484	48
	Mandya	Paddy	40000	33335	83
	Mandya	Sugarcane	10000	6845	69
23	Mysore	Cotton	44000	43525	99
	Mysore	Ragi	44000	28190	64
	Mysore	Cowpea	29000	25086	87
	Mysore	Maize	26000	25040	96
	Mysore	Avare	18000	15214	85
	Mysore	Jowar	10000	7600	76
	Mysore	Black gram	9000	8840	98

S.No.	District	Major rainfed	Target area	Area	%
24	Raichur	Pigeonpea	10500	8570	82
	Raichur	Cotton	8500	7510	88.4
25	Ramanagara	Red gram	4000	3020	76
	Ramanagara	Ragi	75000	68780	92
	Ramanagara	Maize	1500	1490	99
	Ramanagara	Cowpea	2500	2279	91
	Ramanagara	Avare	4000	3937	98
	Ramanagara	G.Nut	7000	5136	73
26	Shimoga	Maize	55000	57720	105
	Shimoga	Paddy	55000	54175	99
27	Tumkur	Groundnut	65000	46560	72
	Tumkur	Maize	13000	10991	85
	Tumkur	Ragi	133000	113715	86
28	Udipi	Paddy	45000	43955	98
29	Uttara Kannada	Paddy	69000	69000	100
	Uttara Kannada	Cotton	2500	2000	80
	Uttara Kannada	Maize	4000	4000	100
30	Yadgir	Paddy	25000	22500	90
	Yadgir	Sunflower	22000	18750	85.2
	Yadgir	Red gram	59000	49015	83.1
	Yadgir	Bajra	19000	17800	93.7
	Yadgir	Green gram	33000	32619	98.8
Total	**30 Districts**		**4,434,550**	**3,657,578**	**82.5**

Input Distribution during Rainy Season

Distribution of fertilizers and micronutrients to farmers did not follow any particular pattern and in all the districts use of one nutrient or the other is high as balanced and recommended usage of nutrients was not achieved. Since Bhoochetana was operationalized in all the 30 districts during 2011-12 crop season, farmers purchased inputs knowing the advantage of inputs. However, better efforts of DoA and ICRISAT staff to create awareness among farmers about the advantage of correcting nutrient deficiencies might have helped in changing farmers' interest in the use of micronutrients to enhance their crop productivity and incomes (Table 10). However, due to scanty rainfall during kharif season there was slightly low consumption of micronutrients as compared to last year.

Table 10. Actual district-wise micronutrients distribution (requirements based on soil analysis) to farmers during kharif seasons 2012-13

Sl No.	District	Crops	Target quantity (tons)			Quantity distributed (tons) & % target		
			Gypsum	$ZnSO_4$	Borax	Gypsum	$ZnSO_4$	Borax
1	Bagalkot	Pearl millet, greengram, maize, sunflower, soy bean, pigeonpea	9750	488	195	1215 (12)*	103 (21)	16 (8)
2	Belgaum	Soy bean, cotton, maize, groundnut	32600	1630	652	3150 (10)	590 (36)	54 (8)
3	Bellary	sorghum, maize Groundnut, pigeonpea, sunflower	20400	1020	408	1695 (8)	505 (50)	130 (32)

Sl No.	District	Crops	Target quantity (tons)			Quantity distributed (tons) & % target		
			Gypsum	$ZnSO_4$	Borax	Gypsum	$ZnSO_4$	Borax
4	Bengaluru – R	Finger millet, maize	5400	270	135	1114 (21)	67 (25)	34.66 (26)
5	Bengaluru – U	Finger millet	2000	100	40	0 (0)	0 0	0 0
6	Bidar	pigeonpea, black gram, green gram, soy bean, sorghum	29200	1460	584	5086 (17)	327 (22)	209 (36)
7	Bijapur	Maize, pearl millet , pigeonpea, green gram, sunflower, groundnut		29800	1490	445	1517 (5)	235 (16)
8	Chamarajanagara	Sorghum, finger millet, maize, sunflower, groundnut	11200	560	224	1042 (9)	51 (9)	22 (10)
9	Chikkaballapur	Finger millet, maize, groundnut, field bean (Avare), pigeonpea	12550	628	251	947 (8)	98 (16)	51 (20)
10	Chikamagalur	paddy, finger millet, Sunflower, groundnut, green gram, maize	12950	648	259	920 (7)	29 (4)	10 (4)
11	Chitradurga	Groundnut, finger millet, maize	27600	2760	1380	2663 (10)	297 (11)	30 (2)
12	Dakshina Kannada	Paddy	2500	125	50	160 (6)	15 (12)	3 (6)
13	Davanagere	Finger millet, maize, sorghum, pigeonpea, groundnut, cotton	14657.5	732.88	293.15	7598.97 (52)	689.1 (94)	367.86 (125)
14	Dharwad	Soy bean, groundnut, green gram, maize	15300	990	225	5336 (35)	418 (42)	40.5 (18)
15	Gadag	Maize, groundnut, green gram, sunflower, cotton, pigeonpea	18000	900	454	742 (4)	80 (9)	20 (4)
16	Gulbarga	Pigeonpea, green gram, black gram, sunflower, pearl millet	48400	2420	968	4685 (10)	1070 (44)	81 (8)
17	Hassan	Maize, finger millet, cowpea, green gram, sunflower	19300	965	386	2010 (10)	252 (26)	71 (18)
18	Haveri	Maize, groundnut, soybean, cotton	26100	1305	522	690 (3)	166 (13)	40 (8)
19	Kodagu	Maize, paddy	3250	163	65	1973 (61)	67.92 (42)	54 (83)
20	Kolar	Groundnut, finger millet, pigeonpea, field beans	8700	435	174	1512 (17)	15 (3)	25 (14)
21	Koppal	Sorghum, pearl millet, groundnut, sunflower, green gram, maize	16000	800	320	1650 (10)	193 (24)	85 (27)
22	Mandya	Cowpea, finger millet, maize	6100	305	122	2633 (43)	171 (56)	61 (50)
23	Mysore	Finger millet, maize, groundnut, sorghum, cowpea, black gram, cotton	19500	975	390	1797 (9)	81 (8)	38 (10)

Sl No.	District	Crops	Target quantity (tons)			Quantity distributed (tons) & % target		
			Gypsum	$ZnSO_4$	Borax	Gypsum	$ZnSO_4$	Borax
24	Raichur	Pearl millet, pigeonpea, cotton groundnut, sunflower	15500	775	310	1063 (7)	934 (121)	65 (21)
25	Ramanagara	Finger millet, pigeonpea	4700	470	188	1921.5 (41)	149.8 (32)	86.76 (46)
26	Shimago	Paddy, maize	7500	375	150	4547 (61)	296 (79)	97 (65)
27	Tumkur	Green gram, finger millet, groundnut, maize	40700	2035	814	1880 (5)	137 (7)	50 (6)
28	Udupi	Paddy	4500	225	90	392 (9)	23 (10)	5 (6)
29	Uttara Kannada	Paddy, maize	2850	377.5	75.5	1315.3 (46)	91.87 (24)	14.36 (19)
30	Yadgir	Green gram, sunflower, pearl millet, pigeonpea	13550	678	271	980 (7)	186 (27)	75 (28)

* Figures in parenthesis indicate % of recommended quantity used by farmers

Target Area Sown to Major Crops in Post-rainy Season

Rabi cropping was planned in 12 districts where farmers traditionally grow rainfed crops during the season with stored soil moisture especially on black soils. Chickpea, safflower and sorghum were grown in these conditions. However, groundnut, sunflower and sugarcane were also sown mostly with irrigated dry conditions. Chickpea and sorghum were sown by farmers in large areas during the rabi season (Table 11). A total of 2,348,626 ha were sown to seven rainfed crops against the target area of 2,637,855 ha with these crops during the rabi season.

Table 11. District-wise target cropping area (ha) sown to major crops during Rabi 2012-13

District	Major rainfed crop	Target area	Area sown	% Achieved
Bagalkot	Rabi jowar	80,000	80,000	100
	Bengal gram	80,000	80,000	100
	Sunflower	10,000	10,000	100
	Sugarcane	20,000	20,000	100
Bellary	Chickpea	64700	67339	104
	Rabi sorghum	25300	18309	72
	Sunflower	53000	19293	36
	Safflower	2000	134	7
Bidar	Pulses	4000	3000	75
	Rabi sorghum	30000	24281	81
	Sunflower	6500	3026	47
	Safflower	11000	9851	90
	Sugarcane	10000	9900	99
	Wheat	8000	4773	60
	Chickpea	52000	57468	111
Bijapur	Rabi jowar	221500	215555	97
	Wheat	35500	37555	106
	Bengal gram	174000	182085	105
	Sunflower	73000	44255	61
Gulbarga	Rabi sorghum	239070	210032	88
	Chickpea	177000	176127	100

District	Major rainfed crop	Target area	Area sown	% Achieved
Haveri	Rabi sorghum	39750	37940	95
	Sunflower	4475	3850	86
	Chickpea	3110	2099	67
Dharwad	Rabi jowar	48000	51935	108
	Bengal gram	93000	94520	102
	Wheat	45200	11205	91
	Sunflower	27350	19540	71
	Hy cotton	21550	17971	83
	Safflower	7400	6880	93
	Horsegram	3000	2040	68
Koppal	Rabi linseed	1800	800	44
	Rabi maize	5000	3074	61
	Rabi sorghum	43000	53706	125
	Sunflower	44500	30821	69
	Safflower	7000	1173	17
	Chickpea	49500	64035	129
Yadgir	Bengal gram	58000	56055	97
	Groundnut	56000	67350	120
	Sunflower	17600	6360	36
	Rabi sorghum	58000	57850	100

Input Distribution during Post-rainy Season

In 12 districts, use of micronutrients at the recommended target quantities was higher with farmers of Bijapur, but total quantities distributed to farmers were higher in Haveri, Davanagere, Bidar, and Gulbarga districts, respectively (Table 12). Even during Rabi seasons, farmers were earnest about using deficient micronutrients to improve productivity and water use efficiency of these rainfed crops.

Table 12. District-wise micronutrients (requirements based on soil analysis) distribution to farmers during Rabi seasons 2012-13

S.No	District	Crops	Target quantity (tons)			Quantity distributed (tons) (% target)		
			Gypsum	$ZnSO_4$	Borax	Gypsum	$ZnSO_4$	Borax
1	Bagalkot	Sunflower, finger millet, chickpea, groundnut, sugarcane	34430	1722	861	4200 (12.2)*	235 (13.6)	107 (12.4)
2	Belgaum	Chickpea, sorghum	39075	1954	977	6625 (17.0)	425 (21.8)	25 (2.6)
3	Bellary	Chickpea, finger millet, safflower	16350	818	409	1726 (10.6)	182 (22.2)	73 (17.8)
4	Bidar	Finger millet, chickpea, safflower	11150	558	279	3112 (27.9)	342 (61.3)	162 (58.1)
5	Bijapur	Rabi sorghum, chickpea	50400	2519	12158	3479 (6.9)	320 (12.7)	1005 (8.3)
6	Dharwad	Rabi sorghum, chickpea	24550	1227	246	1740 (7.1)	801 (65.3)	91 (37.0)
7	Gadag	Rabi sorghum,	32530	1620	810	3685	289	74

S.No	District	Crops	Target quantity (tons)			Quantity distributed (tons) (% target)		
			Gypsum	$ZnSO_4$	Borax	Gypsum	$ZnSO_4$	Borax
		chickpea, sunflower				(11.3)	(17.8)	(9.1)
8	Gulbarga	Rabi sorghum, chickpea	48830	2442	1221	10100 (20.7)	473 (19.4)	112 (9.2)
9	Haveri	Rabi sorghum, chickpea, sunflower, safflower	5830	546	246	5580 (95.7)	292 (53.5)	146 (59.3)
10	Koppal	Rabi sorghum, chickpea	19720	986	493	2285 (11.6)	275 (27.9)	48 (9.7)
11	Raichur	Rabi sorghum, chickpea	34150	1708	854	1680 (4.9)	360 (21.1)	41 (4.8)
12	Yadgir	Rabi sorghum, chickpea	19400	970	485	3212 (16.6)	301 (31.0)	72 (14.8)

* Figures in parenthesis indicate % of recommended quantity used by farmers

Inputs consumption trends during four years showed gradual and steady increase in consumption of recommended borax, Z_nSO_4 and gypsum in the state for rainfed crops. However, a slightly low consumption of micronutrients is observed and this is due to the scanty rainfall situation that affected sowing operations in many districts. The data in Table 13 shows that considerable scope exists to enhance balanced nutrient consumption for sustainable intensification.

Table 13. Fertilizers (S, Zn and B nutrients) distributed to farmers in Bhoochetana project during four crop seasons from 2009-10 to 2012-13 in target districts

Crop season	Area covered (million ha)	Quantity consumed (t)			Nutrient used (kg ha^{-1})		
		$ZnSO_4$	Gypsum	Borax	$ZnSO_4$	Gypsum	Borax
2009 (*Kharif*)	0.23	372	4309	53	1.65	19.15	0.23
2009-10 (*Rabi*)	0.06	-	-	-	-	-	-
2010 (*Kharif*)	1.27	2723	35376	389	2.27	29.50	0.32
2010-11 (*Rabi*)	0.37	362	5595	113	1.09	16.86	0.34
2011 (*Kharif*)	2.84	8775	96234	2781	3.46	37.90	1.10
2011-12 (*Rabi*)	0.66	1678	12475	432	2.94	21.87	0.76
2012 (*Kharif*)	3.57	6803	59935	3104	2.25	21.50	0.77
2012-13 (*Rabi*)	2.75	5109	36746	1494	1.89	14.85	0.55

Crop Cutting Experiments for Crop yield Estimation: A Joint Evaluation

A joint team of scientists from DoA, DES, and UAS along with ICRISAT technicians adopted a uniform crop sampling procedure across all districts for cutting crop samples to estimate yields. The instructions followed were as follows:

- Identify all farmers who are registered/took the inputs from RSKs and applied it in their designated fields and grew selected major crop. This was ascertained through RSK bills and FFs who facilitated the farmer in the village to register/get the inputs.

- At taluk level, ADA/AO prepares the total list of those identified farmers along with the ICRISAT Research Technician and FFs/LFs in the villages.
- Pool up the list of farmers at district level to facilitate further monitoring and evaluations.
- At taluk level, ICRISAT staff/AO/ADA made at least two field visits in the cropping season to randomly select farmers' fields that coincide with the end of vegetative phase and flowering or maturity phase.
- In these phases, field photos showing crop growth differences in individual farmer's fields were obtained as a record for verification.
- At the time of crop harvest, the JDA office prepared farmers list for crop sampling randomly selecting farmers' fields which also had farmers' management treatment in the same farmer's field in each taluk.
- Crop sampling was done only in the randomly selected farmers' fields in each of the selected villages.

Figure 26a. Finger millet crop sampling in Chikballapur district district

Figure 26b. Groundnut crop sampling in Bijapur district

Procedure for Field Selection for Sampling

- Ten farmers' fields in each taluk were considered for crop sampling, and samples were collected for both farmers' management and improved management as advised under Bhoochetana guidelines. If both treatments are not present in one farmer's field, farmer management samples were collected from neighboring farmer's field.
- A minimum of three randomly selected samples in each treatment to be taken from a farmer's field with a minimum sample size of 9 m^2 or from even more crop area based on crop row orientation. The aggregated sample should be a minimum of 27 m^2 or more crop area for each treatment in a field.
- Enough precautions were taken to select unbiased representative crop samples from farmers' field.
- Total fresh weight of each sample (9 m^2 or more) was measured for three samples, and a sub-sample of 10-15 whole plants weighing up to 2 to 3 kg fresh weight was collected, and weighed for recording fresh weight of sub-sample.

- In this process, we collected one sub-sample each from farmers' management and improved BC management of a farmers' field for moisture estimation and yield components estimation.
- The whole plant sub-samples were processed to separate pods and haulms or earheads and stalk.
- The two plant parts, thus collected, were properly labeled and bagged in Kora cloth bags (pod or ear head) and muslin cloth bags (stalk) by ICRISAT Technicians and air /sun-dried for two to three days, and were then sent to ICRISAT-Patancheru campus for further processing and yield estimations.
- At ICRISAT, these plant samples were dried at constant temperature of 65-70^{o} C for 48 hrs in stabilized dryers and dry weights were recorded.
- Grain/pod attributes were measured to understand quality and marketability of the produce.
- Although mean crop yields are provided for the purpose of summaries, individual farmer wise crop yields are also provided to DoA officials for field verification.

Some random sub-samples of whole plant were retained for processing by DoA staff which might serve as a counter check for yield estimations provided by ICRISAT.

Results of Participatory Crop Yield Estimation

Post-rainy 2011-12 Season Farmer Participatory Research for Impact Trials

During the post-rainy 2011-12 season in Karnataka, certain farmers were selected for participatory trials out of those who followed improved management in their fields in order to evaluate the effects of improved crop management. The improved management also involved soil test-based balanced nutrient management which similarly included the application of deficient S, B and Zn in addition to only N, P and K plus other best practices. There were two treatments—(1) farmers practice (FP) of application of N, P and K, and traditional crop cultivation; (2) Improved management comprising soil test-based nutrient management (application of N, P and K plus deficient S, B and Zn) plus other improved crop practices. The soil test-based balanced nutrient management protocols were developed based on the soil test results at the taluk level. The basis used was to recommend full rate of a nutrient in case more than 50% of farmers' fields were deficient in that nutrient, and recommend only half the rate of the nutrient in case less than 50% farmers' fields were deficient in that particular nutrient. During the end of the season, crop cutting experiments were conducted with all prominent crops, such as chickpea, sorghum, sunflower and safflower.

Chickpea

The results of farmer participatory trials showed a great range in chickpea productivity across the districts from 400 to 1550 kg ha^{-1} (Figure 27). The benefits of improved management were evident in enhanced chickpea productivity in all the districts. As such, productivity improved by 540-2010 kg ha^{-1} under improved management. A benefit of 30 to 55% rise in productivity was observed under the improved management.

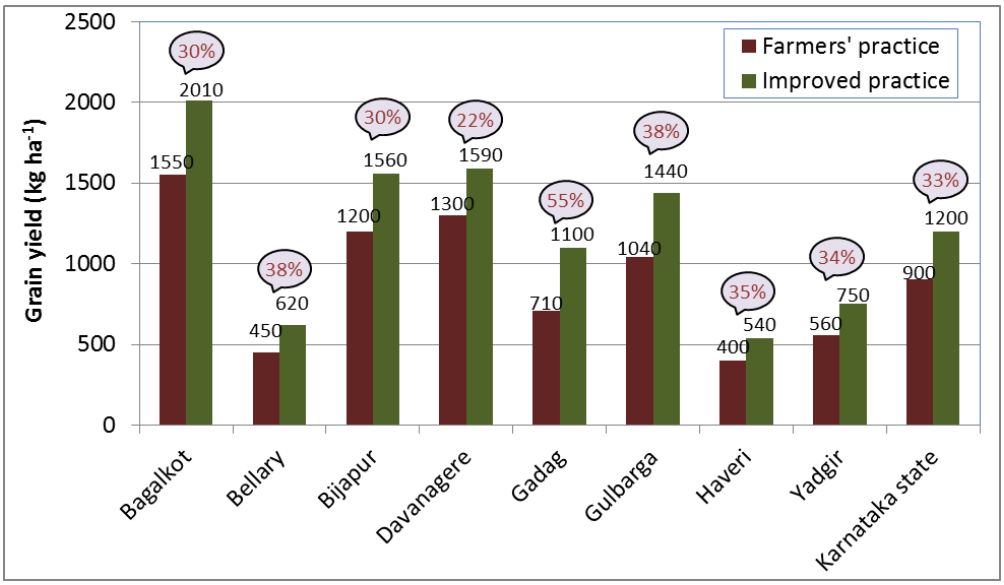

Figure 27. Effects of farmers' practice and improved management on chickpea yield in Karnataka during post-rainy season 2011-12

Sorghum

During the post-rainy 2011-12, the farmers' practice of cultivating sorghum recorded yields in the range of 270-2860 kg ha^{-1} (Figure 28). The benefit of improved management was seen in productivity improvement by 23 to 51% over the farmers' practice, realizing 370-3650 kg ha^{-1} productivity.

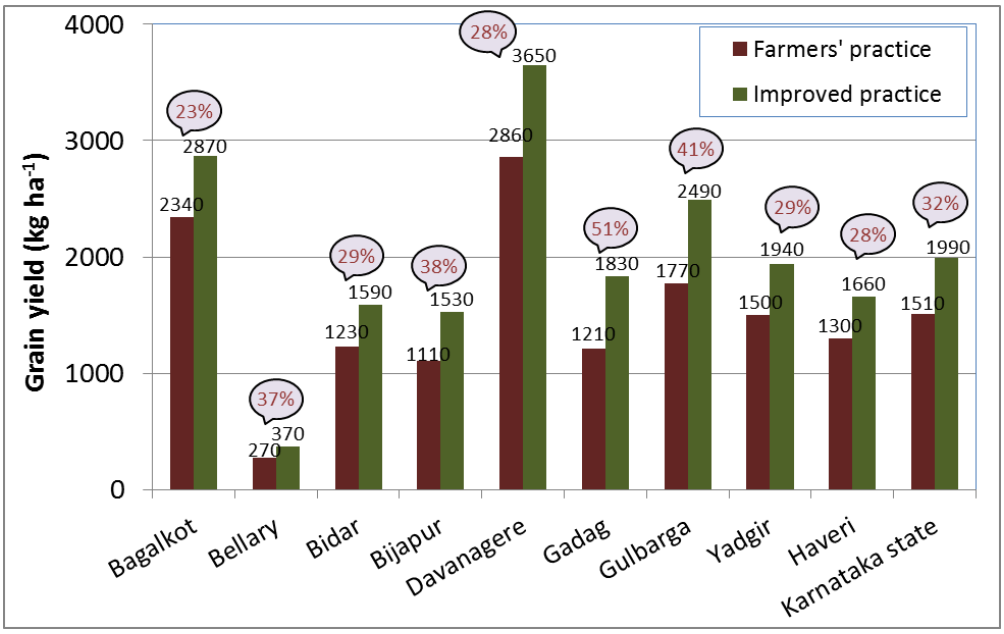

Figure 28. Effects of farmers' practice against improved management on sorghum yield in Karnataka during post-rainy season 2011-12

Sunflower

Crop cutting experiments with sunflower crop in Bagalkote and Haveri districts showed grain yield in the range of 660-1970 kg ha^{-1} (Figure 29). Improved management increased grain yields by 970 to 2680 kg ha^{-1}, thus recording an increase of 36 to 47% over the farmers' practice.

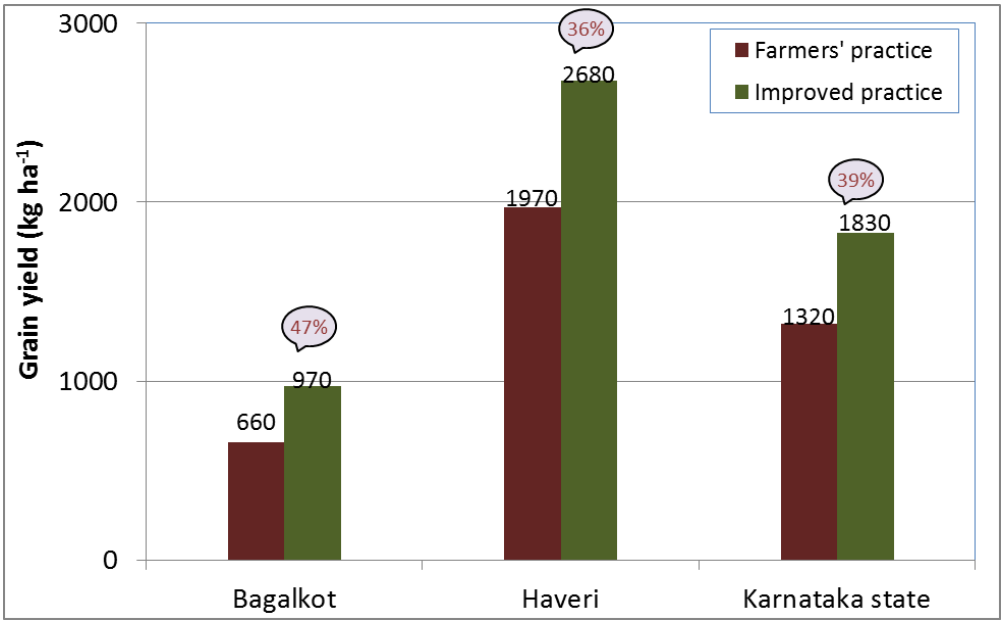

Figure 29. Effects of farmers' practice and improved management on sunflower yield in Karnataka during post-rainy season 2011-12

Safflower

Safflower is an important crop in Bagalkote and Haveri districts and in participatory trials farmers' way of cultivation recorded 540-800 kg ha^{-1} grain yield (Figure 30). The improved management however, proved to be an effective strategy to increase current yields by 680-1060 kg ha^{-1}, an increase of 26 to 33% over the farmers' practice.

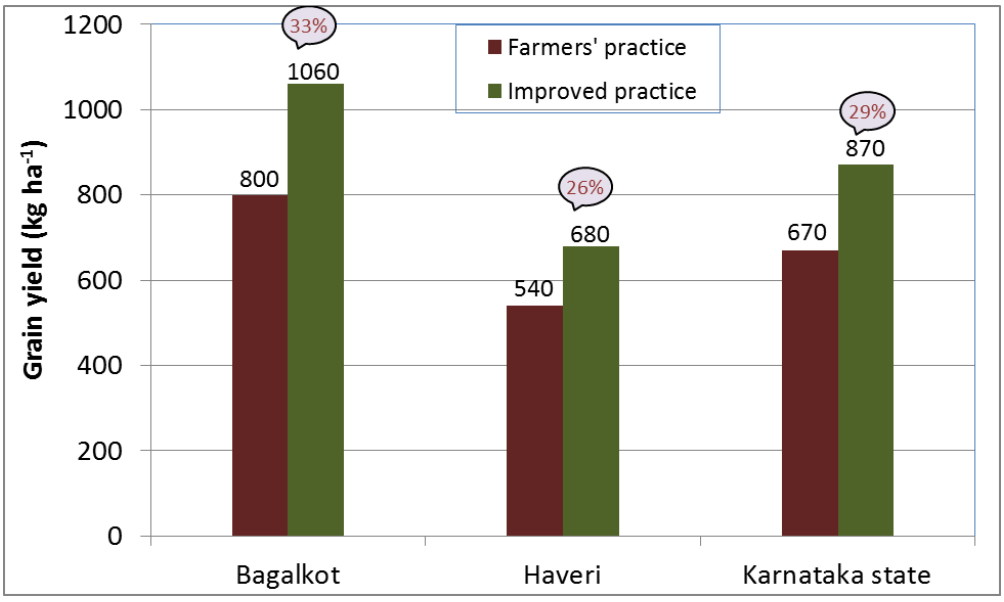

Figure 30. Effects of farmers' practice against improved management on safflower yield in Karnataka during post-rainy season 2011-12

Rainy 2012 Season Farmer Participatory Research for Impact Trials

Maize

Maize is an important rainy season crop in many districts of Karnataka. Therefore participatory trials were conducted with maize in 18 districts during the rainy season 2012. Results showed that farmers' practice is leading to lower crop yields (1180 to 9280 kg ha^{-1}) (Figure 31), and improved management can significantly increase (23 to 47%) grain yields to 1660-12340 kg ha^{-1}.

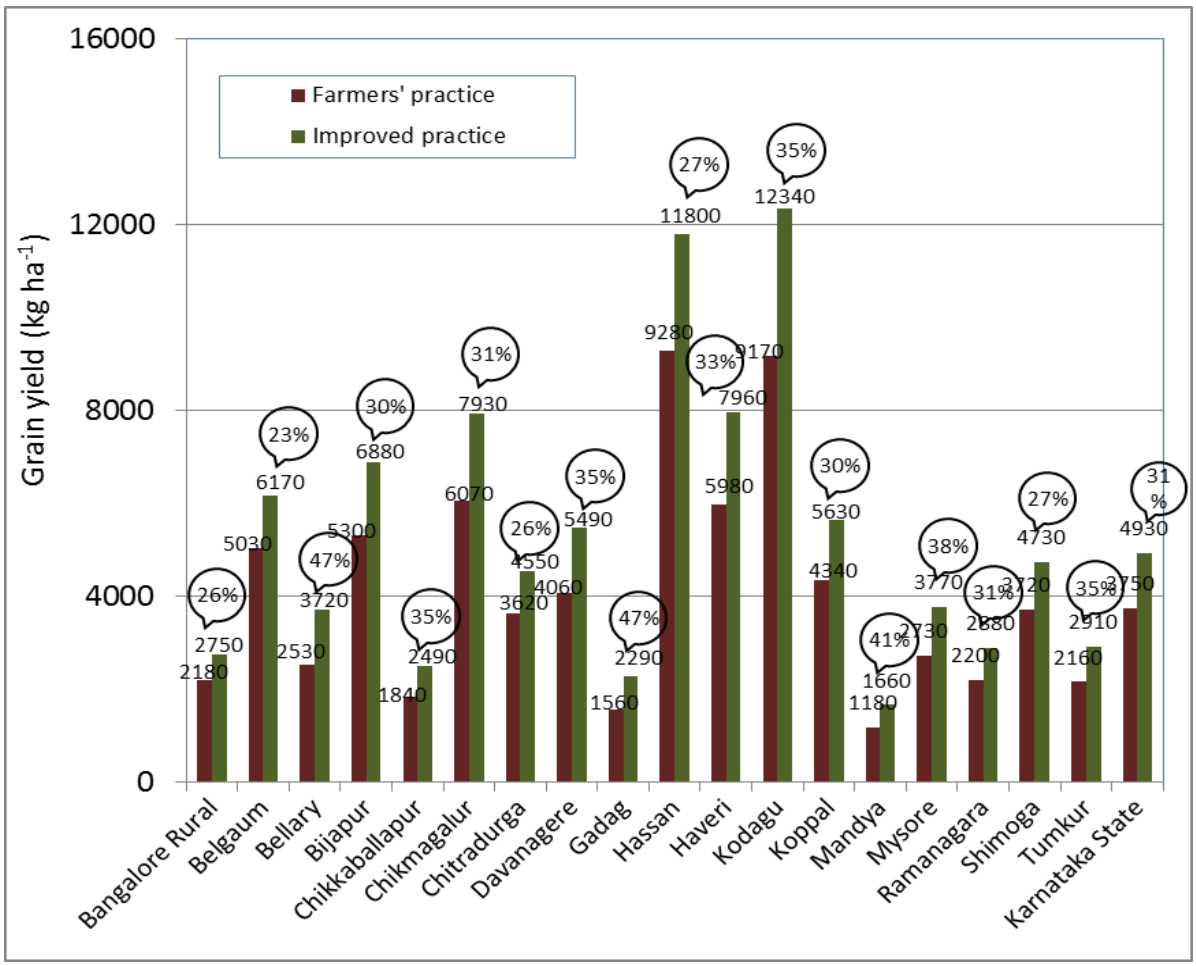

Figure 31. Effects of farmers' practice and improved management on maize yield in Karnataka during rainy season 2012

Groundnut

Across 13 districts in Karnataka, the farmers' practice of cultivating groundnut recorded yields in the range of 430-1540 kg ha^{-1} (Figure 32). The benefit of improved management was seen in increased yields by 510-2060 kg ha^{-1}, i.e., 17 to 45% higher yields over the farmers' practice.

Pearl millet

Participatory trials data in 6 districts (Bagalkote, Bellary, Bijapur, Gulbarga, Koppal, Yadgir) in Karnataka showed that current low yields (780 to 1900 kg ha^{-1}) of pearl millet under the farmers' management practice can be improved by 34 to 45% through adoption of improved management, by 1050-2540 kg ha^{-1} (Figure 33).

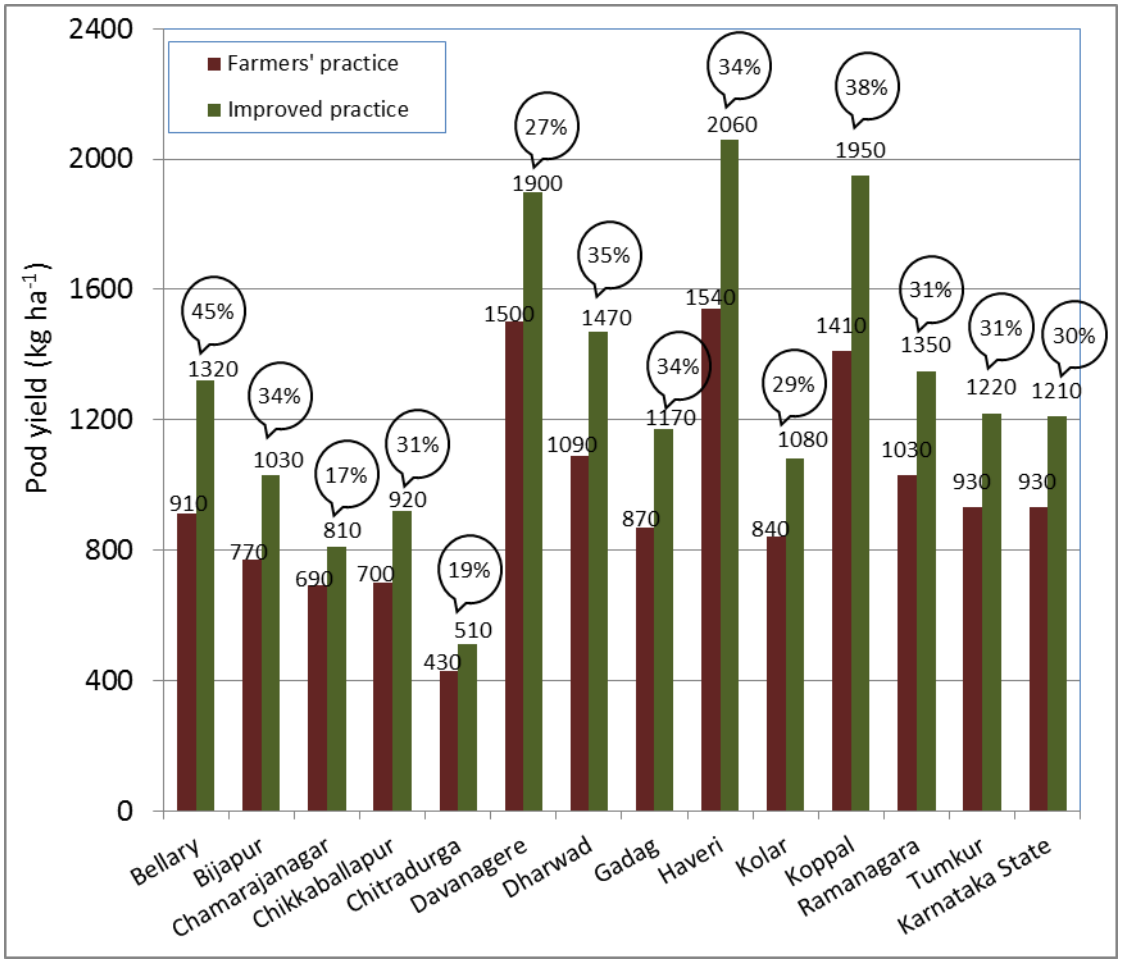

Figure 32. Effects of farmers' practice against improved management on groundnut yield in Karnataka during rainy season 2012

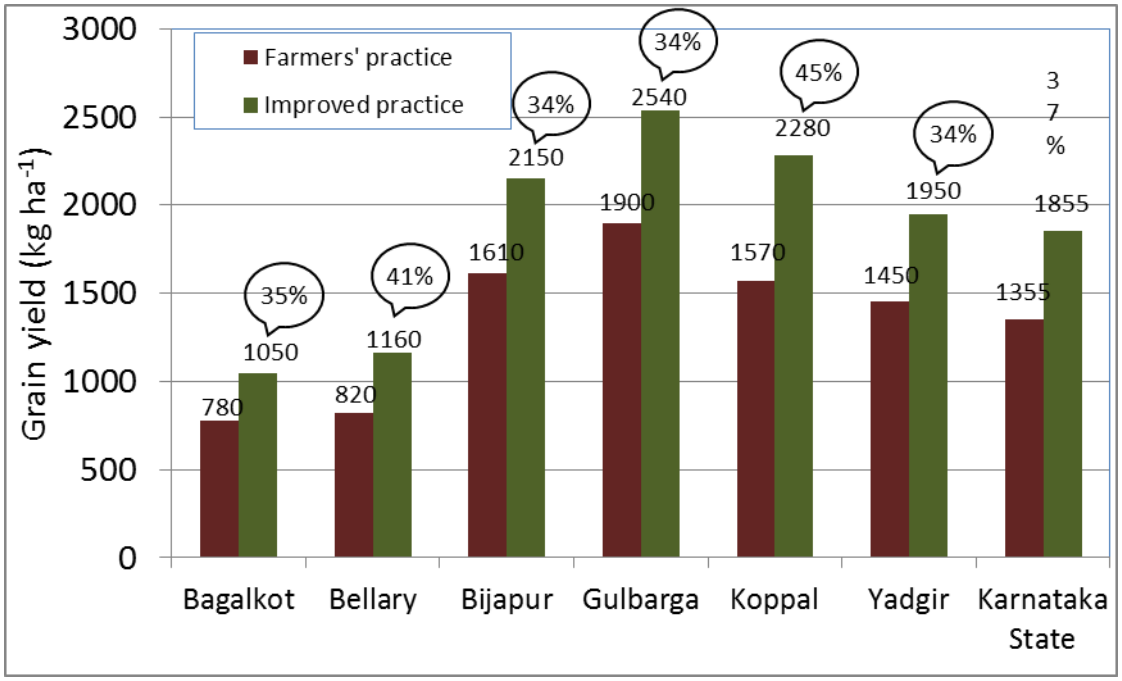

Figure 33. Effects of farmers' practice against improved management on pearl millet yield in Karnataka during rainy season 2012

Pigeonpea

Farmer participatory trials were conducted with pigeonpea crop during rainy season 2012 in 9 districts of Karnataka. Results showed productivity to vary from 250-2610 kg ha^{-1} under the famers' management practice (Figure 34). Improved management increased crop productivity by 330 to 3210 kg ha^{-1}, thus recording 23 to 37% increase over the farmers' practice in different districts.

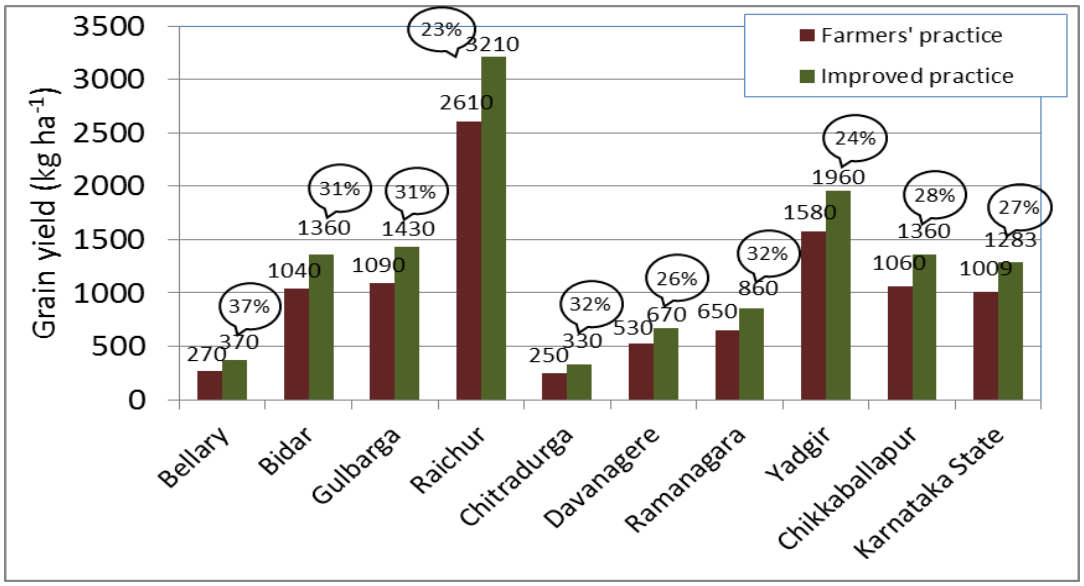

Figure 34. Effects of farmers' practice and improved management on pigeon pea yield in Karnataka during rainy season 2012

Finger millet

Finger millet is an important crop in 12 districts of Karnataka. Participatory trials in these districts showed farmers current yields in the range of 480-3030 kg ha^{-1} (Figure 35). Contrary to belief by many farmers/stakeholders, the finger millet crop responded significantly to improved management and recorded yields in the range of 620 to 3810 kg ha^{-1}, which were higher by 20 to 38% over the farmers' practice.

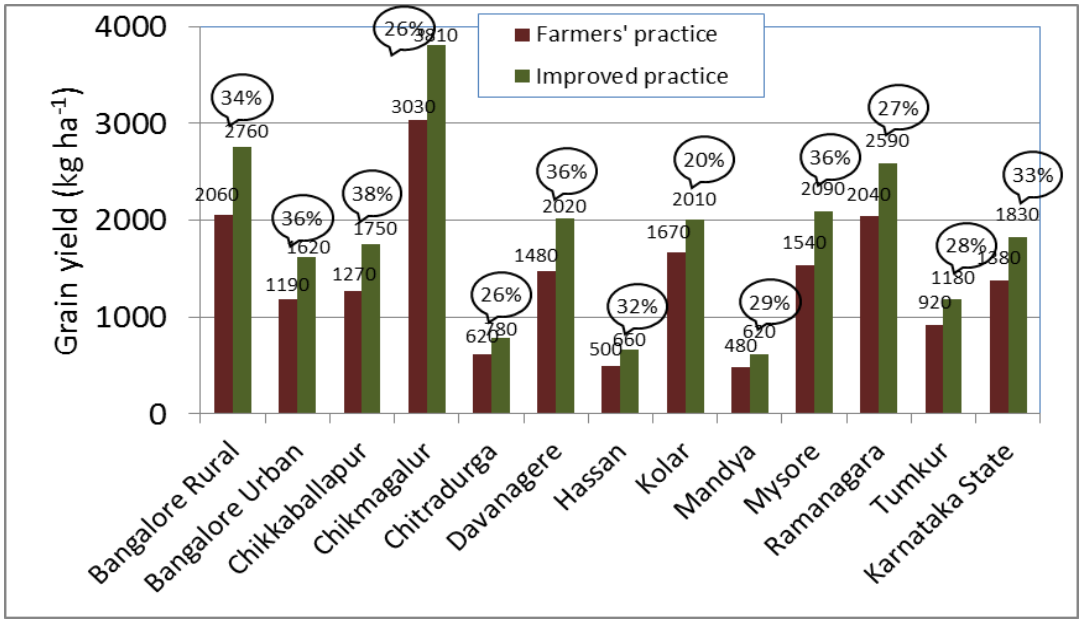

Figure 35. Effects of farmers' practice against improved management on finger millet/ragi yield in Karnataka during rainy season 2012

Green gram

Farmer participatory trials were conducted with green gram crop which is an important rainy season crop in Bidar, Gulbarga and Yadgir districts. Results showed that farmers' practice records grain yields in the range of 730-890 kg ha^{-1} (Figure 36). Data from crop cutting experiments showed that improved management increased grain yields by 990 to 1190 kg ha^{-1}, thus recording an increase of 29-36% over the farmers' practice.

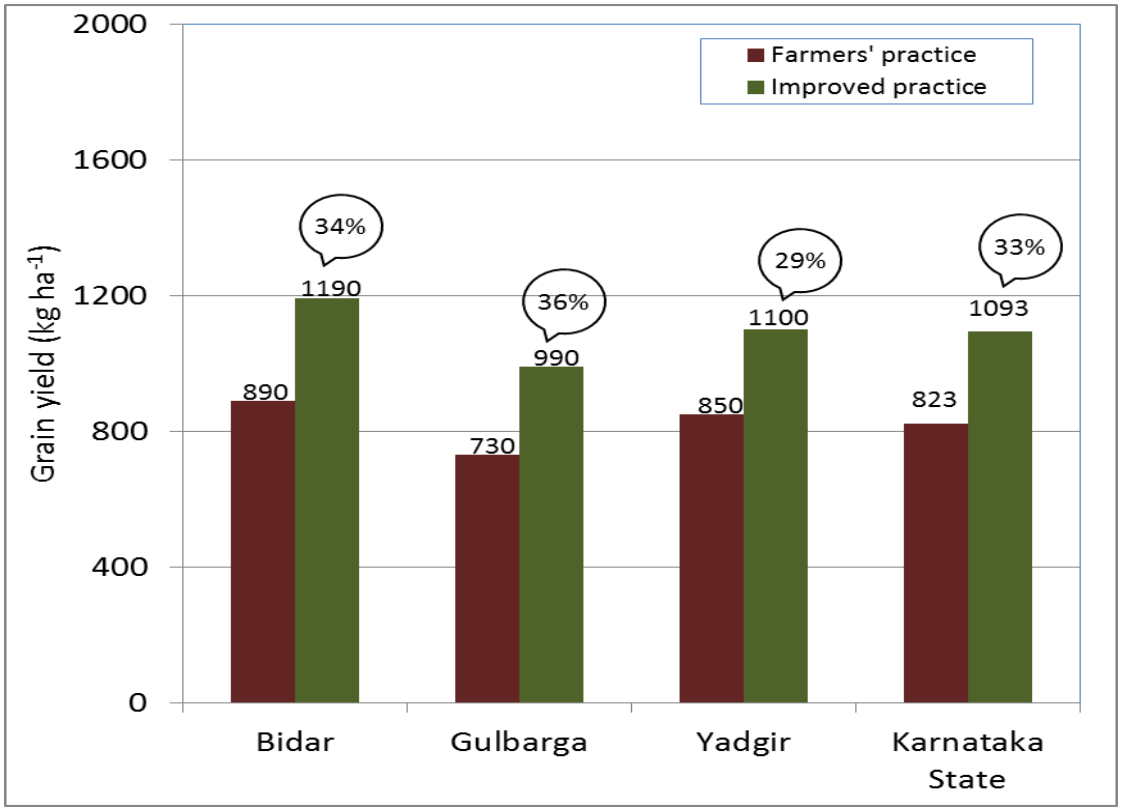

Figure 36. Effects of farmers' practice against improved management on green gram yield in Karnataka during rainy season 2012

Lab lab

Lab lab is a major crop in Davanggere, Ramanagara, Hassan and Chickballapur districts in Karnataka. The data from participatory trials showed that farmers' practice is producing yields on the lower side, from 690 to 970 kg ha^{-1} (Figure 37). Results pointed out that there is great scope to increase lab-lab yields to 820 to 1320 kg ha^{-1} through the adoption of improved management. Thus improved management increased grain yield over the farmers' practice by 19 to 36%.

Paddy

Like all other crops, paddy yields under farmers' practice are also on the lower side. Data from participatory trials in 13 districts showed that farmers' practice recorded yields in the range of 1430-6900 kg ha^{-1} (Figure 38). However, there is considerable scope to improve current low yields by 17 to 46% through adoption of improved management. Improved management during rainy 2012 recorded on-farm paddy yields in the range of 1880-8070 kg ha^{-1}.

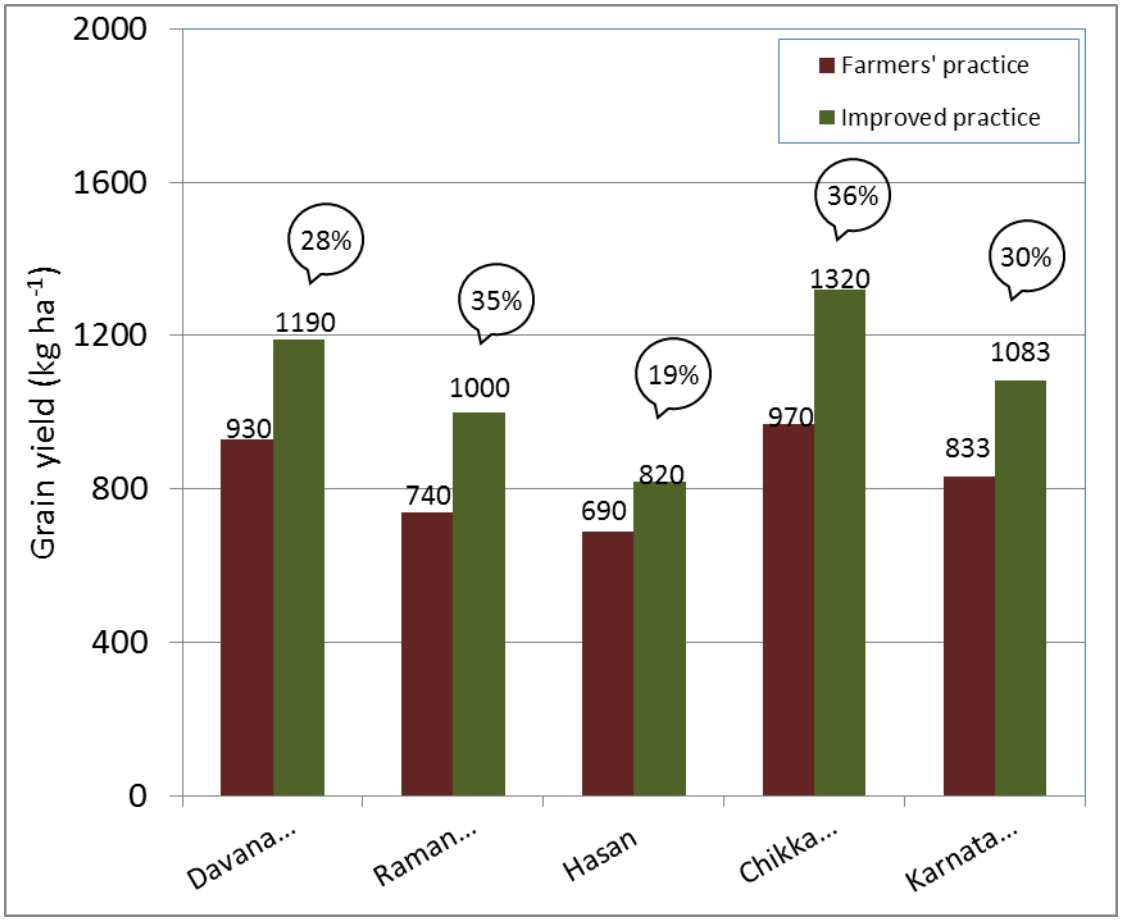

Figure 37. Effects of farmers' practice against improved management on lab-lab yield in Karnataka during rainy season 2012

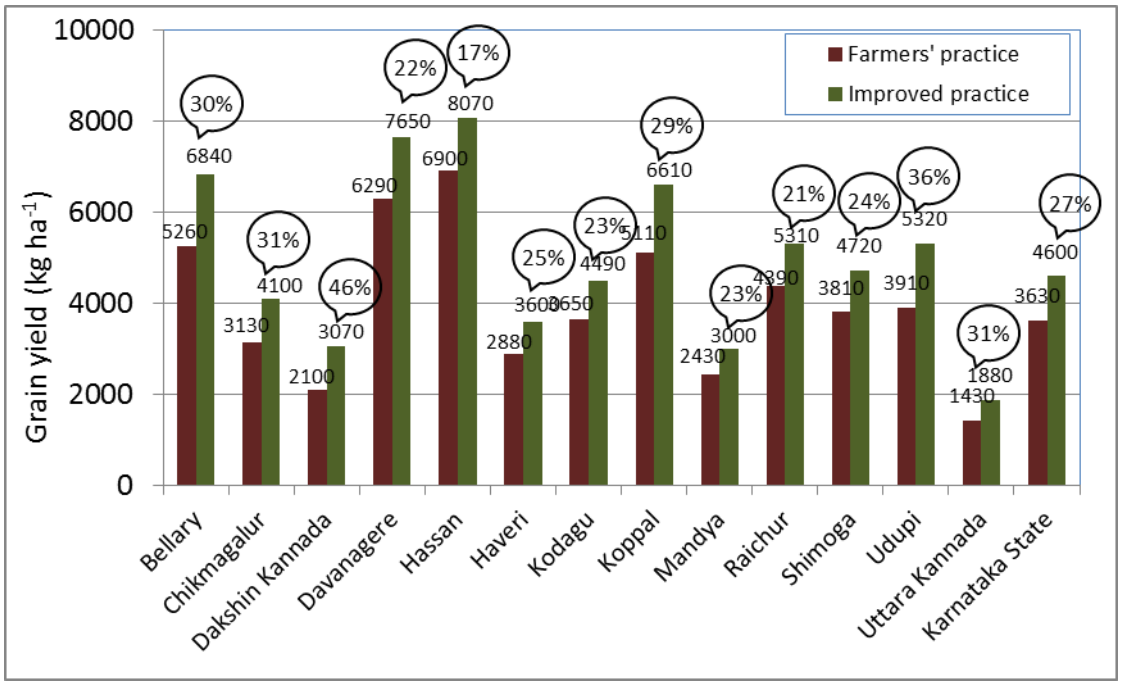

Figure 38. Effects of farmers' practice against improved management on paddy yield in Karnataka during rainy season 2012

Soybean

Soybean is an important crop in Bidar, Dharwad and Haveri districts. Participatory trials in these districts showed that current yields are low (460 to 1910 kg ha^{-1}) as compared to what can be achieved (Figure 39). Data from participatory trials during rainy 2012 season showed that improved management can increase soybean grain yield by 26-35% as compared with farmers' practice of 620 to 2580 kg ha^{-1}.

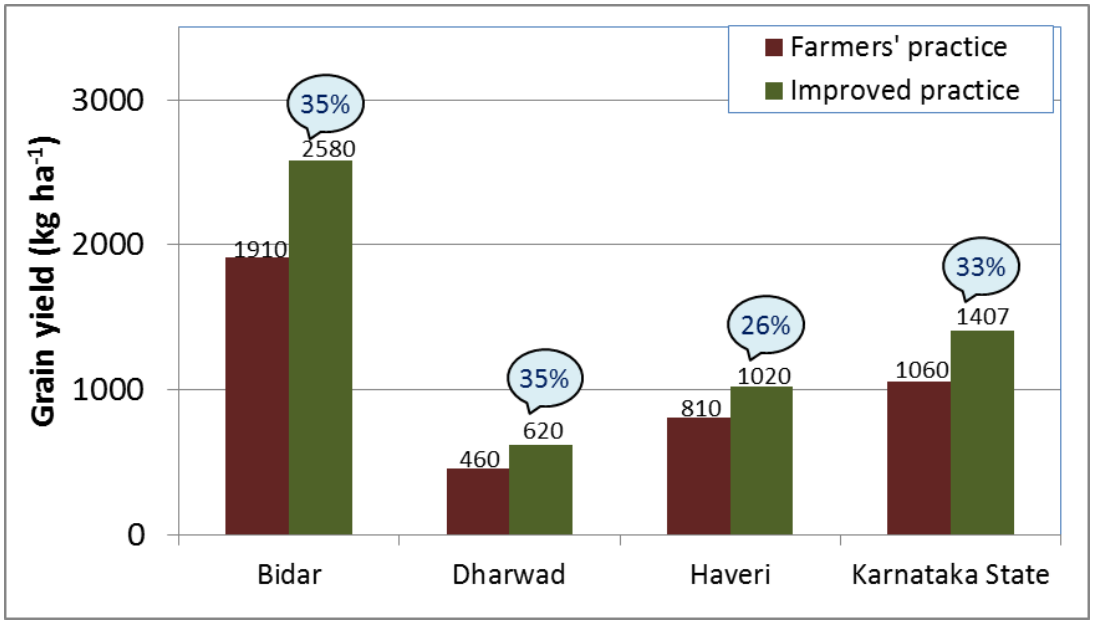

Figure 39. Effects of farmers' practice against improved management on soybean yield in Karnataka during rainy season 2012

Cotton

An analysis of the participatory trials showed average productivity of cotton under the farmers' practice in the range of 1480-2890 kg ha^{-1} across different districts (Figure 40). The benefits of improved management were evident as it enhanced yields by 1970 to 3870 kg ha^{-1}, an increase of about 26 to 34% over the farmers' practice.

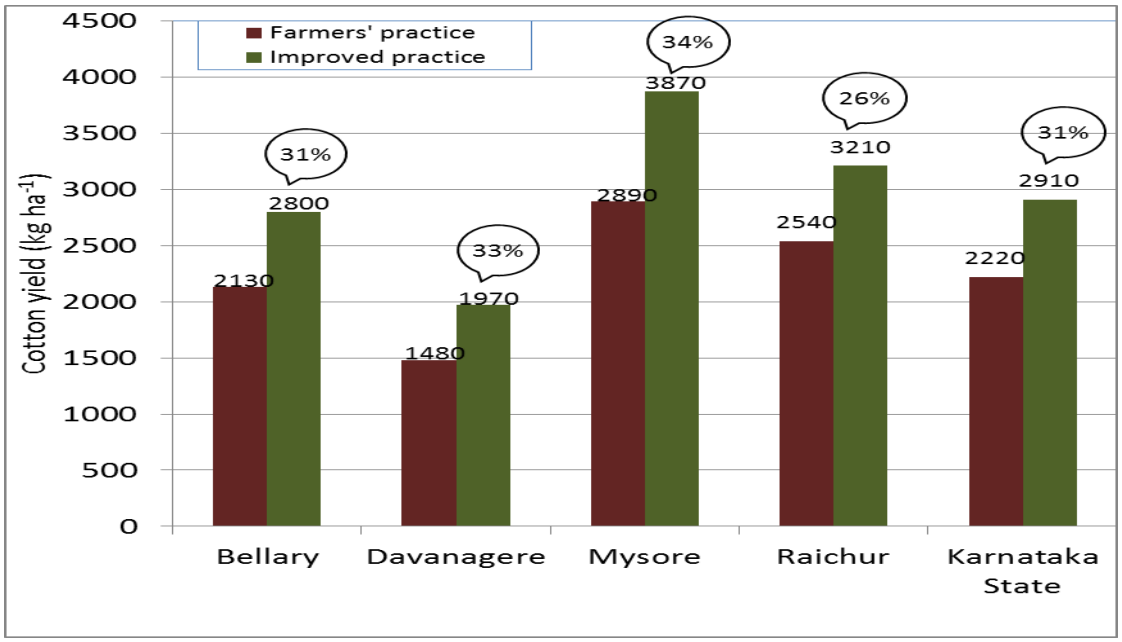

Figure 40. Effects of farmers' practice against improved management on cotton yield in Karnataka during rainy season 2012

Sugarcane

Sugarcane is an important crop in Davangere and Mandya districts. Like other crops in Karnnataka, the current crop yield of this cash crop is also low in spite of higher input use by the farmers. Results of crop cutting experiments during the 2012 rainy season showed that improved management is a strategy that can increase current yields by 11% (Figure 41).

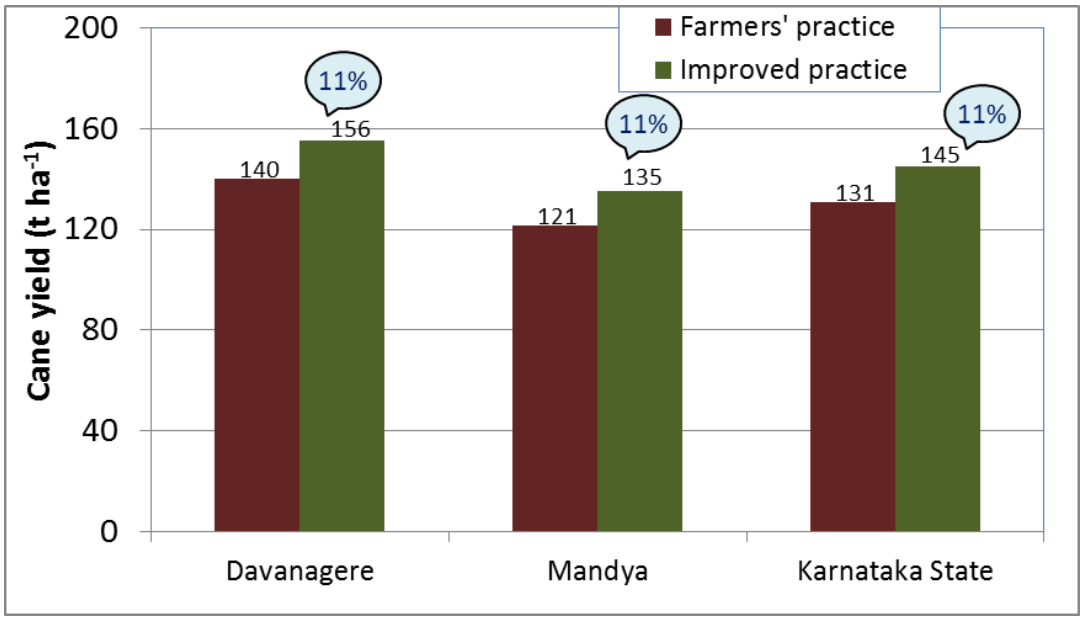

Figure 41. Effects of farmers' practice against improved management on sugarcane yield in Karnataka during rainy season 2012

Sorghum

Participatory trials were done with sorghum in Bidar and Davangere districts. The crop cutting data showed yields in the range of 1960-2140 kg ha^{-1} under farmers' practice (Figure 42). Improved management, however, increased yields by 2650 to 2700 kg ha^{-1}, showing an increase of 26 to 35% over farmers' practice.

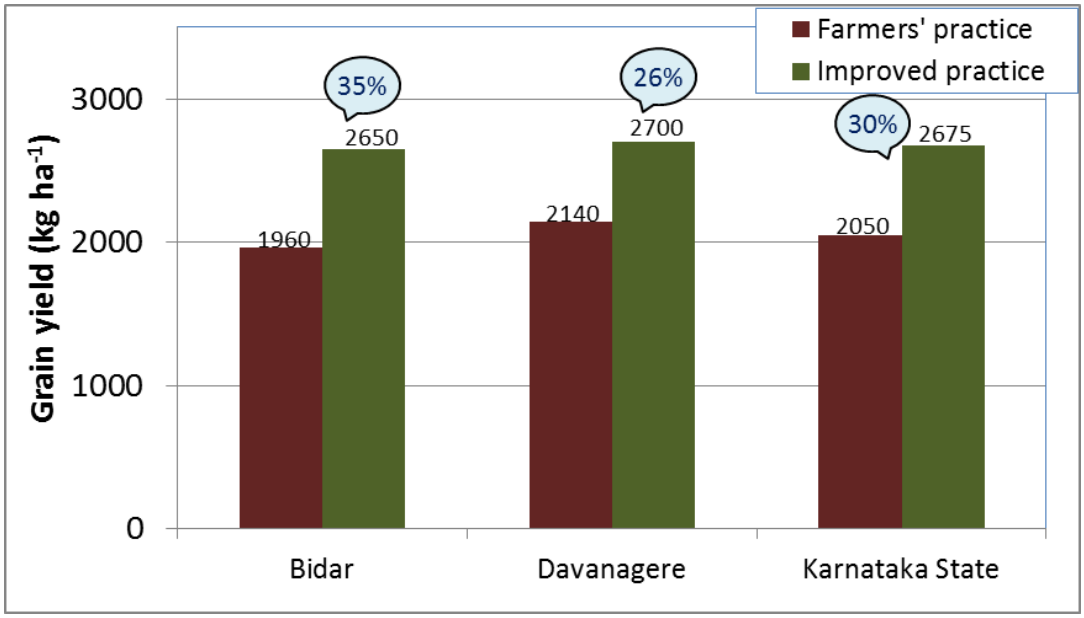

Figure 42. Effects of farmers' practice against improved management on sorghum yield in Karnataka during rainy season 2012

Sunflower

The participatory trials with sunflower during post-rainy 2012-13 season showed that current yields under the farmers' practice are low (640-1390 kg ha^{-1}) and the adoption of improved management can significantly increase yields by 910 to 1830 kg ha^{-1}, an increase of 25 to 42% over the farmers' practice in different districts of Karnataka (Figure 43).

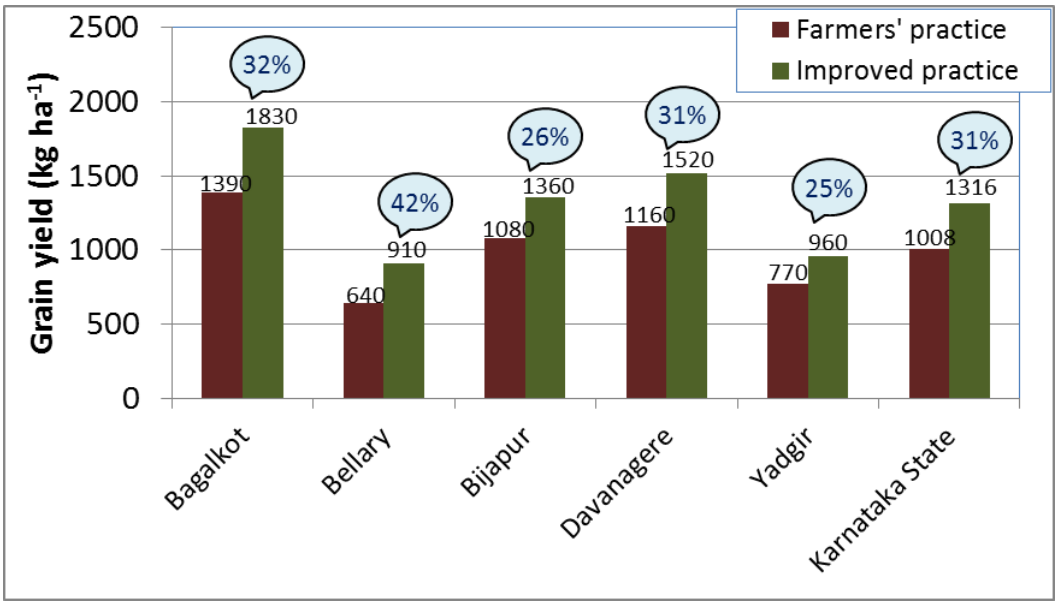

Figure 43. Effects of farmers' practice and improved management on sunflower yield in Karnataka during rainy season 2012

Post-rainy 2012-13 Season Farmer Participatory Research for Impact Trials

Chickpea

During the 2012-13 post-rainy season, farmer participatory trials were conducted with chickpea crop in 7 districts in Karnataka (Figure 44). Across the districts, farmers' practice yielded on an average 430-1030 kg ha^{-1}. Improved management, however, increased productivity by 560 to 1310 kg ha^{-1}, which is an increase of about 22 to 41% over the farmers' practice.

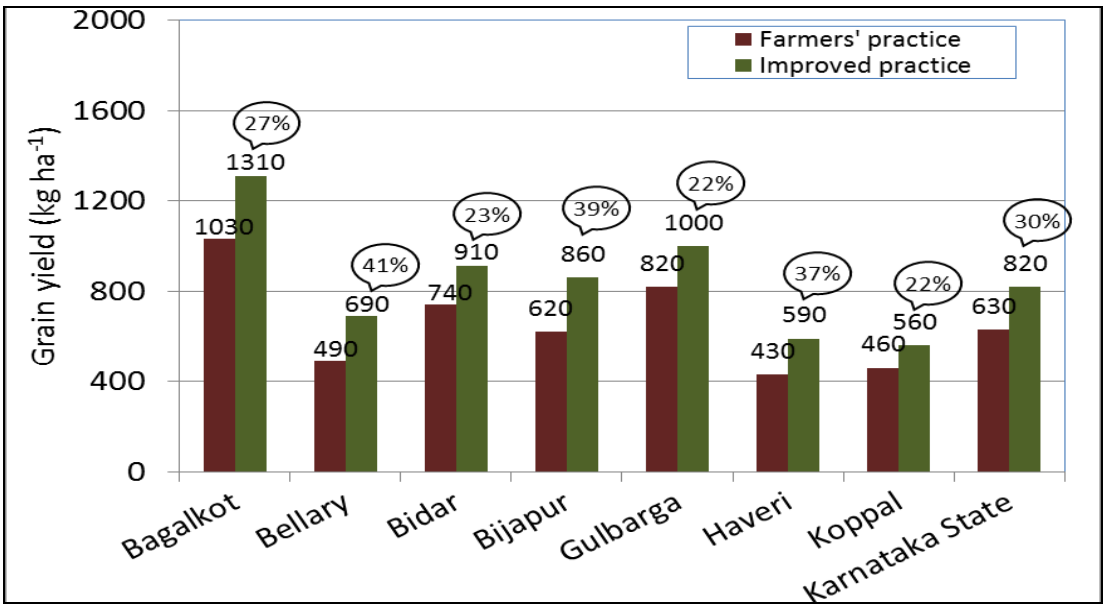

Figure 44. Effects of farmers' practice and improved management on chickpea yield in Karnataka during post-rainy season 2012-13

Safflower

Safflower is a prominent crop in the districts of Bidar and Koppal, and so participatory trials were done during post-rainy 2012-13 season to evaluate the effects of farmers' practice and improved management on safflower yield. Results showed relatively lower yields in Koppal district as compared to those in Bidar district (Figure 45). However the benefit of improved management was realized in both the districts by 29 to 35% over farmers' practice.

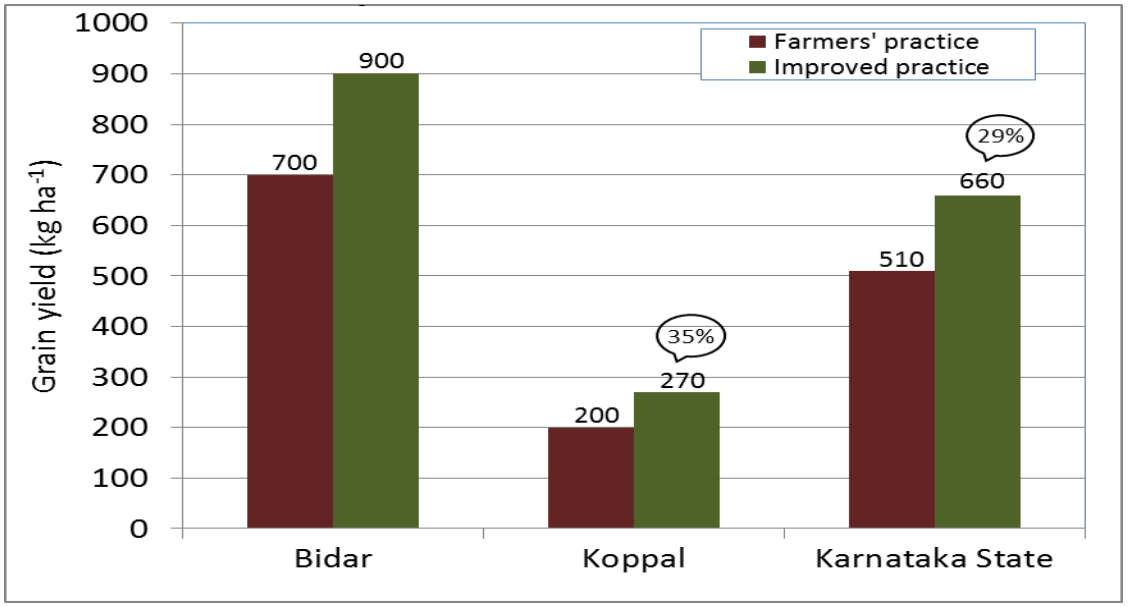

Figure 45. Effects of farmers' practice against improved management on safflower yield in Karnataka during post-rainy season 2012-13

Rabi sorghum

Participatory trials in 7 districts in Karnataka showed sorghum productivity in the range of 760-1430 kg ha^{-1} while cultivated traditionally under farmers' practice (Figure 46). However, it was realized that improved management can significantly increase productivity by 1030 to 1880 kg ha^{-1}, which is an increment of about 21 to 40% over farmers' practice.

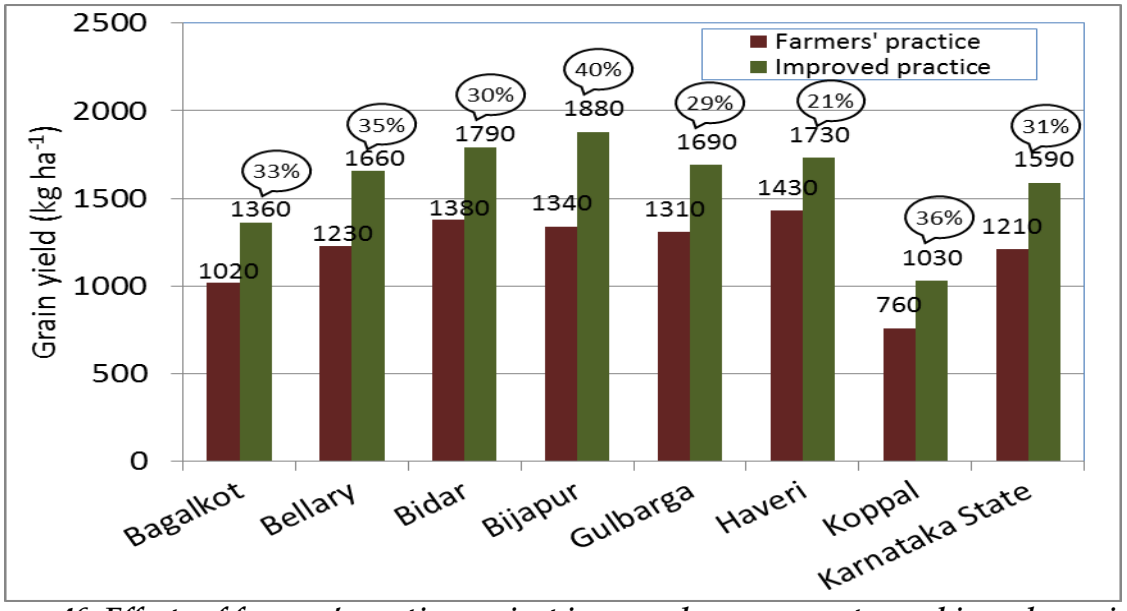

Figure 46. Effects of farmers' practice against improved management on rabi sorghum yield in Karnataka during post-rainy season 2012-13

Sunflower

Results of 2012-13 post-rainy trials in Bellary, Gulbarga, Haveri and Koppal districts showed general sunflower yields in the range of 440-1200 kg ha^{-1} when cultivated under farmers' practice (Figure 47). But the improved management that is advocated recorded higher yields by 23 to 48% over the farmers' practice, at 640 to 1770 kg ha^{-1}.

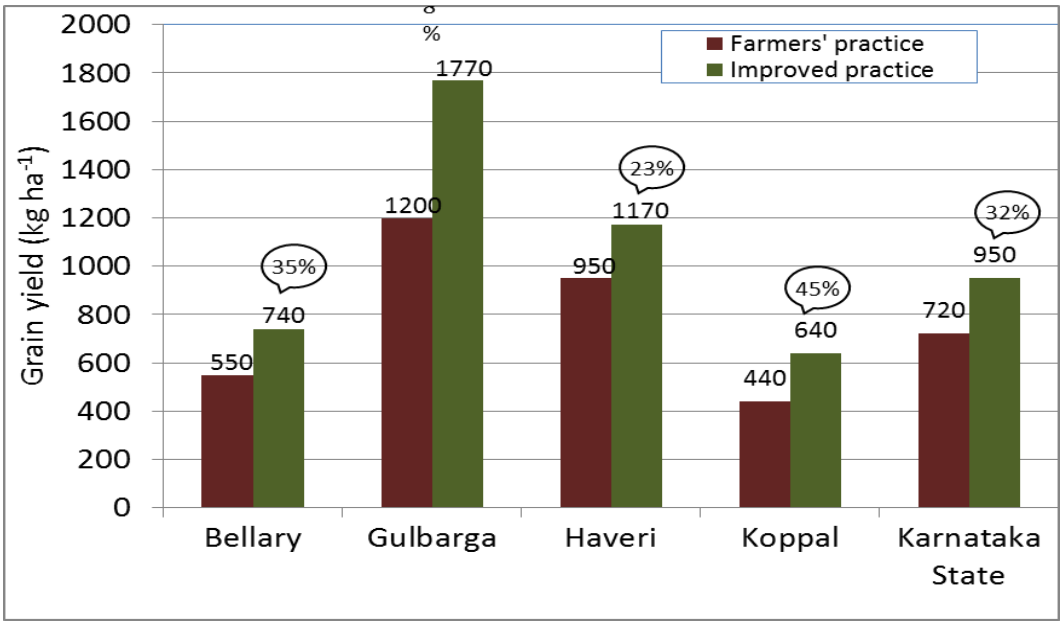

Figure 47. Effects of farmers' practice against improved management on sunflower yield in Karnataka during post-rainy season 2012-13

Wheat

In Bijapur and Koppal districts, the participatory trials with wheat crop recorded yields in the range of 510-700 kg ha^{-1} when cultivated under farmers' practice. As in other crops, the adoption of improved management increased wheat yields significantly by 680 to 910 kg ha^{-1} (Figure 48). As such improved management recorded an increase of 30 to 33% over farmers' practice.

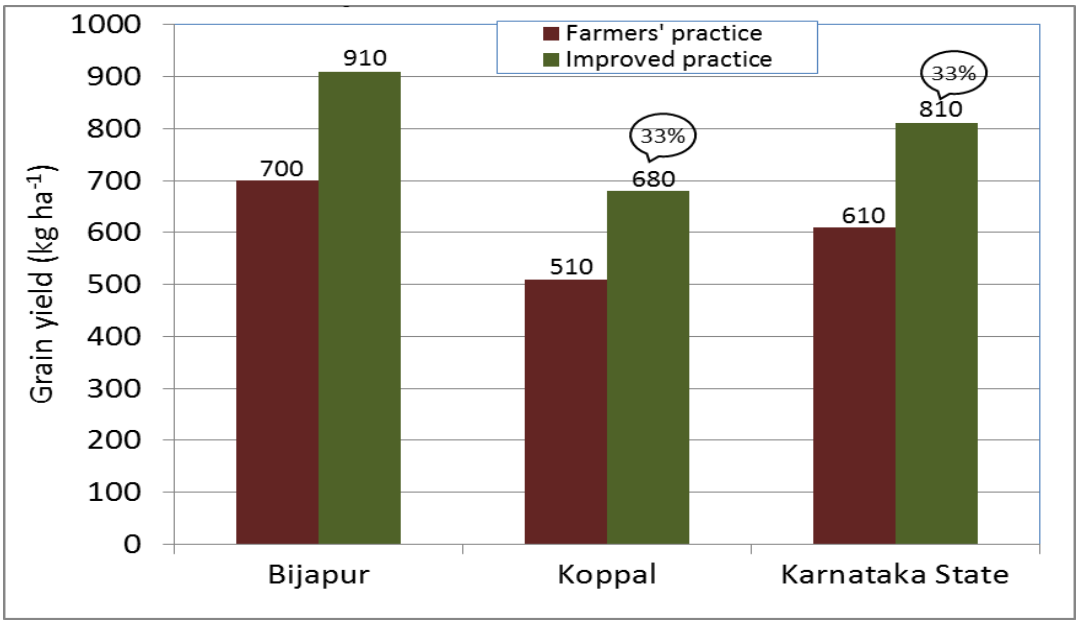

Figure 48. Effects of farmers' practice against improved management on wheat yield in Karnataka during post-rainy season 2012-13

Rainwater Use Efficiency

Water is a scarce resource in the dryland regions of Karnataka and research has shown that rainfed regions have low rain water use efficiency (RWUE). In the context of economic and environmental limitations the possibility of increasing the supply of water to meet the increased demand is slight; therefore the prospects of water scarcity are growing. The looming climate-related risks and probability of occurrence of extreme events call for enhancing RWUE. Soil fertility related degradation is one of the factors for inefficient utilization of production resources including water. Therefore, soil fertility management with the purpose of increasing proportion of water balance as productive transpiration, is also one of the most important rainwater management strategies to improve water productivity.

We worked out rainwater use efficiency of food production under farmers' practice and improved practice by dividing grain yield per ha with the amount of rainfall received during the crop season. Rainwater use efficiency for prominent crops in Karnataka is given in Tables 14 to 21.The results are very interesting in the way that under the farmers' practice, the limiting factor is ineffective utilization of available water and RWUE for food production, which is therefore very low. Under farmers' practice across various districts in Karnataka, the RWUE varied between 2.43 to 20.8 kg mm^{-1} ha^{-1} for maize, 1.93-6.24 kg mm^{-1} ha^{-1} for groundnut, 2.78 to 10.2 kg mm^{-1} ha^{-1} for finger millet, 3.61-6.95 kg mm^{-1} ha^{-1} for pearl millet, 0.76 to 3.17 kg mm^{-1} ha^{-1} for pigeonpea, 1.58-2.16 kg mm^{-1} ha^{-1} for green gram, 1.73 to 3.40 kg mm^{-1} ha^{-1} for soybean and 3.49-8.08 kg mm^{-1} ha^{-1} for sorghum (Tables 14 to 21). While under improved management, more food was produced from the same water as under farmers' practice, but by increasing RWUE of food production. Under improved practice, the RWUE increased by 3.10 to 27.6 kg mm^{-1} ha^{-1} in maize, 2.29 -8.63 kg mm^{-1} ha^{-1} in groundnut, 3.50 to 13.0 kg mm^{-1} ha^{-1} in finger millet, 4.86-10.1 kg mm^{-1} ha^{-1} in pearl millet, 1.00 to 3.94 kg mm^{-1} ha^{-1} in pigeonpea, 2.35-2.79 kg mm^{-1} ha^{-1} in green gram, 2.33 to 4.59 kg mm^{-1} ha^{-1} in soybean and 4.72-10.2 kg mm^{-1} ha^{-1} in sorghum. Thus improved management with a purpose to convert unproductive evaporation into useful transpiration is a very effective rainwater management strategy to increase water productivity.

Table 14. Effects of farmers' practice and improved management on RWUE in maize crop in Karnataka, 2012-13

		RWUE (kg mm^{-1} ha^{-1})	
District	**Rainfall (mm)**	**FP**	**IP**
Bellary	205	12.3	18.1
Bengalur Rural	245	8.9	11.2
Bijapur	272	19.5	25.3
Chitradurga	223	16.2	20.4
Davanagere	265	15.3	20.7
Haveri	288	20.8	27.6
Kodagu	1595	5.75	7.74
Koppal	226	19.2	24.9
Mandya	159	7.42	10.4
Ramanagara	200	11.0	14.4
Shimoga	1528	2.43	3.10
Chikkaballapur	291	6.32	8.56

Table 15. Effects of farmers' practice against improved management on RWUE in groundnut crop in Karnataka, 2012-13

		RWUE (kg mm^{-1} ha^{-1})	
District	Rainfall (mm)	FP	IP
Bellary	205	4.44	6.44
Bijapur	272	2.83	3.79
Chitradurga	223	1.93	2.29
Davanagere	265	5.66	7.17
Dharwad	266	4.10	5.53
Haveri	288	5.35	7.15
Koppal	226	6.24	8.63
Ramanagara	200	5.15	6.75
Chikkaballapur	291	2.41	3.16

Table 16. Effects of farmers' practice against improved management on RWUE in finger millet/ragi crop in Karnataka, 2012-13

		RWUE (kg mm^{-1} ha^{-1})	
District	Rainfall (mm)	FP	IP
Bengaluru Urban	235	5.06	6.89
Bengalur Rural	245	8.41	11.3
Chitradurga	223	2.78	3.50
Davanagere	265	5.58	7.62
Mandya	159	3.02	3.90
Ramanagara	200	10.2	13.0
Chikkaballapur	291	4.36	6.01

Table 17. Effects of farmers' practice against improved management on RWUE in pearl millet crop in Karnataka, 2012-13

		RWUE (kg mm^{-1} ha^{-1})	
District	Rainfall (mm)	FP	IP
Bagalkot	216	3.61	4.86
Bellary	205	4.00	5.66
Bijapur	272	5.92	7.90
Koppal	226	6.95	10.1
Yadgir	394	3.68	4.95

Table 18. Effects of farmers' practice against improved management on RWUE in pigeonpea crop in Karnataka, 2012-13

		RWUE (kg mm^{-1} ha^{-1})	
District	Rainfall (mm)	FP	IP
Bellary	331	0.82	1.12
Chitradurga	329	0.76	1.00
Davanagere	413	1.28	1.62
Ramanagara	389	1.67	2.21
Yadgir	498	3.17	3.94
Bidar	685	1.52	1.99
Chikkaballapur	483	2.19	2.82

Table 19. Effects of farmers' practice against improved management on RWUE in green gram crop in Karnataka, 2012-13

District	Rainfall (mm)	RWUE (kg mm^{-1} ha^{-1})	
		FP	IP
Bidar	562	1.58	2.35
Yadgir	394	2.16	2.79

Table 20. Effects of farmers' practice against improved management on RWUE in soybean crop in Karnataka, 2012-13

District	Rainfall (mm)	RWUE (kg mm^{-1} ha^{-1})	
		FP	IP
Bidar	562	3.40	4.59
Dharwad	266	1.73	2.33
Haveri	288	2.81	3.54

Table 21. Effects of farmers' practice against improved management on RWUE in sorghum crop in Karnataka, 2012-13

District	Rainfall (mm)	RWUE (kg mm^{-1} ha^{-1})	
		FP	IP
Bidar	562	3.49	4.72
Davanagere	265	8.08	10.2

Economics of Improved Management

Economic viability is a real indicator of the success of any technology. Therefore benefit to cost (B:C) ratios of improved management were worked out by dividing additional gains to additional costs of improved management over and above farmers' practice (Table 22a, b). For the state as a whole during 4 years (2009 to 2012), the B:C ratios of IP on farmers' fields varied between 2.1 to 6.5 in chickpea, 0.3 to 10.4 in groundnut, 5.6 to 18.5 in maize, 1.5 to 5.7 in rabi sorghum, 1.3 to 7.8 in soybean, 3.6 to 13.5 in cotton, 0.2 to 5.5. in green gram, 1.2 to 8.2 in kharif sorghum, 1.5 to 4.1 in pearl millet, 0.8 to 6.5 in pigeonpea, 0.3 to 6.4 in ragi, 2.0 to 6.4 in black gram and 10.4 to 12.1 in paddy (see Tables 22a & b for eco-region wise details).

Table 22a. Benefit to cost ratios of adopting improved management in different regions of Karnataka

Crop	B:C ratio			
		2010	2011	2012
Northern Trans Zone				
Chickpea	4.6		3.1	
Groundnut	7.9	9.5	9	5
Maize	14.6	14.1	8.5	15.1
Rabi Sorghum	2.8		1.5	
Soybean	7.8	3.6	4.5	1.3
Northern Dry Zone				
Chickpea	3.5	3.9	3.3	
Cotton			3.6	3.6
Greengram		1.9	1.9	

Crop	B:C ratio		
	2010	2011	2012
Groundnut	6.2	2.5	2.3
Kharif Sorghum		3.9	5.5
Maize	15.1	6.9	8.8
Pearl Millet	2.6	2.6	4.1
Pigeonpea	3	3	5.1
Rabi Sorghum	3.1	2.3	2.0
Ragi	2.7	1.0	3.4
North Eastern Trans Zone			
Blackgram	2	2.1	6.4
Chickpea	2.9	2.1	2.1
Greengram	4.4	5.5	5.5
Kharif Sorghum	2.5	2.9	3.1
Pearl Millet	1.5	3	
Pigeonpea	6.2	6	
Soybean	4.8	5.9	5.9
North Eastern Dry Zone			
Chickpea	2.8	2.6	
Greengram	2.0	3.6	4.4
Pearl Millet	1.6	2.1	2
Pigeonpea	5.9	5.7	6.5

Table 22b. Benefit to cost ratios of adopting improved management in Southern and Central Dry regions of Karnataka

Crop	B:C Ratio		
	2010	2011	2012
Southern Transition			
Chickpea	3.9	4.7	
Cotton		4.3	4.8
Groundnut		10.4	10.4
Kharif Sorghum	3.7	8.2	8.2
Maize	18.5	8.7	8.3
Paddy		10.4	12.1
Pigeonpea		1.0	1.4
Rabi Sorghum	5.7	5.3	
Ragi	4.4	2.7	4.4
Central Dry Zone			
Chickpea		3.2	
Cotton	12.5	13.5	12.5
Groundnut		1.5	
Kharif Sorghum	1.2	5.2	2.6
Maize	5.6	6.5	5.6
Pigeonpea	2.6	1.0	1.0
Ragi	2.7	1.0	

An economic analysis of the whole Bhoochetana program in Karnataka was also done for three years from 2009 to 2011. We adopted the methodology to work out additional benefits over the cost of inputs in actual areas of Bhoochetana implementation. The results were very interesting. The cost of inputs for an area of 11,751 ha was 281 lakhs during 2009, while value of additional produce due to improved management was 1429 lakhs (Table 23). During 2010, the cost of inputs for an area of 183,083 was 2254 lakhs and value of additional produce was 22,735 lakhs. Similarly, during 2011, the cost of inputs for an area of 581,582 was 5308 lakhs, while the additional value of produce due to improved management was 65,253 lakhs. During 2012, the cost of inputs for an area of 493,101 ha was 6580 lakhs, while the additional value of produce due to improved management was 51,765 lakhs. Thus the program led to net benefits of Rs. 1149 lakhs during 2009, Rs. 20,481 lakhs during 2010, Rs. 59,945 lakhs during 2011 and Rs. 45,185 during 2012 which totals to Rs. 126,760 lakhs for the state of Karnataka as a whole for a 4-year period from 2009 to 2012 (see Appendix 1 to 4 for district wise details).

Table 23. Year wise detail of benefits through improved management under Bhoochetana initiative in Karnataka

Year	Area under Imp Mgmt (ha)	Total Production of Crops with Imp Mgmt (t)	Total Production of Crops with Farmers' Mgmt (t)	Addl Production with Imp Mgmt (t)	Value of Additional Production with Imp Mgmt (Rs. Lakhs)	Cost of Inputs (Rs. Lakhs)	Net Income (Rs. Lakhs)
2012	493101	1447771	1116380	331390	51765	6580	45185
2011	581582	2144801	1605359	539442	65253	5308	59945
2010	183083	467824	344577	123248	22735	2254	20481
2009	11751	49101	35084	14016	1429	281	1149
Gross Total	1269517	4109497	3101400	1008096	141182	14423	126760

Field Days and Field Visits 2012-13

ICRISAT staff coordinated field days in all 30 districts with the full support and participation of DoA district-level staff during the cropping season in the months of October (black gram and green gram), November and December (ragi, groundnut, maize and sunflower) coinciding with full grown, mature, or harvest-ready kharif crops in most of the districts. Wherever long season kharif crops (pigeonpea and cotton) and rabi crops (chickpea and rabi sorghum) were grown, field days were organized to demonstrate crop growth and yield enhancement with improved management including use of micronutrients and suitable improved varieties in different districts (Table 24). Apart from this, ICRISAT-DoA staffs made several field visits to contact farmers and provide guidance on rabi crops management to ensure proper sowing and appropriate plant stand which are important for higher productivity.

Nearly 4353 field days were organized in 30 districts of Karnataka under Bhoochetana during the crop season 2012-13. Nearly 221,027 farmers were exposed to science-led improved technologies to enhance crop productivity on drylands. This included nearly 61,800 women farmers in Karnataka.

Figure 49. Glimpses of the Field Day

Table 24. Details of field days held in different districts of Karnataka during 2012-13 cropping seasons

Sl. No	District	No. of Field Days held	No. of Farmers participated	Men	Women
1.	Bagalkote	446	26760	22300	4460
2.	Bellary	130	2160	1726	444
3.	Bengaluru Rural	46	1610	1036	574
4.	Bengaluru Urban	29	870	653	217
5.	Belgaum	668	46760	34279	12481
6.	Bidar	24	1611	1235	376
7.	Bijapur	912	41040	24624	16416
8	Chamarajanagara	14	550	420	130
9.	Chikkaballapur	21	1494	1152	342
10.	Chikkamagalur	158	7110	5010	2100
11.	Chitradurga	2	213	148	65
12.	Davangere	169	12506	7520	4986

13.	Dharwad	402	17243	10701	6542
14.	Dakshina Kannada	81	2430	1944	486
15.	Gadag	274	13700	9000	4700
16.	Gulburga	41	648	620	28
17.	Hassan	87	8132	7148	984
18.	Haveri	27	1634	1536	98
19.	Kolar	27	1350	1102	248
20.	Kodugu	15	728	547	181
21.	Koppal	12	1123	840	285
22.	Mandya	9	474	372	102
23.	Mysore	26	2028	1862	166
24.	Raichur	377	12520	12370	150
25.	Ramnagara	13	1074	850	224
26.	Shimoga	110	2126	678	1448
27.	Tumkur	NA	NA	NA	NA
28.	Udipi	83	3569	2217	1352
29.	Uttara Kannada	102	8212	6159	2053
30.	Yadgir	48	1352	1190	162
Total		**4353**	**221027**	**159239**	**61800**

Farmers' Success Stories

Mr. Devendrappa (58 years old), is a farmer from Janawada village in Bidar taluk, Karnataka. Agriculture is the main source of livelihood for him and his family. Mr. Devendrappa cultivates different crops, such as green gram, black gram, and soy bean in his seven acres farm. Like any other farmer, Mr. Devendrappa is also disillusioned with farming in view of fast growing input requirements, energy and labor costs, and stagnating or declining crop response to the inputs. The Bhoochetana initiative at this juncture offered him a ray of hope in farming.

Figure 50. Mr Devendrappa demonstrating the benefit of improved management in his green gram field during rainy season 2012

During rainy season 2012, Mr. Devendrappa got associated with Bhoochetana and volunteered to participate in the on-farm research to follow soil-test based nutrient management on one acre of his green gram plot (improved management), and follow his traditional practice (farmers' practice) on another one acre green gram plot for comparison.

With advice from ICRISAT/DoA experts, he added deficient secondary and micronutrients like sulphur (through gypsum), boron (through borax) and zinc (through zinc sulphate) in improved management plot in addition to nitrogen (through urea, DAP), phosphorus (through DAP), and potassium (through MOP) nutrient inputs as in farmers' practice. Balanced nutrition is advocated to provide adequate and proportionate amounts of nutrients to plants for normal metabolic functioning and thereby good crop growth and yield. In addition, trichoderma at 200 g per acre and VAM (vesicular arbuscularmycorrhizae) at 200 g per acre were also applied in improved management plot through seed treatment. Trichoderma is recommended to provide resistance against fungal infections and shocks in early plant growth. VAM is a fungus which inhabits plant roots and protruding fungal hyphae acts as nutrient mobilizer/solubilizer and thus enhances nutrient availability and uptake for plant growth and yield. All other agronomic practices were same in both the management practices. The green gram crop under both practices was sown on 25 June 2012 and harvested on 24 August 2012.

Mr Devendrappa got additional inputs like secondary and micronutrients, trichoderma and VAM from DoA under a 50% subsidy which is being promoted under Bhoochetana and converged schemes to bring in sustainable use of natural resources for farm-based livelihood improvement. The farmer had to incur an additional cost of around Rs 490/- per acre on these inputs. As such he incurred a total expenditure of Rs 2910/- per acre in farmers practice plot and Rs. 3400/- per acre in improved management plot on inputs and farm operations of land preparation, sowing, interculture, weeding, harvesting, threshing and transport. The results of science led farming surprised the farmer himself by getting 43% higher yields in improved management practice (500 kg acre^{-1}) over the farmers practice (350 kg acre^{-1}).

He sold his produce at a farm gate price of Rs 40/- per kg and therefore got additional net returns of about Rs 5500/- per acre. The unexpected good income helped him to improve his children's education and the health status of his family. The science-led approach in Bhoochetana mission not only brought a smile to his face, but also showed a potential to further enhance income by following a similar strategy in the rest of his 6 acres. In his own words Mr Devendrappa expressed gratitude and credited Bhoochetana and its farm facilitators, ICRISAT/DoA staff and media publicity for his success.

Mr Guravayya (55), a farmer from Ayyanahalli village under Kudligi taluk in Bellary district, Karnataka is another case in point. He and his family depend upon farming for their livelihood. He cultivates different crops – maize, groundnut and millet on his 4-acre farm. During rainy season 2012, Mr Guravayya got associated with Bhoochetana, and followed soil-test based nutrient management in one acre of his millet plot (improved management), and followed his traditional practice (farmers' practice) in another one acre of his millet plot for comparison (Figure 51). With advice from ICRISAT/DoA experts, he added micronutrients like sulphur (through gypsum), boron (through borax) and zinc (through zinc sulphate) in improved management plot in addition to nitrogen (through urea, DAP), phosphorus (through DAP) and potassium (through MOP) as in farmers' practice.

In addition, trichoderma @ 200 g acre^{-1} and VAM (vesicular arbuscularmycorrhizae) @ 200 g acre^{-1} were also applied in improved management plot through seed treatment. All other agronomic practices were same in both. The maize crop under both the practices was sown on 10 July 2012 and harvested on 4 October 2012. Mr. Guravayya got additional inputs like secondary and micronutrients, trichoderma and VAM from the DoA under a 50% subsidy which are being promoted under Bhoochetana and converged schemes to bring in

sustainable use of natural resources for farm-based livelihood improvement. The farmer had to incur an additional cost of Rs 490 per acre on these inputs. As such he incurred a total expenditure of Rs 2910 per acre in farmers' practice plot and Rs. 3400 per acre in improved management plot on inputs and farm operations of land preparation, sowing, interculture, weeding, harvesting, threshing and transport. The results of science-led farming surprised him because it got 34% higher yields under improved management practice (990 kg acre^{-1}) over the farmers' practice (725 kg acre^{-1}).

Figure 51. Mr Guravayya demonstrating the benefit of improved management in his millet field during rainy season 2012

He sold his produce at a farm gate price of Rs 12.5 per kg and therefore got additional net returns of about Rs 2823 per acre. This unexpected money helped him and his family a lot as it improved his children's education and the health of his family. Thus the science-led approach of Bhoochetana mission not only helped him this once, but also showed him the potential of further improving his livelihood by following a similar strategy in the rest of his 2 acre farm. This made him both happy and grateful for Bhoochetana and its farm facilitators, ICRISAT/DoA staff and the media publicity.

Mr. KG. Krishnegowda, S/o Kalegowda, is a famer from Gonibeedu village of Mudigere taluk who actively participated in the Bhoochetana program. He has a family of five members with 4 acres of agriculture land which is his main source of livelihood. He has grown paddy crop and utilized inputs such as lime, zinc sulphate and borax, micronutrients and green manure seeds from the department of agriculture on subsidy.

The traditional practice of growing paddy was only with FYM, NPK (DAP + Urea) as nutrient. He applied micronutrients such as lime, zinc sulphate borax in addition to FYM,

DAP and urea as balanced nutrient based on the soil test-based recommendation of DoA as an improved practice. He has grown paddy crop on one acre area each with traditional and improved nutrient management practice during rainy season 2012. He transplanted the paddy crop on 20 June 2012 and harvested on 18 October 2012 in both the practices. The normal operations were made from land preparation to harvest in both practices.

He got paddy grain yield of 1537 kg ac^{-1} in traditional and 1894 kg ac^{-1}in improved practice. Similarly the fodder yield was 2770 kg ac^{-1} in in traditional and 3400 kg ac^{-1} in improved practice. Due to the addition of micronutrients there was an additional yield of 357kg ac^{-1} of paddy grain and 630 kg ac^{-1} of fodder. The cost of cultivation was Rs 9,300 in traditional practice and Rs 10,050 in improved practice and total income was Rs 29,828 in traditional and Rs 36716 in improved practice. The net profit was Rs 20,528 in traditional and Rs 26,666 in improved practice.

The overall economic benefit was Rs 6,888 in improved practice over traditional practice. The additional cost incurred for micronutrients application was Rs 750 and the benefit was Rs 6888 which is an additional one rupee spent for which he is getting a return of Rs 9.18. This is a sizable benefit that he got by adopting soil test-based nutrient application for which he is happy; and he continues to practice this for all the crops he cultivates. His enhanced income has bettered the lives of all in his family and now he advises other farmers to adopt this technology for improving their economic status.

Mr. Nanjappa of Lakkavalli Hobli, Tarikere taluk, Chikkamagalur district actively participated in the Bhoochetana program. There are six members in his family; and he has 6 acres of agriculture land which is the main source of his livelihood.

He has grown paddy and utilized inputs such as lime, zinc sulphate and borax micronutrients and green manure seeds procured from DoA on subsidy. The traditional practice of growing paddy was only with FYM, and NPK (DAP + Urea) as nutrients. He applied micronutrients such as lime, zinc sulphate and borax in addition to FYM, DAP and Urea as balanced nutrients based on soil test-based recommendation of the Department of Agriculture as an improved practice. He grew paddy crop on one acre area each with traditional and improved nutrient management practice during rainy season 2012. He transplanted the paddy crop on 15 June 2012 and harvested on 5 October 2012 in both practices. The normal operations were made from land preparation to harvest in both practices.

He got paddy yield of 1315 kg ac^{-1} in traditional and 1840 kg ac^{-1} in improved practice. Similarly the fodder yield was 2630 kg ac^{-1} in traditional and 3300 kg ac^{-1} in improved practice. Due to the

addition of micronutrients there was an extra yield of 535 kg ac^{-1} of paddy grain and 670 kg ac^{-1} of fodder. The cost of cultivation was Rs 9,000 in traditional practice and Rs 10,200 in improved practice and total income was Rs 26,300 in traditional and Rs 35,660 in improved practice. The net profit was Rs 17,300 in traditional and Rs 25,460 in improved practice. The overall economic benefit was Rs 8,160 in improved practice over traditional practice. The additional cost incurred for micronutrients application was Rs 1,200 and the benefit was Rs 8,160; so an additional one rupee spent brought him a return of Rs 6. This is a considerable benefit that he got by adopting the soil test-based nutrient approach. By using this approach he got more income and a better quality of life for his family; so he continues with these improved practices for all crops. He now advises other farmers to adopt this technology in order to improve the economic condition of their households.

Mr. Mallappa is a small farmer of Kallur village in Raichur district who adopted balanced nutrient application under the Bhoochetana project. He grows cotton, pigeonpea, sorghum and groundnut during the rainy season and during the rabi season he grows rabi sorghum and chickpea. During rainy season 2012-13 he grew cotton in one acre using his traditional practice with DAP and Urea, and on another one acre plot he grew cotton with addition of micronutrients (Gypsum+ Zinc Sulphate + Borax) along with DAP and Urea under soil test-based nutrient recommendation as advised by Bhoochetana. He got cotton yield of 800 kg $acre^{-1}$ with his traditional method and he got yield of 1120Kg $acre^{-1}$ with the improved Bhoochetana practice – with an additional yield of 300 kg $acre^{-1}$ over the traditional practice. Cotton was recommended by DoA for both traditional and Bhoochetana plot. Appropriate seed treatment was followed before sowing. Biofertilizer PSB 2 kg and Trichoderma 2 kg were mixed with FYM used for soil application along with zinc sulphate 5 kg, borax 2 kg & gypsum 80 kg per acre. Sowing was taken up in 75 cm row at 45 cm seed spacing at 5 cm depth on 02-07-2012. Timely inter cultivation and weeding was taken up in both plots. The harvesting was done on 20 November 2012 with proper CCE methodology and yield data was recorded and tabulated (see table below).

Table 25. Comparison of cost and benefits of Bhoochetana initiative with farmers' practice in Kallur village, Raichur district

Sl.no	Particulars	Farmer Practice	Bhooceetana Plot
1	Yield per acre, cotton yield (Kg)	800	1120
2	Income /acre,cotton (Rs. 36 Kg^{-1})	30400	42560
3	Total expenditure /Acre (Rs)	12080	13400
4	Net income (Rs)	18320	29160
5	Cost benefit ratio	1:1.52	1:2.18

It is very clear from the above that inputs supplied (bio-fertilizers, biopesticides and micro nutrients) under the Boochetana program helped in enhancing fertility which increased the crop yield. Sri Mallappa is very happy with both the results he got as well as the additional income acquired through the Bhoochetana program. The facility extended by the government through Bhoochetana for micronutrients and bio-fertilizer is really helpful for improving soil fertility. He said this program has improved their family income and it was done with little additional input cost. He has paid off his loans with the additional income and learned the importance of soil test-based nutrient application.

Another farmer, **Mr. Mallapa Shankar Bagi,** is a progressive farmer of Kerur village of Chikkodi taluk in Belgaum district who adopted balanced nutrient application under the Bhoochetana project. His land is cultivated with canal irrigation from Gataprabha river project. He grows maize, soybean and sugarcane during the rainy season and during winter he grows wheat and chickpea.

During rainy season 2012-13 he grew maize on one acre using his traditional practice with NPK + FYM applied and on another one acre plot he grew the same with addition of micronutrients Gypsum+ Zinc Sulphate + Borax as improved Bhoochetana plot with NPK and FYM through soil test-based nutrient recommendation. He got a yield of 2315 kg acre^{-1} in his traditional method and he got a yield of 3150 kg acre^{-1} with the improved practice of Bhoochetana – an additional yield of 835 kg acre^{-1} over the traditional practice. The maize hybrid grown was CP-818 recommended by DoA for both traditional and Bhoochetana plots. Appropriate seed treatment was made before sowing. Bio-fertilizer and bio-pesticides like *Azosperillum* - 2kg, PSB 2 kg, VAM - 2 kg, and *Trichoderma* – 2 kg were mixed with FYM used for soil application along with Zinc sulphate 10 kg and ferrous sulphate 10 kg per acre. Sowing was taken up in 60 cm row at 20 cm seed spacing at 5 cm depth on 28 July 2012. All the inter cultivation and weeding were taken up in time in both plots. The harvesting was taken up on 4 November 2012 with proper CCE methodology and yield data was recorded and tabulated as shown in Table 26.

It is very clear from the above that inputs supplied i.e. bio-fertilizers, bio-pesticides & micronutrients under the Boochetana program helped in enhancing soil fertility which increased crop yield. Sri Mallapa Shankar Bagi is very happy with the results he got and the additional income received through the intervention of the Bhoochetana program. He got additional Rs 3.20 for every one rupee he spent for micronutrients and bio-fertilizer and bio-pesticides. He said this program has improved their life, the family income

and their lifestyle at little additional input cost. He said all farmers should use the inputs supplied under this program and benefit from it.

Table 26. Comparison of cost and benefits of Bhoochetana initiative with farmers' practice in Kerur village, Belgaum district

Sl. No	Particulars	Bhoochetana Plot	Farmer Practice
1	Yield per acre		
	1) Grains (kg)	3150	2315
	2) straw, ton	2.9	2.6
2	Income /acre		
	1) Grains (Rs 13 kg^{-1})	40950	30095
	2) straw (Rs 5/kg)	14500	13000
	Total Income (in Rs)	55450	43095
3	Total expenditure /Acre (Rs)	18680	15740
4	Net income (in Rs)	36770	27355
5	Cost benefit ratio	1:2.97	1:2.74
6	Net Income with additional cost over traditional practice for every one Rupee	Rs 3.20	-

Lessons Learned

- Awareness about Bhoochetana technologies has been created in the districts and farmer adoption levels are increasing.
- Seed treatment under assured rainfall condition provides initial strength and vigor to the crops. Many farmers are going for seed treatment voluntarily.
- Farmers are convinced that under assured rainfall conditions, supplementation with micronutrients such as zinc sulphate, boron and gypsum along with recommended dosage of fertilizer will certainly increase crop yields remarkably.
- Supplementation of bio-fertilizers and bio-pesticides also contributes to yield increase and indirectly encourages eco-friendly farming.
- Farmers have been convinced of the importance of micronutrients for productivity enhancement.
- Bhoochetana Campaigns motivated a large number of farmers to adopt seed treatment.
- It promoted the use of bio-fertilizers, bio-pesticides and green manures which resulted in revival of soil fertility.
- Although target area projections were done correctly, micronutrient requirement were under-projected based on recommendations (lower dose of micronutrients) given in package of practices to individual crops in different districts, ignoring soil test-based recommendations provided by ICRISAT. This is the biggest concern while promoting application of balanced nutrient application in soil to improve soil health. Action needs to be taken on a priority basis.
- Based on experiences in the previous year with monsoon conditions and difficulties in the distribution of leftover stocks, officials took the conservative approach of partial

stock positioning, and accordingly indented for partial requirement of micronutrients, with a view to supply micronutrients as and when the demand arises.

- Although a complete package of nutrients needs to be supplied to enhance crop yields, involvement of local polity in politically sensitive areas to demand issue of selective nutrients and quantities also affected implementation, reflecting low intake of micronutrients in a few districts.
- For promotion of any new technology farmers selection is very crucial. Thus it is important that for improved distribution of quality seed first an orientation must be organised at RSK level and farmers who participate in this orientation will get access to seed on a priority basis. They also distributed material to farmers from non-selected villages who show their interest in this concept.
- Initially farmers refused to apply micronutrients. Therefore lead farmers were provided with inputs in place of their honorarium and this trick worked and outputs of demonstration were good; and in the next year farmers came forward to apply micro nutrients in their field. Such innovative approaches have to be adopted in new operational areas.
- Farmer-to-farmer communication gives better results.
- For achieving the desired impact in terms of increasing agricultural productivity of dryland systems, small and marginal farmers need to be enabled through training, exposure, demonstrations, ensuring availability of necessary inputs and handholding support.
- Timely availability of inputs as well as quality of the inputs are becoming bottlenecks for scaling-up the Bhoochetana in spite of good efforts from the DoA.
- Regular review meetings conducted by DoA are good and is showing its impact. The Director and Commissioner have put in good efforts which have contributed largely to its success as is evident from the results arising from Bhoochetana. Similarly regular video conferencing improved adoption and increased clarity and accountability as well.

Bhoochetana in the Limelight

- **Article on BBC**
  In Pictures: Natural ways of increasing Indian yields
  http://www.bbc.co.uk/news/world-asia-india-20261745

- **Philippines**
  The Bhoochetana Awakening. The drylands grow the poor rich

- **The Guardian Global Development section in UK.**
  "India farmers think big but grow micro to enrich their soil
  http://www.guardian.co.uk/global-development/poverty-matters/2013/mar/13/india-farmers-grow-micro-enrich-soil

- **World Water Week**

Article on Worms, Water & Bollywood

An Indian agricultural research institution has developed a series of simple technologies that has the potential to dramatically increase the productivity of small farms across the developing world. Alina Paul reports

- **Article on Climate Conversations - Bhoo Chetana helps farmers tackle drought**

- Article on Portfolio by Mark Tran

  Agriculture in Karnataka is enjoying a spurt in productivity as farmers rejuvenate the soil using micronutrients, reports

Districts Bella & Haveri

DH

Bhoo-chetana project launched in Haveri

Project aims at introducing latest technology in dry-land fa

HAVERI: Chief Minister B S Yeddyurappa here on Saturday launched the much-awaited 'Bhoo-Chetana' project, which is aimed at testing the soil of the land of the respective farmers for fertility before sowing, and the first of its kind in the country. This project also aims at introducing the latest technology in dry-land farming.

Speaking after launching the project at Haveri on Saturday, Mr Yeddyurappa said, the farmers were not able to know the fertility of the rain-fed lands, and due to this they were not able to get the requisite quantity of produce. "Thereby, towards taking the farmers towards the 21st century, this unique project had been introduced in the State," he added.

The chief minister pointed out that the project would be could grow five times more by using the technology provided, he asked all the farmers to make use of this project. He said, in the first phase, this project was being implemented in 30 taluks spread over six districts in the State, and for this Rs 14.46 crore had been earmarked. "Overall, this project would be implemented in 24 districts in the State involving 42 lakh hectares of land," he said.

Mr Yeddyurappa said, like the health card, a card would be given to each farmer which would have the information regarding the fertility of his land.

Later, speaking to media persons, Mr Yeddyurappa announced that the State Government will bear the expenditure of heart operations to more than 2,000 economically backward people through a new medical care scheme. He said, the new scheme will be launched on May 30 to mark

ಭೂಚೇತನ

ತಾಂತ್ರಿಕತೆ ಅಳವಡಿಕೆ ಹಾಗೂ ಉತ್ತ

ಧಾರವಾ ಸಚ

SUPPORTING FARMERS: Chief Minister B S Yeddyurappa handing over the agric to the farmers after launching the 'Bhoo-Chetana' programme in Haveri on Friday. Minister C Musasi, Agriculture Minister S A Ravindranath, and others are presen

MLA Seema Masuthi going through the exhibits at the exhibition after inaugurating the Raithara Dinotsava (Farmer's Day) at Neeralkatti village on the outskirts of Dharwad on Tuesday. Farmers going through the new strains of seeds at the exhibition organised as part of Raithara Dinotsava (Farmer's Day) at Neeralkatti village on Tuesday. DH PHOTOS

Allot more funds for farming sector: Seema

'Bhoo Chetana helped to enhance productivity in fields'

DHARWAD: Dharwad Rural MLA Seema Masuti has stressed the need for the legislators distributing their local area development funds for the schemes benefiting the farmers and the farming sector, rather

for the promotion of the agriculture sector would benefit the entire society.

Expressing concern over the farmers losing hopes in their occupation, she said

stitute for Semi Arid Tropics (ICRISAT) Watershed Principal Scientist Suhas Wani said, the Bhoo Chetana, the soil en-

dia about organising the field visit in the Neeralkatti village to see the implementation of

ಕ್ರಿಮಿನಲ್ ಮೊಕದ್ದಮೆ: ಸಿಎಂ

ಮಾರಾಟ ಮಾಡುತ್ತಿದ್ದು, ಕಾಳ ಸಂತೆಯಲ್ಲಿ ರಸಗೊಬ್ಬರ ಹಾಗೂ ಬಿತ್ತನೆ ಬಿ

ವ್ಯಾಪಾರಸ್ಥರ ವಿರುದ್ಧ ಕೇವಲ ಹಾವೇರಿ ಅಲ್ಲ, ಇಡೀ ರಾಜ್ಯದಲ್ಲಿ ಇಂತಹವರ

ದಾಖಲಿಸುವಂತೆ ಕೃಷಿ ಇಲಾಖೆಯ ಅಧಿಕಾರಿಗಳಿಗೆ ಸಿಎಂ ಸ್ಥಳದಲ್ಲಿಯೇ ಕಟ್ಟುನಿಟ್ಟಿನ

ಒಂದು ವರ್ಷದ ಅವಧಿಯಲ್ಲಿ ರಾಜ್ಯ ಸರಕಾರ 3 ತಿಂಗಳ ಚುನಾವಣೆಯಲ್ಲಿಯೇ

ಕಾರ್ಯಗಳನ್ನು ಈ ಅವಧಿಯಲ್ಲಿ ಮಾಡಿದ್ದು, ರೈತರಿಗೆ ಶೇ.ಬಡ್ಡಿ ದರದಲ್ಲಿ ಸಾಲ

ಸರಕಾರವಾಗಿದ್ದು, ಕೇವಲ ಬೂಟಾಟಿಕೆಯಿಂದ ರೈತರ ಕಣ್ಣೀರು ಒರೆಸಲು ಸಾಧ್ಯವಿಲ್ಲ.

ಸಚಿವ ಸಂಪುಟದ ಸಹೋದ್ಯೋಗಿಗಳು, ಶಾಸಕರು, ಜನಪ್ರತಿನಿಧಿಗಳು ಎಚ್ಚರಿಕೆಯಿಂದ

ಆಸ್ತಿ ನರಕದ ಕೂಪವಾಗಿವೆ. ಯಾವುದೇ ಸರಕಾರದ ಸೌಲಭ್ಯಗಳು ಜನತೆಗೆ ಸಿಗುತ್ತಿಲ್ಲ.

ತಲುಪುತ್ತಿಲ್ಲ. ಈ ಬಗ್ಗೆ ಜನಪ್ರತಿನಿಧಿಗಳು ಅನಿರೀಕ್ಷಿತವಾಗಿ ಭೇಟಿ ನೀಡಿದಾಗ ನಿಜವಾದ

ಅಧಿಕಾರಿಗಳು ಹಾಗೂ ಜನಪ್ರತಿನಿಧಿಗಳು ಜವಾಬ್ದಾರಿಯಿಂದ ಕೆಲಸ ನಿರ್ವಹಿಸಬೇಕೆಂದು

ರಾಜ್ಯದ ಜನ ರೈತರು ನಮ್ಮವರಿಯಿಂದ ಸ್ವಾವಲಂಬಿಯಾಗಿ ಬದುಕಬೇಕು. ರೈತನ

ರೈತರಿಗೆ ವಿದ್ಯುತ್ ನೀಡಿದರೆ ಪಂಪ್‌ಸೆಟ್ ಅಳವಡಿಸಿರುವ ರೈತರು ಹೆಚ್ಚುವರಿ ಬೆಳೆ ಬೆಳೆದು ಆ

ಈ ನಿಟ್ಟಿನಲ್ಲಿ ಹಾವನ ಜಿಲ್ಲೆಯ ಗುಂಡ್ಯಾದಲ್ಲಿ 200 ಮೆಗಾವ್ಯಾಟ್ ವಿದ್ಯುತ್ ಉತ್ಪಾದನೆಗೆ ಇಂದ

ರಾಯಚೂರಿನಲ್ಲಿ 2400 ಮೆಗಾವ್ಯಾಟ್ ಉಷ್ಣ ವಿದ್ಯುತ್ ಸ್ಥಾವರಕ್ಕೆ ಶಂಕುಸ್ಥಾಪನೆ, ಬಳ್ಳಾರಿ

ಉಷ್ಣ ವಿದ್ಯುತ್ ಸ್ಥಾವರಕ್ಕೆ ಶಂಕುಸ್ಥಾಪನೆ ಮಾಡಲಾಗುವುದು. ಭದ್ರೇಸ್‌ಗಡದಲ್ಲಿ 16ಸಾವಿರ

ಉತ್ಪಾದನೆಗೆ ಜಮೀನು ಏರೀದಿಯ ಪ್ರಕ್ರಿಯೆ 2 ತಿಂಗಳಲ್ಲಿ ಪ್ರಾರಂಭವಾಗುವುದು. 5

ಮೆಗಾವ್ಯಾಟ್ ವಿದ್ಯುತ್ ಉತ್ಪಾದನೆಯ ಗುರಿ ಹೊಂದಲಾಗಿದೆ ಎಂದು ಅವರು ತಿಳಿಸಿದರು.

ಕಾರ್ಯಕ್ರಮದಲ್ಲಿ ಕೃಷಿ ಮತ್ತು ವಸ್ತು ಪ್ರದರ್ಶನ ಉದ್ಘಾಟಿಸಿದ ಕೃಷಿ ಸಚಿವ

ಹಾಗೂ ಬಿತ್ತನೆ ಬೀಜದ ಕೊರತೆಯಾಗದಂತೆ ರಾಜ್ಯ ಸರಕಾರ ಎಲ್ಲ ಆಗತ್ಯ ಕ್ರ

ಹೋರಾಟ ಮಾಡುತ್ತಾ ಅಧಿಕಾರಕ್ಕೆ ಬಂದಿರುವ ಮುಖ್ಯಮಂತ್ರಿ ಯಡಿಯೂರಪ್ಪನವ

ಸರಕಾರದ ಯೋಜನೆಗಳ ಸದುಪಯೋಗ ಪಡೆದುಕೊಂಡು ರೈತರು ಸ್ವಾವಲಂ

ಬೀಜ ಹಾಗೂ ರಸಗೊಬ್ಬರವನ್ನು ಸರಕಾರ ನಿಗದಿಪಡಿಸಿರುವ ದರದಲ್ಲಿ ಮಾರಾ

ಎಂದು ಅವರು ಹೇಳಿದರು.

ಕಿರುಹೊತ್ತಿಗೆ ಬಿಡುಗಡೆ ಮಾಡಿ ಮಾತನಾಡಿದ ಲೋಕೋಪಯೋಗಿ ಹಾಗೂ

ಭೂ ಚೇತನ ಯೋಜನೆಗೆ 12 ಸಾವಿರ ರೈತರು ನೋಂದಣಿ ಮಾಡಿಕೊಂಡಿ

ಹೆಕ್ಟೇರಿನಲ್ಲಿ ಈ ಯೋಜನೆ ಒಳಪಡಲಿದ್ದು, ಹಾವೇರಿ ಜಿಲ್ಲೆಯ 5 ತಾಲೂಕು

ಯೋಜನೆಗೆ ಒಳಪಡಲಿದ್ದು, ಒಂದು ಲಕ್ಷ ರೈತರು ಈ ಯೋಜನೆಯ ಲಾಭ ಪ

ಹೈದ್ರಾಬಾದನ ಏಕ್ರಿಸಾಟ್ ಸಂಸ್ಥೆಯ ಉಪಮಹಾನಿರ್ದೇಶಕ ಡಾ.ಡೇವ್

ಅಧ್ಯಕ್ಷತೆಯನ್ನು ಶಾಸಕ ನೆಹರು ಓಲೇಕಾರ ವಹಿಸಿದ್ದರು. ಕಾರ್ಯಕ್ರಮದಲ್ಲಿ ಗೃ

ಶಿವಕುಮಾರ ಉದಾಸಿ, ಜಿ.ಪಂ.ಅಧ್ಯಕ್ಷ ಡಾ.ಮಲ್ಲೇಶಪ್ಪ ಹರಿಜನ, ವಿಧಾನಪರಿಷ

ಜಿ.ಶಿವಣ್ಣ, ಸುರೇಶಗೌಡ್ರ ಪಾಟೀಲ, ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾಲಯದ ಉಪಕುಲಪತಿ ಡ

ಆರ್ಥಿಕ ಸಲಹೆಗಾರ ಡಾ.ಕೆ.ವಿ.ರಾಜು, ಬಯಲುಸೀಮೆಯ ಅಭಿವೃದ್ಧಿ ಅಧ್ಯಕ್ಷ

ಯು.ಬಿ.ಬಣಕಾರ, ಬೆಳಗಾವ ಕಾಡಾ ಅಧ್ಯಕ್ಷ ಸೋಮಣ್ಣ ಬೇವಿನಮರದ,

ಅಧ್ಯಕ್ಷೆ ಬಿ.ಎನ್.ಬಣಕಾರ, ಕೃಷಿ ಉತ್ಪಾದನಾ ಅಭಿವೃದ್ಧಿ ಆಯುಕ್ತೆ ಡಾ.ಎಲ್.ಶಾ

ಇಲಾಖೆಯ ಕಾರ್ಯದರ್ಶಿ ಇ. ವೆಂಕಟಯ್ಯ, ಕೃಷಿ ಆಯುಕ್ತ ಡಾ.ಸಿ.ಸೋಮ

ಡಾ.ಕೆ.ಎಚ್..ಗೋಪಾಲಕೃಷ್ಣ ಗೌಡ, ನಗರಸಭಾ ಉಪಾಧ್ಯಕ್ಷ ವಿಜಯಕು

ಪರಮೇಶಪ್ಪ ಮೇಗಳಮನಿ, ಜಂಟಿ ಕೃಷಿ ನಿರ್ದೇಶಕ ವಿ.ಎಂ.ಬೈರಪ್ಪ, ಸಹ

ಕೃಷಿಕ ಸಮಾಜದ ರಾಜ್ಯ ಪ್ರತಿನಿಧಿ ಜಿ.ಶಿವನಗೌಡ್ರ, ಜಿಲ್ಲಾ ಕೃಷಿಕ ಸಮಾಜದ

ಹಾಲು ಒಕ್ಕೂಟದ ಅಧ್ಯಕ್ಷ ಬಸವರಾಜ ಅರಬಗೊಂಡ, ಪಿಎಲ್‌ಡಿ ಬ್ಯಾಂಕ್

ಶಂಬಣ್ಣ ಸಂಗೂರ, ಮುರಿಗೆಪ್ಪ ಶೆಟ್ಟರ, ರಾಜೇಂದ್ರ ಹಾವೇರಣ್ಣನವರ, ಸುರ

ನಜೀರ್ ನದಾಫ್, ಈರಣ್ಣ ಹೆರೂರ, ನಾಗೇಂದ್ರ ಕಟಕೋಳ ಸೇರಿದಂತೆ

ಸೇರಿದಂತೆ ಸಾವಿರಾರು ಸಂಖ್ಯೆಯಲ್ಲಿ ರೈತರು, ರೈತ ಮಹಿಳೆಯರು ಕಾಯ

ಕನ್ನಡ ಮತ್ತು ಸಂಸ್ಕೃತಿಯ ಇಲಾಖೆಯ ಸಹಾಯಕ ನಿರ್ದೇಶಕ

ವಂದಿಸಿದರು.

ರಸಗೊಬ್ಬರ ಅಕ್ರಮ ಮಾರಾಟ

ರೈತರಿಗೆ ವಂಚಿಸಿದರೆ ಕ್ರಿಮಿನಲ್ ಖಟ್ಲೆ

ಹಾವೇರಿ, ೨೬– ಸರಕಾರ ನಿಗದಿಗೊಳಿಸಿದ ದರಕ್ಕಿಂತ ಹೆಚ್ಚಿನ ಬೆಲೆಯಲ್ಲಿ ಬೀಜ, ರಸಗೊಬ್ಬರ ಮಾರಾಟ ಮಾಡಿ ರೈತರನ್ನು ಮೋಸಗೊಳಿಸುವ ಮಾರಾಟಗಾರರ ವಿರುದ್ಧ ಕ್ರಿಮಿನಲ್ ಮೊಕದ್ದಮೆ ದಾಖಲಿಸುವಂತೆ ಇಂದಿಲ್ಲಿ ಯಡಿಯೂರಪ್ಪ ಅಧಿಕಾರಿಗಳಿಗೆ ಸೂಚಿಸಿದರು.

ಕೃಷಿ ಮತ್ತು ಜಲಾನಯನ ಇಲಾಖೆಯ ಬಯ

ಆಗತ್ಯ ರಸಗೊಬ್ಬರ, ಬೀಜಗಳನ್ನು ಸರಕಾರ ಪೂರೈಸಿದ್ದರೂ ಮಾರಾಟಗಾರರು ರೈತರಿಗೆ ವಂಚಿಸುವುದು ಕಂಡು ಬಂದರೆ ಸಂಬಂಧಿಸಿದ ಅಧಿಕಾರಿಗಳು, ಸ್ಥಳೀಯ ಜನಪ್ರತಿನಿಧಿಗಳ ಗಮನಕ್ಕೆ ತರುವಂತೆ ಮುಖ್ಯಮಂತ್ರಿಗಳು ರೈತರಲ್ಲಿ ಮನವಿ ಮಾಡಿದರು.

ರೈತರಿಗೆ ಸಕಾಲಕ್ಕೆ ಬಿತ್ತನೆ ಬೀಜ, ರಸಗೊಬ್ಬರ, ಕೃಷಿಗೆ ಆಗತ್ಯ ಸಾಲ ಸೌಲಭ್ಯ, ಬೆಳೆದ ಬೆಳೆಗೆ ವೈಜ್ಞಾನಿಕ ಬೆಲೆ ಈ ಎಲ್ಲ ಆಂಶಗಳ ಬಗ್ಗೆ ಜಲಾನಯನ ಸರಕಾರಗಳು ಕೆಲಸ ಮಾಡಿದರೆ ರೈತ ಪಾಮಾಣಿಕವಾಗಿ

THE HINDU • WEDNESDAY, OCTOBER 27, 2010

'Use development funds for schemes benefiting farm sector'

This will benefit entire society, says Seema Masuti

Staff Correspondent

NIRALAKATTI (DHARWAD DISTRICT): Seema Masuti, MLA for Dharwad Rural, has stressed the need for legislators to use their local area development funds for schemes benefiting the farm sector rather than allocating funds for temples and community halls.

Speaking at the Raithara Dinotsava programme organised by the University

- 'The Bhoo Chetana programme has helped enhance productivity by 30 to 45 per cent'
- 'Watershed development programme implemented in Nirlakatte has emerged as a model'

that the country would face serious problems with regard to food production if this trend continued.

Speaking on the occasion, Suhas P. Wani, principal scientist, Watershed, Interna-

target of 20 lakh hectares for this year. The watershed development programme implemented in Nirlakatte village had emerged as a model for others, he said.

Link for coverage of ABP MAJHA, MCCS, Maharashtra on Bhoochetana

http://youtu.be/oIm-kxqb1Vs

http://youtu.be/5uJsk4Dybls

http://www.youtube.com/watch?v=oIm-kxqb1Vs

http://www.youtube.com/watch?v=5uJsk4Dybls

Annexure 1: Soil test-based fertilizer recommendations for Karnataka Irrigated fields using Paddy fields soils data

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
1A	Karnataka State	43	26	9	36	51	51

When SSP used only Urea, DAP Gypsum change others same

Soil test-based fertilizer recommendations						(kg ha^{-1})						
Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Karnataka State	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Karnataka State	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Karnataka State	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Karnataka State	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Karnataka State	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Karnataka State	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Karnataka State	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Karnataka State	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Karnataka State	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Karnataka State	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Karnataka State	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Karnataka State	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Karnataka State	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Karnataka State	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Karnataka State	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Karnataka State	Chickpea (Irrigated)	6	54	0	100	25	2.5	5	27	179	32
17	Karnataka State	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Karnataka State	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Karnataka State	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Karnataka State	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Karnataka State	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Karnataka Irrigated Paddy fields Soil test-based fertilizer recommendations

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
1	Bailhongal	13	77	0	71	39	56

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bailhongal	Paddy (Kharif)	66	109	42	200	13	2.5	5	109	357	0
2	Bailhongal	Paddy (Rabi)	83	135	52	200	13	2.5	5	136	443	0
3	Bailhongal	Sugarcane (Irrigated)	187	217	104	200	13	2.5	5	272	714	0
4	Bailhongal	Maize (Irrigated)	99	163	33	200	13	2.5	5	163	536	0
5	Bailhongal	Cotton	99	163	63	200	13	2.5	5	163	536	0
6	Bailhongal	Wheat (Irrigated)	45	163	42	200	13	2.5	5	109	536	0
7	Bailhongal	Pearl Millet (Irrigated)	54	141	21	200	13	2.5	5	109	464	0
8	Bailhongal	Groundnut (Irrigated)	0	163	31	200	13	2.5	5	27	536	0
9	Bailhongal	Pulses	0	109	21	200	13	2.5	5	27	357	0
10	Bailhongal	Tomato	112	130	50	200	13	2.5	5	163	429	0
11	Bailhongal	Potato (Irrigated)	51	217	104	200	13	2.5	5	136	714	0
12	Bailhongal	Chilly (Irrigated)	99	163	63	200	13	2.5	5	163	536	0
13	Bailhongal	Onion	93	109	104	200	13	2.5	5	136	357	0
14	Bailhongal	Greengram (Rainfed)	0	54	21	200	13	2.5	5	14	179	44
15	Bailhongal	Blackgram	1	109	0	200	13	2.5	5	43	357	0
16	Bailhongal	Chickpea (Irrigated)	0	109	42	200	13	2.5	5	27	357	0
17	Bailhongal	Chickpea (Rainfed)	0	54	21	200	13	2.5	5	14	179	44
18	Bailhongal	Cowpea (Alasandi)	1	109	0	200	13	2.5	5	43	357	0
19	Bailhongal	Soybean (Irrigated)	0	174	32	200	13	2.5	5	33	571	0
20	Bailhongal	Soybean (Rainfed)	0	130	21	200	13	2.5	5	27	429	0
21	Bailhongal	Sunflower (Irrigated)	4	163	52	200	13	2.5	5	68	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Belgaum	**14**	**27**	**1**	**29**	**17**	**31**

2

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations (kg ha^{-1})

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Belgaum	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Belgaum	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Belgaum	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Belgaum	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Belgaum	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Belgaum	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Belgaum	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Belgaum	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Belgaum	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Belgaum	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Belgaum	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Belgaum	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Belgaum	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Belgaum	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Belgaum	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Belgaum	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Belgaum	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Belgaum	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Belgaum	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Belgaum	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Belgaum	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Belgaum District	**13**	**53**	**1**	**51**	**28**	**44**

3

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations (kg ha^{-1})

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Belgaum District	Paddy (Kharif)	66	109	42	200	13	1.25	2.5	109	357	0
2	Belgaum District	Paddy (Rabi)	83	135	52	200	13	1.25	2.5	136	443	0
3	Belgaum District	Sugarcane (Irrigated)	187	217	104	200	13	1.25	2.5	272	714	0
4	Belgaum District	Maize (Irrigated)	99	163	33	200	13	1.25	2.5	163	536	0
5	Belgaum District	Cotton	99	163	63	200	13	1.25	2.5	163	536	0
6	Belgaum District	Wheat (Irrigated)	45	163	42	200	13	1.25	2.5	109	536	0
7	Belgaum District	Pearl Millet (Irrigated)	54	141	21	200	13	1.25	2.5	109	464	0
8	Belgaum District	Groundnut (Irrigated)	0	163	31	200	13	1.25	2.5	27	536	0
9	Belgaum District	Pulses	0	109	21	200	13	1.25	2.5	27	357	0
10	Belgaum District	Tomato	112	130	50	200	13	1.25	2.5	163	429	0
11	Belgaum District	Potato (Irrigated)	51	217	104	200	13	1.25	2.5	136	714	0
12	Belgaum District	Chilly (Irrigated)	99	163	63	200	13	1.25	2.5	163	536	0
13	Belgaum District	Onion	93	109	104	200	13	1.25	2.5	136	357	0
14	Belgaum District	Greengram (Rainfed)	0	54	21	200	13	1.25	2.5	14	179	44
15	Belgaum District	Blackgram	1	109	0	200	13	1.25	2.5	43	357	0
16	Belgaum District	Chickpea (Irrigated)	0	109	42	200	13	1.25	2.5	27	357	0
17	Belgaum District	Chickpea (Rainfed)	0	54	21	200	13	1.25	2.5	14	179	44
18	Belgaum District	Cowpea (Alasandi)	1	109	0	200	13	1.25	2.5	43	357	0
19	Belgaum District	Soybean (Irrigated)	0	174	32	200	13	1.25	2.5	33	571	0
20	Belgaum District	Soybean (Rainfed)	0	130	21	200	13	1.25	2.5	27	429	0
21	Belgaum District	Sunflower (Irrigated)	4	163	52	200	13	1.25	2.5	68	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Bellary	48	42	0	14	66	7

4

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bellary	Paddy (Kharif)	88	54	42	100	25	1.25	2.5	109	179	32
2	Bellary	Paddy (Rabi)	110	67	52	100	25	1.25	2.5	136	221	0
3	Bellary	Sugarcane (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
4	Bellary	Maize (Irrigated)	131	82	33	100	25	1.25	2.5	163	268	0
5	Bellary	Cotton	131	82	63	100	25	1.25	2.5	163	268	0
6	Bellary	Wheat (Irrigated)	77	82	42	100	25	1.25	2.5	109	268	0
7	Bellary	Pearl Millet (Irrigated)	81	71	21	100	25	1.25	2.5	109	232	0
8	Bellary	Groundnut (Irrigated)	0	82	31	100	25	1.25	2.5	27	268	0
9	Bellary	Pulses	6	54	21	100	25	1.25	2.5	27	179	32
10	Bellary	Tomato	138	65	50	100	25	1.25	2.5	163	214	4
11	Bellary	Potato (Irrigated)	93	109	104	100	25	1.25	2.5	136	357	0
12	Bellary	Chilly (Irrigated)	131	82	63	100	25	1.25	2.5	163	268	0
13	Bellary	Onion	115	54	104	100	25	1.25	2.5	136	179	32
14	Bellary	Greengram (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
15	Bellary	Blackgram	22	54	0	100	25	1.25	2.5	43	179	32
16	Bellary	Chickpea (Irrigated)	6	54	42	100	25	1.25	2.5	27	179	32
17	Bellary	Chickpea (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
18	Bellary	Cowpea (Alasandi)	22	54	0	100	25	1.25	2.5	43	179	32
19	Bellary	Soybean (Irrigated)	0	87	32	100	25	1.25	2.5	33	286	0
20	Bellary	Soybean (Rainfed)	2	65	21	100	25	1.25	2.5	27	214	4
21	Bellary	Sunflower (Irrigated)	36	82	52	100	25	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Hadagali	30	18	3	3	28	10

5

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hadagali	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Hadagali	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Hadagali	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Hadagali	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Hadagali	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Hadagali	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Hadagali	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Hadagali	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Hadagali	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Hadagali	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Hadagali	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Hadagali	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Hadagali	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Hadagali	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Hadagali	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Hadagali	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Hadagali	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Hadagali	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Hadagali	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Hadagali	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Hadagali	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
6 Hospet	29	11	3	27	55	58

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hospet	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Hospet	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Hospet	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Hospet	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Hospet	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Hospet	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Hospet	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Hospet	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Hospet	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Hospet	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Hospet	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Hospet	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Hospet	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Hospet	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Hospet	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Hospet	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	Hospet	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Hospet	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Hospet	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Hospet	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Hospet	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
7 Sandur	5	0	0	3	78	8

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Sandur	Paddy (Kharif)	88	54	42	100	25	1.25	2.5	109	179	32
2	Sandur	Paddy (Rabi)	110	67	52	100	25	1.25	2.5	136	221	0
3	Sandur	Sugarcane (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
4	Sandur	Maize (Irrigated)	131	82	33	100	25	1.25	2.5	163	268	0
5	Sandur	Cotton	131	82	63	100	25	1.25	2.5	163	268	0
6	Sandur	Wheat (Irrigated)	77	82	42	100	25	1.25	2.5	109	268	0
7	Sandur	Pearl Millet (Irrigated)	81	71	21	100	25	1.25	2.5	109	232	0
8	Sandur	Groundnut (Irrigated)	0	82	31	100	25	1.25	2.5	27	268	0
9	Sandur	Pulses	6	54	21	100	25	1.25	2.5	27	179	32
10	Sandur	Tomato	138	65	50	100	25	1.25	2.5	163	214	4
11	Sandur	Potato (Irrigated)	93	109	104	100	25	1.25	2.5	136	357	0
12	Sandur	Chilly (Irrigated)	131	82	63	100	25	1.25	2.5	163	268	0
13	Sandur	Onion	115	54	104	100	25	1.25	2.5	136	179	32
14	Sandur	Greengram (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
15	Sandur	Blackgram	22	54	0	100	25	1.25	2.5	43	179	32
16	Sandur	Chickpea (Irrigated)	6	54	42	100	25	1.25	2.5	27	179	32
17	Sandur	Chickpea (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
18	Sandur	Cowpea (Alasandi)	22	54	0	100	25	1.25	2.5	43	179	32
19	Sandur	Soybean (Irrigated)	0	87	32	100	25	1.25	2.5	33	286	0
20	Sandur	Soybean (Rainfed)	2	65	21	100	25	1.25	2.5	27	214	4
21	Sandur	Sunflower (Irrigated)	36	82	52	100	25	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Siruguppa	33	12	0	1	38	1

8

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Siruguppa	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Siruguppa	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Siruguppa	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Siruguppa	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Siruguppa	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Siruguppa	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Siruguppa	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Siruguppa	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Siruguppa	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Siruguppa	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Siruguppa	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Siruguppa	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Siruguppa	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Siruguppa	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Siruguppa	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Siruguppa	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Siruguppa	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Siruguppa	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Siruguppa	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Siruguppa	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Siruguppa	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Bellary District	36	23	1	11	53	16

9

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bellary District	Paddy (Kharif)	88	54	42	100	25	1.25	2.5	109	179	32
2	Bellary District	Paddy (Rabi)	110	67	52	100	25	1.25	2.5	136	221	0
3	Bellary District	Sugarcane (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
4	Bellary District	Maize (Irrigated)	131	82	33	100	25	1.25	2.5	163	268	0
5	Bellary District	Cotton	131	82	63	100	25	1.25	2.5	163	268	0
6	Bellary District	Wheat (Irrigated)	77	82	42	100	25	1.25	2.5	109	268	0
7	Bellary District	Pearl Millet (Irrigated)	81	71	21	100	25	1.25	2.5	109	232	0
8	Bellary District	Groundnut (Irrigated)	0	82	31	100	25	1.25	2.5	27	268	0
9	Bellary District	Pulses	6	54	21	100	25	1.25	2.5	27	179	32
10	Bellary District	Tomato	138	65	50	100	25	1.25	2.5	163	214	4
11	Bellary District	Potato (Irrigated)	93	109	104	100	25	1.25	2.5	136	357	0
12	Bellary District	Chilly (Irrigated)	131	82	63	100	25	1.25	2.5	163	268	0
13	Bellary District	Onion	115	54	104	100	25	1.25	2.5	136	179	32
14	Bellary District	Greengram (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
15	Bellary District	Blackgram	22	54	0	100	25	1.25	2.5	43	179	32
16	Bellary District	Chickpea (Irrigated)	6	54	42	100	25	1.25	2.5	27	179	32
17	Bellary District	Chickpea (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
18	Bellary District	Cowpea (Alasandi)	22	54	0	100	25	1.25	2.5	43	179	32
19	Bellary District	Soybean (Irrigated)	0	87	32	100	25	1.25	2.5	33	286	0
20	Bellary District	Soybean (Rainfed)	2	65	21	100	25	1.25	2.5	27	214	4
21	Bellary District	Sunflower (Irrigated)	36	82	52	100	25	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Chamarajanagar	56	36	0	31	74	25

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Chamarajanagar	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Chamarajanagar	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Chamarajanagar	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Chamarajanagar	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Chamarajanagar	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Chamarajanagar	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Chamarajanagar	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Chamarajanagar	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Chamarajanagar	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Chamarajanagar	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Chamarajanagar	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Chamarajanagar	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Chamarajanagar	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Chamarajanagar	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Chamarajanagar	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Chamarajanagar	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Chamarajanagar	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Chamarajanagar	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Chamarajanagar	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Chamarajanagar	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Chamarajanagar	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
11	Gundlupet	55	20	0	75	65	45

When SSP used only Urea,DAP Gypsum change others same

Soil test based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Gundlupet	Paddy (Kharif)	196	54	42	200	25	1.25	2.5	217	179	32
2	Gundlupet	Paddy (Rabi)	246	67	52	200	25	1.25	2.5	272	221	0
3	Gundlupet	Sugarcane (Irrigated)	501	109	104	200	25	1.25	2.5	543	357	0
4	Gundlupet	Maize (Irrigated)	294	82	33	200	25	1.25	2.5	326	268	0
5	Gundlupet	Cotton	294	82	63	200	25	1.25	2.5	326	268	0
6	Gundlupet	Wheat (Irrigated)	185	82	42	200	25	1.25	2.5	217	268	0
7	Gundlupet	Pearl Millet (Irrigated)	190	71	21	200	25	1.25	2.5	217	232	0
8	Gundlupet	Groundnut (Irrigated)	22	82	31	200	25	1.25	2.5	54	268	0
9	Gundlupet	Pulses	33	54	21	200	25	1.25	2.5	54	179	32
10	Gundlupet	Tomato	301	65	50	200	25	1.25	2.5	326	214	4
11	Gundlupet	Potato (Irrigated)	229	109	104	200	25	1.25	2.5	272	357	0
12	Gundlupet	Chilly (Irrigated)	294	82	63	200	25	1.25	2.5	326	268	0
13	Gundlupet	Onion	251	54	104	200	25	1.25	2.5	272	179	32
14	Gundlupet	Greengram (Rainfed)	18	27	21	200	25	1.25	2.5	28	89	104
15	Gundlupet	Blackgram	66	54	0	200	25	1.25	2.5	87	179	32
16	Gundlupet	Chickpea (Irrigated)	33	54	42	200	25	1.25	2.5	54	179	32
17	Gundlupet	Chickpea (Rainfed)	18	27	21	200	25	1.25	2.5	28	89	104
18	Gundlupet	Cowpea (Alasandi)	66	54	0	200	25	1.25	2.5	87	179	32
19	Gundlupet	Soybean (Irrigated)	31	87	32	200	25	1.25	2.5	65	286	0
20	Gundlupet	Soybean (Rainfed)	29	65	21	200	25	1.25	2.5	54	214	4
21	Gundlupet	Sunflower (Irrigated)	104	82	52	200	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
12 Kollegal	52	13	5	17	77	38

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Kollegal	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Kollegal	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Kollegal	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Kollegal	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Kollegal	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Kollegal	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Kollegal	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Kollegal	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Kollegal	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Kollegal	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Kollegal	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Kollegal	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Kollegal	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Kollegal	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Kollegal	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Kollegal	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Kollegal	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Kollegal	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Kollegal	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Kollegal	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Kollegal	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
13 Yelandur	75	2	0	47	46	71

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Yelandur	Paddy (Kharif)	196	54	42	100	13	2.5	5	217	179	44
2	Yelandur	Paddy (Rabi)	246	67	52	100	13	2.5	5	272	221	10
3	Yelandur	Sugarcane (Irrigated)	501	109	104	100	13	2.5	5	543	357	0
4	Yelandur	Maize (Irrigated)	294	82	33	100	13	2.5	5	326	268	0
5	Yelandur	Cotton	294	82	63	100	13	2.5	5	326	268	0
6	Yelandur	Wheat (Irrigated)	185	82	42	100	13	2.5	5	217	268	0
7	Yelandur	Pearl Millet (Irrigated)	190	71	21	100	13	2.5	5	217	232	1
8	Yelandur	Groundnut (Irrigated)	22	82	31	100	13	2.5	5	54	268	0
9	Yelandur	Pulses	33	54	21	100	13	2.5	5	54	179	44
10	Yelandur	Tomato	301	65	50	100	13	2.5	5	326	214	16
11	Yelandur	Potato (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
12	Yelandur	Chilly (Irrigated)	294	82	63	100	13	2.5	5	326	268	0
13	Yelandur	Onion	251	54	104	100	13	2.5	5	272	179	44
14	Yelandur	Greengram (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
15	Yelandur	Blackgram	66	54	0	100	13	2.5	5	87	179	44
16	Yelandur	Chickpea (Irrigated)	33	54	42	100	13	2.5	5	54	179	44
17	Yelandur	Chickpea (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
18	Yelandur	Cowpea (Alasandi)	66	54	0	100	13	2.5	5	87	179	44
19	Yelandur	Soybean (Irrigated)	31	87	32	100	13	2.5	5	65	286	0
20	Yelandur	Soybean (Rainfed)	29	65	21	100	13	2.5	5	54	214	16
21	Yelandur	Sunflower (Irrigated)	104	82	52	100	13	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Chamarajanagar District	62	17	1	37	63	47

14

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Chamarajanagar District	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Chamarajanagar District	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Chamarajanagar District	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Chamarajanagar District	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Chamarajanagar District	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Chamarajanagar District	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Chamarajanagar District	Pearl Millet (Irrigated	190	71	21	100	25	1.25	2.5	217	232	0
8	Chamarajanagar District	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Chamarajanagar District	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Chamarajanagar District	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Chamarajanagar District	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Chamarajanagar District	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Chamarajanagar District	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Chamarajanagar District	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Chamarajanagar District	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Chamarajanagar District	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Chamarajanagar District	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Chamarajanagar District	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Chamarajanagar District	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Chamarajanagar District	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Chamarajanagar District	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
15 Tarikere	31	27	36	49	51	100

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Tarikere	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Tarikere	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Tarikere	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Tarikere	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Tarikere	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Tarikere	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Tarikere	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Tarikere	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Tarikere	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Tarikere	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Tarikere	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Tarikere	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Tarikere	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Tarikere	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Tarikere	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Tarikere	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	Tarikere	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Tarikere	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Tarikere	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Tarikere	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Tarikere	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Chikmagalur District	31	27	36	49	51	100

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Chikmagalur District	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Chikmagalur District	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Chikmagalur District	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Chikmagalur District	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Chikmagalur District	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Chikmagalur District	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Chikmagalur District	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Chikmagalur District	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Chikmagalur District	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Chikmagalur District	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Chikmagalur District	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Chikmagalur District	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Chikmagalur District	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Chikmagalur District	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Chikmagalur District	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Chikmagalur District	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	Chikmagalur District	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Chikmagalur District	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Chikmagalur District	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Chikmagalur District	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Chikmagalur District	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
17 Alur	46	18	13	43	41	93

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Alur	Paddy (Kharif)	88	54	42	100	13	2.5	5	109	179	44
2	Alur	Paddy (Rabi)	110	67	52	100	13	2.5	5	136	221	10
3	Alur	Sugarcane (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
4	Alur	Maize (Irrigated)	131	82	33	100	13	2.5	5	163	268	0
5	Alur	Cotton	131	82	63	100	13	2.5	5	163	268	0
6	Alur	Wheat (Irrigated)	77	82	42	100	13	2.5	5	109	268	0
7	Alur	Pearl Millet (Irrigated)	81	71	21	100	13	2.5	5	109	232	1
8	Alur	Groundnut (Irrigated)	0	82	31	100	13	2.5	5	27	268	0
9	Alur	Pulses	6	54	21	100	13	2.5	5	27	179	44
10	Alur	Tomato	138	65	50	100	13	2.5	5	163	214	16
11	Alur	Potato (Irrigated)	93	109	104	100	13	2.5	5	136	357	0
12	Alur	Chilly (Irrigated)	131	82	63	100	13	2.5	5	163	268	0
13	Alur	Onion	115	54	104	100	13	2.5	5	136	179	44
14	Alur	Greengram (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
15	Alur	Blackgram	22	54	0	100	13	2.5	5	43	179	44
16	Alur	Chickpea (Irrigated)	6	54	42	100	13	2.5	5	27	179	44
17	Alur	Chickpea (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
18	Alur	Cowpea (Alasandi)	22	54	0	100	13	2.5	5	43	179	44
19	Alur	Soybean (Irrigated)	0	87	32	100	13	2.5	5	33	286	0
20	Alur	Soybean (Rainfed)	2	65	21	100	13	2.5	5	27	214	16
21	Alur	Sunflower (Irrigated)	36	82	52	100	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
18 Arakalgud	51	16	17	45	70	67

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP
1	Arakalgud	Paddy (Kharif)	196	54	42	100	25	2.5	5	217	179
2	Arakalgud	Paddy (Rabi)	246	67	52	100	25	2.5	5	272	221
3	Arakalgud	Sugarcane (Irrigated)	501	109	104	100	25	2.5	5	543	357
4	Arakalgud	Maize (Irrigated)	294	82	33	100	25	2.5	5	326	268
5	Arakalgud	Cotton	294	82	63	100	25	2.5	5	326	268
6	Arakalgud	Wheat (Irrigated)	185	82	42	100	25	2.5	5	217	268
7	Arakalgud	Pearl Millet (Irrigated)	190	71	21	100	25	2.5	5	217	232
8	Arakalgud	Groundnut (Irrigated)	22	82	31	100	25	2.5	5	54	268
9	Arakalgud	Pulses	33	54	21	100	25	2.5	5	54	179
10	Arakalgud	Tomato	301	65	50	100	25	2.5	5	326	214
11	Arakalgud	Potato (Irrigated)	229	109	104	100	25	2.5	5	272	357
12	Arakalgud	Chilly (Irrigated)	294	82	63	100	25	2.5	5	326	268
13	Arakalgud	Onion	251	54	104	100	25	2.5	5	272	179
14	Arakalgud	Greengram (Rainfed)	18	27	21	100	25	2.5	5	28	89
15	Arakalgud	Blackgram	66	54	0	100	25	2.5	5	87	179
16	Arakalgud	Chickpea (Irrigated)	33	54	42	100	25	2.5	5	54	179
17	Arakalgud	Chickpea (Rainfed)	18	27	21	100	25	2.5	5	28	89
18	Arakalgud	Cowpea (Alasandi)	66	54	0	100	25	2.5	5	87	179
19	Arakalgud	Soybean (Irrigated)	31	87	32	100	25	2.5	5	65	286
20	Arakalgud	Soybean (Rainfed)	29	65	21	100	25	2.5	5	54	214
21	Arakalgud	Sunflower (Irrigated)	104	82	52	100	25	2.5	5	136	268

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Belur	53	18	15	40	66	78

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Belur	Paddy (Kharif)	196	54	42	100	25	2.5	5	217	179	32
2	Belur	Paddy (Rabi)	246	67	52	100	25	2.5	5	272	221	0
3	Belur	Sugarcane (Irrigated)	501	109	104	100	25	2.5	5	543	357	0
4	Belur	Maize (Irrigated)	294	82	33	100	25	2.5	5	326	268	0
5	Belur	Cotton	294	82	63	100	25	2.5	5	326	268	0
6	Belur	Wheat (Irrigated)	185	82	42	100	25	2.5	5	217	268	0
7	Belur	Pearl Millet (Irrigated)	190	71	21	100	25	2.5	5	217	232	0
8	Belur	Groundnut (Irrigated)	22	82	31	100	25	2.5	5	54	268	0
9	Belur	Pulses	33	54	21	100	25	2.5	5	54	179	32
10	Belur	Tomato	301	65	50	100	25	2.5	5	326	214	4
11	Belur	Potato (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
12	Belur	Chilly (Irrigated)	294	82	63	100	25	2.5	5	326	268	0
13	Belur	Onion	251	54	104	100	25	2.5	5	272	179	32
14	Belur	Greengram (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
15	Belur	Blackgram	66	54	0	100	25	2.5	5	87	179	32
16	Belur	Chickpea (Irrigated)	33	54	42	100	25	2.5	5	54	179	32
17	Belur	Chickpea (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
18	Belur	Cowpea (Alasandi)	66	54	0	100	25	2.5	5	87	179	32
19	Belur	Soybean (Irrigated)	31	87	32	100	25	2.5	5	65	286	0
20	Belur	Soybean (Rainfed)	29	65	21	100	25	2.5	5	54	214	4
21	Belur	Sunflower (Irrigated)	104	82	52	100	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
20 Channarayapattna	66	22	13	48	67	75

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Channarayapattna	Paddy (Kharif)	196	54	42	100	25	2.5	5	217	179	32
2	Channarayapattna	Paddy (Rabi)	246	67	52	100	25	2.5	5	272	221	0
3	Channarayapattna	Sugarcane (Irrigated)	501	109	104	100	25	2.5	5	543	357	0
4	Channarayapattna	Maize (Irrigated)	294	82	33	100	25	2.5	5	326	268	0
5	Channarayapattna	Cotton	294	82	63	100	25	2.5	5	326	268	0
6	Channarayapattna	Wheat (Irrigated)	185	82	42	100	25	2.5	5	217	268	0
7	Channarayapattna	Pearl Millet (Irrigated)	190	71	21	100	25	2.5	5	217	232	0
8	Channarayapattna	Groundnut (Irrigated)	22	82	31	100	25	2.5	5	54	268	0
9	Channarayapattna	Pulses	33	54	21	100	25	2.5	5	54	179	32
10	Channarayapattna	Tomato	301	65	50	100	25	2.5	5	326	214	4
11	Channarayapattna	Potato (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
12	Channarayapattna	Chilly (Irrigated)	294	82	63	100	25	2.5	5	326	268	0
13	Channarayapattna	Onion	251	54	104	100	25	2.5	5	272	179	32
14	Channarayapattna	Greengram (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
15	Channarayapattna	Blackgram	66	54	0	100	25	2.5	5	87	179	32
16	Channarayapattna	Chickpea (Irrigated)	33	54	42	100	25	2.5	5	54	179	32
17	Channarayapattna	Chickpea (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
18	Channarayapattna	Cowpea (Alasandi)	66	54	0	100	25	2.5	5	87	179	32
19	Channarayapattna	Soybean (Irrigated)	31	87	32	100	25	2.5	5	65	286	0
20	Channarayapattna	Soybean (Rainfed)	29	65	21	100	25	2.5	5	54	214	4
21	Channarayapattna	Sunflower (Irrigated)	104	82	52	100	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Hassan	39	21	25	34	62	77

21

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hassan	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Hassan	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Hassan	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Hassan	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Hassan	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Hassan	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Hassan	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Hassan	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Hassan	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Hassan	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Hassan	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Hassan	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Hassan	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Hassan	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Hassan	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Hassan	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	Hassan	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Hassan	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Hassan	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Hassan	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Hassan	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
22 Holenarasipura	59	25	18	48	65	74

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Holenarasipura	Paddy (Kharif)	196	54	42	100	25	2.5	5	217	179	32
2	Holenarasipura	Paddy (Rabi)	246	67	52	100	25	2.5	5	272	221	0
3	Holenarasipura	Sugarcane (Irrigated)	501	109	104	100	25	2.5	5	543	357	0
4	Holenarasipura	Maize (Irrigated)	294	82	33	100	25	2.5	5	326	268	0
5	Holenarasipura	Cotton	294	82	63	100	25	2.5	5	326	268	0
6	Holenarasipura	Wheat (Irrigated)	185	82	42	100	25	2.5	5	217	268	0
7	Holenarasipura	Pearl Millet (Irrigated)	190	71	21	100	25	2.5	5	217	232	0
8	Holenarasipura	Groundnut (Irrigated)	22	82	31	100	25	2.5	5	54	268	0
9	Holenarasipura	Pulses	33	54	21	100	25	2.5	5	54	179	32
10	Holenarasipura	Tomato	301	65	50	100	25	2.5	5	326	214	4
11	Holenarasipura	Potato (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
12	Holenarasipura	Chilly (Irrigated)	294	82	63	100	25	2.5	5	326	268	0
13	Holenarasipura	Onion	251	54	104	100	25	2.5	5	272	179	32
14	Holenarasipura	Greengram (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
15	Holenarasipura	Blackgram	66	54	0	100	25	2.5	5	87	179	32
16	Holenarasipura	Chickpea (Irrigated)	33	54	42	100	25	2.5	5	54	179	32
17	Holenarasipura	Chickpea (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
18	Holenarasipura	Cowpea (Alasandi)	66	54	0	100	25	2.5	5	87	179	32
19	Holenarasipura	Soybean (Irrigated)	31	87	32	100	25	2.5	5	65	286	0
20	Holenarasipura	Soybean (Rainfed)	29	65	21	100	25	2.5	5	54	214	4
21	Holenarasipura	Sunflower (Irrigated)	104	82	52	100	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Hassan District	54	20	16	44	64	76

23

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hassan District	Paddy (Kharif)	196	54	42	100	25	2.5	5	217	179	32
2	Hassan District	Paddy (Rabi)	246	67	52	100	25	2.5	5	272	221	0
3	Hassan District	Sugarcane (Irrigated)	501	109	104	100	25	2.5	5	543	357	0
4	Hassan District	Maize (Irrigated)	294	82	33	100	25	2.5	5	326	268	0
5	Hassan District	Cotton	294	82	63	100	25	2.5	5	326	268	0
6	Hassan District	Wheat (Irrigated)	185	82	42	100	25	2.5	5	217	268	0
7	Hassan District	Pearl Millet (Irrigated)	190	71	21	100	25	2.5	5	217	232	0
8	Hassan District	Groundnut (Irrigated)	22	82	31	100	25	2.5	5	54	268	0
9	Hassan District	Pulses	33	54	21	100	25	2.5	5	54	179	32
10	Hassan District	Tomato	301	65	50	100	25	2.5	5	326	214	4
11	Hassan District	Potato (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
12	Hassan District	Chilly (Irrigated)	294	82	63	100	25	2.5	5	326	268	0
13	Hassan District	Onion	251	54	104	100	25	2.5	5	272	179	32
14	Hassan District	Greengram (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
15	Hassan District	Blackgram	66	54	0	100	25	2.5	5	87	179	32
16	Hassan District	Chickpea (Irrigated)	33	54	42	100	25	2.5	5	54	179	32
17	Hassan District	Chickpea (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
18	Hassan District	Cowpea (Alasandi)	66	54	0	100	25	2.5	5	87	179	32
19	Hassan District	Soybean (Irrigated)	31	87	32	100	25	2.5	5	65	286	0
20	Hassan District	Soybean (Rainfed)	29	65	21	100	25	2.5	5	54	214	4
21	Hassan District	Sunflower (Irrigated)	104	82	52	100	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Hangal	50	27	3	38	49	64

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4 7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hangal	Paddy (Kharif)	88	54	42	100	13	2.5	5	109	179	44
2	Hangal	Paddy (Rabi)	110	67	52	100	13	2.5	5	136	221	10
3	Hangal	Sugarcane (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
4	Hangal	Maize (Irrigated)	131	82	33	100	13	2.5	5	163	268	0
5	Hangal	Cotton	131	82	63	100	13	2.5	5	163	268	0
6	Hangal	Wheat (Irrigated)	77	82	42	100	13	2.5	5	109	268	0
7	Hangal	Pearl Millet (Irrigated)	81	71	21	100	13	2.5	5	109	232	1
8	Hangal	Groundnut (Irrigated)	0	82	31	100	13	2.5	5	27	268	0
9	Hangal	Pulses	6	54	21	100	13	2.5	5	27	179	44
10	Hangal	Tomato	138	65	50	100	13	2.5	5	163	214	16
11	Hangal	Potato (Irrigated)	93	109	104	100	13	2.5	5	136	357	0
12	Hangal	Chilly (Irrigated)	131	82	63	100	13	2.5	5	163	268	0
13	Hangal	Onion	115	54	104	100	13	2.5	5	136	179	44
14	Hangal	Greengram (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
15	Hangal	Blackgram	22	54	0	100	13	2.5	5	43	179	44
16	Hangal	Chickpea (Irrigated)	6	54	42	100	13	2.5	5	27	179	44
17	Hangal	Chickpea (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
18	Hangal	Cowpea (Alasandi)	22	54	0	100	13	2.5	5	43	179	44
19	Hangal	Soybean (Irrigated)	0	87	32	100	13	2.5	5	33	286	0
20	Hangal	Soybean (Rainfed)	2	65	21	100	13	2.5	5	27	214	16
21	Hangal	Sunflower (Irrigated)	36	82	52	100	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
25	Ranibennur	67	46	0	32	63	27

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Ranibennur	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Ranibennur	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Ranibennur	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Ranibennur	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Ranibennur	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Ranibennur	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Ranibennur	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Ranibennur	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Ranibennur	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Ranibennur	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Ranibennur	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Ranibennur	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Ranibennur	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Ranibennur	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Ranibennur	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Ranibennur	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Ranibennur	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Ranibennur	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Ranibennur	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Ranibennur	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Ranibennur	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
26	Shiggavi	3	16	0	25	20	36

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Shiggavi	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Shiggavi	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Shiggavi	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Shiggavi	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Shiggavi	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Shiggavi	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Shiggavi	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Shiggavi	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Shiggavi	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Shiggavi	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Shiggavi	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Shiggavi	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Shiggavi	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Shiggavi	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Shiggavi	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Shiggavi	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Shiggavi	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Shiggavi	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Shiggavi	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Shiggavi	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Shiggavi	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Haveri District	44	30	1	34	47	49

27

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Haveri District	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Haveri District	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Haveri District	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Haveri District	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Haveri District	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Haveri District	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Haveri District	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Haveri District	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Haveri District	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Haveri District	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Haveri District	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Haveri District	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Haveri District	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Haveri District	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Haveri District	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Haveri District	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Haveri District	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Haveri District	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Haveri District	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Haveri District	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Haveri District	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Gangavathi	26	7	1	1	25	35

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Gangavathi	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Gangavathi	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Gangavathi	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Gangavathi	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Gangavathi	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Gangavathi	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Gangavathi	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Gangavathi	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Gangavathi	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Gangavathi	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Gangavathi	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Gangavathi	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Gangavathi	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Gangavathi	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Gangavathi	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Gangavathi	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Gangavathi	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Gangavathi	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Gangavathi	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Gangavathi	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Gangavathi	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Koppal	39	6	8	16	31	35

29

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Koppal	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Koppal	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Koppal	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Koppal	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Koppal	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Koppal	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Koppal	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Koppal	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Koppal	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Koppal	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Koppal	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Koppal	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Koppal	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Koppal	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Koppal	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Koppal	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Koppal	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Koppal	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Koppal	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Koppal	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Koppal	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Haveri District	30	7	3	5	27	35

30

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Koppal District	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Koppal District	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Koppal District	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Koppal District	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Koppal District	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Koppal District	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Koppal District	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Koppal District	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Koppal District	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Koppal District	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Koppal District	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Koppal District	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Koppal District	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Koppal District	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Koppal District	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Koppal District	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Koppal District	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Koppal District	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Koppal District	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Koppal District	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Koppal District	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Krishnarajapet	61	23	23	53	79	90

31

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Krishnarajapet	Paddy (Kharif)	196	54	42	200	25	2.5	5	217	179	32
2	Krishnarajapet	Paddy (Rabi)	246	67	52	200	25	2.5	5	272	221	0
3	Krishnarajapet	Sugarcane (Irrigated)	501	109	104	200	25	2.5	5	543	357	0
4	Krishnarajapet	Maize (Irrigated)	294	82	33	200	25	2.5	5	326	268	0
5	Krishnarajapet	Cotton	294	82	63	200	25	2.5	5	326	268	0
6	Krishnarajapet	Wheat (Irrigated)	185	82	42	200	25	2.5	5	217	268	0
7	Krishnarajapet	Pearl Millet (Irrigated)	190	71	21	200	25	2.5	5	217	232	0
8	Krishnarajapet	Groundnut (Irrigated)	22	82	31	200	25	2.5	5	54	268	0
9	Krishnarajapet	Pulses	33	54	21	200	25	2.5	5	54	179	32
10	Krishnarajapet	Tomato	301	65	50	200	25	2.5	5	326	214	4
11	Krishnarajapet	Potato (Irrigated)	229	109	104	200	25	2.5	5	272	357	0
12	Krishnarajapet	Chilly (Irrigated)	294	82	63	200	25	2.5	5	326	268	0
13	Krishnarajapet	Onion	251	54	104	200	25	2.5	5	272	179	32
14	Krishnarajapet	Greengram (Rainfed)	18	27	21	200	25	2.5	5	28	89	104
15	Krishnarajapet	Blackgram	66	54	0	200	25	2.5	5	87	179	32
16	Krishnarajapet	Chickpea (Irrigated)	33	54	42	200	25	2.5	5	54	179	32
17	Krishnarajapet	Chickpea (Rainfed)	18	27	21	200	25	2.5	5	28	89	104
18	Krishnarajapet	Cowpea (Alasandi)	66	54	0	200	25	2.5	5	87	179	32
19	Krishnarajapet	Soybean (Irrigated)	31	87	32	200	25	2.5	5	65	286	0
20	Krishnarajapet	Soybean (Rainfed)	29	65	21	200	25	2.5	5	54	214	4
21	Krishnarajapet	Sunflower (Irrigated)	104	82	52	200	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Maddur	21	5	2	16	43	57

32

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Maddur	Paddy (Kharif)	88	54	42	100	13	2.5	5	109	179	44
2	Maddur	Paddy (Rabi)	110	67	52	100	13	2.5	5	136	221	10
3	Maddur	Sugarcane (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
4	Maddur	Maize (Irrigated)	131	82	33	100	13	2.5	5	163	268	0
5	Maddur	Cotton	131	82	63	100	13	2.5	5	163	268	0
6	Maddur	Wheat (Irrigated)	77	82	42	100	13	2.5	5	109	268	0
7	Maddur	Pearl Millet (Irrigated)	81	71	21	100	13	2.5	5	109	232	1
8	Maddur	Groundnut (Irrigated)	0	82	31	100	13	2.5	5	27	268	0
9	Maddur	Pulses	6	54	21	100	13	2.5	5	27	179	44
10	Maddur	Tomato	138	65	50	100	13	2.5	5	163	214	16
11	Maddur	Potato (Irrigated)	93	109	104	100	13	2.5	5	136	357	0
12	Maddur	Chilly (Irrigated)	131	82	63	100	13	2.5	5	163	268	0
13	Maddur	Onion	115	54	104	100	13	2.5	5	136	179	44
14	Maddur	Greengram (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
15	Maddur	Blackgram	22	54	0	100	13	2.5	5	43	179	44
16	Maddur	Chickpea (Irrigated)	6	54	42	100	13	2.5	5	27	179	44
17	Maddur	Chickpea (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
18	Maddur	Cowpea (Alasandi)	22	54	0	100	13	2.5	5	43	179	44
19	Maddur	Soybean (Irrigated)	0	87	32	100	13	2.5	5	33	286	0
20	Maddur	Soybean (Rainfed)	2	65	21	100	13	2.5	5	27	214	16
21	Maddur	Sunflower (Irrigated)	36	82	52	100	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Malavalli	37	19	22	43	66	79

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Malavalli	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Malavalli	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Malavalli	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Malavalli	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Malavalli	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Malavalli	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Malavalli	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Malavalli	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Malavalli	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Malavalli	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Malavalli	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Malavalli	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Malavalli	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Malavalli	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Malavalli	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Malavalli	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	Malavalli	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Malavalli	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Malavalli	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Malavalli	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Malavalli	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Mandya	16	3	0	13	26	33

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Mandya	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Mandya	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Mandya	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Mandya	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Mandya	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Mandya	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Mandya	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Mandya	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Mandya	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Mandya	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Mandya	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Mandya	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Mandya	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Mandya	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Mandya	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Mandya	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Mandya	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Mandya	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Mandya	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Mandya	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Mandya	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Pandavapura	56	7	9	34	36	79

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Pandavapura	Paddy (Kharif)	196	54	42	100	13	2.5	5	217	179	44
2	Pandavapura	Paddy (Rabi)	246	67	52	100	13	2.5	5	272	221	10
3	Pandavapura	Sugarcane (Irrigated)	501	109	104	100	13	2.5	5	543	357	0
4	Pandavapura	Maize (Irrigated)	294	82	33	100	13	2.5	5	326	268	0
5	Pandavapura	Cotton	294	82	63	100	13	2.5	5	326	268	0
6	Pandavapura	Wheat (Irrigated)	185	82	42	100	13	2.5	5	217	268	0
7	Pandavapura	Pearl Millet (Irrigated)	190	71	21	100	13	2.5	5	217	232	1
8	Pandavapura	Groundnut (Irrigated)	22	82	31	100	13	2.5	5	54	268	0
9	Pandavapura	Pulses	33	54	21	100	13	2.5	5	54	179	44
10	Pandavapura	Tomato	301	65	50	100	13	2.5	5	326	214	16
11	Pandavapura	Potato (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
12	Pandavapura	Chilly (Irrigated)	294	82	63	100	13	2.5	5	326	268	0
13	Pandavapura	Onion	251	54	104	100	13	2.5	5	272	179	44
14	Pandavapura	Greengram (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
15	Pandavapura	Blackgram	66	54	0	100	13	2.5	5	87	179	44
16	Pandavapura	Chickpea (Irrigated)	33	54	42	100	13	2.5	5	54	179	44
17	Pandavapura	Chickpea (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
18	Pandavapura	Cowpea (Alasandi)	66	54	0	100	13	2.5	5	87	179	44
19	Pandavapura	Soybean (Irrigated)	31	87	32	100	13	2.5	5	65	286	0
20	Pandavapura	Soybean (Rainfed)	29	65	21	100	13	2.5	5	54	214	16
21	Pandavapura	Sunflower (Irrigated)	104	82	52	100	13	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Srirangapatna	50	18	8	31	19	70

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Srirangapatna	Paddy (Kharif)	88	54	42	100	13	2.5	5	109	179	44
2	Srirangapatna	Paddy (Rabi)	110	67	52	100	13	2.5	5	136	221	10
3	Srirangapatna	Sugarcane (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
4	Srirangapatna	Maize (Irrigated)	131	82	33	100	13	2.5	5	163	268	0
5	Srirangapatna	Cotton	131	82	63	100	13	2.5	5	163	268	0
6	Srirangapatna	Wheat (Irrigated)	77	82	42	100	13	2.5	5	109	268	0
7	Srirangapatna	Pearl Millet (Irrigated)	81	71	21	100	13	2.5	5	109	232	1
8	Srirangapatna	Groundnut (Irrigated)	0	82	31	100	13	2.5	5	27	268	0
9	Srirangapatna	Pulses	6	54	21	100	13	2.5	5	27	179	44
10	Srirangapatna	Tomato	138	65	50	100	13	2.5	5	163	214	16
11	Srirangapatna	Potato (Irrigated)	93	109	104	100	13	2.5	5	136	357	0
12	Srirangapatna	Chilly (Irrigated)	131	82	63	100	13	2.5	5	163	268	0
13	Srirangapatna	Onion	115	54	104	100	13	2.5	5	136	179	44
14	Srirangapatna	Greengram (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
15	Srirangapatna	Blackgram	22	54	0	100	13	2.5	5	43	179	44
16	Srirangapatna	Chickpea (Irrigated)	6	54	42	100	13	2.5	5	27	179	44
17	Srirangapatna	Chickpea (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
18	Srirangapatna	Cowpea (Alasandi)	22	54	0	100	13	2.5	5	43	179	44
19	Srirangapatna	Soybean (Irrigated)	0	87	32	100	13	2.5	5	33	286	0
20	Srirangapatna	Soybean (Rainfed)	2	65	21	100	13	2.5	5	27	214	16
21	Srirangapatna	Sunflower (Irrigated)	36	82	52	100	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Mandya District	38	12	12	32	50	69

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Mandya District	Paddy (Kharif)	88	54	42	100	13	2.5	5	109	179	44
2	Mandya District	Paddy (Rabi)	110	67	52	100	13	2.5	5	136	221	10
3	Mandya District	Sugarcane (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
4	Mandya District	Maize (Irrigated)	131	82	33	100	13	2.5	5	163	268	0
5	Mandya District	Cotton	131	82	63	100	13	2.5	5	163	268	0
6	Mandya District	Wheat (Irrigated)	77	82	42	100	13	2.5	5	109	268	0
7	Mandya District	Pearl Millet (Irrigated)	81	71	21	100	13	2.5	5	109	232	1
8	Mandya District	Groundnut (Irrigated)	0	82	31	100	13	2.5	5	27	268	0
9	Mandya District	Pulses	6	54	21	100	13	2.5	5	27	179	44
10	Mandya District	Tomato	138	65	50	100	13	2.5	5	163	214	16
11	Mandya District	Potato (Irrigated)	93	109	104	100	13	2.5	5	136	357	0
12	Mandya District	Chilly (Irrigated)	131	82	63	100	13	2.5	5	163	268	0
13	Mandya District	Onion	115	54	104	100	13	2.5	5	136	179	44
14	Mandya District	Greengram (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
15	Mandya District	Blackgram	22	54	0	100	13	2.5	5	43	179	44
16	Mandya District	Chickpea (Irrigated)	6	54	42	100	13	2.5	5	27	179	44
17	Mandya District	Chickpea (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
18	Mandya District	Cowpea (Alasandi)	22	54	0	100	13	2.5	5	43	179	44
19	Mandya District	Soybean (Irrigated)	0	87	32	100	13	2.5	5	33	286	0
20	Mandya District	Soybean (Rainfed)	2	65	21	100	13	2.5	5	27	214	16
21	Mandya District	Sunflower (Irrigated)	36	82	52	100	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
38 H D Kote	23	22	8	28	47	55

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	H D Kote	Paddy (Kharif)	88	54	42	100	13	2.5	5	109	179	44
2	H D Kote	Paddy (Rabi)	110	67	52	100	13	2.5	5	136	221	10
3	H D Kote	Sugarcane (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
4	H D Kote	Maize (Irrigated)	131	82	33	100	13	2.5	5	163	268	0
5	H D Kote	Cotton	131	82	63	100	13	2.5	5	163	268	0
6	H D Kote	Wheat (Irrigated)	77	82	42	100	13	2.5	5	109	268	0
7	H D Kote	Pearl Millet (Irrigated)	81	71	21	100	13	2.5	5	109	232	1
8	H D Kote	Groundnut (Irrigated)	0	82	31	100	13	2.5	5	27	268	0
9	H D Kote	Pulses	6	54	21	100	13	2.5	5	27	179	44
10	H D Kote	Tomato	138	65	50	100	13	2.5	5	163	214	16
11	H D Kote	Potato (Irrigated)	93	109	104	100	13	2.5	5	136	357	0
12	H D Kote	Chilly (Irrigated)	131	82	63	100	13	2.5	5	163	268	0
13	H D Kote	Onion	115	54	104	100	13	2.5	5	136	179	44
14	H D Kote	Greengram (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
15	H D Kote	Blackgram	22	54	0	100	13	2.5	5	43	179	44
16	H D Kote	Chickpea (Irrigated)	6	54	42	100	13	2.5	5	27	179	44
17	H D Kote	Chickpea (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
18	H D Kote	Cowpea (Alasandi)	22	54	0	100	13	2.5	5	43	179	44
19	H D Kote	Soybean (Irrigated)	0	87	32	100	13	2.5	5	33	286	0
20	H D Kote	Soybean (Rainfed)	2	65	21	100	13	2.5	5	27	214	16
21	H D Kote	Sunflower (Irrigated)	36	82	52	100	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Hunsur	44	14	7	27	25	53

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hunsur	Paddy (Kharif)	88	54	42	100	13	2.5	5	109	179	44
2	Hunsur	Paddy (Rabi)	110	67	52	100	13	2.5	5	136	221	10
3	Hunsur	Sugarcane (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
4	Hunsur	Maize (Irrigated)	131	82	33	100	13	2.5	5	163	268	0
5	Hunsur	Cotton	131	82	63	100	13	2.5	5	163	268	0
6	Hunsur	Wheat (Irrigated)	77	82	42	100	13	2.5	5	109	268	0
7	Hunsur	Pearl Millet (Irrigated)	81	71	21	100	13	2.5	5	109	232	1
8	Hunsur	Groundnut (Irrigated)	0	82	31	100	13	2.5	5	27	268	0
9	Hunsur	Pulses	6	54	21	100	13	2.5	5	27	179	44
10	Hunsur	Tomato	138	65	50	100	13	2.5	5	163	214	16
11	Hunsur	Potato (Irrigated)	93	109	104	100	13	2.5	5	136	357	0
12	Hunsur	Chilly (Irrigated)	131	82	63	100	13	2.5	5	163	268	0
13	Hunsur	Onion	115	54	104	100	13	2.5	5	136	179	44
14	Hunsur	Greengram (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
15	Hunsur	Blackgram	22	54	0	100	13	2.5	5	43	179	44
16	Hunsur	Chickpea (Irrigated)	6	54	42	100	13	2.5	5	27	179	44
17	Hunsur	Chickpea (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
18	Hunsur	Cowpea (Alasandi)	22	54	0	100	13	2.5	5	43	179	44
19	Hunsur	Soybean (Irrigated)	0	87	32	100	13	2.5	5	33	286	0
20	Hunsur	Soybean (Rainfed)	2	65	21	100	13	2.5	5	27	214	16
21	Hunsur	Sunflower (Irrigated)	36	82	52	100	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
K R Nagara	46	20	27	23	45	89

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	K R Nagara	Paddy (Kharif)	88	54	42	100	13	2.5	5	109	179	44
2	K R Nagara	Paddy (Rabi)	110	67	52	100	13	2.5	5	136	221	10
3	K R Nagara	Sugarcane (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
4	K R Nagara	Maize (Irrigated)	131	82	33	100	13	2.5	5	163	268	0
5	K R Nagara	Cotton	131	82	63	100	13	2.5	5	163	268	0
6	K R Nagara	Wheat (Irrigated)	77	82	42	100	13	2.5	5	109	268	0
7	K R Nagara	Pearl Millet (Irrigated)	81	71	21	100	13	2.5	5	109	232	1
8	K R Nagara	Groundnut (Irrigated)	0	82	31	100	13	2.5	5	27	268	0
9	K R Nagara	Pulses	6	54	21	100	13	2.5	5	27	179	44
10	K R Nagara	Tomato	138	65	50	100	13	2.5	5	163	214	16
11	K R Nagara	Potato (Irrigated)	93	109	104	100	13	2.5	5	136	357	0
12	K R Nagara	Chilly (Irrigated)	131	82	63	100	13	2.5	5	163	268	0
13	K R Nagara	Onion	115	54	104	100	13	2.5	5	136	179	44
14	K R Nagara	Greengram (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
15	K R Nagara	Blackgram	22	54	0	100	13	2.5	5	43	179	44
16	K R Nagara	Chickpea (Irrigated)	6	54	42	100	13	2.5	5	27	179	44
17	K R Nagara	Chickpea (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
18	K R Nagara	Cowpea (Alasandi)	22	54	0	100	13	2.5	5	43	179	44
19	K R Nagara	Soybean (Irrigated)	0	87	32	100	13	2.5	5	33	286	0
20	K R Nagara	Soybean (Rainfed)	2	65	21	100	13	2.5	5	27	214	16
21	K R Nagara	Sunflower (Irrigated)	36	82	52	100	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Mysore	35	7	3	20	72	59

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Mysore	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Mysore	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Mysore	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Mysore	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Mysore	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Mysore	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Mysore	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Mysore	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Mysore	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Mysore	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Mysore	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Mysore	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Mysore	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Mysore	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Mysore	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Mysore	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	Mysore	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Mysore	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Mysore	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Mysore	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Mysore	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Nanjanagudu	64	16	11	37	62	81

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Nanjanagudu	Paddy (Kharif)	196	54	42	100	25	2.5	5	217	179	32
2	Nanjanagudu	Paddy (Rabi)	246	67	52	100	25	2.5	5	272	221	0
3	Nanjanagudu	Sugarcane (Irrigated)	501	109	104	100	25	2.5	5	543	357	0
4	Nanjanagudu	Maize (Irrigated)	294	82	33	100	25	2.5	5	326	268	0
5	Nanjanagudu	Cotton	294	82	63	100	25	2.5	5	326	268	0
6	Nanjanagudu	Wheat (Irrigated)	185	82	42	100	25	2.5	5	217	268	0
7	Nanjanagudu	Pearl Millet (Irrigated)	190	71	21	100	25	2.5	5	217	232	0
8	Nanjanagudu	Groundnut (Irrigated)	22	82	31	100	25	2.5	5	54	268	0
9	Nanjanagudu	Pulses	33	54	21	100	25	2.5	5	54	179	32
10	Nanjanagudu	Tomato	301	65	50	100	25	2.5	5	326	214	4
11	Nanjanagudu	Potato (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
12	Nanjanagudu	Chilly (Irrigated)	294	82	63	100	25	2.5	5	326	268	0
13	Nanjanagudu	Onion	251	54	104	100	25	2.5	5	272	179	32
14	Nanjanagudu	Greengram (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
15	Nanjanagudu	Blackgram	66	54	0	100	25	2.5	5	87	179	32
16	Nanjanagudu	Chickpea (Irrigated)	33	54	42	100	25	2.5	5	54	179	32
17	Nanjanagudu	Chickpea (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
18	Nanjanagudu	Cowpea (Alasandi)	66	54	0	100	25	2.5	5	87	179	32
19	Nanjanagudu	Soybean (Irrigated)	31	87	32	100	25	2.5	5	65	286	0
20	Nanjanagudu	Soybean (Rainfed)	29	65	21	100	25	2.5	5	54	214	4
21	Nanjanagudu	Sunflower (Irrigated)	104	82	52	100	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Periyapatna	29	10	2	22	51	54

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Periyapatna	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Periyapatna	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Periyapatna	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Periyapatna	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Periyapatna	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Periyapatna	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Periyapatna	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Periyapatna	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Periyapatna	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Periyapatna	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Periyapatna	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Periyapatna	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Periyapatna	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Periyapatna	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Periyapatna	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Periyapatna	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	Periyapatna	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Periyapatna	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Periyapatna	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Periyapatna	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Periyapatna	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
T Narasipura	62	21	20	32	46	81

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	T Narasipura	Paddy (Kharif)	196	54	42	100	13	2.5	5	217	179	44
2	T Narasipura	Paddy (Rabi)	246	67	52	100	13	2.5	5	272	221	10
3	T Narasipura	Sugarcane (Irrigated)	501	109	104	100	13	2.5	5	543	357	0
4	T Narasipura	Maize (Irrigated)	294	82	33	100	13	2.5	5	326	268	0
5	T Narasipura	Cotton	294	82	63	100	13	2.5	5	326	268	0
6	T Narasipura	Wheat (Irrigated)	185	82	42	100	13	2.5	5	217	268	0
7	T Narasipura	Pearl Millet (Irrigated)	190	71	21	100	13	2.5	5	217	232	1
8	T Narasipura	Groundnut (Irrigated)	22	82	31	100	13	2.5	5	54	268	0
9	T Narasipura	Pulses	33	54	21	100	13	2.5	5	54	179	44
10	T Narasipura	Tomato	301	65	50	100	13	2.5	5	326	214	16
11	T Narasipura	Potato (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
12	T Narasipura	Chilly (Irrigated)	294	82	63	100	13	2.5	5	326	268	0
13	T Narasipura	Onion	251	54	104	100	13	2.5	5	272	179	44
14	T Narasipura	Greengram (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
15	T Narasipura	Blackgram	66	54	0	100	13	2.5	5	87	179	44
16	T Narasipura	Chickpea (Irrigated)	33	54	42	100	13	2.5	5	54	179	44
17	T Narasipura	Chickpea (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
18	T Narasipura	Cowpea (Alasandi)	66	54	0	100	13	2.5	5	87	179	44
19	T Narasipura	Soybean (Irrigated)	31	87	32	100	13	2.5	5	65	286	0
20	T Narasipura	Soybean (Rainfed)	29	65	21	100	13	2.5	5	54	214	16
21	T Narasipura	Sunflower (Irrigated)	104	82	52	100	13	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Mysore District	42	17	11	28	46	66

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Mysore District	Paddy (Kharif)	88	54	42	100	13	2.5	5	109	179	44
2	Mysore District	Paddy (Rabi)	110	67	52	100	13	2.5	5	136	221	10
3	Mysore District	Sugarcane (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
4	Mysore District	Maize (Irrigated)	131	82	33	100	13	2.5	5	163	268	0
5	Mysore District	Cotton	131	82	63	100	13	2.5	5	163	268	0
6	Mysore District	Wheat (Irrigated)	77	82	42	100	13	2.5	5	109	268	0
7	Mysore District	Pearl Millet (Irrigated)	81	71	21	100	13	2.5	5	109	232	1
8	Mysore District	Groundnut (Irrigated)	0	82	31	100	13	2.5	5	27	268	0
9	Mysore District	Pulses	6	54	21	100	13	2.5	5	27	179	44
10	Mysore District	Tomato	138	65	50	100	13	2.5	5	163	214	16
11	Mysore District	Potato (Irrigated)	93	109	104	100	13	2.5	5	136	357	0
12	Mysore District	Chilly (Irrigated)	131	82	63	100	13	2.5	5	163	268	0
13	Mysore District	Onion	115	54	104	100	13	2.5	5	136	179	44
14	Mysore District	Greengram (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
15	Mysore District	Blackgram	22	54	0	100	13	2.5	5	43	179	44
16	Mysore District	Chickpea (Irrigated)	6	54	42	100	13	2.5	5	27	179	44
17	Mysore District	Chickpea (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
18	Mysore District	Cowpea (Alasandi)	22	54	0	100	13	2.5	5	43	179	44
19	Mysore District	Soybean (Irrigated)	0	87	32	100	13	2.5	5	33	286	0
20	Mysore District	Soybean (Rainfed)	2	65	21	100	13	2.5	5	27	214	16
21	Mysore District	Sunflower (Irrigated)	36	82	52	100	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Devadurga	74	4	3	3	29	19

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Devadurga	Paddy (Kharif)	196	54	42	100	13	1.25	2.5	217	179	44
2	Devadurga	Paddy (Rabi)	246	67	52	100	13	1.25	2.5	272	221	10
3	Devadurga	Sugarcane (Irrigated)	501	109	104	100	13	1.25	2.5	543	357	0
4	Devadurga	Maize (Irrigated)	294	82	33	100	13	1.25	2.5	326	268	0
5	Devadurga	Cotton	294	82	63	100	13	1.25	2.5	326	268	0
6	Devadurga	Wheat (Irrigated)	185	82	42	100	13	1.25	2.5	217	268	0
7	Devadurga	Pearl Millet (Irrigated)	190	71	21	100	13	1.25	2.5	217	232	1
8	Devadurga	Groundnut (Irrigated)	22	82	31	100	13	1.25	2.5	54	268	0
9	Devadurga	Pulses	33	54	21	100	13	1.25	2.5	54	179	44
10	Devadurga	Tomato	301	65	50	100	13	1.25	2.5	326	214	16
11	Devadurga	Potato (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
12	Devadurga	Chilly (Irrigated)	294	82	63	100	13	1.25	2.5	326	268	0
13	Devadurga	Onion	251	54	104	100	13	1.25	2.5	272	179	44
14	Devadurga	Greengram (Rainfed)	18	27	21	100	13	1.25	2.5	28	89	116
15	Devadurga	Blackgram	66	54	0	100	13	1.25	2.5	87	179	44
16	Devadurga	Chickpea (Irrigated)	33	54	42	100	13	1.25	2.5	54	179	44
17	Devadurga	Chickpea (Rainfed)	18	27	21	100	13	1.25	2.5	28	89	116
18	Devadurga	Cowpea (Alasandi)	66	54	0	100	13	1.25	2.5	87	179	44
19	Devadurga	Soybean (Irrigated)	31	87	32	100	13	1.25	2.5	65	286	0
20	Devadurga	Soybean (Rainfed)	29	65	21	100	13	1.25	2.5	54	214	16
21	Devadurga	Sunflower (Irrigated)	104	82	52	100	13	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Lingasugur	83	37	2	13	62	15

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Lingasugur	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Lingasugur	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Lingasugur	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Lingasugur	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Lingasugur	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Lingasugur	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Lingasugur	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Lingasugur	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Lingasugur	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Lingasugur	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Lingasugur	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Lingasugur	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Lingasugur	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Lingasugur	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Lingasugur	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Lingasugur	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Lingasugur	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Lingasugur	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Lingasugur	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Lingasugur	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Lingasugur	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Manvi	73	11	0	50	83	9

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Manvi	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Manvi	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Manvi	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Manvi	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Manvi	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Manvi	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Manvi	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Manvi	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Manvi	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Manvi	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Manvi	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Manvi	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Manvi	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Manvi	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Manvi	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Manvi	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Manvi	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Manvi	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Manvi	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Manvi	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Manvi	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Raichur	64	8	1	1	62	17

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Raichur	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Raichur	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Raichur	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Raichur	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Raichur	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Raichur	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Raichur	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Raichur	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Raichur	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Raichur	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Raichur	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Raichur	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Raichur	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Raichur	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Raichur	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Raichur	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Raichur	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Raichur	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Raichur	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Raichur	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Raichur	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Sindhanur	61	17	0	8	42	1

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Sindhanur	Paddy (Kharif)	196	54	42	100	13	1.25	2.5	217	179	44
2	Sindhanur	Paddy (Rabi)	246	67	52	100	13	1.25	2.5	272	221	10
3	Sindhanur	Sugarcane (Irrigated)	501	109	104	100	13	1.25	2.5	543	357	0
4	Sindhanur	Maize (Irrigated)	294	82	33	100	13	1.25	2.5	326	268	0
5	Sindhanur	Cotton	294	82	63	100	13	1.25	2.5	326	268	0
6	Sindhanur	Wheat (Irrigated)	185	82	42	100	13	1.25	2.5	217	268	0
7	Sindhanur	Pearl Millet (Irrigated)	190	71	21	100	13	1.25	2.5	217	232	1
8	Sindhanur	Groundnut (Irrigated)	22	82	31	100	13	1.25	2.5	54	268	0
9	Sindhanur	Pulses	33	54	21	100	13	1.25	2.5	54	179	44
10	Sindhanur	Tomato	301	65	50	100	13	1.25	2.5	326	214	16
11	Sindhanur	Potato (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
12	Sindhanur	Chilly (Irrigated)	294	82	63	100	13	1.25	2.5	326	268	0
13	Sindhanur	Onion	251	54	104	100	13	1.25	2.5	272	179	44
14	Sindhanur	Greengram (Rainfed)	18	27	21	100	13	1.25	2.5	28	89	116
15	Sindhanur	Blackgram	66	54	0	100	13	1.25	2.5	87	179	44
16	Sindhanur	Chickpea (Irrigated)	33	54	42	100	13	1.25	2.5	54	179	44
17	Sindhanur	Chickpea (Rainfed)	18	27	21	100	13	1.25	2.5	28	89	116
18	Sindhanur	Cowpea (Alasandi)	66	54	0	100	13	1.25	2.5	87	179	44
19	Sindhanur	Soybean (Irrigated)	31	87	32	100	13	1.25	2.5	65	286	0
20	Sindhanur	Soybean (Rainfed)	29	65	21	100	13	1.25	2.5	54	214	16
21	Sindhanur	Sunflower (Irrigated)	104	82	52	100	13	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Raichur District	69	13	1	17	54	10

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Raichur District	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Raichur District	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Raichur District	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Raichur District	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Raichur District	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Raichur District	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Raichur District	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Raichur District	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Raichur District	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Raichur District	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Raichur District	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Raichur District	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Raichur District	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Raichur District	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Raichur District	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Raichur District	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Raichur District	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Raichur District	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Raichur District	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Raichur District	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Raichur District	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Bhadravathi	71	31	5	60	39	62

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bhadravathi	Paddy (Kharif)	196	54	42	200	13	2.5	5	217	179	44
2	Bhadravathi	Paddy (Rabi)	246	67	52	200	13	2.5	5	272	221	10
3	Bhadravathi	Sugarcane (Irrigated)	501	109	104	200	13	2.5	5	543	357	0
4	Bhadravathi	Maize (Irrigated)	294	82	33	200	13	2.5	5	326	268	0
5	Bhadravathi	Cotton	294	82	63	200	13	2.5	5	326	268	0
6	Bhadravathi	Wheat (Irrigated)	185	82	42	200	13	2.5	5	217	268	0
7	Bhadravathi	Pearl Millet (Irrigated)	190	71	21	200	13	2.5	5	217	232	1
8	Bhadravathi	Groundnut (Irrigated)	22	82	31	200	13	2.5	5	54	268	0
9	Bhadravathi	Pulses	33	54	21	200	13	2.5	5	54	179	44
10	Bhadravathi	Tomato	301	65	50	200	13	2.5	5	326	214	16
11	Bhadravathi	Potato (Irrigated)	229	109	104	200	13	2.5	5	272	357	0
12	Bhadravathi	Chilly (Irrigated)	294	82	63	200	13	2.5	5	326	268	0
13	Bhadravathi	Onion	251	54	104	200	13	2.5	5	272	179	44
14	Bhadravathi	Greengram (Rainfed)	18	27	21	200	13	2.5	5	28	89	116
15	Bhadravathi	Blackgram	66	54	0	200	13	2.5	5	87	179	44
16	Bhadravathi	Chickpea (Irrigated)	33	54	42	200	13	2.5	5	54	179	44
17	Bhadravathi	Chickpea (Rainfed)	18	27	21	200	13	2.5	5	28	89	116
18	Bhadravathi	Cowpea (Alasandi)	66	54	0	200	13	2.5	5	87	179	44
19	Bhadravathi	Soybean (Irrigated)	31	87	32	200	13	2.5	5	65	286	0
20	Bhadravathi	Soybean (Rainfed)	29	65	21	200	13	2.5	5	54	214	16
21	Bhadravathi	Sunflower (Irrigated)	104	82	52	200	13	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Hosanagar	34	48	70	86	70	97

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hosanagar	Paddy (Kharif)	88	54	83	200	25	2.5	5	109	179	32
2	Hosanagar	Paddy (Rabi)	110	67	103	200	25	2.5	5	136	221	0
3	Hosanagar	Sugarcane (Irrigated)	229	109	208	200	25	2.5	5	272	357	0
4	Hosanagar	Maize (Irrigated)	131	82	67	200	25	2.5	5	163	268	0
5	Hosanagar	Cotton	131	82	125	200	25	2.5	5	163	268	0
6	Hosanagar	Wheat (Irrigated)	77	82	83	200	25	2.5	5	109	268	0
7	Hosanagar	Pearl Millet (Irrigated)	81	71	42	200	25	2.5	5	109	232	0
8	Hosanagar	Groundnut (Irrigated)	0	82	63	200	25	2.5	5	27	268	0
9	Hosanagar	Pulses	6	54	42	200	25	2.5	5	27	179	32
10	Hosanagar	Tomato	138	65	100	200	25	2.5	5	163	214	4
11	Hosanagar	Potato (Irrigated)	93	109	208	200	25	2.5	5	136	357	0
12	Hosanagar	Chilly (Irrigated)	131	82	125	200	25	2.5	5	163	268	0
13	Hosanagar	Onion	115	54	208	200	25	2.5	5	136	179	32
14	Hosanagar	Greengram (Rainfed)	4	27	42	200	25	2.5	5	14	89	104
15	Hosanagar	Blackgram	22	54	0	200	25	2.5	5	43	179	32
16	Hosanagar	Chickpea (Irrigated)	6	54	83	200	25	2.5	5	27	179	32
17	Hosanagar	Chickpea (Rainfed)	4	27	42	200	25	2.5	5	14	89	104
18	Hosanagar	Cowpea (Alasandi)	22	54	0	200	25	2.5	5	43	179	32
19	Hosanagar	Soybean (Irrigated)	0	87	63	200	25	2.5	5	33	286	0
20	Hosanagar	Soybean (Rainfed)	2	65	42	200	25	2.5	5	27	214	4
21	Hosanagar	Sunflower (Irrigated)	36	82	104	200	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Sagar	10	22	26	85	40	84

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Sagar	Paddy (Kharif)	88	54	42	200	13	2.5	5	109	179	44
2	Sagar	Paddy (Rabi)	110	67	52	200	13	2.5	5	136	221	10
3	Sagar	Sugarcane (Irrigated)	229	109	104	200	13	2.5	5	272	357	0
4	Sagar	Maize (Irrigated)	131	82	33	200	13	2.5	5	163	268	0
5	Sagar	Cotton	131	82	63	200	13	2.5	5	163	268	0
6	Sagar	Wheat (Irrigated)	77	82	42	200	13	2.5	5	109	268	0
7	Sagar	Pearl Millet (Irrigated)	81	71	21	200	13	2.5	5	109	232	1
8	Sagar	Groundnut (Irrigated)	0	82	31	200	13	2.5	5	27	268	0
9	Sagar	Pulses	6	54	21	200	13	2.5	5	27	179	44
10	Sagar	Tomato	138	65	50	200	13	2.5	5	163	214	16
11	Sagar	Potato (Irrigated)	93	109	104	200	13	2.5	5	136	357	0
12	Sagar	Chilly (Irrigated)	131	82	63	200	13	2.5	5	163	268	0
13	Sagar	Onion	115	54	104	200	13	2.5	5	136	179	44
14	Sagar	Greengram (Rainfed)	4	27	21	200	13	2.5	5	14	89	116
15	Sagar	Blackgram	22	54	0	200	13	2.5	5	43	179	44
16	Sagar	Chickpea (Irrigated)	6	54	42	200	13	2.5	5	27	179	44
17	Sagar	Chickpea (Rainfed)	4	27	21	200	13	2.5	5	14	89	116
18	Sagar	Cowpea (Alasandi)	22	54	0	200	13	2.5	5	43	179	44
19	Sagar	Soybean (Irrigated)	0	87	32	200	13	2.5	5	33	286	0
20	Sagar	Soybean (Rainfed)	2	65	21	200	13	2.5	5	27	214	16
21	Sagar	Sunflower (Irrigated)	36	82	52	200	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Shikaripura	18	21	15	34	45	65

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Shikaripura	Paddy (Kharif)	88	54	42	100	13	2.5	5	109	179	44
2	Shikaripura	Paddy (Rabi)	110	67	52	100	13	2.5	5	136	221	10
3	Shikaripura	Sugarcane (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
4	Shikaripura	Maize (Irrigated)	131	82	33	100	13	2.5	5	163	268	0
5	Shikaripura	Cotton	131	82	63	100	13	2.5	5	163	268	0
6	Shikaripura	Wheat (Irrigated)	77	82	42	100	13	2.5	5	109	268	0
7	Shikaripura	Pearl Millet (Irrigated)	81	71	21	100	13	2.5	5	109	232	1
8	Shikaripura	Groundnut (Irrigated)	0	82	31	100	13	2.5	5	27	268	0
9	Shikaripura	Pulses	6	54	21	100	13	2.5	5	27	179	44
10	Shikaripura	Tomato	138	65	50	100	13	2.5	5	163	214	16
11	Shikaripura	Potato (Irrigated)	93	109	104	100	13	2.5	5	136	357	0
12	Shikaripura	Chilly (Irrigated)	131	82	63	100	13	2.5	5	163	268	0
13	Shikaripura	Onion	115	54	104	100	13	2.5	5	136	179	44
14	Shikaripura	Greengram (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
15	Shikaripura	Blackgram	22	54	0	100	13	2.5	5	43	179	44
16	Shikaripura	Chickpea (Irrigated)	6	54	42	100	13	2.5	5	27	179	44
17	Shikaripura	Chickpea (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
18	Shikaripura	Cowpea (Alasandi)	22	54	0	100	13	2.5	5	43	179	44
19	Shikaripura	Soybean (Irrigated)	0	87	32	100	13	2.5	5	33	286	0
20	Shikaripura	Soybean (Rainfed)	2	65	21	100	13	2.5	5	27	214	16
21	Shikaripura	Sunflower (Irrigated)	36	82	52	100	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Shimoga	51	14	10	80	47	78

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Shimoga	Paddy (Kharif)	196	54	42	200	13	2.5	5	217	179	44
2	Shimoga	Paddy (Rabi)	246	67	52	200	13	2.5	5	272	221	10
3	Shimoga	Sugarcane (Irrigated)	501	109	104	200	13	2.5	5	543	357	0
4	Shimoga	Maize (Irrigated)	294	82	33	200	13	2.5	5	326	268	0
5	Shimoga	Cotton	294	82	63	200	13	2.5	5	326	268	0
6	Shimoga	Wheat (Irrigated)	185	82	42	200	13	2.5	5	217	268	0
7	Shimoga	Pearl Millet (Irrigated)	190	71	21	200	13	2.5	5	217	232	1
8	Shimoga	Groundnut (Irrigated)	22	82	31	200	13	2.5	5	54	268	0
9	Shimoga	Pulses	33	54	21	200	13	2.5	5	54	179	44
10	Shimoga	Tomato	301	65	50	200	13	2.5	5	326	214	16
11	Shimoga	Potato (Irrigated)	229	109	104	200	13	2.5	5	272	357	0
12	Shimoga	Chilly (Irrigated)	294	82	63	200	13	2.5	5	326	268	0
13	Shimoga	Onion	251	54	104	200	13	2.5	5	272	179	44
14	Shimoga	Greengram (Rainfed)	18	27	21	200	13	2.5	5	28	89	116
15	Shimoga	Blackgram	66	54	0	200	13	2.5	5	87	179	44
16	Shimoga	Chickpea (Irrigated)	33	54	42	200	13	2.5	5	54	179	44
17	Shimoga	Chickpea (Rainfed)	18	27	21	200	13	2.5	5	28	89	116
18	Shimoga	Cowpea (Alasandi)	66	54	0	200	13	2.5	5	87	179	44
19	Shimoga	Soybean (Irrigated)	31	87	32	200	13	2.5	5	65	286	0
20	Shimoga	Soybean (Rainfed)	29	65	21	200	13	2.5	5	54	214	16
21	Shimoga	Sunflower (Irrigated)	104	82	52	200	13	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Sorab	13	20	36	84	68	80

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Sorab	Paddy (Kharif)	88	54	42	200	25	2.5	5	109	179	32
2	Sorab	Paddy (Rabi)	110	67	52	200	25	2.5	5	136	221	0
3	Sorab	Sugarcane (Irrigated)	229	109	104	200	25	2.5	5	272	357	0
4	Sorab	Maize (Irrigated)	131	82	33	200	25	2.5	5	163	268	0
5	Sorab	Cotton	131	82	63	200	25	2.5	5	163	268	0
6	Sorab	Wheat (Irrigated)	77	82	42	200	25	2.5	5	109	268	0
7	Sorab	Pearl Millet (Irrigated)	81	71	21	200	25	2.5	5	109	232	0
8	Sorab	Groundnut (Irrigated)	0	82	31	200	25	2.5	5	27	268	0
9	Sorab	Pulses	6	54	21	200	25	2.5	5	27	179	32
10	Sorab	Tomato	138	65	50	200	25	2.5	5	163	214	4
11	Sorab	Potato (Irrigated)	93	109	104	200	25	2.5	5	136	357	0
12	Sorab	Chilly (Irrigated)	131	82	63	200	25	2.5	5	163	268	0
13	Sorab	Onion	115	54	104	200	25	2.5	5	136	179	32
14	Sorab	Greengram (Rainfed)	4	27	21	200	25	2.5	5	14	89	104
15	Sorab	Blackgram	22	54	0	200	25	2.5	5	43	179	32
16	Sorab	Chickpea (Irrigated)	6	54	42	200	25	2.5	5	27	179	32
17	Sorab	Chickpea (Rainfed)	4	27	21	200	25	2.5	5	14	89	104
18	Sorab	Cowpea (Alasandi)	22	54	0	200	25	2.5	5	43	179	32
19	Sorab	Soybean (Irrigated)	0	87	32	200	25	2.5	5	33	286	0
20	Sorab	Soybean (Rainfed)	2	65	21	200	25	2.5	5	27	214	4
21	Sorab	Sunflower (Irrigated)	36	82	52	200	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Thirthahalli	20	47	85	86	42	23

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Thirthahalli	Paddy (Kharif)	88	54	83	200	13	1.25	2.5	109	179	44
2	Thirthahalli	Paddy (Rabi)	110	67	103	200	13	1.25	2.5	136	221	10
3	Thirthahalli	Sugarcane (Irrigated)	229	109	208	200	13	1.25	2.5	272	357	0
4	Thirthahalli	Maize (Irrigated)	131	82	67	200	13	1.25	2.5	163	268	0
5	Thirthahalli	Cotton	131	82	125	200	13	1.25	2.5	163	268	0
6	Thirthahalli	Wheat (Irrigated)	77	82	83	200	13	1.25	2.5	109	268	0
7	Thirthahalli	Pearl Millet (Irrigated)	81	71	42	200	13	1.25	2.5	109	232	1
8	Thirthahalli	Groundnut (Irrigated)	0	82	63	200	13	1.25	2.5	27	268	0
9	Thirthahalli	Pulses	6	54	42	200	13	1.25	2.5	27	179	44
10	Thirthahalli	Tomato	138	65	100	200	13	1.25	2.5	163	214	16
11	Thirthahalli	Potato (Irrigated)	93	109	208	200	13	1.25	2.5	136	357	0
12	Thirthahalli	Chilly (Irrigated)	131	82	125	200	13	1.25	2.5	163	268	0
13	Thirthahalli	Onion	115	54	208	200	13	1.25	2.5	136	179	44
14	Thirthahalli	Greengram (Rainfed)	4	27	42	200	13	1.25	2.5	14	89	116
15	Thirthahalli	Blackgram	22	54	0	200	13	1.25	2.5	43	179	44
16	Thirthahalli	Chickpea (Irrigated)	6	54	83	200	13	1.25	2.5	27	179	44
17	Thirthahalli	Chickpea (Rainfed)	4	27	42	200	13	1.25	2.5	14	89	116
18	Thirthahalli	Cowpea (Alasandi)	22	54	0	200	13	1.25	2.5	43	179	44
19	Thirthahalli	Soybean (Irrigated)	0	87	63	200	13	1.25	2.5	33	286	0
20	Thirthahalli	Soybean (Rainfed)	2	65	42	200	13	1.25	2.5	27	214	16
21	Thirthahalli	Sunflower (Irrigated)	36	82	104	200	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Shimoga District	34	27	30	73	50	71

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Shimoga District	Paddy (Kharif)	88	54	42	200	25	2.5	5	109	179	32
2	Shimoga District	Paddy (Rabi)	110	67	52	200	25	2.5	5	136	221	0
3	Shimoga District	Sugarcane (Irrigated)	229	109	104	200	25	2.5	5	272	357	0
4	Shimoga District	Maize (Irrigated)	131	82	33	200	25	2.5	5	163	268	0
5	Shimoga District	Cotton	131	82	63	200	25	2.5	5	163	268	0
6	Shimoga District	Wheat (Irrigated)	77	82	42	200	25	2.5	5	109	268	0
7	Shimoga District	Pearl Millet (Irrigated)	81	71	21	200	25	2.5	5	109	232	0
8	Shimoga District	Groundnut (Irrigated)	0	82	31	200	25	2.5	5	27	268	0
9	Shimoga District	Pulses	6	54	21	200	25	2.5	5	27	179	32
10	Shimoga District	Tomato	138	65	50	200	25	2.5	5	163	214	4
11	Shimoga District	Potato (Irrigated)	93	109	104	200	25	2.5	5	136	357	0
12	Shimoga District	Chilly (Irrigated)	131	82	63	200	25	2.5	5	163	268	0
13	Shimoga District	Onion	115	54	104	200	25	2.5	5	136	179	32
14	Shimoga District	Greengram (Rainfed)	4	27	21	200	25	2.5	5	14	89	104
15	Shimoga District	Blackgram	22	54	0	200	25	2.5	5	43	179	32
16	Shimoga District	Chickpea (Irrigated)	6	54	42	200	25	2.5	5	27	179	32
17	Shimoga District	Chickpea (Rainfed)	4	27	21	200	25	2.5	5	14	89	104
18	Shimoga District	Cowpea (Alasandi)	22	54	0	200	25	2.5	5	43	179	32
19	Shimoga District	Soybean (Irrigated)	0	87	32	200	25	2.5	5	33	286	0
20	Shimoga District	Soybean (Rainfed)	2	65	21	200	25	2.5	5	27	214	4
21	Shimoga District	Sunflower (Irrigated)	36	82	52	200	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Gubbi	85	17	5	33	27	89

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Gubbi	Paddy (Kharif)	196	54	42	100	13	2.5	5	217	179	44
2	Gubbi	Paddy (Rabi)	246	67	52	100	13	2.5	5	272	221	10
3	Gubbi	Sugarcane (Irrigated)	501	109	104	100	13	2.5	5	543	357	0
4	Gubbi	Maize (Irrigated)	294	82	33	100	13	2.5	5	326	268	0
5	Gubbi	Cotton	294	82	63	100	13	2.5	5	326	268	0
6	Gubbi	Wheat (Irrigated)	185	82	42	100	13	2.5	5	217	268	0
7	Gubbi	Pearl Millet (Irrigated)	190	71	21	100	13	2.5	5	217	232	1
8	Gubbi	Groundnut (Irrigated)	22	82	31	100	13	2.5	5	54	268	0
9	Gubbi	Pulses	33	54	21	100	13	2.5	5	54	179	44
10	Gubbi	Tomato	301	65	50	100	13	2.5	5	326	214	16
11	Gubbi	Potato (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
12	Gubbi	Chilly (Irrigated)	294	82	63	100	13	2.5	5	326	268	0
13	Gubbi	Onion	251	54	104	100	13	2.5	5	272	179	44
14	Gubbi	Greengram (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
15	Gubbi	Blackgram	66	54	0	100	13	2.5	5	87	179	44
16	Gubbi	Chickpea (Irrigated)	33	54	42	100	13	2.5	5	54	179	44
17	Gubbi	Chickpea (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
18	Gubbi	Cowpea (Alasandi)	66	54	0	100	13	2.5	5	87	179	44
19	Gubbi	Soybean (Irrigated)	31	87	32	100	13	2.5	5	65	286	0
20	Gubbi	Soybean (Rainfed)	29	65	21	100	13	2.5	5	54	214	16
21	Gubbi	Sunflower (Irrigated)	104	82	52	100	13	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
kunigal	92	89	0	23	84	100

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	kunigal	Paddy (Kharif)	175	109	42	100	25	2.5	5	217	357	0
2	kunigal	Paddy (Rabi)	219	135	52	100	25	2.5	5	272	443	0
3	kunigal	Sugarcane (Irrigated)	459	217	104	100	25	2.5	5	543	714	0
4	kunigal	Maize (Irrigated)	262	163	33	100	25	2.5	5	326	536	0
5	kunigal	Cotton	262	163	63	100	25	2.5	5	326	536	0
6	kunigal	Wheat (Irrigated)	154	163	42	100	25	2.5	5	217	536	0
7	kunigal	Pearl Millet (Irrigated)	162	141	21	100	25	2.5	5	217	464	0
8	kunigal	Groundnut (Irrigated)	0	163	31	100	25	2.5	5	54	536	0
9	kunigal	Pulses	12	109	21	100	25	2.5	5	54	357	0
10	kunigal	Tomato	275	130	50	100	25	2.5	5	326	429	0
11	kunigal	Potato (Irrigated)	187	217	104	100	25	2.5	5	272	714	0
12	kunigal	Chilly (Irrigated)	262	163	63	100	25	2.5	5	326	536	0
13	kunigal	Onion	229	109	104	100	25	2.5	5	272	357	0
14	kunigal	Greengram (Rainfed)	7	54	21	100	25	2.5	5	28	179	32
15	kunigal	Blackgram	44	109	0	100	25	2.5	5	87	357	0
16	kunigal	Chickpea (Irrigated)	12	109	42	100	25	2.5	5	54	357	0
17	kunigal	Chickpea (Rainfed)	7	54	21	100	25	2.5	5	28	179	32
18	kunigal	Cowpea (Alasandi)	44	109	0	100	25	2.5	5	87	357	0
19	kunigal	Soybean (Irrigated)	0	174	32	100	25	2.5	5	65	571	0
20	kunigal	Soybean (Rainfed)	3	130	21	100	25	2.5	5	54	429	0
21	kunigal	Sunflower (Irrigated)	72	163	52	100	25	2.5	5	136	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Tiptur	70	26	13	42	72	73

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Tiptur	Paddy (Kharif)	196	54	42	100	25	2.5	5	217	179	32
2	Tiptur	Paddy (Rabi)	246	67	52	100	25	2.5	5	272	221	0
3	Tiptur	Sugarcane (Irrigated)	501	109	104	100	25	2.5	5	543	357	0
4	Tiptur	Maize (Irrigated)	294	82	33	100	25	2.5	5	326	268	0
5	Tiptur	Cotton	294	82	63	100	25	2.5	5	326	268	0
6	Tiptur	Wheat (Irrigated)	185	82	42	100	25	2.5	5	217	268	0
7	Tiptur	Pearl Millet (Irrigated)	190	71	21	100	25	2.5	5	217	232	0
8	Tiptur	Groundnut (Irrigated)	22	82	31	100	25	2.5	5	54	268	0
9	Tiptur	Pulses	33	54	21	100	25	2.5	5	54	179	32
10	Tiptur	Tomato	301	65	50	100	25	2.5	5	326	214	4
11	Tiptur	Potato (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
12	Tiptur	Chilly (Irrigated)	294	82	63	100	25	2.5	5	326	268	0
13	Tiptur	Onion	251	54	104	100	25	2.5	5	272	179	32
14	Tiptur	Greengram (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
15	Tiptur	Blackgram	66	54	0	100	25	2.5	5	87	179	32
16	Tiptur	Chickpea (Irrigated)	33	54	42	100	25	2.5	5	54	179	32
17	Tiptur	Chickpea (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
18	Tiptur	Cowpea (Alasandi)	66	54	0	100	25	2.5	5	87	179	32
19	Tiptur	Soybean (Irrigated)	31	87	32	100	25	2.5	5	65	286	0
20	Tiptur	Soybean (Rainfed)	29	65	21	100	25	2.5	5	54	214	4
21	Tiptur	Sunflower (Irrigated)	104	82	52	100	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Turvekere	78	31	11	47	20	78

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Turvekere	Paddy (Kharif)	196	54	42	100	13	2.5	5	217	179	44
2	Turvekere	Paddy (Rabi)	246	67	52	100	13	2.5	5	272	221	10
3	Turvekere	Sugarcane (Irrigated)	501	109	104	100	13	2.5	5	543	357	0
4	Turvekere	Maize (Irrigated)	294	82	33	100	13	2.5	5	326	268	0
5	Turvekere	Cotton	294	82	63	100	13	2.5	5	326	268	0
6	Turvekere	Wheat (Irrigated)	185	82	42	100	13	2.5	5	217	268	0
7	Turvekere	Pearl Millet (Irrigated)	190	71	21	100	13	2.5	5	217	232	1
8	Turvekere	Groundnut (Irrigated)	22	82	31	100	13	2.5	5	54	268	0
9	Turvekere	Pulses	33	54	21	100	13	2.5	5	54	179	44
10	Turvekere	Tomato	301	65	50	100	13	2.5	5	326	214	16
11	Turvekere	Potato (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
12	Turvekere	Chilly (Irrigated)	294	82	63	100	13	2.5	5	326	268	0
13	Turvekere	Onion	251	54	104	100	13	2.5	5	272	179	44
14	Turvekere	Greengram (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
15	Turvekere	Blackgram	66	54	0	100	13	2.5	5	87	179	44
16	Turvekere	Chickpea (Irrigated)	33	54	42	100	13	2.5	5	54	179	44
17	Turvekere	Chickpea (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
18	Turvekere	Cowpea (Alasandi)	66	54	0	100	13	2.5	5	87	179	44
19	Turvekere	Soybean (Irrigated)	31	87	32	100	13	2.5	5	65	286	0
20	Turvekere	Soybean (Rainfed)	29	65	21	100	13	2.5	5	54	214	16
21	Turvekere	Sunflower (Irrigated)	104	82	52	100	13	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Tumkur District	81	40	7	36	53	84

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Tumkur District	Paddy (Kharif)	196	54	42	100	25	2.5	5	217	179	32
2	Tumkur District	Paddy (Rabi)	246	67	52	100	25	2.5	5	272	221	0
3	Tumkur District	Sugarcane (Irrigated)	501	109	104	100	25	2.5	5	543	357	0
4	Tumkur District	Maize (Irrigated)	294	82	33	100	25	2.5	5	326	268	0
5	Tumkur District	Cotton	294	82	63	100	25	2.5	5	326	268	0
6	Tumkur District	Wheat (Irrigated)	185	82	42	100	25	2.5	5	217	268	0
7	Tumkur District	Pearl Millet (Irrigated)	190	71	21	100	25	2.5	5	217	232	0
8	Tumkur District	Groundnut (Irrigated)	22	82	31	100	25	2.5	5	54	268	0
9	Tumkur District	Pulses	33	54	21	100	25	2.5	5	54	179	32
10	Tumkur District	Tomato	301	65	50	100	25	2.5	5	326	214	4
11	Tumkur District	Potato (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
12	Tumkur District	Chilly (Irrigated)	294	82	63	100	25	2.5	5	326	268	0
13	Tumkur District	Onion	251	54	104	100	25	2.5	5	272	179	32
14	Tumkur District	Greengram (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
15	Tumkur District	Blackgram	66	54	0	100	25	2.5	5	87	179	32
16	Tumkur District	Chickpea (Irrigated)	33	54	42	100	25	2.5	5	54	179	32
17	Tumkur District	Chickpea (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
18	Tumkur District	Cowpea (Alasandi)	66	54	0	100	25	2.5	5	87	179	32
19	Tumkur District	Soybean (Irrigated)	31	87	32	100	25	2.5	5	65	286	0
20	Tumkur District	Soybean (Rainfed)	29	65	21	100	25	2.5	5	54	214	4
21	Tumkur District	Sunflower (Irrigated)	104	82	52	100	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Shahapur	85	6	1	11	82	24

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Shahapur	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Shahapur	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Shahapur	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Shahapur	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Shahapur	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Shahapur	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Shahapur	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Shahapur	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Shahapur	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Shahapur	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Shahapur	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Shahapur	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Shahapur	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Shahapur	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Shahapur	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Shahapur	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Shahapur	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Shahapur	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Shahapur	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Shahapur	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Shahapur	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Shorapur	45	13	0	13	62	22

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Shorapur	Paddy (Kharif)	88	54	42	100	25	1.25	2.5	109	179	32
2	Shorapur	Paddy (Rabi)	110	67	52	100	25	1.25	2.5	136	221	0
3	Shorapur	Sugarcane (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
4	Shorapur	Maize (Irrigated)	131	82	33	100	25	1.25	2.5	163	268	0
5	Shorapur	Cotton	131	82	63	100	25	1.25	2.5	163	268	0
6	Shorapur	Wheat (Irrigated)	77	82	42	100	25	1.25	2.5	109	268	0
7	Shorapur	Pearl Millet (Irrigated)	81	71	21	100	25	1.25	2.5	109	232	0
8	Shorapur	Groundnut (Irrigated)	0	82	31	100	25	1.25	2.5	27	268	0
9	Shorapur	Pulses	6	54	21	100	25	1.25	2.5	27	179	32
10	Shorapur	Tomato	138	65	50	100	25	1.25	2.5	163	214	4
11	Shorapur	Potato (Irrigated)	93	109	104	100	25	1.25	2.5	136	357	0
12	Shorapur	Chilly (Irrigated)	131	82	63	100	25	1.25	2.5	163	268	0
13	Shorapur	Onion	115	54	104	100	25	1.25	2.5	136	179	32
14	Shorapur	Greengram (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
15	Shorapur	Blackgram	22	54	0	100	25	1.25	2.5	43	179	32
16	Shorapur	Chickpea (Irrigated)	6	54	42	100	25	1.25	2.5	27	179	32
17	Shorapur	Chickpea (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
18	Shorapur	Cowpea (Alasandi)	22	54	0	100	25	1.25	2.5	43	179	32
19	Shorapur	Soybean (Irrigated)	0	87	32	100	25	1.25	2.5	33	286	0
20	Shorapur	Soybean (Rainfed)	2	65	21	100	25	1.25	2.5	27	214	4
21	Shorapur	Sunflower (Irrigated)	36	82	52	100	25	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Yadgiri	75	44	3	46	63	66

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Yadgiri	Paddy (Kharif)	196	54	42	100	25	2.5	5	217	179	32
2	Yadgiri	Paddy (Rabi)	246	67	52	100	25	2.5	5	272	221	0
3	Yadgiri	Sugarcane (Irrigated)	501	109	104	100	25	2.5	5	543	357	0
4	Yadgiri	Maize (Irrigated)	294	82	33	100	25	2.5	5	326	268	0
5	Yadgiri	Cotton	294	82	63	100	25	2.5	5	326	268	0
6	Yadgiri	Wheat (Irrigated)	185	82	42	100	25	2.5	5	217	268	0
7	Yadgiri	Pearl Millet (Irrigated)	190	71	21	100	25	2.5	5	217	232	0
8	Yadgiri	Groundnut (Irrigated)	22	82	31	100	25	2.5	5	54	268	0
9	Yadgiri	Pulses	33	54	21	100	25	2.5	5	54	179	32
10	Yadgiri	Tomato	301	65	50	100	25	2.5	5	326	214	4
11	Yadgiri	Potato (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
12	Yadgiri	Chilly (Irrigated)	294	82	63	100	25	2.5	5	326	268	0
13	Yadgiri	Onion	251	54	104	100	25	2.5	5	272	179	32
14	Yadgiri	Greengram (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
15	Yadgiri	Blackgram	66	54	0	100	25	2.5	5	87	179	32
16	Yadgiri	Chickpea (Irrigated)	33	54	42	100	25	2.5	5	54	179	32
17	Yadgiri	Chickpea (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
18	Yadgiri	Cowpea (Alasandi)	66	54	0	100	25	2.5	5	87	179	32
19	Yadgiri	Soybean (Irrigated)	31	87	32	100	25	2.5	5	65	286	0
20	Yadgiri	Soybean (Rainfed)	29	65	21	100	25	2.5	5	54	214	4
21	Yadgiri	Sunflower (Irrigated)	104	82	52	100	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Yadgiri District	70	20	2	22	70	36

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Yadgiri District	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Yadgiri District	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Yadgiri District	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Yadgiri District	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Yadgiri District	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Yadgiri District	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Yadgiri District	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Yadgiri District	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Yadgiri District	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Yadgiri District	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Yadgiri District	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Yadgiri District	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Yadgiri District	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Yadgiri District	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Yadgiri District	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Yadgiri District	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Yadgiri District	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Yadgiri District	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Yadgiri District	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Yadgiri District	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Yadgiri District	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Paddy Total	46	21	12	36	52	59

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Paddy Total	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Paddy Total	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Paddy Total	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Paddy Total	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Paddy Total	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Paddy Total	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Paddy Total	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Paddy Total	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Paddy Total	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Paddy Total	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Paddy Total	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Paddy Total	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Paddy Total	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Paddy Total	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Paddy Total	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Paddy Total	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	Paddy Total	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Paddy Total	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Paddy Total	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Paddy Total	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Paddy Total	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Karnataka State	43	26	9	36	51	51

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Karnataka State	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Karnataka State	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Karnataka State	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Karnataka State	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Karnataka State	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Karnataka State	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Karnataka State	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Karnataka State	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Karnataka State	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Karnataka State	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Karnataka State	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Karnataka State	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Karnataka State	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Karnataka State	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Karnataka State	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Karnataka State	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	Karnataka State	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Karnataka State	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Karnataka State	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Karnataka State	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Karnataka State	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Annexure 2: Soil test based fertilizer recommendations for Karnataka Irrigated fields using Sugarcane fields soils data

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
1A	Karnataka State	43	26	9	36	51	51

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations						(kg ha^{-1})						
Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Karnataka State	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Karnataka State	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Karnataka State	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Karnataka State	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Karnataka State	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Karnataka State	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Karnataka State	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Karnataka State	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Karnataka State	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Karnataka State	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Karnataka State	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Karnataka State	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Karnataka State	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Karnataka State	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Karnataka State	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Karnataka State	Chickpea (Irrigated)	6	54	0	100	25	2.5	5	27	179	32
17	Karnataka State	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Karnataka State	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Karnataka State	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Karnataka State	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Karnataka State	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
1	Badami	78	38	0	67	68	2

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Badami	Paddy (Kharif)	196	54	42	200	25	1.25	2.5	217	179	32
2	Badami	Paddy (Rabi)	246	67	52	200	25	1.25	2.5	272	221	0
3	Badami	Sugarcane (Irrigated)	501	109	104	200	25	1.25	2.5	543	357	0
4	Badami	Maize (Irrigated)	294	82	33	200	25	1.25	2.5	326	268	0
5	Badami	Cotton	294	82	63	200	25	1.25	2.5	326	268	0
6	Badami	Wheat (Irrigated)	185	82	42	200	25	1.25	2.5	217	268	0
7	Badami	Pearl Millet (Irrigated)	190	71	21	200	25	1.25	2.5	217	232	0
8	Badami	Groundnut (Irrigated)	22	82	31	200	25	1.25	2.5	54	268	0
9	Badami	Pulses	33	54	21	200	25	1.25	2.5	54	179	32
10	Badami	Tomato	301	65	50	200	25	1.25	2.5	326	214	4
11	Badami	Potato (Irrigated)	229	109	104	200	25	1.25	2.5	272	357	0
12	Badami	Chilly (Irrigated)	294	82	63	200	25	1.25	2.5	326	268	0
13	Badami	Onion	251	54	104	200	25	1.25	2.5	272	179	32
14	Badami	Greengram (Rainfed)	18	27	21	200	25	1.25	2.5	28	89	104
15	Badami	Blackgram	66	54	0	200	25	1.25	2.5	87	179	32
16	Badami	Chickpea (Irrigated)	33	54	42	200	25	1.25	2.5	54	179	32
17	Badami	Chickpea (Rainfed)	18	27	21	200	25	1.25	2.5	28	89	104
18	Badami	Cowpea (Alasandi)	66	54	0	200	25	1.25	2.5	87	179	32
19	Badami	Soybean (Irrigated)	31	87	32	200	25	1.25	2.5	65	286	0
20	Badami	Soybean (Rainfed)	29	65	21	200	25	1.25	2.5	54	214	4
21	Badami	Sunflower (Irrigated)	104	82	52	200	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
2 Bagalkot	57	48	0	13	68	7

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bagalkot	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Bagalkot	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Bagalkot	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Bagalkot	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Bagalkot	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Bagalkot	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Bagalkot	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Bagalkot	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Bagalkot	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Bagalkot	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Bagalkot	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Bagalkot	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Bagalkot	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Bagalkot	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Bagalkot	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Bagalkot	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Bagalkot	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Bagalkot	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Bagalkot	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Bagalkot	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Bagalkot	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
3 Bilagi	63	47	0	11	57	0

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bilagi	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Bilagi	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Bilagi	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Bilagi	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Bilagi	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Bilagi	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Bilagi	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Bilagi	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Bilagi	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Bilagi	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Bilagi	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Bilagi	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Bilagi	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Bilagi	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Bilagi	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Bilagi	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Bilagi	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Bilagi	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Bilagi	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Bilagi	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Bilagi	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
4	Hungundu	75	45	0	0	75	0

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations (kg ha^{-1})

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hungundu	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Hungundu	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Hungundu	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Hungundu	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Hungundu	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Hungundu	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Hungundu	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Hungundu	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Hungundu	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Hungundu	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Hungundu	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Hungundu	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Hungundu	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Hungundu	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Hungundu	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Hungundu	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Hungundu	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Hungundu	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Hungundu	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Hungundu	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Hungundu	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
5 Jamkhandi	61	42	1	3	66	1

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Jamkhandi	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Jamkhandi	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Jamkhandi	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Jamkhandi	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Jamkhandi	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Jamkhandi	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Jamkhandi	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Jamkhandi	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Jamkhandi	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Jamkhandi	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Jamkhandi	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Jamkhandi	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Jamkhandi	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Jamkhandi	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Jamkhandi	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Jamkhandi	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Jamkhandi	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Jamkhandi	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Jamkhandi	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Jamkhandi	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Jamkhandi	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
6 Mudhol	33	51	1	26	56	12

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Mudhol	Paddy (Kharif)	66	109	42	100	25	1.25	2.5	109	357	0
2	Mudhol	Paddy (Rabi)	83	135	52	100	25	1.25	2.5	136	443	0
3	Mudhol	Sugarcane (Irrigated)	187	217	104	100	25	1.25	2.5	272	714	0
4	Mudhol	Maize (Irrigated)	99	163	33	100	25	1.25	2.5	163	536	0
5	Mudhol	Cotton	99	163	63	100	25	1.25	2.5	163	536	0
6	Mudhol	Wheat (Irrigated)	45	163	42	100	25	1.25	2.5	109	536	0
7	Mudhol	Pearl Millet (Irrigated)	54	141	21	100	25	1.25	2.5	109	464	0
8	Mudhol	Groundnut (Irrigated)	0	163	31	100	25	1.25	2.5	27	536	0
9	Mudhol	Pulses	0	109	21	100	25	1.25	2.5	27	357	0
10	Mudhol	Tomato	112	130	50	100	25	1.25	2.5	163	429	0
11	Mudhol	Potato (Irrigated)	51	217	104	100	25	1.25	2.5	136	714	0
12	Mudhol	Chilly (Irrigated)	99	163	63	100	25	1.25	2.5	163	536	0
13	Mudhol	Onion	93	109	104	100	25	1.25	2.5	136	357	0
14	Mudhol	Greengram (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
15	Mudhol	Blackgram	1	109	0	100	25	1.25	2.5	43	357	0
16	Mudhol	Chickpea (Irrigated)	0	109	42	100	25	1.25	2.5	27	357	0
17	Mudhol	Chickpea (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
18	Mudhol	Cowpea (Alasandi)	1	109	0	100	25	1.25	2.5	43	357	0
19	Mudhol	Soybean (Irrigated)	0	174	32	100	25	1.25	2.5	33	571	0
20	Mudhol	Soybean (Rainfed)	0	130	21	100	25	1.25	2.5	27	429	0
21	Mudhol	Sunflower (Irrigated)	4	163	52	100	25	1.25	2.5	68	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Bagalkot District	55	46	0	18	62	4

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bagalkot District	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Bagalkot District	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Bagalkot District	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Bagalkot District	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Bagalkot District	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Bagalkot District	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Bagalkot District	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Bagalkot District	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Bagalkot District	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Bagalkot District	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Bagalkot District	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Bagalkot District	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Bagalkot District	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Bagalkot District	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Bagalkot District	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Bagalkot District	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Bagalkot District	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Bagalkot District	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Bagalkot District	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Bagalkot District	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Bagalkot District	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Athani	3	67	0	17	53	18

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Athani	Paddy (Kharif)	66	109	42	100	25	1.25	2.5	109	357	0
2	Athani	Paddy (Rabi)	83	135	52	100	25	1.25	2.5	136	443	0
3	Athani	Sugarcane (Irrigated)	187	217	104	100	25	1.25	2.5	272	714	0
4	Athani	Maize (Irrigated)	99	163	33	100	25	1.25	2.5	163	536	0
5	Athani	Cotton	99	163	63	100	25	1.25	2.5	163	536	0
6	Athani	Wheat (Irrigated)	45	163	42	100	25	1.25	2.5	109	536	0
7	Athani	Pearl Millet (Irrigated)	54	141	21	100	25	1.25	2.5	109	464	0
8	Athani	Groundnut (Irrigated)	0	163	31	100	25	1.25	2.5	27	536	0
9	Athani	Pulses	0	109	21	100	25	1.25	2.5	27	357	0
10	Athani	Tomato	112	130	50	100	25	1.25	2.5	163	429	0
11	Athani	Potato (Irrigated)	51	217	104	100	25	1.25	2.5	136	714	0
12	Athani	Chilly (Irrigated)	99	163	63	100	25	1.25	2.5	163	536	0
13	Athani	Onion	93	109	104	100	25	1.25	2.5	136	357	0
14	Athani	Greengram (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
15	Athani	Blackgram	1	109	0	100	25	1.25	2.5	43	357	0
16	Athani	Chickpea (Irrigated)	0	109	42	100	25	1.25	2.5	27	357	0
17	Athani	Chickpea (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
18	Athani	Cowpea (Alasandi)	1	109	0	100	25	1.25	2.5	43	357	0
19	Athani	Soybean (Irrigated)	0	174	32	100	25	1.25	2.5	33	571	0
20	Athani	Soybean (Rainfed)	0	130	21	100	25	1.25	2.5	27	429	0
21	Athani	Sunflower (Irrigated)	4	163	52	100	25	1.25	2.5	68	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
9 Bailhongal	20	40	0	0	50	23

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bailhongal	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Bailhongal	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Bailhongal	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Bailhongal	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Bailhongal	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Bailhongal	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Bailhongal	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Bailhongal	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Bailhongal	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Bailhongal	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Bailhongal	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Bailhongal	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Bailhongal	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Bailhongal	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Bailhongal	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Bailhongal	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Bailhongal	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Bailhongal	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Bailhongal	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Bailhongal	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Bailhongal	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
10	Belgaum	46	33	0	56	74	49

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Belgaum	Paddy (Kharif)	88	54	42	200	25	1.25	2.5	109	179	32
2	Belgaum	Paddy (Rabi)	110	67	52	200	25	1.25	2.5	136	221	0
3	Belgaum	Sugarcane (Irrigated)	229	109	104	200	25	1.25	2.5	272	357	0
4	Belgaum	Maize (Irrigated)	131	82	33	200	25	1.25	2.5	163	268	0
5	Belgaum	Cotton	131	82	63	200	25	1.25	2.5	163	268	0
6	Belgaum	Wheat (Irrigated)	77	82	42	200	25	1.25	2.5	109	268	0
7	Belgaum	Pearl Millet (Irrigated)	81	71	21	200	25	1.25	2.5	109	232	0
8	Belgaum	Groundnut (Irrigated)	0	82	31	200	25	1.25	2.5	27	268	0
9	Belgaum	Pulses	6	54	21	200	25	1.25	2.5	27	179	32
10	Belgaum	Tomato	138	65	50	200	25	1.25	2.5	163	214	4
11	Belgaum	Potato (Irrigated)	93	109	104	200	25	1.25	2.5	136	357	0
12	Belgaum	Chilly (Irrigated)	131	82	63	200	25	1.25	2.5	163	268	0
13	Belgaum	Onion	115	54	104	200	25	1.25	2.5	136	179	32
14	Belgaum	Greengram (Rainfed)	4	27	21	200	25	1.25	2.5	14	89	104
15	Belgaum	Blackgram	22	54	0	200	25	1.25	2.5	43	179	32
16	Belgaum	Chickpea (Irrigated)	6	54	42	200	25	1.25	2.5	27	179	32
17	Belgaum	Chickpea (Rainfed)	4	27	21	200	25	1.25	2.5	14	89	104
18	Belgaum	Cowpea (Alasandi)	22	54	0	200	25	1.25	2.5	43	179	32
19	Belgaum	Soybean (Irrigated)	0	87	32	200	25	1.25	2.5	33	286	0
20	Belgaum	Soybean (Rainfed)	2	65	21	200	25	1.25	2.5	27	214	4
21	Belgaum	Sunflower (Irrigated)	36	82	52	200	25	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
11	Chikkodi	43	40	5	20	70	43

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Chikkodi	Paddy (Kharif)	88	54	42	100	25	1.25	2.5	109	179	32
2	Chikkodi	Paddy (Rabi)	110	67	52	100	25	1.25	2.5	136	221	0
3	Chikkodi	Sugarcane (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
4	Chikkodi	Maize (Irrigated)	131	82	33	100	25	1.25	2.5	163	268	0
5	Chikkodi	Cotton	131	82	63	100	25	1.25	2.5	163	268	0
6	Chikkodi	Wheat (Irrigated)	77	82	42	100	25	1.25	2.5	109	268	0
7	Chikkodi	Pearl Millet (Irrigated)	81	71	21	100	25	1.25	2.5	109	232	0
8	Chikkodi	Groundnut (Irrigated)	0	82	31	100	25	1.25	2.5	27	268	0
9	Chikkodi	Pulses	6	54	21	100	25	1.25	2.5	27	179	32
10	Chikkodi	Tomato	138	65	50	100	25	1.25	2.5	163	214	4
11	Chikkodi	Potato (Irrigated)	93	109	104	100	25	1.25	2.5	136	357	0
12	Chikkodi	Chilly (Irrigated)	131	82	63	100	25	1.25	2.5	163	268	0
13	Chikkodi	Onion	115	54	104	100	25	1.25	2.5	136	179	32
14	Chikkodi	Greengram (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
15	Chikkodi	Blackgram	22	54	0	100	25	1.25	2.5	43	179	32
16	Chikkodi	Chickpea (Irrigated)	6	54	42	100	25	1.25	2.5	27	179	32
17	Chikkodi	Chickpea (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
18	Chikkodi	Cowpea (Alasandi)	22	54	0	100	25	1.25	2.5	43	179	32
19	Chikkodi	Soybean (Irrigated)	0	87	32	100	25	1.25	2.5	33	286	0
20	Chikkodi	Soybean (Rainfed)	2	65	21	100	25	1.25	2.5	27	214	4
21	Chikkodi	Sunflower (Irrigated)	36	82	52	100	25	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
12	Gokak	48	72	0	23	68	0

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Gokak	Paddy (Kharif)	66	109	42	100	25	1.25	2.5	109	357	0
2	Gokak	Paddy (Rabi)	83	135	52	100	25	1.25	2.5	136	443	0
3	Gokak	Sugarcane (Irrigated)	187	217	104	100	25	1.25	2.5	272	714	0
4	Gokak	Maize (Irrigated)	99	163	33	100	25	1.25	2.5	163	536	0
5	Gokak	Cotton	99	163	63	100	25	1.25	2.5	163	536	0
6	Gokak	Wheat (Irrigated)	45	163	42	100	25	1.25	2.5	109	536	0
7	Gokak	Pearl Millet (Irrigated)	54	141	21	100	25	1.25	2.5	109	464	0
8	Gokak	Groundnut (Irrigated)	0	163	31	100	25	1.25	2.5	27	536	0
9	Gokak	Pulses	0	109	21	100	25	1.25	2.5	27	357	0
10	Gokak	Tomato	112	130	50	100	25	1.25	2.5	163	429	0
11	Gokak	Potato (Irrigated)	51	217	104	100	25	1.25	2.5	136	714	0
12	Gokak	Chilly (Irrigated)	99	163	63	100	25	1.25	2.5	163	536	0
13	Gokak	Onion	93	109	104	100	25	1.25	2.5	136	357	0
14	Gokak	Greengram (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
15	Gokak	Blackgram	1	109	0	100	25	1.25	2.5	43	357	0
16	Gokak	Chickpea (Irrigated)	0	109	42	100	25	1.25	2.5	27	357	0
17	Gokak	Chickpea (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
18	Gokak	Cowpea (Alasandi)	1	109	0	100	25	1.25	2.5	43	357	0
19	Gokak	Soybean (Irrigated)	0	174	32	100	25	1.25	2.5	33	571	0
20	Gokak	Soybean (Rainfed)	0	130	21	100	25	1.25	2.5	27	429	0
21	Gokak	Sunflower (Irrigated)	4	163	52	100	25	1.25	2.5	68	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
13	Hukkeri	27	67	0	20	60	13

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hukkeri	Paddy (Kharif)	66	109	42	100	25	1.25	2.5	109	357	0
2	Hukkeri	Paddy (Rabi)	83	135	52	100	25	1.25	2.5	136	443	0
3	Hukkeri	Sugarcane (Irrigated)	187	217	104	100	25	1.25	2.5	272	714	0
4	Hukkeri	Maize (Irrigated)	99	163	33	100	25	1.25	2.5	163	536	0
5	Hukkeri	Cotton	99	163	63	100	25	1.25	2.5	163	536	0
6	Hukkeri	Wheat (Irrigated)	45	163	42	100	25	1.25	2.5	109	536	0
7	Hukkeri	Pearl Millet (Irrigated)	54	141	21	100	25	1.25	2.5	109	464	0
8	Hukkeri	Groundnut (Irrigated)	0	163	31	100	25	1.25	2.5	27	536	0
9	Hukkeri	Pulses	0	109	21	100	25	1.25	2.5	27	357	0
10	Hukkeri	Tomato	112	130	50	100	25	1.25	2.5	163	429	0
11	Hukkeri	Potato (Irrigated)	51	217	104	100	25	1.25	2.5	136	714	0
12	Hukkeri	Chilly (Irrigated)	99	163	63	100	25	1.25	2.5	163	536	0
13	Hukkeri	Onion	93	109	104	100	25	1.25	2.5	136	357	0
14	Hukkeri	Greengram (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
15	Hukkeri	Blackgram	1	109	0	100	25	1.25	2.5	43	357	0
16	Hukkeri	Chickpea (Irrigated)	0	109	42	100	25	1.25	2.5	27	357	0
17	Hukkeri	Chickpea (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
18	Hukkeri	Cowpea (Alasandi)	1	109	0	100	25	1.25	2.5	43	357	0
19	Hukkeri	Soybean (Irrigated)	0	174	32	100	25	1.25	2.5	33	571	0
20	Hukkeri	Soybean (Rainfed)	0	130	21	100	25	1.25	2.5	27	429	0
21	Hukkeri	Sunflower (Irrigated)	4	163	52	100	25	1.25	2.5	68	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
14 Khanapur	22	85	8	60	62	77

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Khanapur	Paddy (Kharif)	66	109	42	200	25	2.5	5	109	357	0
2	Khanapur	Paddy (Rabi)	83	135	52	200	25	2.5	5	136	443	0
3	Khanapur	Sugarcane (Irrigated)	187	217	104	200	25	2.5	5	272	714	0
4	Khanapur	Maize (Irrigated)	99	163	33	200	25	2.5	5	163	536	0
5	Khanapur	Cotton	99	163	63	200	25	2.5	5	163	536	0
6	Khanapur	Wheat (Irrigated)	45	163	42	200	25	2.5	5	109	536	0
7	Khanapur	Pearl Millet (Irrigated)	54	141	21	200	25	2.5	5	109	464	0
8	Khanapur	Groundnut (Irrigated)	0	163	31	200	25	2.5	5	27	536	0
9	Khanapur	Pulses	0	109	21	200	25	2.5	5	27	357	0
10	Khanapur	Tomato	112	130	50	200	25	2.5	5	163	429	0
11	Khanapur	Potato (Irrigated)	51	217	104	200	25	2.5	5	136	714	0
12	Khanapur	Chilly (Irrigated)	99	163	63	200	25	2.5	5	163	536	0
13	Khanapur	Onion	93	109	104	200	25	2.5	5	136	357	0
14	Khanapur	Greengram (Rainfed)	0	54	21	200	25	2.5	5	14	179	32
15	Khanapur	Blackgram	1	109	0	200	25	2.5	5	43	357	0
16	Khanapur	Chickpea (Irrigated)	0	109	42	200	25	2.5	5	27	357	0
17	Khanapur	Chickpea (Rainfed)	0	54	21	200	25	2.5	5	14	179	32
18	Khanapur	Cowpea (Alasandi)	1	109	0	200	25	2.5	5	43	357	0
19	Khanapur	Soybean (Irrigated)	0	174	32	200	25	2.5	5	33	571	0
20	Khanapur	Soybean (Rainfed)	0	130	21	200	25	2.5	5	27	429	0
21	Khanapur	Sunflower (Irrigated)	4	163	52	200	25	2.5	5	68	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
15 Raibag	25	45	0	0	45	0

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Raibag	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Raibag	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Raibag	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Raibag	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Raibag	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Raibag	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Raibag	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Raibag	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Raibag	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Raibag	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Raibag	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Raibag	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Raibag	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Raibag	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Raibag	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Raibag	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Raibag	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Raibag	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Raibag	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Raibag	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Raibag	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
16 Ramadurg	84	75	4	48	87	25

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Ramadurg	Paddy (Kharif)	175	109	42	100	25	1.25	2.5	217	357	0
2	Ramadurg	Paddy (Rabi)	219	135	52	100	25	1.25	2.5	272	443	0
3	Ramadurg	Sugarcane (Irrigated)	459	217	104	100	25	1.25	2.5	543	714	0
4	Ramadurg	Maize (Irrigated)	262	163	33	100	25	1.25	2.5	326	536	0
5	Ramadurg	Cotton	262	163	63	100	25	1.25	2.5	326	536	0
6	Ramadurg	Wheat (Irrigated)	154	163	42	100	25	1.25	2.5	217	536	0
7	Ramadurg	Pearl Millet (Irrigated)	162	141	21	100	25	1.25	2.5	217	464	0
8	Ramadurg	Groundnut (Irrigated)	0	163	31	100	25	1.25	2.5	54	536	0
9	Ramadurg	Pulses	12	109	21	100	25	1.25	2.5	54	357	0
10	Ramadurg	Tomato	275	130	50	100	25	1.25	2.5	326	429	0
11	Ramadurg	Potato (Irrigated)	187	217	104	100	25	1.25	2.5	272	714	0
12	Ramadurg	Chilly (Irrigated)	262	163	63	100	25	1.25	2.5	326	536	0
13	Ramadurg	Onion	229	109	104	100	25	1.25	2.5	272	357	0
14	Ramadurg	Greengram (Rainfed)	7	54	21	100	25	1.25	2.5	28	179	32
15	Ramadurg	Blackgram	44	109	0	100	25	1.25	2.5	87	357	0
16	Ramadurg	Chickpea (Irrigated)	12	109	42	100	25	1.25	2.5	54	357	0
17	Ramadurg	Chickpea (Rainfed)	7	54	21	100	25	1.25	2.5	28	179	32
18	Ramadurg	Cowpea (Alasandi)	44	109	0	100	25	1.25	2.5	87	357	0
19	Ramadurg	Soybean (Irrigated)	0	174	32	100	25	1.25	2.5	65	571	0
20	Ramadurg	Soybean (Rainfed)	3	130	21	100	25	1.25	2.5	54	429	0
21	Ramadurg	Sunflower (Irrigated)	72	163	52	100	25	1.25	2.5	136	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

17

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Soudatti	59	54	0	36	31	25

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Soudatti	Paddy (Kharif)	175	109	42	100	13	1.25	2.5	217	357	0
2	Soudatti	Paddy (Rabi)	219	135	52	100	13	1.25	2.5	272	443	0
3	Soudatti	Sugarcane (Irrigated)	459	217	104	100	13	1.25	2.5	543	714	0
4	Soudatti	Maize (Irrigated)	262	163	33	100	13	1.25	2.5	326	536	0
5	Soudatti	Cotton	262	163	63	100	13	1.25	2.5	326	536	0
6	Soudatti	Wheat (Irrigated)	154	163	42	100	13	1.25	2.5	217	536	0
7	Soudatti	Pearl Millet (Irrigated)	162	141	21	100	13	1.25	2.5	217	464	0
8	Soudatti	Groundnut (Irrigated)	0	163	31	100	13	1.25	2.5	54	536	0
9	Soudatti	Pulses	12	109	21	100	13	1.25	2.5	54	357	0
10	Soudatti	Tomato	275	130	50	100	13	1.25	2.5	326	429	0
11	Soudatti	Potato (Irrigated)	187	217	104	100	13	1.25	2.5	272	714	0
12	Soudatti	Chilly (Irrigated)	262	163	63	100	13	1.25	2.5	326	536	0
13	Soudatti	Onion	229	109	104	100	13	1.25	2.5	272	357	0
14	Soudatti	Greengram (Rainfed)	7	54	21	100	13	1.25	2.5	28	179	44
15	Soudatti	Blackgram	44	109	0	100	13	1.25	2.5	87	357	0
16	Soudatti	Chickpea (Irrigated)	12	109	42	100	13	1.25	2.5	54	357	0
17	Soudatti	Chickpea (Rainfed)	7	54	21	100	13	1.25	2.5	28	179	44
18	Soudatti	Cowpea (Alasandi)	44	109	0	100	13	1.25	2.5	87	357	0
19	Soudatti	Soybean (Irrigated)	0	174	32	100	13	1.25	2.5	65	571	0
20	Soudatti	Soybean (Rainfed)	3	130	21	100	13	1.25	2.5	54	429	0
21	Soudatti	Sunflower (Irrigated)	72	163	52	100	13	1.25	2.5	136	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
18 Belgaum District	45	62	2	32	63	27

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4 7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Belgaum District	Paddy (Kharif)	66	109	42	100	25	1.25	2.5	109	357	0
2	Belgaum District	Paddy (Rabi)	83	135	52	100	25	1.25	2.5	136	443	0
3	Belgaum District	Sugarcane (Irrigated)	187	217	104	100	25	1.25	2.5	272	714	0
4	Belgaum District	Maize (Irrigated)	99	163	33	100	25	1.25	2.5	163	536	0
5	Belgaum District	Cotton	99	163	63	100	25	1.25	2.5	163	536	0
6	Belgaum District	Wheat (Irrigated)	45	163	42	100	25	1.25	2.5	109	536	0
7	Belgaum District	Pearl Millet (Irrigated)	54	141	21	100	25	1.25	2.5	109	464	0
8	Belgaum District	Groundnut (Irrigated)	0	163	31	100	25	1.25	2.5	27	536	0
9	Belgaum District	Pulses	0	109	21	100	25	1.25	2.5	27	357	0
10	Belgaum District	Tomato	112	130	50	100	25	1.25	2.5	163	429	0
11	Belgaum District	Potato (Irrigated)	51	217	104	100	25	1.25	2.5	136	714	0
12	Belgaum District	Chilly (Irrigated)	99	163	63	100	25	1.25	2.5	163	536	0
13	Belgaum District	Onion	93	109	104	100	25	1.25	2.5	136	357	0
14	Belgaum District	Greengram (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
15	Belgaum District	Blackgram	1	109	0	100	25	1.25	2.5	43	357	0
16	Belgaum District	Chickpea (Irrigated)	0	109	42	100	25	1.25	2.5	27	357	0
17	Belgaum District	Chickpea (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
18	Belgaum District	Cowpea (Alasandi)	1	109	0	100	25	1.25	2.5	43	357	0
19	Belgaum District	Soybean (Irrigated)	0	174	32	100	25	1.25	2.5	33	571	0
20	Belgaum District	Soybean (Rainfed)	0	130	21	100	25	1.25	2.5	27	429	0
21	Belgaum District	Sunflower (Irrigated)	4	163	52	100	25	1.25	2.5	68	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
19 Aurad	34	53	0	30	58	33

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Aurad	Paddy (Kharif)	66	109	42	100	25	1.25	2.5	109	357	0
2	Aurad	Paddy (Rabi)	83	135	52	100	25	1.25	2.5	136	443	0
3	Aurad	Sugarcane (Irrigated)	187	217	104	100	25	1.25	2.5	272	714	0
4	Aurad	Maize (Irrigated)	99	163	33	100	25	1.25	2.5	163	536	0
5	Aurad	Cotton	99	163	63	100	25	1.25	2.5	163	536	0
6	Aurad	Wheat (Irrigated)	45	163	42	100	25	1.25	2.5	109	536	0
7	Aurad	Pearl Millet (Irrigated)	54	141	21	100	25	1.25	2.5	109	464	0
8	Aurad	Groundnut (Irrigated)	0	163	31	100	25	1.25	2.5	27	536	0
9	Aurad	Pulses	0	109	21	100	25	1.25	2.5	27	357	0
10	Aurad	Tomato	112	130	50	100	25	1.25	2.5	163	429	0
11	Aurad	Potato (Irrigated)	51	217	104	100	25	1.25	2.5	136	714	0
12	Aurad	Chilly (Irrigated)	99	163	63	100	25	1.25	2.5	163	536	0
13	Aurad	Onion	93	109	104	100	25	1.25	2.5	136	357	0
14	Aurad	Greengram (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
15	Aurad	Blackgram	1	109	0	100	25	1.25	2.5	43	357	0
16	Aurad	Chickpea (Irrigated)	0	109	42	100	25	1.25	2.5	27	357	0
17	Aurad	Chickpea (Rainfed)	0	54	21	100	25	1.25	2.5	14	179	32
18	Aurad	Cowpea (Alasandi)	1	109	0	100	25	1.25	2.5	43	357	0
19	Aurad	Soybean (Irrigated)	0	174	32	100	25	1.25	2.5	33	571	0
20	Aurad	Soybean (Rainfed)	0	130	21	100	25	1.25	2.5	27	429	0
21	Aurad	Sunflower (Irrigated)	4	163	52	100	25	1.25	2.5	68	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Basavakalyan	9	25	0	41	34	22

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Basavakalyan	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Basavakalyan	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Basavakalyan	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Basavakalyan	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Basavakalyan	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Basavakalyan	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Basavakalyan	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Basavakalyan	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Basavakalyan	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Basavakalyan	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Basavakalyan	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Basavakalyan	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Basavakalyan	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Basavakalyan	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Basavakalyan	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Basavakalyan	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Basavakalyan	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Basavakalyan	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Basavakalyan	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Basavakalyan	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Basavakalyan	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
21 Bhalki	30	40	0	35	33	35

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bhalki	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Bhalki	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Bhalki	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Bhalki	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Bhalki	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Bhalki	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Bhalki	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Bhalki	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Bhalki	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Bhalki	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Bhalki	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Bhalki	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Bhalki	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Bhalki	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Bhalki	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Bhalki	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Bhalki	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Bhalki	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Bhalki	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Bhalki	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Bhalki	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
22 Bidar	18	34	0	28	34	17

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bidar	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Bidar	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Bidar	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Bidar	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Bidar	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Bidar	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Bidar	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Bidar	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Bidar	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Bidar	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Bidar	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Bidar	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Bidar	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Bidar	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Bidar	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Bidar	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Bidar	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Bidar	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Bidar	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Bidar	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Bidar	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Humnabad	18	44	1	61	36	22

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Humnabad	Paddy (Kharif)	88	54	42	200	13	1.25	2.5	109	179	44
2	Humnabad	Paddy (Rabi)	110	67	52	200	13	1.25	2.5	136	221	10
3	Humnabad	Sugarcane (Irrigated)	229	109	104	200	13	1.25	2.5	272	357	0
4	Humnabad	Maize (Irrigated)	131	82	33	200	13	1.25	2.5	163	268	0
5	Humnabad	Cotton	131	82	63	200	13	1.25	2.5	163	268	0
6	Humnabad	Wheat (Irrigated)	77	82	42	200	13	1.25	2.5	109	268	0
7	Humnabad	Pearl Millet (Irrigated)	81	71	21	200	13	1.25	2.5	109	232	1
8	Humnabad	Groundnut (Irrigated)	0	82	31	200	13	1.25	2.5	27	268	0
9	Humnabad	Pulses	6	54	21	200	13	1.25	2.5	27	179	44
10	Humnabad	Tomato	138	65	50	200	13	1.25	2.5	163	214	16
11	Humnabad	Potato (Irrigated)	93	109	104	200	13	1.25	2.5	136	357	0
12	Humnabad	Chilly (Irrigated)	131	82	63	200	13	1.25	2.5	163	268	0
13	Humnabad	Onion	115	54	104	200	13	1.25	2.5	136	179	44
14	Humnabad	Greengram (Rainfed)	4	27	21	200	13	1.25	2.5	14	89	116
15	Humnabad	Blackgram	22	54	0	200	13	1.25	2.5	43	179	44
16	Humnabad	Chickpea (Irrigated)	6	54	42	200	13	1.25	2.5	27	179	44
17	Humnabad	Chickpea (Rainfed)	4	27	21	200	13	1.25	2.5	14	89	116
18	Humnabad	Cowpea (Alasandi)	22	54	0	200	13	1.25	2.5	43	179	44
19	Humnabad	Soybean (Irrigated)	0	87	32	200	13	1.25	2.5	33	286	0
20	Humnabad	Soybean (Rainfed)	2	65	21	200	13	1.25	2.5	27	214	16
21	Humnabad	Sunflower (Irrigated)	36	82	52	200	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Bidar District	20	38	0	40	38	24

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bidar District	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Bidar District	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Bidar District	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Bidar District	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Bidar District	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Bidar District	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Bidar District	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Bidar District	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Bidar District	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Bidar District	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Bidar District	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Bidar District	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Bidar District	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Bidar District	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Bidar District	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Bidar District	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Bidar District	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Bidar District	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Bidar District	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Bidar District	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Bidar District	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Bijapur	3	25	0	23	30	5

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bijapur	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Bijapur	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Bijapur	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Bijapur	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Bijapur	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Bijapur	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Bijapur	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Bijapur	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Bijapur	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Bijapur	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Bijapur	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Bijapur	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Bijapur	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Bijapur	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Bijapur	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Bijapur	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Bijapur	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Bijapur	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Bijapur	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Bijapur	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Bijapur	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
26 Indi	15	28	0	28	30	0

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Indi	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Indi	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Indi	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Indi	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Indi	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Indi	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Indi	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Indi	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Indi	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Indi	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Indi	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Indi	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Indi	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Indi	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Indi	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Indi	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Indi	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Indi	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Indi	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Indi	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Indi	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Sindagi	48	40	0	13	53	8

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Sindagi	Paddy (Kharif)	88	54	42	100	25	1.25	2.5	109	179	32
2	Sindagi	Paddy (Rabi)	110	67	52	100	25	1.25	2.5	136	221	0
3	Sindagi	Sugarcane (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
4	Sindagi	Maize (Irrigated)	131	82	33	100	25	1.25	2.5	163	268	0
5	Sindagi	Cotton	131	82	63	100	25	1.25	2.5	163	268	0
6	Sindagi	Wheat (Irrigated)	77	82	42	100	25	1.25	2.5	109	268	0
7	Sindagi	Pearl Millet (Irrigated)	81	71	21	100	25	1.25	2.5	109	232	0
8	Sindagi	Groundnut (Irrigated)	0	82	31	100	25	1.25	2.5	27	268	0
9	Sindagi	Pulses	6	54	21	100	25	1.25	2.5	27	179	32
10	Sindagi	Tomato	138	65	50	100	25	1.25	2.5	163	214	4
11	Sindagi	Potato (Irrigated)	93	109	104	100	25	1.25	2.5	136	357	0
12	Sindagi	Chilly (Irrigated)	131	82	63	100	25	1.25	2.5	163	268	0
13	Sindagi	Onion	115	54	104	100	25	1.25	2.5	136	179	32
14	Sindagi	Greengram (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
15	Sindagi	Blackgram	22	54	0	100	25	1.25	2.5	43	179	32
16	Sindagi	Chickpea (Irrigated)	6	54	42	100	25	1.25	2.5	27	179	32
17	Sindagi	Chickpea (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
18	Sindagi	Cowpea (Alasandi)	22	54	0	100	25	1.25	2.5	43	179	32
19	Sindagi	Soybean (Irrigated)	0	87	32	100	25	1.25	2.5	33	286	0
20	Sindagi	Soybean (Rainfed)	2	65	21	100	25	1.25	2.5	27	214	4
21	Sindagi	Sunflower (Irrigated)	36	82	52	100	25	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Bijapur District	22	31	0	21	38	4

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bijapur District	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Bijapur District	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Bijapur District	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Bijapur District	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Bijapur District	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Bijapur District	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Bijapur District	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Bijapur District	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Bijapur District	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Bijapur District	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Bijapur District	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Bijapur District	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Bijapur District	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Bijapur District	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Bijapur District	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Bijapur District	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Bijapur District	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Bijapur District	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Bijapur District	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Bijapur District	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Bijapur District	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
29 Afzalpur	53	53	0	10	80	15

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Afzalpur	Paddy (Kharif)	175	109	42	100	25	1.25	2.5	217	357	0
2	Afzalpur	Paddy (Rabi)	219	135	52	100	25	1.25	2.5	272	443	0
3	Afzalpur	Sugarcane (Irrigated)	459	217	104	100	25	1.25	2.5	543	714	0
4	Afzalpur	Maize (Irrigated)	262	163	33	100	25	1.25	2.5	326	536	0
5	Afzalpur	Cotton	262	163	63	100	25	1.25	2.5	326	536	0
6	Afzalpur	Wheat (Irrigated)	154	163	42	100	25	1.25	2.5	217	536	0
7	Afzalpur	Pearl Millet (Irrigated)	162	141	21	100	25	1.25	2.5	217	464	0
8	Afzalpur	Groundnut (Irrigated)	0	163	31	100	25	1.25	2.5	54	536	0
9	Afzalpur	Pulses	12	109	21	100	25	1.25	2.5	54	357	0
10	Afzalpur	Tomato	275	130	50	100	25	1.25	2.5	326	429	0
11	Afzalpur	Potato (Irrigated)	187	217	104	100	25	1.25	2.5	272	714	0
12	Afzalpur	Chilly (Irrigated)	262	163	63	100	25	1.25	2.5	326	536	0
13	Afzalpur	Onion	229	109	104	100	25	1.25	2.5	272	357	0
14	Afzalpur	Greengram (Rainfed)	7	54	21	100	25	1.25	2.5	28	179	32
15	Afzalpur	Blackgram	44	109	0	100	25	1.25	2.5	87	357	0
16	Afzalpur	Chickpea (Irrigated)	12	109	42	100	25	1.25	2.5	54	357	0
17	Afzalpur	Chickpea (Rainfed)	7	54	21	100	25	1.25	2.5	28	179	32
18	Afzalpur	Cowpea (Alasandi)	44	109	0	100	25	1.25	2.5	87	357	0
19	Afzalpur	Soybean (Irrigated)	0	174	32	100	25	1.25	2.5	65	571	0
20	Afzalpur	Soybean (Rainfed)	3	130	21	100	25	1.25	2.5	54	429	0
21	Afzalpur	Sunflower (Irrigated)	72	163	52	100	25	1.25	2.5	136	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Aland	50	43	0	15	63	38

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Aland	Paddy (Kharif)	88	54	42	100	25	1.25	2.5	109	179	32
2	Aland	Paddy (Rabi)	110	67	52	100	25	1.25	2.5	136	221	0
3	Aland	Sugarcane (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
4	Aland	Maize (Irrigated)	131	82	33	100	25	1.25	2.5	163	268	0
5	Aland	Cotton	131	82	63	100	25	1.25	2.5	163	268	0
6	Aland	Wheat (Irrigated)	77	82	42	100	25	1.25	2.5	109	268	0
7	Aland	Pearl Millet (Irrigated)	81	71	21	100	25	1.25	2.5	109	232	0
8	Aland	Groundnut (Irrigated)	0	82	31	100	25	1.25	2.5	27	268	0
9	Aland	Pulses	6	54	21	100	25	1.25	2.5	27	179	32
10	Aland	Tomato	138	65	50	100	25	1.25	2.5	163	214	4
11	Aland	Potato (Irrigated)	93	109	104	100	25	1.25	2.5	136	357	0
12	Aland	Chilly (Irrigated)	131	82	63	100	25	1.25	2.5	163	268	0
13	Aland	Onion	115	54	104	100	25	1.25	2.5	136	179	32
14	Aland	Greengram (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
15	Aland	Blackgram	22	54	0	100	25	1.25	2.5	43	179	32
16	Aland	Chickpea (Irrigated)	6	54	42	100	25	1.25	2.5	27	179	32
17	Aland	Chickpea (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
18	Aland	Cowpea (Alasandi)	22	54	0	100	25	1.25	2.5	43	179	32
19	Aland	Soybean (Irrigated)	0	87	32	100	25	1.25	2.5	33	286	0
20	Aland	Soybean (Rainfed)	2	65	21	100	25	1.25	2.5	27	214	4
21	Aland	Sunflower (Irrigated)	36	82	52	100	25	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
31 Chincholi	0	0	0	15	5	15

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Chincholi	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Chincholi	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Chincholi	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Chincholi	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Chincholi	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Chincholi	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Chincholi	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Chincholi	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Chincholi	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Chincholi	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Chincholi	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Chincholi	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Chincholi	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Chincholi	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Chincholi	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Chincholi	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Chincholi	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Chincholi	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Chincholi	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Chincholi	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Chincholi	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

	Taluk	% deficient					
		OC	Av P	Av K	Av S	Av Zn	Av B
32	Gulbarga	85	90	0	85	100	75

When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Gulbarga	Paddy (Kharif)	175	109	42	200	25	2.5	5	217	357	0
2	Gulbarga	Paddy (Rabi)	219	135	52	200	25	2.5	5	272	443	0
3	Gulbarga	Sugarcane (Irrigated)	459	217	104	200	25	2.5	5	543	714	0
4	Gulbarga	Maize (Irrigated)	262	163	33	200	25	2.5	5	326	536	0
5	Gulbarga	Cotton	262	163	63	200	25	2.5	5	326	536	0
6	Gulbarga	Wheat (Irrigated)	154	163	42	200	25	2.5	5	217	536	0
7	Gulbarga	Pearl Millet (Irrigated)	162	141	21	200	25	2.5	5	217	464	0
8	Gulbarga	Groundnut (Irrigated)	0	163	31	200	25	2.5	5	54	536	0
9	Gulbarga	Pulses	12	109	21	200	25	2.5	5	54	357	0
10	Gulbarga	Tomato	275	130	50	200	25	2.5	5	326	429	0
11	Gulbarga	Potato (Irrigated)	187	217	104	200	25	2.5	5	272	714	0
12	Gulbarga	Chilly (Irrigated)	262	163	63	200	25	2.5	5	326	536	0
13	Gulbarga	Onion	229	109	104	200	25	2.5	5	272	357	0
14	Gulbarga	Greengram (Rainfed)	7	54	21	200	25	2.5	5	28	179	32
15	Gulbarga	Blackgram	44	109	0	200	25	2.5	5	87	357	0
16	Gulbarga	Chickpea (Irrigated)	12	109	42	200	25	2.5	5	54	357	0
17	Gulbarga	Chickpea (Rainfed)	7	54	21	200	25	2.5	5	28	179	32
18	Gulbarga	Cowpea (Alasandi)	44	109	0	200	25	2.5	5	87	357	0
19	Gulbarga	Soybean (Irrigated)	0	174	32	200	25	2.5	5	65	571	0
20	Gulbarga	Soybean (Rainfed)	3	130	21	200	25	2.5	5	54	429	0
21	Gulbarga	Sunflower (Irrigated)	72	163	52	200	25	2.5	5	136	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Jewargi	60	48	0	15	85	20

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Jewargi	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Jewargi	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Jewargi	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Jewargi	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Jewargi	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Jewargi	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Jewargi	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Jewargi	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Jewargi	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Jewargi	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Jewargi	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Jewargi	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Jewargi	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Jewargi	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Jewargi	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Jewargi	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Jewargi	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Jewargi	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Jewargi	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Jewargi	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Jewargi	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Gulbarga District	51	47	0	23	70	29

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Gulbarga District	Paddy (Kharif)	196	54	42	100	25	1.25	2.5	217	179	32
2	Gulbarga District	Paddy (Rabi)	246	67	52	100	25	1.25	2.5	272	221	0
3	Gulbarga District	Sugarcane (Irrigated)	501	109	104	100	25	1.25	2.5	543	357	0
4	Gulbarga District	Maize (Irrigated)	294	82	33	100	25	1.25	2.5	326	268	0
5	Gulbarga District	Cotton	294	82	63	100	25	1.25	2.5	326	268	0
6	Gulbarga District	Wheat (Irrigated)	185	82	42	100	25	1.25	2.5	217	268	0
7	Gulbarga District	Pearl Millet (Irrigated)	190	71	21	100	25	1.25	2.5	217	232	0
8	Gulbarga District	Groundnut (Irrigated)	22	82	31	100	25	1.25	2.5	54	268	0
9	Gulbarga District	Pulses	33	54	21	100	25	1.25	2.5	54	179	32
10	Gulbarga District	Tomato	301	65	50	100	25	1.25	2.5	326	214	4
11	Gulbarga District	Potato (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
12	Gulbarga District	Chilly (Irrigated)	294	82	63	100	25	1.25	2.5	326	268	0
13	Gulbarga District	Onion	251	54	104	100	25	1.25	2.5	272	179	32
14	Gulbarga District	Greengram (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
15	Gulbarga District	Blackgram	66	54	0	100	25	1.25	2.5	87	179	32
16	Gulbarga District	Chickpea (Irrigated)	33	54	42	100	25	1.25	2.5	54	179	32
17	Gulbarga District	Chickpea (Rainfed)	18	27	21	100	25	1.25	2.5	28	89	104
18	Gulbarga District	Cowpea (Alasandi)	66	54	0	100	25	1.25	2.5	87	179	32
19	Gulbarga District	Soybean (Irrigated)	31	87	32	100	25	1.25	2.5	65	286	0
20	Gulbarga District	Soybean (Rainfed)	29	65	21	100	25	1.25	2.5	54	214	4
21	Gulbarga District	Sunflower (Irrigated)	104	82	52	100	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Belur	38	28	13	58	55	93

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Belur	Paddy (Kharif)	88	54	42	200	25	2.5	5	109	179	32
2	Belur	Paddy (Rabi)	110	67	52	200	25	2.5	5	136	221	0
3	Belur	Sugarcane (Irrigated)	229	109	104	200	25	2.5	5	272	357	0
4	Belur	Maize (Irrigated)	131	82	33	200	25	2.5	5	163	268	0
5	Belur	Cotton	131	82	63	200	25	2.5	5	163	268	0
6	Belur	Wheat (Irrigated)	77	82	42	200	25	2.5	5	109	268	0
7	Belur	Pearl Millet (Irrigated)	81	71	21	200	25	2.5	5	109	232	0
8	Belur	Groundnut (Irrigated)	0	82	31	200	25	2.5	5	27	268	0
9	Belur	Pulses	6	54	21	200	25	2.5	5	27	179	32
10	Belur	Tomato	138	65	50	200	25	2.5	5	163	214	4
11	Belur	Potato (Irrigated)	93	109	104	200	25	2.5	5	136	357	0
12	Belur	Chilly (Irrigated)	131	82	63	200	25	2.5	5	163	268	0
13	Belur	Onion	115	54	104	200	25	2.5	5	136	179	32
14	Belur	Greengram (Rainfed)	4	27	21	200	25	2.5	5	14	89	104
15	Belur	Blackgram	22	54	0	200	25	2.5	5	43	179	32
16	Belur	Chickpea (Irrigated)	6	54	42	200	25	2.5	5	27	179	32
17	Belur	Chickpea (Rainfed)	4	27	21	200	25	2.5	5	14	89	104
18	Belur	Cowpea (Alasandi)	22	54	0	200	25	2.5	5	43	179	32
19	Belur	Soybean (Irrigated)	0	87	32	200	25	2.5	5	33	286	0
20	Belur	Soybean (Rainfed)	2	65	21	200	25	2.5	5	27	214	4
21	Belur	Sunflower (Irrigated)	36	82	52	200	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Channarayapattna	77	14	8	60	57	82

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Channarayapattna	Paddy (Kharif)	196	54	42	200	25	2.5	5	217	179	32
2	Channarayapattna	Paddy (Rabi)	246	67	52	200	25	2.5	5	272	221	0
3	Channarayapattna	Sugarcane (Irrigated)	501	109	104	200	25	2.5	5	543	357	0
4	Channarayapattna	Maize (Irrigated)	294	82	33	200	25	2.5	5	326	268	0
5	Channarayapattna	Cotton	294	82	63	200	25	2.5	5	326	268	0
6	Channarayapattna	Wheat (Irrigated)	185	82	42	200	25	2.5	5	217	268	0
7	Channarayapattna	Pearl Millet (Irrigated)	190	71	21	200	25	2.5	5	217	232	0
8	Channarayapattna	Groundnut (Irrigated)	22	82	31	200	25	2.5	5	54	268	0
9	Channarayapattna	Pulses	33	54	21	200	25	2.5	5	54	179	32
10	Channarayapattna	Tomato	301	65	50	200	25	2.5	5	326	214	4
11	Channarayapattna	Potato (Irrigated)	229	109	104	200	25	2.5	5	272	357	0
12	Channarayapattna	Chilly (Irrigated)	294	82	63	200	25	2.5	5	326	268	0
13	Channarayapattna	Onion	251	54	104	200	25	2.5	5	272	179	32
14	Channarayapattna	Greengram (Rainfed)	18	27	21	200	25	2.5	5	28	89	104
15	Channarayapattna	Blackgram	66	54	0	200	25	2.5	5	87	179	32
16	Channarayapattna	Chickpea (Irrigated)	33	54	42	200	25	2.5	5	54	179	32
17	Channarayapattna	Chickpea (Rainfed)	18	27	21	200	25	2.5	5	28	89	104
18	Channarayapattna	Cowpea (Alasandi)	66	54	0	200	25	2.5	5	87	179	32
19	Channarayapattna	Soybean (Irrigated)	31	87	32	200	25	2.5	5	65	286	0
20	Channarayapattna	Soybean (Rainfed)	29	65	21	200	25	2.5	5	54	214	4
21	Channarayapattna	Sunflower (Irrigated)	104	82	52	200	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Hassan	48	23	28	67	80	85

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hassan	Paddy (Kharif)	88	54	42	200	25	2.5	5	109	179	32
2	Hassan	Paddy (Rabi)	110	67	52	200	25	2.5	5	136	221	0
3	Hassan	Sugarcane (Irrigated)	229	109	104	200	25	2.5	5	272	357	0
4	Hassan	Maize (Irrigated)	131	82	33	200	25	2.5	5	163	268	0
5	Hassan	Cotton	131	82	63	200	25	2.5	5	163	268	0
6	Hassan	Wheat (Irrigated)	77	82	42	200	25	2.5	5	109	268	0
7	Hassan	Pearl Millet (Irrigated)	81	71	21	200	25	2.5	5	109	232	0
8	Hassan	Groundnut (Irrigated)	0	82	31	200	25	2.5	5	27	268	0
9	Hassan	Pulses	6	54	21	200	25	2.5	5	27	179	32
10	Hassan	Tomato	138	65	50	200	25	2.5	5	163	214	4
11	Hassan	Potato (Irrigated)	93	109	104	200	25	2.5	5	136	357	0
12	Hassan	Chilly (Irrigated)	131	82	63	200	25	2.5	5	163	268	0
13	Hassan	Onion	115	54	104	200	25	2.5	5	136	179	32
14	Hassan	Greengram (Rainfed)	4	27	21	200	25	2.5	5	14	89	104
15	Hassan	Blackgram	22	54	0	200	25	2.5	5	43	179	32
16	Hassan	Chickpea (Irrigated)	6	54	42	200	25	2.5	5	27	179	32
17	Hassan	Chickpea (Rainfed)	4	27	21	200	25	2.5	5	14	89	104
18	Hassan	Cowpea (Alasandi)	22	54	0	200	25	2.5	5	43	179	32
19	Hassan	Soybean (Irrigated)	0	87	32	200	25	2.5	5	33	286	0
20	Hassan	Soybean (Rainfed)	2	65	21	200	25	2.5	5	27	214	4
21	Hassan	Sunflower (Irrigated)	36	82	52	200	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Holenarasipura	54	13	4	49	65	88

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Holenarasipura	Paddy (Kharif)	196	54	42	100	25	2.5	5	217	179	32
2	Holenarasipura	Paddy (Rabi)	246	67	52	100	25	2.5	5	272	221	0
3	Holenarasipura	Sugarcane (Irrigated)	501	109	104	100	25	2.5	5	543	357	0
4	Holenarasipura	Maize (Irrigated)	294	82	33	100	25	2.5	5	326	268	0
5	Holenarasipura	Cotton	294	82	63	100	25	2.5	5	326	268	0
6	Holenarasipura	Wheat (Irrigated)	185	82	42	100	25	2.5	5	217	268	0
7	Holenarasipura	Pearl Millet (Irrigated)	190	71	21	100	25	2.5	5	217	232	0
8	Holenarasipura	Groundnut (Irrigated)	22	82	31	100	25	2.5	5	54	268	0
9	Holenarasipura	Pulses	33	54	21	100	25	2.5	5	54	179	32
10	Holenarasipura	Tomato	301	65	50	100	25	2.5	5	326	214	4
11	Holenarasipura	Potato (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
12	Holenarasipura	Chilly (Irrigated)	294	82	63	100	25	2.5	5	326	268	0
13	Holenarasipura	Onion	251	54	104	100	25	2.5	5	272	179	32
14	Holenarasipura	Greengram (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
15	Holenarasipura	Blackgram	66	54	0	100	25	2.5	5	87	179	32
16	Holenarasipura	Chickpea (Irrigated)	33	54	42	100	25	2.5	5	54	179	32
17	Holenarasipura	Chickpea (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
18	Holenarasipura	Cowpea (Alasandi)	66	54	0	100	25	2.5	5	87	179	32
19	Holenarasipura	Soybean (Irrigated)	31	87	32	100	25	2.5	5	65	286	0
20	Holenarasipura	Soybean (Rainfed)	29	65	21	100	25	2.5	5	54	214	4
21	Holenarasipura	Sunflower (Irrigated)	104	82	52	100	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Hassan District	67	16	9	58	61	84

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hassan District	Paddy (Kharif)	196	54	42	200	25	2.5	5	217	179	32
2	Hassan District	Paddy (Rabi)	246	67	52	200	25	2.5	5	272	221	0
3	Hassan District	Sugarcane (Irrigated)	501	109	104	200	25	2.5	5	543	357	0
4	Hassan District	Maize (Irrigated)	294	82	33	200	25	2.5	5	326	268	0
5	Hassan District	Cotton	294	82	63	200	25	2.5	5	326	268	0
6	Hassan District	Wheat (Irrigated)	185	82	42	200	25	2.5	5	217	268	0
7	Hassan District	Pearl Millet (Irrigated)	190	71	21	200	25	2.5	5	217	232	0
8	Hassan District	Groundnut (Irrigated)	22	82	31	200	25	2.5	5	54	268	0
9	Hassan District	Pulses	33	54	21	200	25	2.5	5	54	179	32
10	Hassan District	Tomato	301	65	50	200	25	2.5	5	326	214	4
11	Hassan District	Potato (Irrigated)	229	109	104	200	25	2.5	5	272	357	0
12	Hassan District	Chilly (Irrigated)	294	82	63	200	25	2.5	5	326	268	0
13	Hassan District	Onion	251	54	104	200	25	2.5	5	272	179	32
14	Hassan District	Greengram (Rainfed)	18	27	21	200	25	2.5	5	28	89	104
15	Hassan District	Blackgram	66	54	0	200	25	2.5	5	87	179	32
16	Hassan District	Chickpea (Irrigated)	33	54	42	200	25	2.5	5	54	179	32
17	Hassan District	Chickpea (Rainfed)	18	27	21	200	25	2.5	5	28	89	104
18	Hassan District	Cowpea (Alasandi)	66	54	0	200	25	2.5	5	87	179	32
19	Hassan District	Soybean (Irrigated)	31	87	32	200	25	2.5	5	65	286	0
20	Hassan District	Soybean (Rainfed)	29	65	21	200	25	2.5	5	54	214	4
21	Hassan District	Sunflower (Irrigated)	104	82	52	200	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
H D Kote	25	11	0	44	56	59

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	H D Kote	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	H D Kote	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	H D Kote	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	H D Kote	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	H D Kote	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	H D Kote	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	H D Kote	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	H D Kote	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	H D Kote	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	H D Kote	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	H D Kote	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	H D Kote	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	H D Kote	Onion	115	54	104	100	25	2.5	5	136	179	32
14	H D Kote	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	H D Kote	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	H D Kote	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	H D Kote	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	H D Kote	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	H D Kote	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	H D Kote	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	H D Kote	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Hunsur	48	8	15	30	38	48

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Hunsur	Paddy (Kharif)	88	54	42	100	13	1.25	2.5	109	179	44
2	Hunsur	Paddy (Rabi)	110	67	52	100	13	1.25	2.5	136	221	10
3	Hunsur	Sugarcane (Irrigated)	229	109	104	100	13	1.25	2.5	272	357	0
4	Hunsur	Maize (Irrigated)	131	82	33	100	13	1.25	2.5	163	268	0
5	Hunsur	Cotton	131	82	63	100	13	1.25	2.5	163	268	0
6	Hunsur	Wheat (Irrigated)	77	82	42	100	13	1.25	2.5	109	268	0
7	Hunsur	Pearl Millet (Irrigated)	81	71	21	100	13	1.25	2.5	109	232	1
8	Hunsur	Groundnut (Irrigated)	0	82	31	100	13	1.25	2.5	27	268	0
9	Hunsur	Pulses	6	54	21	100	13	1.25	2.5	27	179	44
10	Hunsur	Tomato	138	65	50	100	13	1.25	2.5	163	214	16
11	Hunsur	Potato (Irrigated)	93	109	104	100	13	1.25	2.5	136	357	0
12	Hunsur	Chilly (Irrigated)	131	82	63	100	13	1.25	2.5	163	268	0
13	Hunsur	Onion	115	54	104	100	13	1.25	2.5	136	179	44
14	Hunsur	Greengram (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
15	Hunsur	Blackgram	22	54	0	100	13	1.25	2.5	43	179	44
16	Hunsur	Chickpea (Irrigated)	6	54	42	100	13	1.25	2.5	27	179	44
17	Hunsur	Chickpea (Rainfed)	4	27	21	100	13	1.25	2.5	14	89	116
18	Hunsur	Cowpea (Alasandi)	22	54	0	100	13	1.25	2.5	43	179	44
19	Hunsur	Soybean (Irrigated)	0	87	32	100	13	1.25	2.5	33	286	0
20	Hunsur	Soybean (Rainfed)	2	65	21	100	13	1.25	2.5	27	214	16
21	Hunsur	Sunflower (Irrigated)	36	82	52	100	13	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
K R Nagara	95	25	30	25	25	95

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	K R Nagara	Paddy (Kharif)	196	54	42	100	13	2.5	5	217	179	44
2	K R Nagara	Paddy (Rabi)	246	67	52	100	13	2.5	5	272	221	10
3	K R Nagara	Sugarcane (Irrigated)	501	109	104	100	13	2.5	5	543	357	0
4	K R Nagara	Maize (Irrigated)	294	82	33	100	13	2.5	5	326	268	0
5	K R Nagara	Cotton	294	82	63	100	13	2.5	5	326	268	0
6	K R Nagara	Wheat (Irrigated)	185	82	42	100	13	2.5	5	217	268	0
7	K R Nagara	Pearl Millet (Irrigated)	190	71	21	100	13	2.5	5	217	232	1
8	K R Nagara	Groundnut (Irrigated)	22	82	31	100	13	2.5	5	54	268	0
9	K R Nagara	Pulses	33	54	21	100	13	2.5	5	54	179	44
10	K R Nagara	Tomato	301	65	50	100	13	2.5	5	326	214	16
11	K R Nagara	Potato (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
12	K R Nagara	Chilly (Irrigated)	294	82	63	100	13	2.5	5	326	268	0
13	K R Nagara	Onion	251	54	104	100	13	2.5	5	272	179	44
14	K R Nagara	Greengram (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
15	K R Nagara	Blackgram	66	54	0	100	13	2.5	5	87	179	44
16	K R Nagara	Chickpea (Irrigated)	33	54	42	100	13	2.5	5	54	179	44
17	K R Nagara	Chickpea (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
18	K R Nagara	Cowpea (Alasandi)	66	54	0	100	13	2.5	5	87	179	44
19	K R Nagara	Soybean (Irrigated)	31	87	32	100	13	2.5	5	65	286	0
20	K R Nagara	Soybean (Rainfed)	29	65	21	100	13	2.5	5	54	214	16
21	K R Nagara	Sunflower (Irrigated)	104	82	52	100	13	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Mysore	26	0	13	23	28	77

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Mysore	Paddy (Kharif)	88	54	42	100	13	2.5	5	109	179	44
2	Mysore	Paddy (Rabi)	110	67	52	100	13	2.5	5	136	221	10
3	Mysore	Sugarcane (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
4	Mysore	Maize (Irrigated)	131	82	33	100	13	2.5	5	163	268	0
5	Mysore	Cotton	131	82	63	100	13	2.5	5	163	268	0
6	Mysore	Wheat (Irrigated)	77	82	42	100	13	2.5	5	109	268	0
7	Mysore	Pearl Millet (Irrigated)	81	71	21	100	13	2.5	5	109	232	1
8	Mysore	Groundnut (Irrigated)	0	82	31	100	13	2.5	5	27	268	0
9	Mysore	Pulses	6	54	21	100	13	2.5	5	27	179	44
10	Mysore	Tomato	138	65	50	100	13	2.5	5	163	214	16
11	Mysore	Potato (Irrigated)	93	109	104	100	13	2.5	5	136	357	0
12	Mysore	Chilly (Irrigated)	131	82	63	100	13	2.5	5	163	268	0
13	Mysore	Onion	115	54	104	100	13	2.5	5	136	179	44
14	Mysore	Greengram (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
15	Mysore	Blackgram	22	54	0	100	13	2.5	5	43	179	44
16	Mysore	Chickpea (Irrigated)	6	54	42	100	13	2.5	5	27	179	44
17	Mysore	Chickpea (Rainfed)	4	27	21	100	13	2.5	5	14	89	116
18	Mysore	Cowpea (Alasandi)	22	54	0	100	13	2.5	5	43	179	44
19	Mysore	Soybean (Irrigated)	0	87	32	100	13	2.5	5	33	286	0
20	Mysore	Soybean (Rainfed)	2	65	21	100	13	2.5	5	27	214	16
21	Mysore	Sunflower (Irrigated)	36	82	52	100	13	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Nanjanagudu	52	10	4	28	68	74

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Nanjanagudu	Paddy (Kharif)	196	54	42	100	25	2.5	5	217	179	32
2	Nanjanagudu	Paddy (Rabi)	246	67	52	100	25	2.5	5	272	221	0
3	Nanjanagudu	Sugarcane (Irrigated)	501	109	104	100	25	2.5	5	543	357	0
4	Nanjanagudu	Maize (Irrigated)	294	82	33	100	25	2.5	5	326	268	0
5	Nanjanagudu	Cotton	294	82	63	100	25	2.5	5	326	268	0
6	Nanjanagudu	Wheat (Irrigated)	185	82	42	100	25	2.5	5	217	268	0
7	Nanjanagudu	Pearl Millet (Irrigated)	190	71	21	100	25	2.5	5	217	232	0
8	Nanjanagudu	Groundnut (Irrigated)	22	82	31	100	25	2.5	5	54	268	0
9	Nanjanagudu	Pulses	33	54	21	100	25	2.5	5	54	179	32
10	Nanjanagudu	Tomato	301	65	50	100	25	2.5	5	326	214	4
11	Nanjanagudu	Potato (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
12	Nanjanagudu	Chilly (Irrigated)	294	82	63	100	25	2.5	5	326	268	0
13	Nanjanagudu	Onion	251	54	104	100	25	2.5	5	272	179	32
14	Nanjanagudu	Greengram (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
15	Nanjanagudu	Blackgram	66	54	0	100	25	2.5	5	87	179	32
16	Nanjanagudu	Chickpea (Irrigated)	33	54	42	100	25	2.5	5	54	179	32
17	Nanjanagudu	Chickpea (Rainfed)	18	27	21	100	25	2.5	5	28	89	104
18	Nanjanagudu	Cowpea (Alasandi)	66	54	0	100	25	2.5	5	87	179	32
19	Nanjanagudu	Soybean (Irrigated)	31	87	32	100	25	2.5	5	65	286	0
20	Nanjanagudu	Soybean (Rainfed)	29	65	21	100	25	2.5	5	54	214	4
21	Nanjanagudu	Sunflower (Irrigated)	104	82	52	100	25	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Periyapatna	70	8	0	100	100	0

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Periyapatna	Paddy (Kharif)	196	54	42	200	25	1.25	2.5	217	179	32
2	Periyapatna	Paddy (Rabi)	246	67	52	200	25	1.25	2.5	272	221	0
3	Periyapatna	Sugarcane (Irrigated)	501	109	104	200	25	1.25	2.5	543	357	0
4	Periyapatna	Maize (Irrigated)	294	82	33	200	25	1.25	2.5	326	268	0
5	Periyapatna	Cotton	294	82	63	200	25	1.25	2.5	326	268	0
6	Periyapatna	Wheat (Irrigated)	185	82	42	200	25	1.25	2.5	217	268	0
7	Periyapatna	Pearl Millet (Irrigated)	190	71	21	200	25	1.25	2.5	217	232	0
8	Periyapatna	Groundnut (Irrigated)	22	82	31	200	25	1.25	2.5	54	268	0
9	Periyapatna	Pulses	33	54	21	200	25	1.25	2.5	54	179	32
10	Periyapatna	Tomato	301	65	50	200	25	1.25	2.5	326	214	4
11	Periyapatna	Potato (Irrigated)	229	109	104	200	25	1.25	2.5	272	357	0
12	Periyapatna	Chilly (Irrigated)	294	82	63	200	25	1.25	2.5	326	268	0
13	Periyapatna	Onion	251	54	104	200	25	1.25	2.5	272	179	32
14	Periyapatna	Greengram (Rainfed)	18	27	21	200	25	1.25	2.5	28	89	104
15	Periyapatna	Blackgram	66	54	0	200	25	1.25	2.5	87	179	32
16	Periyapatna	Chickpea (Irrigated)	33	54	42	200	25	1.25	2.5	54	179	32
17	Periyapatna	Chickpea (Rainfed)	18	27	21	200	25	1.25	2.5	28	89	104
18	Periyapatna	Cowpea (Alasandi)	66	54	0	200	25	1.25	2.5	87	179	32
19	Periyapatna	Soybean (Irrigated)	31	87	32	200	25	1.25	2.5	65	286	0
20	Periyapatna	Soybean (Rainfed)	29	65	21	200	25	1.25	2.5	54	214	4
21	Periyapatna	Sunflower (Irrigated)	104	82	52	200	25	1.25	2.5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
T Narasipura	67	0	33	33	7	70

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	T Narasipura	Paddy (Kharif)	196	54	42	100	13	2.5	5	217	179	44
2	T Narasipura	Paddy (Rabi)	246	67	52	100	13	2.5	5	272	221	10
3	T Narasipura	Sugarcane (Irrigated)	501	109	104	100	13	2.5	5	543	357	0
4	T Narasipura	Maize (Irrigated)	294	82	33	100	13	2.5	5	326	268	0
5	T Narasipura	Cotton	294	82	63	100	13	2.5	5	326	268	0
6	T Narasipura	Wheat (Irrigated)	185	82	42	100	13	2.5	5	217	268	0
7	T Narasipura	Pearl Millet (Irrigated)	190	71	21	100	13	2.5	5	217	232	1
8	T Narasipura	Groundnut (Irrigated)	22	82	31	100	13	2.5	5	54	268	0
9	T Narasipura	Pulses	33	54	21	100	13	2.5	5	54	179	44
10	T Narasipura	Tomato	301	65	50	100	13	2.5	5	326	214	16
11	T Narasipura	Potato (Irrigated)	229	109	104	100	13	2.5	5	272	357	0
12	T Narasipura	Chilly (Irrigated)	294	82	63	100	13	2.5	5	326	268	0
13	T Narasipura	Onion	251	54	104	100	13	2.5	5	272	179	44
14	T Narasipura	Greengram (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
15	T Narasipura	Blackgram	66	54	0	100	13	2.5	5	87	179	44
16	T Narasipura	Chickpea (Irrigated)	33	54	42	100	13	2.5	5	54	179	44
17	T Narasipura	Chickpea (Rainfed)	18	27	21	100	13	2.5	5	28	89	116
18	T Narasipura	Cowpea (Alasandi)	66	54	0	100	13	2.5	5	87	179	44
19	T Narasipura	Soybean (Irrigated)	31	87	32	100	13	2.5	5	65	286	0
20	T Narasipura	Soybean (Rainfed)	29	65	21	100	13	2.5	5	54	214	16
21	T Narasipura	Sunflower (Irrigated)	104	82	52	100	13	2.5	5	136	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Mysore District	48	8	9	39	52	62

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Mysore District	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Mysore District	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Mysore District	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Mysore District	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Mysore District	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Mysore District	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Mysore District	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Mysore District	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Mysore District	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Mysore District	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Mysore District	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Mysore District	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Mysore District	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Mysore District	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Mysore District	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Mysore District	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	Mysore District	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Mysore District	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Mysore District	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Mysore District	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Mysore District	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Bhadravathi	100	80	0	93	93	95

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Bhadravathi	Paddy (Kharif)	175	109	42	200	25	2.5	5	217	357	0
2	Bhadravathi	Paddy (Rabi)	219	135	52	200	25	2.5	5	272	443	0
3	Bhadravathi	Sugarcane (Irrigated)	459	217	104	200	25	2.5	5	543	714	0
4	Bhadravathi	Maize (Irrigated)	262	163	33	200	25	2.5	5	326	536	0
5	Bhadravathi	Cotton	262	163	63	200	25	2.5	5	326	536	0
6	Bhadravathi	Wheat (Irrigated)	154	163	42	200	25	2.5	5	217	536	0
7	Bhadravathi	Pearl Millet (Irrigated)	162	141	21	200	25	2.5	5	217	464	0
8	Bhadravathi	Groundnut (Irrigated)	0	163	31	200	25	2.5	5	54	536	0
9	Bhadravathi	Pulses	12	109	21	200	25	2.5	5	54	357	0
10	Bhadravathi	Tomato	275	130	50	200	25	2.5	5	326	429	0
11	Bhadravathi	Potato (Irrigated)	187	217	104	200	25	2.5	5	272	714	0
12	Bhadravathi	Chilly (Irrigated)	262	163	63	200	25	2.5	5	326	536	0
13	Bhadravathi	Onion	229	109	104	200	25	2.5	5	272	357	0
14	Bhadravathi	Greengram (Rainfed)	7	54	21	200	25	2.5	5	28	179	32
15	Bhadravathi	Blackgram	44	109	0	200	25	2.5	5	87	357	0
16	Bhadravathi	Chickpea (Irrigated)	12	109	42	200	25	2.5	5	54	357	0
17	Bhadravathi	Chickpea (Rainfed)	7	54	21	200	25	2.5	5	28	179	32
18	Bhadravathi	Cowpea (Alasandi)	44	109	0	200	25	2.5	5	87	357	0
19	Bhadravathi	Soybean (Irrigated)	0	174	32	200	25	2.5	5	65	571	0
20	Bhadravathi	Soybean (Rainfed)	3	130	21	200	25	2.5	5	54	429	0
21	Bhadravathi	Sunflower (Irrigated)	72	163	52	200	25	2.5	5	136	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Shimoga District	100	80	0	93	93	95

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Shimoga District	Paddy (Kharif)	175	109	42	200	25	2.5	5	217	357	0
2	Shimoga District	Paddy (Rabi)	219	135	52	200	25	2.5	5	272	443	0
3	Shimoga District	Sugarcane (Irrigated)	459	217	104	200	25	2.5	5	543	714	0
4	Shimoga District	Maize (Irrigated)	262	163	33	200	25	2.5	5	326	536	0
5	Shimoga District	Cotton	262	163	63	200	25	2.5	5	326	536	0
6	Shimoga District	Wheat (Irrigated)	154	163	42	200	25	2.5	5	217	536	0
7	Shimoga District	Pearl Millet (Irrigated)	162	141	21	200	25	2.5	5	217	464	0
8	Shimoga District	Groundnut (Irrigated)	0	163	31	200	25	2.5	5	54	536	0
9	Shimoga District	Pulses	12	109	21	200	25	2.5	5	54	357	0
10	Shimoga District	Tomato	275	130	50	200	25	2.5	5	326	429	0
11	Shimoga District	Potato (Irrigated)	187	217	104	200	25	2.5	5	272	714	0
12	Shimoga District	Chilly (Irrigated)	262	163	63	200	25	2.5	5	326	536	0
13	Shimoga District	Onion	229	109	104	200	25	2.5	5	272	357	0
14	Shimoga District	Greengram (Rainfed)	7	54	21	200	25	2.5	5	28	179	32
15	Shimoga District	Blackgram	44	109	0	200	25	2.5	5	87	357	0
16	Shimoga District	Chickpea (Irrigated)	12	109	42	200	25	2.5	5	54	357	0
17	Shimoga District	Chickpea (Rainfed)	7	54	21	200	25	2.5	5	28	179	32
18	Shimoga District	Cowpea (Alasandi)	44	109	0	200	25	2.5	5	87	357	0
19	Shimoga District	Soybean (Irrigated)	0	174	32	200	25	2.5	5	65	571	0
20	Shimoga District	Soybean (Rainfed)	3	130	21	200	25	2.5	5	54	429	0
21	Shimoga District	Sunflower (Irrigated)	72	163	52	200	25	2.5	5	136	536	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Sugarcane Total	39	37	3	37	50	33

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4$ $7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Sugarcane Total	Paddy (Kharif)	88	54	42	100	25	1.25	2.5	109	179	32
2	Sugarcane Total	Paddy (Rabi)	110	67	52	100	25	1.25	2.5	136	221	0
3	Sugarcane Total	Sugarcane (Irrigated)	229	109	104	100	25	1.25	2.5	272	357	0
4	Sugarcane Total	Maize (Irrigated)	131	82	33	100	25	1.25	2.5	163	268	0
5	Sugarcane Total	Cotton	131	82	63	100	25	1.25	2.5	163	268	0
6	Sugarcane Total	Wheat (Irrigated)	77	82	42	100	25	1.25	2.5	109	268	0
7	Sugarcane Total	Pearl Millet (Irrigated)	81	71	21	100	25	1.25	2.5	109	232	0
8	Sugarcane Total	Groundnut (Irrigated)	0	82	31	100	25	1.25	2.5	27	268	0
9	Sugarcane Total	Pulses	6	54	21	100	25	1.25	2.5	27	179	32
10	Sugarcane Total	Tomato	138	65	50	100	25	1.25	2.5	163	214	4
11	Sugarcane Total	Potato (Irrigated)	93	109	104	100	25	1.25	2.5	136	357	0
12	Sugarcane Total	Chilly (Irrigated)	131	82	63	100	25	1.25	2.5	163	268	0
13	Sugarcane Total	Onion	115	54	104	100	25	1.25	2.5	136	179	32
14	Sugarcane Total	Greengram (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
15	Sugarcane Total	Blackgram	22	54	0	100	25	1.25	2.5	43	179	32
16	Sugarcane Total	Chickpea (Irrigated)	6	54	42	100	25	1.25	2.5	27	179	32
17	Sugarcane Total	Chickpea (Rainfed)	4	27	21	100	25	1.25	2.5	14	89	104
18	Sugarcane Total	Cowpea (Alasandi)	22	54	0	100	25	1.25	2.5	43	179	32
19	Sugarcane Total	Soybean (Irrigated)	0	87	32	100	25	1.25	2.5	33	286	0
20	Sugarcane Total	Soybean (Rainfed)	2	65	21	100	25	1.25	2.5	27	214	4
21	Sugarcane Total	Sunflower (Irrigated)	36	82	52	100	25	1.25	2.5	68	268	0

Soil health Status: Percent of farmers' fields deficient in nutrients

Taluk	% deficient					
	OC	Av P	Av K	Av S	Av Zn	Av B
Karnataka State	43	26	9	36	51	51

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When SSP used only Urea,DAP Gypsum change others same

Soil test-based fertilizer recommendations **(kg ha^{-1})**

Sl No	Mandal	Crop	Urea	DAP	MOP	Gypsum	$ZnSO_4 7H_2O$	Agribor	Borax	Urea	SSP	Gypsum
1	Karnataka State	Paddy (Kharif)	88	54	42	100	25	2.5	5	109	179	32
2	Karnataka State	Paddy (Rabi)	110	67	52	100	25	2.5	5	136	221	0
3	Karnataka State	Sugarcane (Irrigated)	229	109	104	100	25	2.5	5	272	357	0
4	Karnataka State	Maize (Irrigated)	131	82	33	100	25	2.5	5	163	268	0
5	Karnataka State	Cotton	131	82	63	100	25	2.5	5	163	268	0
6	Karnataka State	Wheat (Irrigated)	77	82	42	100	25	2.5	5	109	268	0
7	Karnataka State	Pearl Millet (Irrigated)	81	71	21	100	25	2.5	5	109	232	0
8	Karnataka State	Groundnut (Irrigated)	0	82	31	100	25	2.5	5	27	268	0
9	Karnataka State	Pulses	6	54	21	100	25	2.5	5	27	179	32
10	Karnataka State	Tomato	138	65	50	100	25	2.5	5	163	214	4
11	Karnataka State	Potato (Irrigated)	93	109	104	100	25	2.5	5	136	357	0
12	Karnataka State	Chilly (Irrigated)	131	82	63	100	25	2.5	5	163	268	0
13	Karnataka State	Onion	115	54	104	100	25	2.5	5	136	179	32
14	Karnataka State	Greengram (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
15	Karnataka State	Blackgram	22	54	0	100	25	2.5	5	43	179	32
16	Karnataka State	Chickpea (Irrigated)	6	54	42	100	25	2.5	5	27	179	32
17	Karnataka State	Chickpea (Rainfed)	4	27	21	100	25	2.5	5	14	89	104
18	Karnataka State	Cowpea (Alasandi)	22	54	0	100	25	2.5	5	43	179	32
19	Karnataka State	Soybean (Irrigated)	0	87	32	100	25	2.5	5	33	286	0
20	Karnataka State	Soybean (Rainfed)	2	65	21	100	25	2.5	5	27	214	4
21	Karnataka State	Sunflower (Irrigated)	36	82	52	100	25	2.5	5	68	268	0

Appendix 1. District wise detail of benefits through improved management under Bhoochetana initiative in Karnataka during the year 2009-10

District	Area under Imp mgmt (ha)	Total production of crops with Imp mgmt (t)	Total production of crops with farmers' mgmt (t)	Addl Production with Imp mgmt (t)	Value of Additional Production with Imp mgmt (Rs. Lakhs)	Cost of Inputs (Rs.Lakhs)	Net income (Rs. Lakhs)
Chikballapur	134	89	62	27	6	3	3
Chitradurga	1929	7450	5423	2028	193	85	108
Dharwad	4928	9560	7405	2155	336	53	283
Haveri	4356	31025	21578	9447	856	117	739
Kolar	366	909	565	343	36	22	15
Tumkur	38	68	51	17	2	1	1
Total	**11751**	**49101**	**35084**	**14016**	**1429**	**281**	**1149**

Appendix 2. District wise detail of benefits through improved management under Bhoochetana initiative in Karnataka during the year 2010-11

District	Area under Imp mgmt (ha)	Total production of crops with Imp mgmt (t)	Total production of crops with farmers' mgmt (t)	Addl Production with Imp mgmt (t)	Value of Additional Production with Imp mgmt (Rs. Lakhs)	Cost of Inputs (Rs. Lakhs)	Net income (Rs. Lakhs)
Bengaluru Rural	3786	18180	12973	5207	508	45	464
Bidar	4041	7334	5294	2040	415	191	224
Bijapur	2037	4253	3259	995	153	124	29
C′raja-nagar	5345	13736	8270	5466	575	242	332
Chikballapur	5447	16740	11646	5094	671	242	429
Chitradurga	13806	61599	44856	16743	1637	165	1472
Davanagere	3147	17749	14004	3745	365	169	196
Dharwad	9742	25026	16959	8067	1453	84	1369
Gadag	25286	40402	28934	11468	2364	81	2283
Gulbarga	79907	147900	109213	38687	11542	111	11430
Hassan	2577	5902	4252	1649	159	40	119
Haveri	9776	84445	65420	19025	2003	329	1674
Kolar	2427	5247	3977	1269	167	163	4
Raichur	4589	6635	5319	1316	221	146	74
Tumkur	10049	10761	8791	1970	383	78	305
Yadagir	1121	1915	1410	506	121	44	76
Total	**183083**	**467824**	**344577**	**123248**	**22735**	**2254**	**20481**

Appendix 3. District wise detail of benefits through improved management under Bhoochetana initiative in Karnataka during the year 2011-12

District	Area under Imp mgmt (ha)	Total production of crops with Imp mgmt (t)	Total production of crops with farmers' mgmt (t)	Addl Production with Imp mgmt (t)	Value of Additional Production with Imp mgmt (Rs. Lakhs)	Cost of Inputs (Rs.Lakhs)	Net income (Rs.Lakhs)
Bagalkot	47790	210359	155663	54696	6207	479	5729
Bellary	9430	15432	11011	4421	694	295	399
Bengaluru Urban	5376	15752	11720	4032	423	62	362
Bengaluru Rural	12816	39840	30218	9622	994	113	882
Bidar	21060	38262	28355	9908	1939	283	1656
Bijapur	13082	27738	21144	6594	1026	280	746
Chikballapur	11278	28653	21167	7487	1189	198	990
Chikkamagaluru	4883	33006	23485	9521	933	36	897
Chitradurga	35204	70882	53374	17508	2225	291	1934
Dakshin Kannada	4456	25446	19252	6194	688	26	661
Davanagere	151942	764150	572607	191543	19102	797	18305
Dharwad	37006	105317	81655	23661	4846	17	4828
Gadag	69187	225243	159214	66029	10395	473	9921
Gulbarga	3119	3787	2639	1147	227	142	84
Hassan	8725	38426	29705	8721	863	128	736
Haveri	35638	261727	196102	65624	7161	379	6782
Kodagu	3126	24043	19599	4445	484	26	457
Kolar	3827	7197	5595	1603	223	187	36
Koppal	15095	33399	22182	11216	1288	72	1216
Mandya	3680	2193	1671	523	71	63	7
Mysore	1260	3378	2735	643	67	64	3
Raichur	4874	7173	5899	1274	157	17	140
Ramanagara	8535	25692	18312	7380	816	127	689
Shimoga	13100	82657	63299	19358	2061	266	1795
Tumkur	41936	34388	33130	1258	132	114	18
Udupi	880	4585	3546	1038	115	31	85
Yadagir	14275	16075	12081	3994	925	341	584
Total	**581582**	**2144801**	**1605359**	**539442**	**65253**	**5308**	**59945**

Appendix 4. District wise detail of benefits through improved management under Bhoochetana initiative in Karnataka during the year 2012-13

District	Area (ha)	Production (t)	Production (t)	Additional Production(t)	Value of additional production	Cost of Inputs for IM	Net income
	IM	IM	FM	With IM	With IM (Rs.lakhs)	(Rs. lakhs)	(Rs. lakhs)
Bagalkot	5912	8027	6067	1959	354	85	269
Bengaluru Rural	5891	18973	14326	4647	671	89	582
Bengaluru Urban	4198	6803	5037	1766	265	41	224
Belgaum	1352	8424	6988	1436	169	20	148
Bellary	45241	132677	98214	34464	5738	446	5293
Bidar	62014	109594	82400	27195	6670	754	5916
Bijapur	37397	98558	74130	24428	3685	540	3145
Chamaraja-nagar	475	386	330	56	21	11	10
Chikkaballa-pur	29085	53143	38860	14283	2471	418	2054
Chikmagalur	1744	12486	9564	2921	348	18	330
Chitradurga	6384	12594	10083	2511	362	125	237
Dakshina Kannada	1791	5777	3927	1849	231	22	209
Davanagere	47973	277709	217877	59832	7200	727	6473
Dharwad	8682	8094	6054	2041	595	103	492
Gadag	4158	7420	5203	2217	424	59	365
Gulbarga	49082	62829	47594	15235	3919	924	2994
Hassan	5041	33653	28436	5217	648	87	561
Haveri	12398	55525	41723	13802	1754	148	1607
Kodagu	12214	67883	54207	13676	1683	140	1543
Koppal	32391	83624	62291	21334	2948	406	2543
Mandya	13269	23538	19021	4517	591	177	414
Mysore	2280	5899	4345	1554	219	27	192
Raichur	1286	3966	3164	803	284	18	266
Ramanagara	14424	33921	26752	7169	1231	171	1060
Shimoga	50841	248055	197586	50469	6102	505	5596
Tumkur	9539	12936	9832	3104	603	166	437
Udupi	2436	12799	9390	3409	426	49	377
Uttara Kannada	4550	8697	6565	2132	267	58	208
Yadgir	21053	33781	26418	7363	1887	248	1640
Grand Total	493101	1447771	1116380	331390	51765	6580	45185

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