



**Transforming Rural Livelihoods
through Mission Bhoochetana**



Mission Bhoochetana

In order to unlock the potential of agriculture in the state of Karnataka through science-led participatory research for development, and to increase agricultural productivity and profitability for small farmholders, the Bhoochetana Mission Program (BCMP) was launched by the Government of Karnataka in the year 2013. During 2009-12, an ICRISAT-led consortium provided technical support to formulate, monitor and demonstrate science-led best management practices through Bhoochetana and crop yields were increased by 20 to 66 per cent by adopting holistic approaches.





Objectives

- To strengthen the Bhoochetana consortium and thereby increase crop (irrigated and rainfed) yields by 20 per cent over the first phase of Bhoochetana within five years in 30 districts of Karnataka through science-led development and new innovation systems.
- To strengthen the institutional mechanisms such as seed villages, village seed banks, participatory research for development (PR4D), supply of inputs, agricultural machinery hiring centers, farm extension through farm facilitators (FFs) and communication systems for small and marginal farmers in the state for DoA through capacity development, convergence, collective action and partnerships.
- To assess the impact of climate change in different agro-eco regions of the state in terms of anticipated shifts in the crop growing periods, water availability, major crop yields, and evaluate adaptation strategies for developing climate-resilient farming systems.
- To document the process of consortium functioning, learning and impact of BCMP in terms of increased crop yields, institutional development and capacity building of different stakeholders in the state.

Strategy

The mission program will adopt the principle of 4 ICEs.

- **Is:** Innovative, Inclusive, Integrated, Intensification;
- **Cs:** Collective, Cooperation, Capacity-Building, Consortium;
- **Es:** Efficiency, Equity, Environment protection, Economic gain.

The approach of the mission will be to strengthen backward linkages to meet the 4 Es through 4 Cs by:

- Establishing seed villages, village seed banks, custom hire centres for agricultural equipment, ensuring timely supply, availability and access to the necessary vital inputs such as knowledge-based soil nutrient management options, acquiring micro nutrients, availability of good quality seed and necessary financial incentives.



Strengthened extension system for sharing knowledge with farmers through empowered farm facilitators in the state, and efforts will be made to enhance its effectiveness through capacity development and building partnerships for substantial scaling-up of the improved best-bet management practices.



- ICT-tablet based knowledge information sharing systems will be piloted in selected “Raitha Samparka Kendras (RSKs)” of four districts.
- The scientific approach of mapping soil nutrient deficiencies initiated during the first phase of Bhoochetana is being continued further by monitoring the changes in soil fertility status after adoption of best-bet management practices for five years.
- The approach will not only increase the productivity of the land, water and applied fertilizers through sustainable intensification but will also reduce the cost of cultivation by advising the farmers not to apply fertilizers, which are not required for their soils.

Strategy

- Along with improving nutrient management, other best-bet practices such as rainwater management, pest management options and organic matter building practices will support long-term sustainability and enhance productivity.
- The convergence of activities of WDD and DoA will ensure increased water availability which is an important driver for sustainable intensification in the state.



- Women and landless members of the SHGs and AGs will produce vermicompost and *Gliricidia* seedlings to increase soil organic matter. This will also increase incomes of vulnerable groups in the villages.

Rainfed Agricultural Technologies and *In-situ* Soil and Water Conservation Techniques



CONSERVATION FURROW SYSTEM

Demonstrations on soil and water conservation practices such as dead furrow are promoted on farmers' fields. 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 or during intercultural operations. During *kharif* 2015, the conservation furrow system was adopted in districts Davanagere (250 ha), Chitradurga (200 ha), Bengaluru Rural (37 ha) and Bengaluru



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. This method was adopted in Davanagere (11,250 ha), Chitradurga (36,480 ha) and Mandya (7,500 ha) in addition to other improved technologies.



BROAD-BED AND FURROW (BBF)

For *in-situ* soil and water conservation, the broad-bed (1.05 m) and furrow (0.45 m) system (BBF) has been found to be satisfactory on deep black soils. The BBF system is laid out on a slope of 0.4–0.8% with an optimum slope of 0.6%. The BBF system facilitates draining of excess rainwater as runoff and furrows act as traffic zone for plough bullocks and labors during the wet period. In case of low rainfall, the BBF stores more rainwater as soil moisture due to increased surface area.

Integrated Nutrient Management Techniques

Effect of balanced nutrient application in paddy in Hiregundkal village, Tumkur district.

Balanced nutrient application

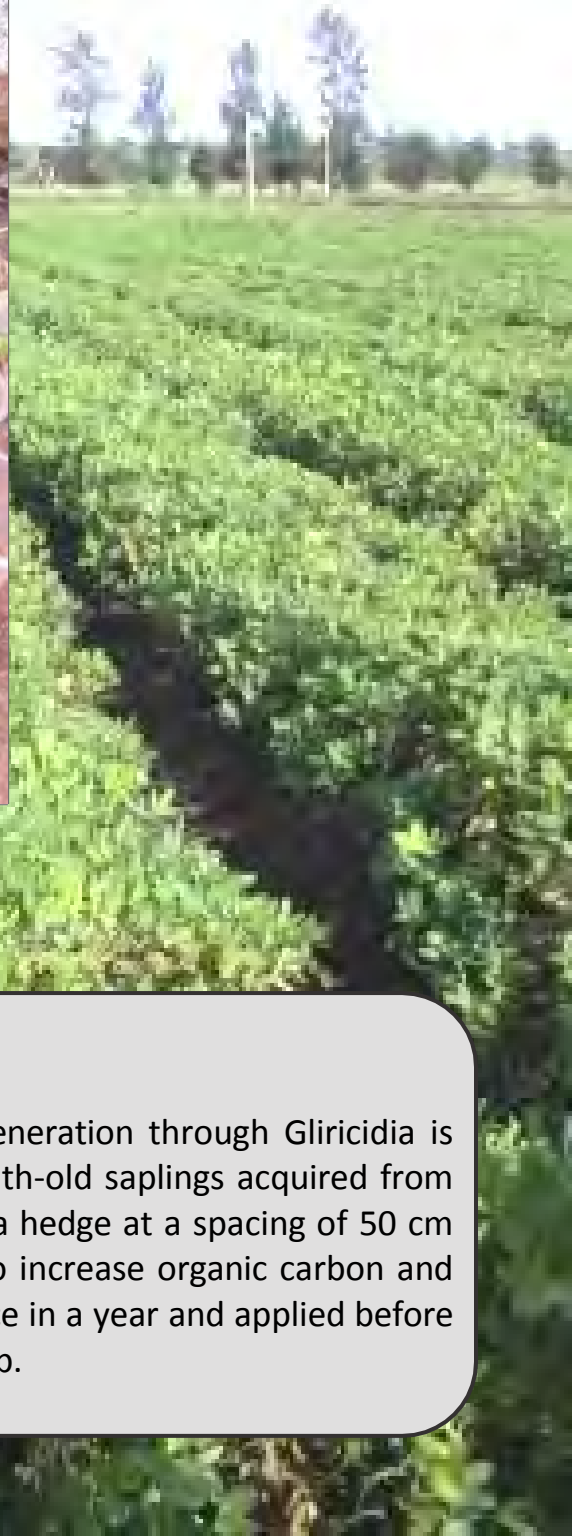
Balanced use of plant nutrients involves correcting nutrient deficiency and restoring soil fertility of degraded lands (due to over exploitation). It increases nutrient and water use efficiency, enhances crop yields and farmers' income, and improves crop and environmental quality. Hence we used soil analysis 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.



Vermicomposting

Vermicomposting converts farm residue and organic waste into valuable manure with the use of earthworms. This method was introduced to farmers and rural women as a technology through the Sujala-ICRISAT project and scaled-up in Bhoochetana. Several compost units 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 biodegradable materials such as weeds, crop and sericulture residue, animal and poultry manure and rock phosphate.

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Gliricidia planting on field bunds

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Azolla Fern

Farmers grow Azolla, a nitrogen-fixing fern in small ponds to use as soil fertilizer as well as to enrich the livestock feed with proteins. Given the occurrence of drought in the state that has affected livestock and deprived them of extra income for the family, farmers are enthusiastic about adopting this method as this has improved milk yield as well as fat content in the milk.



A farmer using a modified broad bed and furrow maker to prepare his field in Karnataka

The implementation of certain mechanizations in farming has helped farmers gain increased yield and more fertile soils. The modified Broad bed and furrow maker is one such tool that has been developed by the International Crop Research Institute for the Semi Arid Tropics and has been used by many farmers' during the Bhoochetana and Bhoosamruddhi projects in Karnataka. The tool helps conserve *in-situ* soil and moisture and has seen success in the black soil belts of Vijayapura, Raichur, Dharwad, Bellary etc).Farmers can also use the tool for operations that include land preparation, sowing, fertilizer application, bed and furrow formation and has especially helped farmers who depend on rain for moisture conservation in soil.

Modern mechanization helps farmer conserve soil moisture and ensure better yields



Bullock driven tropicultor allows the farmer to perform many operations at once

Tropicultor

Another innovative tool / machine developed by ICRISAT research staff is being implemented by many farmers in Bhoochetana trials across Karnataka. The machine allows farmers to sow seeds and apply fertilisers at the same time and takes care of sowing, ridging and ploughing. The advantage is that the farmer can sit on the machine and the machine is drawn by bullocks. It enables the farmer to cover more area in a single day and as much as 5 acres of sowing can be completed in a single day. Priced at ₹50,000 the semi mechanized machine can be used by farmers who grow pulses, millets and oilseeds. The machine cuts out manual labour and the farmer can save on labour costs and the work of almost 7-8 people required during ploughing and sowing operations can easily be performed by the farmer alone. Also used for making and cultivation of broadbed rows and broad bed furrow, the tropicultor is boon to farmers.

Crop yield by using such technology has increased yields of corn and sorghum by 3.5 times the original due to the extra water stored by use of this method .

Growth at its best





The success of Bhoochetana has ensured 5 per cent annual growth in agricultural productivity. The State was reeling with low productivity at around only 1 % in the year 2007-2008, but with the help of the project , farmers have more than a reason to smile.’ The use of soil mapping techniques and micronutrient use has reached 40 lakh farmers’ across the State. After assessment of the soil in farmers’ land, soil health cards have been distributed and deficiencies in boron, zinc sulphate, gypsum and secondary nutrients like sulphur have been identified. The farmers’ are then asked to apply the required nutrients based on the soil health card of their land.

The Department of Agriculture under Minister- Krishna Byre Gowda and the Government of Karnataka has ensured that large scale adoption of integrated soil management practises to help farmers’ achieve overall yield enhancement. It has mainly been achieved through soil mapping and helping farmers’ understand the importance of micronutrients in soil.

Agricultural growth in Karnataka saw its worst phase from 2001-2008 and was stuck at around 1 per cent annual growth and with 70 % of the state agriculture depending on rainfed practises, it was critical for a project like Bhoochetana to help improve rural livelihoods.

During 2011-12 rainy season, Bhoochetana programme was implemented in all 30 districts covering 25.4 lakh hectares in 13800 villages covering 20 lakh farmers. The *Rabi*(winter) area coverage during 2011-12 was 5.40 lakh ha. An enhancement in yield of 29-41% is observed in the treated areas.

By 2012-2013, the project reach was to 26000 villages covering 42 lakh farmers. There was c observed in the treated areas. With this background, Bhoochetana Mission Program was approved

In the last 3 years, the Government of Karnataka has ensured that 5 per cent annual growth in agricultural productivity and also in the last 5 years crop yields have increased from 20 to 66 %. Under Bhoochetana Mission Program programme, farmers are getting a return of ₹ 3 to ₹ 15 per every ₹ 1 invested as said by Krishna Byregowda Karnataka Agriculture Minister

Under Bhoochetana phase II, in the *kharif* season of 2015, farmers were motivated to cover a large area under Bhoochetana activities for possible benefits. However, due to lack of rainfall, the area coverage did not reach the expected level. Bhoochetana activities were targeted to cover an area of 52.70 lakh ha with improved management to enhance rainfed as well as irrigated crop productivity in all 30 districts. The project implemented crop productivity enhancement technologies on 44.26 lakh ha in Karnataka which corresponded to 77% of the target area with major cereals, legumes and oilseeds



nsiderable area coverage during *Rabi* (winter) season also. An enhancement in yield of 11- 37% was for implementation for five years (2013-14 to 2017-18).







Technologies Adopted in Irrigated Paddy and Sugarcane



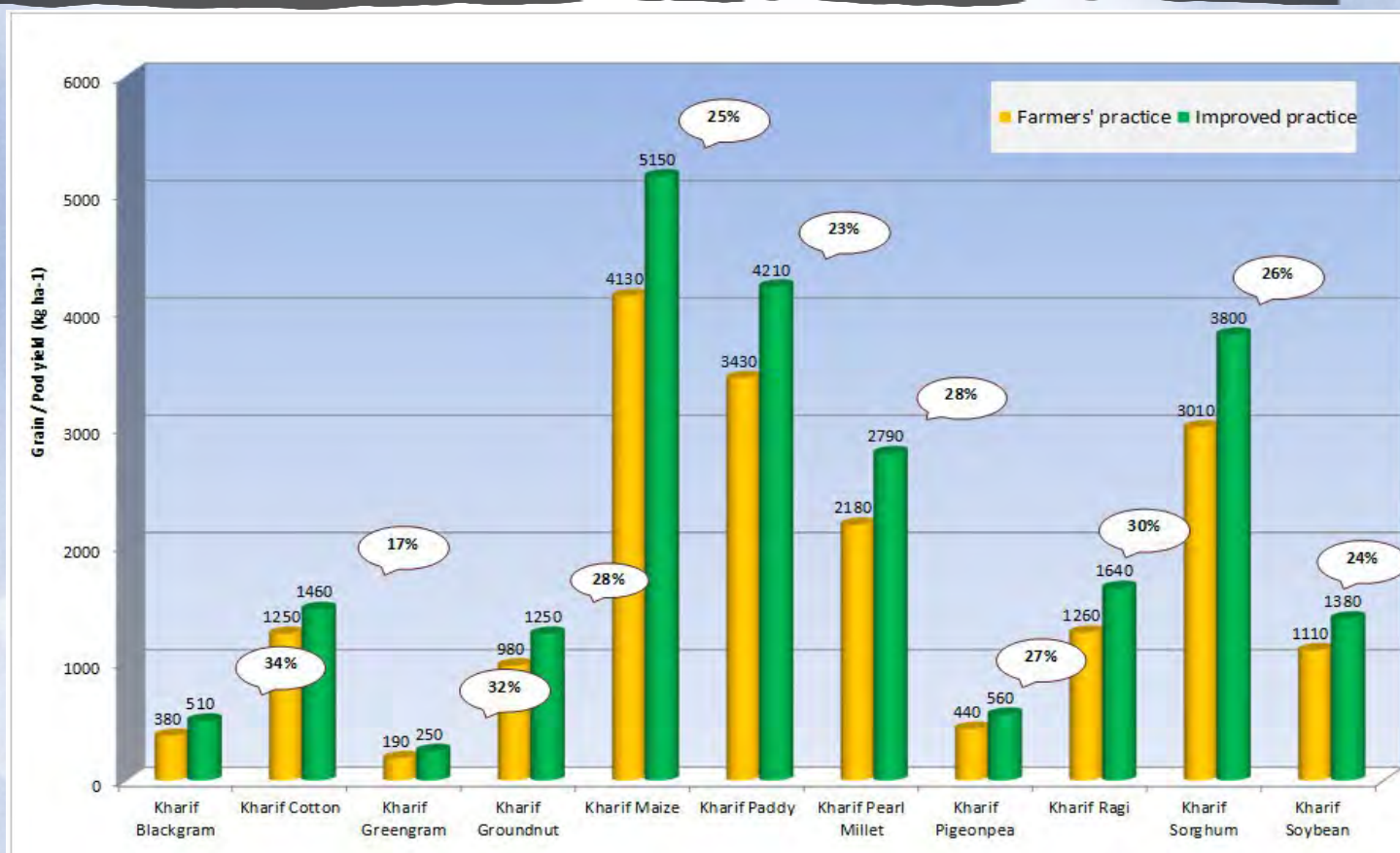


Since BCMP seeks to extend itself to irrigated crops, different technologies have been promoted to spread its benefits to farmers. The prominent technologies used in irrigated paddy during *kharif* 2015 include machine transplantation and the Dry Seeded Rice method in major rice growing districts in Karnataka. Similarly, new technologies used in sugarcane are single eyebud demo, wider row spacing and drip irrigation. Apart from these technologies, a few others related to integrated nutrient management and integrated pest management were also adopted and as a result the benefits are increasing.

Water Storage Structure at Dharwad



Yield analysis of major crops during 2014-15 *kharif* season

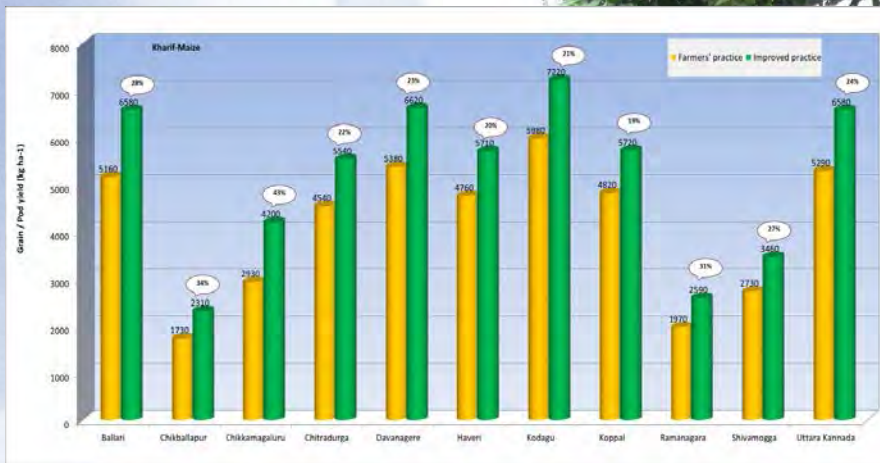


In all the 30 districts, crop cutting experiments (CCE) were undertaken by following uniform CCE guidelines. The harvest data was collected with the help of staff of DoA, Directorate of Economics and Statistics, Farm facilitators, farmers and ICRISAT research technicians.

The CCE data clearly revealed that the crop yield increased from 17 to 34% depending on the crop type. In the state as a whole, the highest yield increase was recorded in black gram (34%) while lowest was in cotton (17%) compared to farmers' practice. Pulses and cereal crops recorded increased yields compared to oil seeds.

Crop wise yield analysis during 2014-15 *kharif* season

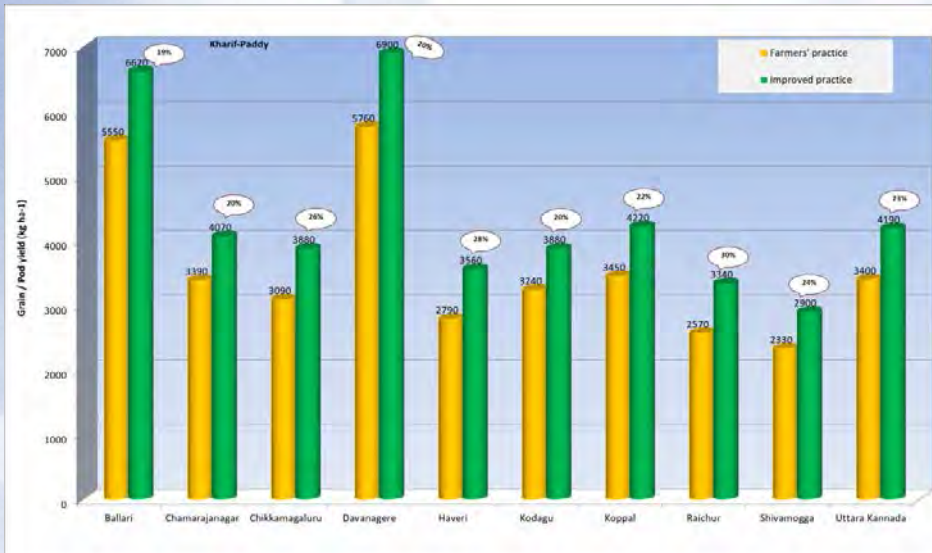
Maize



Maize yield in districts during kharif season in response to improved Bhoochetana practices.

Maize, which is grown in a majority of districts, has shown huge benefits through adoption of improved management across the state. Compared with the farmers' management, grain productivity increased by 19% to 43%.

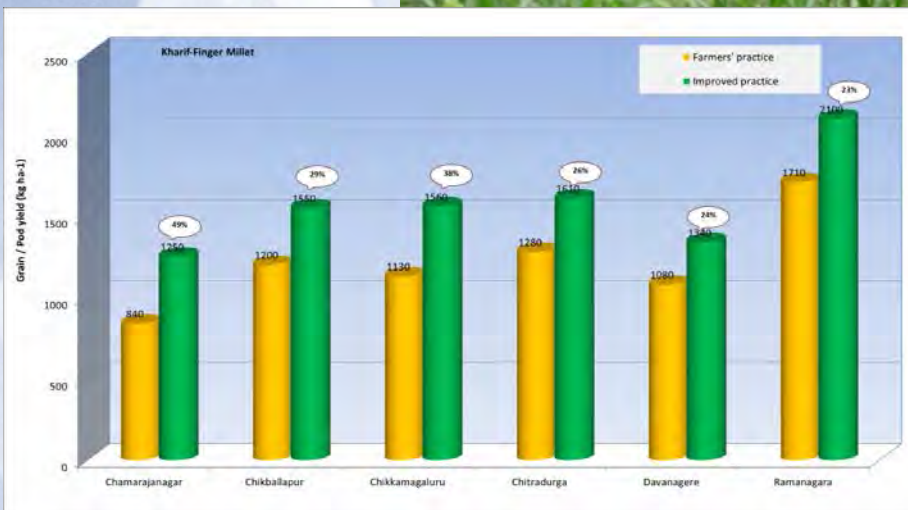
Paddy



Paddy yield in different districts during kharif season in response to improved Bhoochetana practices.

Paddy, a major staple food across the districts, showed huge potential with improved management practices. Paddy grain productivity increased by 19% to 30% compared to farmers' practice.

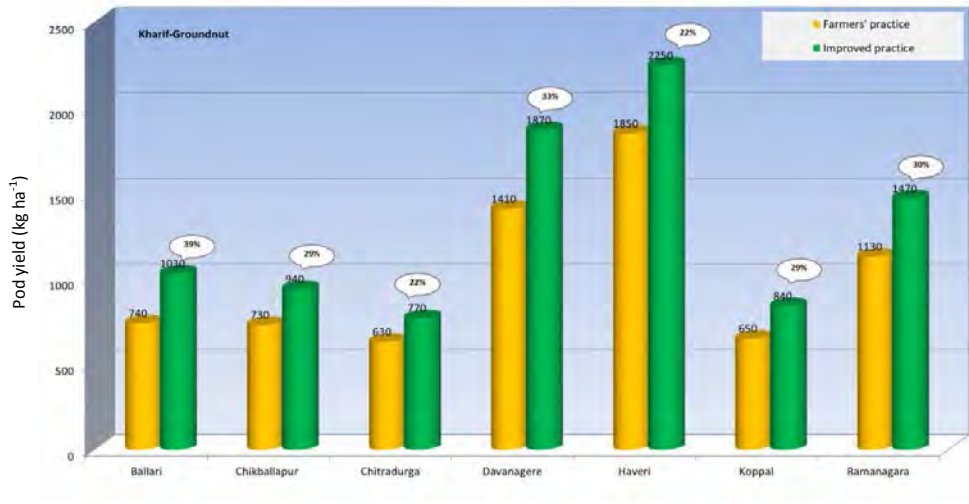
Finger Millet



Finger millet yield in different districts during kharif season in response to improved Bhoochetana practices.

Finger millet, which is one of the major staple food crops in southern Karnataka, is grown mainly in six districts. Compared to farmers' management, the grain yield increased by 23% to 49% with improved practices.

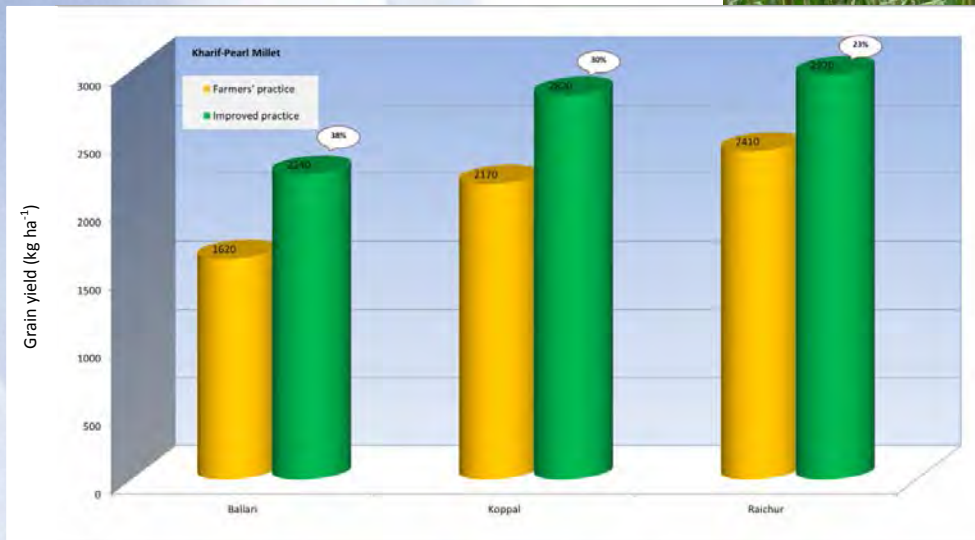
Ground Nut



Groundnut yield in different districts during kharif season in response to improved Bhoochetana practices.

During *kharif* 2014, the CCE results indicated huge benefits through the adoption of improved management in enhancing groundnut pod production in the district. As compared with the farmers' management, grain productivity of groundnut increased by 22% to 39% .

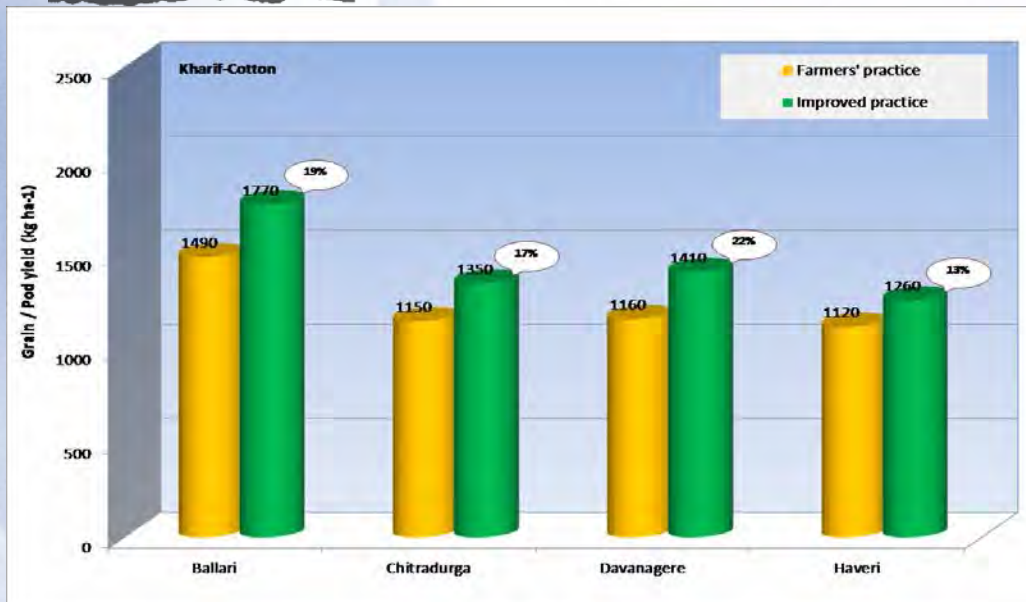
Pearl Millet



Pearl millet yield in different districts during kharif season in response to improved Bhoochetana practices

During *kharif* season, pearl millet grain yield was increased by 23% to 38% for improved practices when compared to farmers' practices.

Cotton



Cotton yield in different districts during kharif season in response to improved Bhoochetana practices.

Cotton as a cash crop has showed huge potential across districts with 13% to 22% increase in yield with improved management practices.

Transplanting of Paddy by Machine



Transplanting paddy by mechanization has yielded an additional net income of ₹ 14,400 for the farmer

S.Hanumanthappa from Pamminahalli village in Harihar taluk in Davanagere district holds 30 acres of land and is predominately into paddy cultivation. Due to labor shortages, the farmer would spend almost ₹ 25870 on cultivation alone.

After attending Bhoochetana organized training activities and krishi melas, he was convinced about mechanical transplanting of paddy. With the new method adopted, the farmer has cut his cost of cultivation to ₹ 18090/acre and yield has also increased to 3550kg/acre compared to 2750 kg/acre with farmer's method.

He also earns a net income of ₹ 45,810 in comparison to only ₹ 23,630 with farmer's practice thus earning an additional income of ₹ 14,400.

Micronutrients to the Rescue



Groundnut yields boosted for the farmer due to Bhoochetana interventions



U Nagaraja is a small holder farmer who has 5 acres living at Hariyabbe village of Hiriyr taluk. After Bhoochetana project, he was advised incorporation of agricultural wastes immediately after harvest of the monsoon crop. With the help of Department staff and ICRISAT staff, he was given enough technical information for the cultivation of Groundnut K 6 variety crop.

Accordingly, 7 tonnes of farm yard manure, 200 kg of Gypsum, 10 kg Zinc sulphate, 2 kg Borax were applied to the field before sowing. The seeds were treated with 100 ml liquid Rhizobium and 100 ml Phosphate Solubilizing Bacteria (PSB) and 200 grams of Trichoderma powder. The seeds were sown across the slope one foot apart from row to row.

The yield of the organic manure treated plot was 4 Quintals per acre when compare to other plots where in the yield level was only 2 quintals per acre and the fodder levels were 2 tonnes and 1.5 tonnes respectively.

The cost of cultivation was ₹ 8500/ and the farmer obtained ₹ 3550/- as net income per acre and had made double the net income in comparison to the neighboring farmers who had grown the same crop.

Intercrop of Groundnut and Red gram

Farmer managed to create a village level seed bank with the increased yield obtained from improved practices



Intercrop of Groundnut and Red gram with 30 percent reduction in use of chemicals and plant protection chemicals and instead the project has helped the farmer improve production through the use of Bio fertilizer and micro nutrients



M.C.Sannajja from Mustur in Jagalur taluk in Davanagere district holds 6.20 acres of land. After Bhoochetana program was initiated, he attended a training program on crop production and attended a number of Krishi melas (Exhibition for farmers).

After the new exposure he used methods such as seed treatment with Trichoderma, Bio-fertilizers such as Rizobium and PSB. He also intercropped groundnut with Red gram and used micronutrients as per recommendations.

With the new method, the yield was 850 kg/acre for seeds and fodder yield was 2000kg. With the farmer's method, seeds yield was only 600kg and fodder yield was 1500 kg.

This has reduced cost of cultivation by ₹ 2000 in addition to higher yield. With the new method the farmer earns a net income of ₹ 29,500 and generates an additional income of ₹ 11,000 in comparison to farmer's method .



Neighboring farmers also visited groundnut demo plot

Somanna from Mandanahalli village from Jayapura hobli in Mysore taluk has earned ₹7450 more profit by using Bhoochetana technology for cotton as compared to farmer's normal practice.



Particulars	2014-15	
	Farmer Plot (check)	Bhoochethana plot (Treated)
Area (Acres)	1	1
Cost of cultivation	6100	8900
Yield (Quintal)	4.5	7
Rate in ₹/Quintal	4100	4100
Gross Income (₹)	18450	28700
Net Income (₹)	12350	19800



Thayamma from Kandegala village in Kandalike Hobli in H D Kote taluk received an additional ₹ 3325 net income by using Bhoochetana technology in maize as compared to farmer's normal practice

Particulars	2014-15	
	Farmer Plot (check)	Bhoochetana plot (Treated)
Area (Ac)	1	1
Cost of cultivation	5200	7100
Yield (Qt)	15.5	21
Rate/Qt	950	950
Gross Income (₹)	14725	19950
Net Income (₹)	9525	12850

Consortium Partners:

The consortium comprises the Karnataka State Department of Agriculture, with its Commissioner as the nodal officer for implementing the project. Other partners include:

- Watershed Development Department with its Commissioner as the focal person to co-ordinate activities
- Four Universities of Agricultural Sciences (Bengaluru, Raichur, Dharwad and Shivamogga) in the state of Karnataka with their Vice-Chancellors as State Coordination Committee (SCC) members and supporting technical help from university scientists
- Karnataka State Natural Disaster Monitoring Center





Consortium Partners:

- Karnataka State Seed Corporation
- Department of Economics & Statistics
- Krishi Vigyan Kendras in the state
- 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
- Private companies

Summary

The Bhoochetana Mission Program (BCMP) was launched by the Government of Karnataka . The project covers all 30 districts in the State of Karnataka and dryland as well as irrigated crops are grown in the State.

The project has ensured that 5 per cent annual growth in agricultural productivity has been reached.

In the last 3 years, the Government of Karnataka has clocked 5 per cent annual growth in agricultural productivity has been reached. The last 3 years has seen an increase in productivity mainly due to the Bhoochetana Mission Program and also in the last 5 years crop yields has increased from 20 to 66 %.

Under the new Bhoochetana programme, farmers are getting a return of ₹3 to ₹15 per every ₹1 invested.





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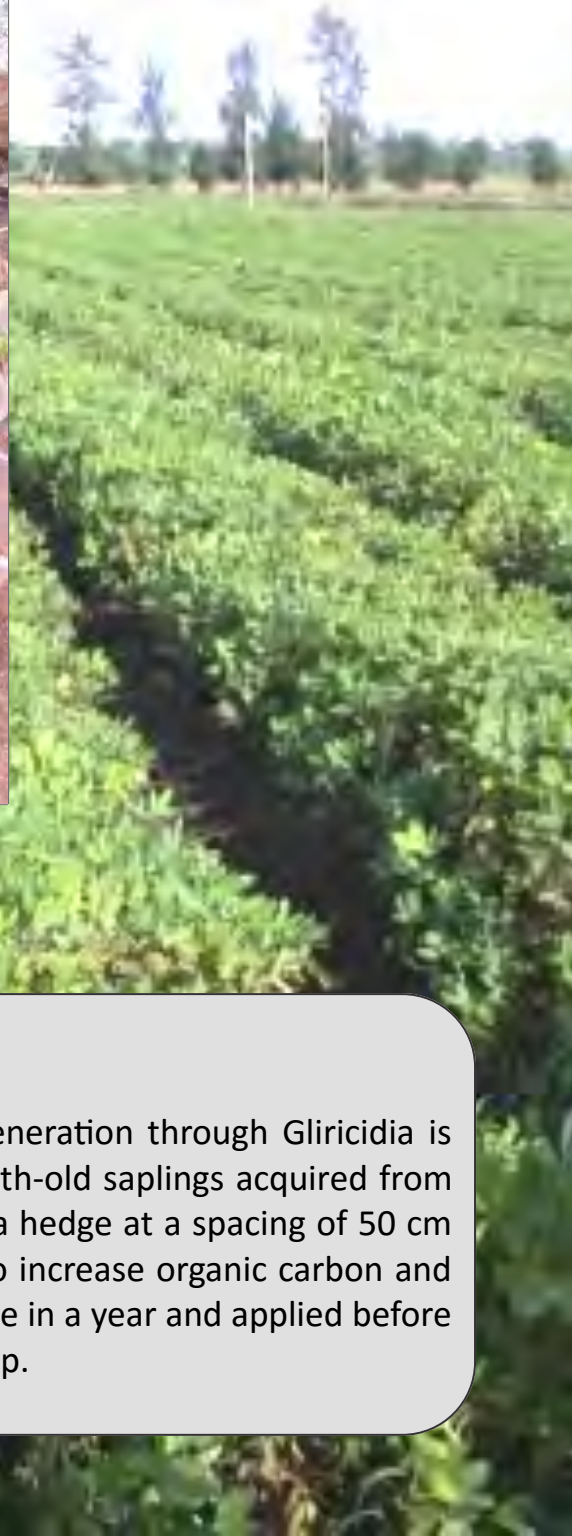
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Crop yield by using such technology has increased yields of corn and sorghum by 3.5 times the original due to the extra water stored by use of this method .

Growth at its best





The success of Bhoochetana has ensured 5 per cent annual growth in agricultural productivity. The State was reeling with low productivity at around only 1 % in the year 2007-2008, but with the help of the project , farmers have more than a reason to smile.’ The use of soil mapping techniques and micronutrient use has reached 40 lakh farmers’ across the State. After assessment of the soil in farmers’ land, soil health cards have been distributed and deficiencies in boron, zinc sulphate, gypsum and secondary nutrients like sulphur have been identified. The farmers’ are then asked to apply the required nutrients based on the soil health card of their land.

The Department of Agriculture under Minister- Krishna Byre Gowda and the Government of Karnataka has ensured that large scale adoption of integrated soil management practises to help farmers’ achieve overall yield enhancement. It has mainly been achieved through soil mapping and helping farmers’ understand the importance of micronutrients in soil.

Agricultural growth in Karnataka saw its worst phase from 2001-2008 and was stuck at around 1 per cent annual growth and with 70 % of the state agriculture depending on rainfed practises, it was critical for a project like Bhoochetana to help improve rural livelihoods.

During 2011-12 rainy season, Bhoochetana programme was implemented in all 30 districts covering 25.4 lakh hectares in 13800 villages covering 20 lakh farmers. The *Rabi*(winter) area coverage during 2011-12 was 5.40 lakh ha. An enhancement in yield of 29-41% is observed in the treated areas.

By 2012-2013, the project reach was to 26000 villages covering 42 lakh farmers. There was a significant improvement in agricultural productivity observed in the treated areas. With this background, Bhoochetana Mission Program was approved.

In the last 3 years, the Government of Karnataka has ensured that 5 per cent annual growth in agricultural productivity and also in the last 5 years crop yields have increased from 20 to 66 %. Under Bhoochetana Mission Program programme, farmers are getting a return of ₹ 3 to ₹ 15 per every ₹ 1 invested as said by Krishna Byregowda Karnataka Agriculture Minister

Under Bhoochetana phase II, in the *kharif* season of 2015, farmers were motivated to cover a large area under Bhoochetana activities for possible benefits. However, due to lack of rainfall, the area coverage did not reach the expected level. Bhoochetana activities were targeted to cover an area of 52.70 lakh ha with improved management to enhance rainfed as well as irrigated crop productivity in all 30 districts. The project implemented crop productivity enhancement technologies on 44.26 lakh ha in Karnataka which corresponded to 77% of the target area with major cereals, legumes and oilseeds



considerable area coverage during *Rabi* (winter) season also. An enhancement in yield of 11- 37% was for implementation for five years (2013-14 to 2017-18).







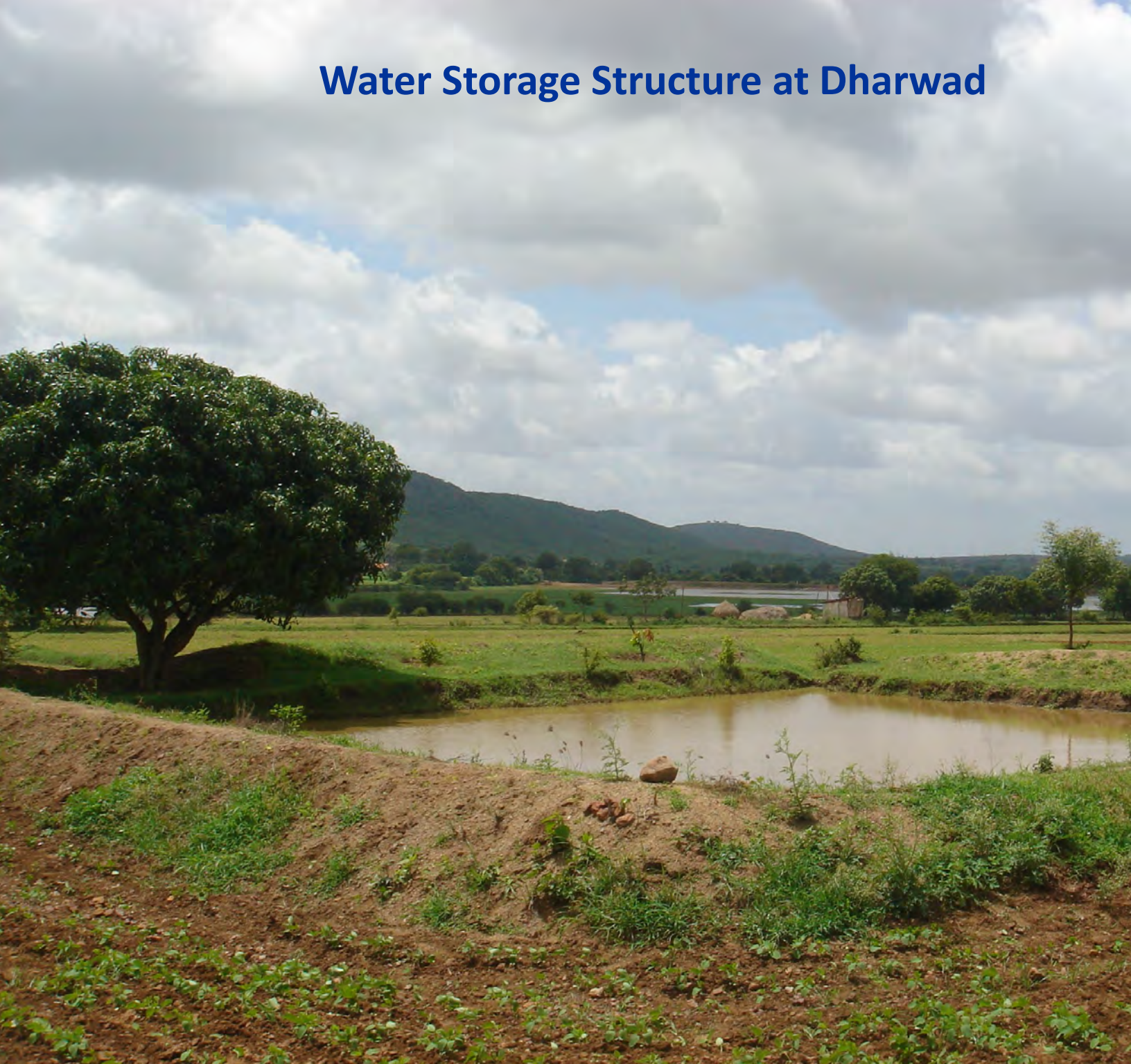
Technologies Adopted in Irrigated Paddy and Sugarcane



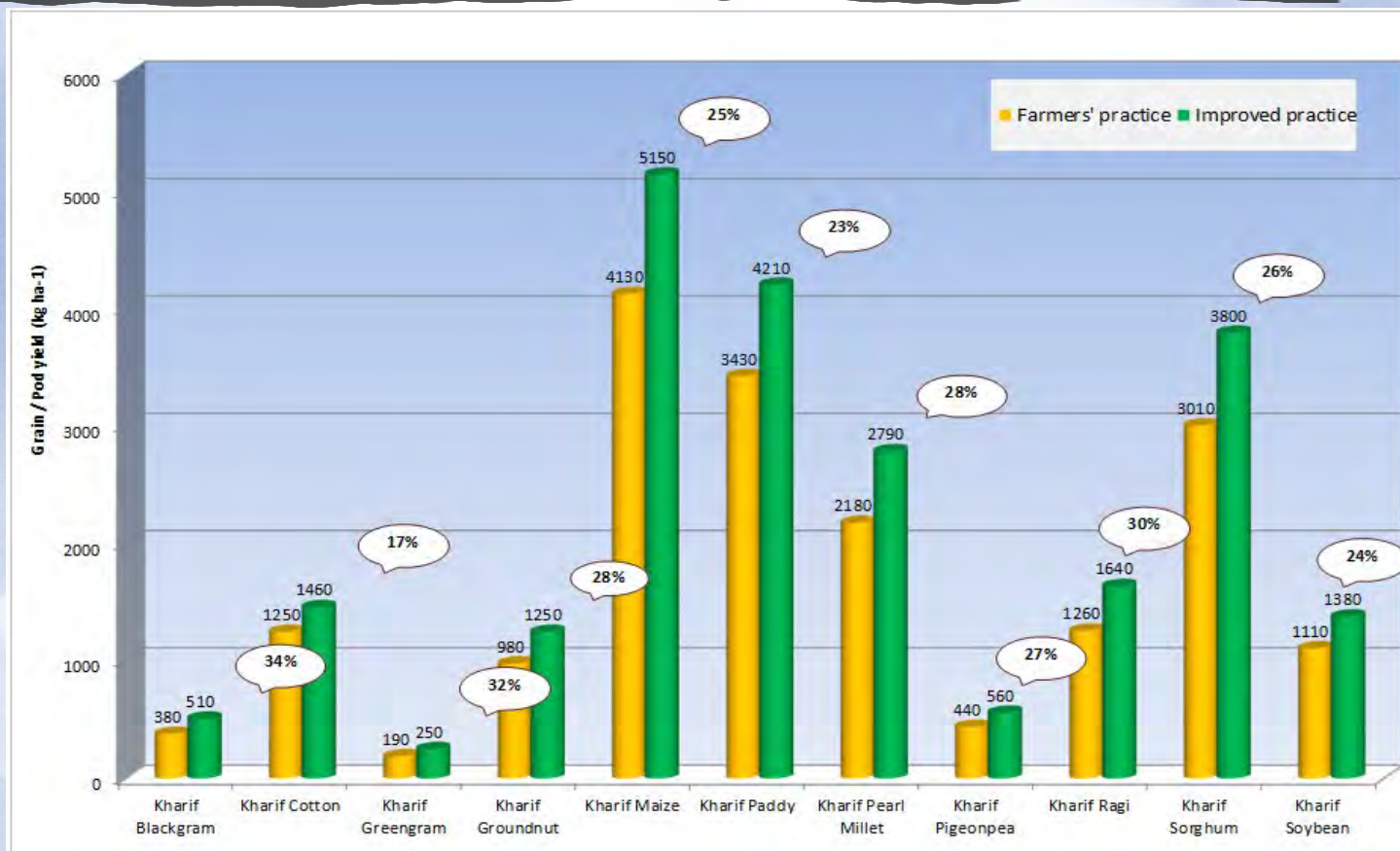


Since BCMP seeks to extend itself to irrigated crops, different technologies have been promoted to spread its benefits to farmers. The prominent technologies used in irrigated paddy during *kharif* 2015 include machine transplantation and the Dry Seeded Rice method in major rice growing districts in Karnataka. Similarly, new technologies used in sugarcane are single eyebud demo, wider row spacing and drip irrigation. Apart from these technologies, a few others related to integrated nutrient management and integrated pest management were also adopted and as a result the benefits are increasing.

Water Storage Structure at Dharwad



Yield analysis of major crops during 2014-15 *kharif* season

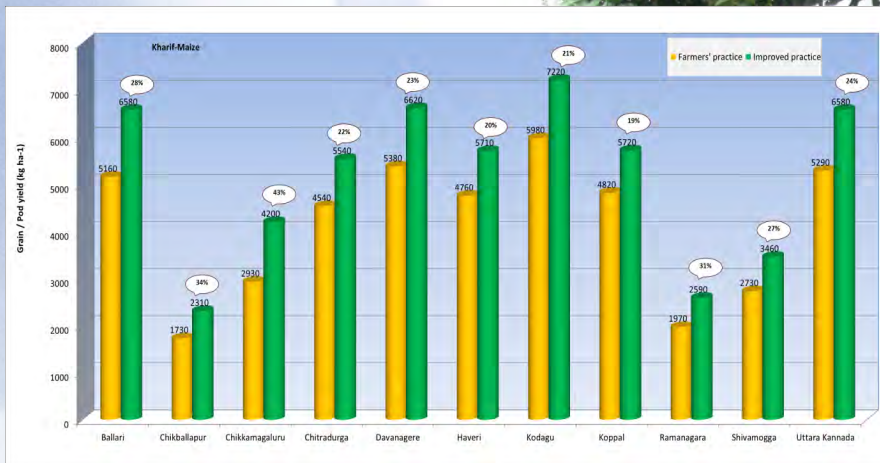


In all the 30 districts, crop cutting experiments (CCE) were undertaken by following uniform CCE guidelines. The harvest data was collected with the help of staff of DoA, Directorate of Economics and Statistics, Farm facilitators, farmers and ICRISAT research technicians.

The CCE data clearly revealed that the crop yield increased from 17 to 34% depending on the crop type. In the state as a whole, the highest yield increase was recorded in black gram (34%) while lowest was in cotton (17%) compared to farmers' practice. Pulses and cereal crops recorded increased yields compared to oil seeds.

Crop wise yield analysis during 2014-15 *kharif* season

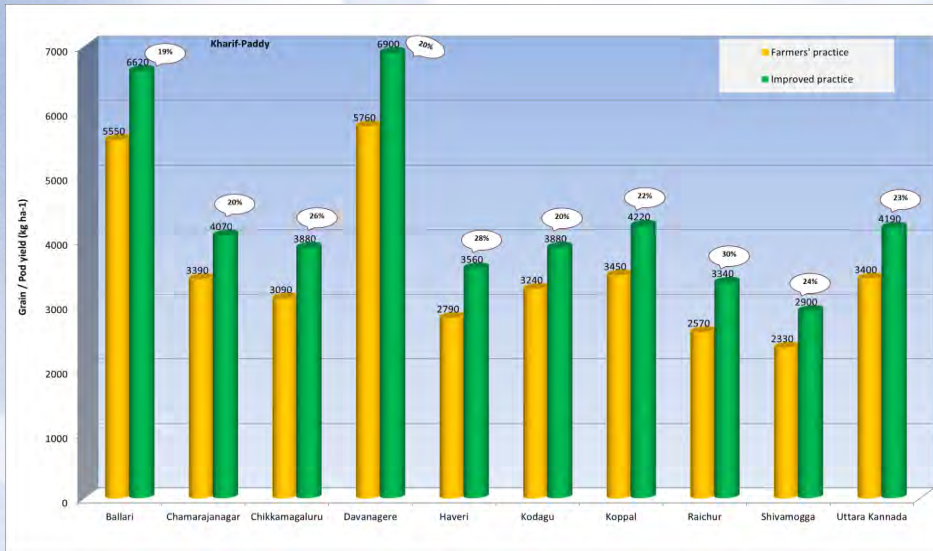
Maize



Maize yield in districts during kharif season in response to improved Bhoochetana practices.

Maize, which is grown in a majority of districts, has shown huge benefits through adoption of improved management across the state. Compared with the farmers' management, grain productivity increased by 19% to 43%.

Paddy



Paddy yield in different districts during kharif season in response to improved Bhoochetana practices.

Paddy, a major staple food across the districts, showed huge potential with improved management practices. Paddy grain productivity increased by 19% to 30% compared to farmers' practice.

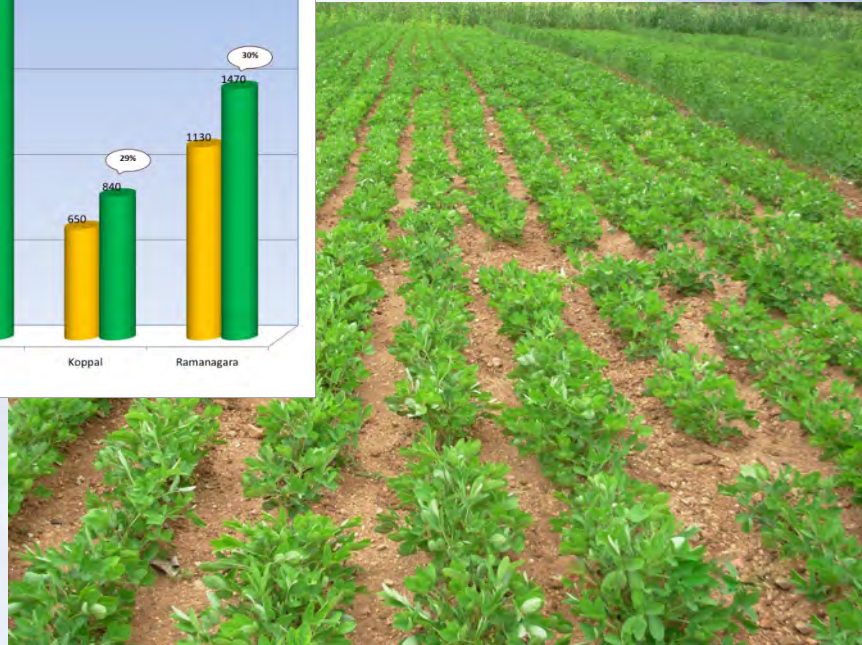
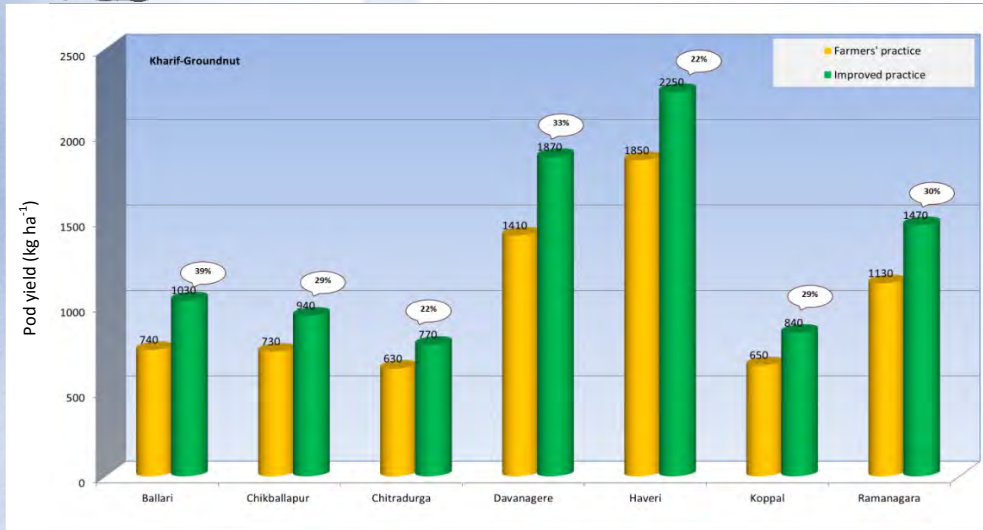
Finger Millet



Finger millet yield in different districts during kharif season in response to improved Bhoochetana practices.

Finger millet, which is one of the major staple food crops in southern Karnataka, is grown mainly in six districts. Compared to farmers' management, the grain yield increased by 23% to 49% with improved practices.

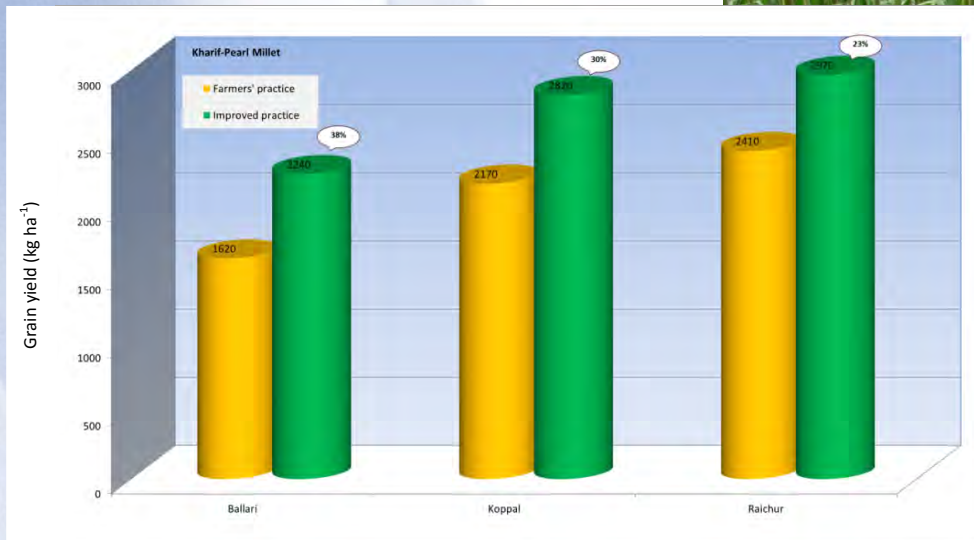
Ground Nut



Groundnut yield in different districts during kharif season in response to improved Bhoochetana practices.

During *kharif* 2014, the CCE results indicated huge benefits through the adoption of improved management in enhancing groundnut pod production in the district. As compared with the farmers' management, grain productivity of groundnut increased by 22% to 39% .

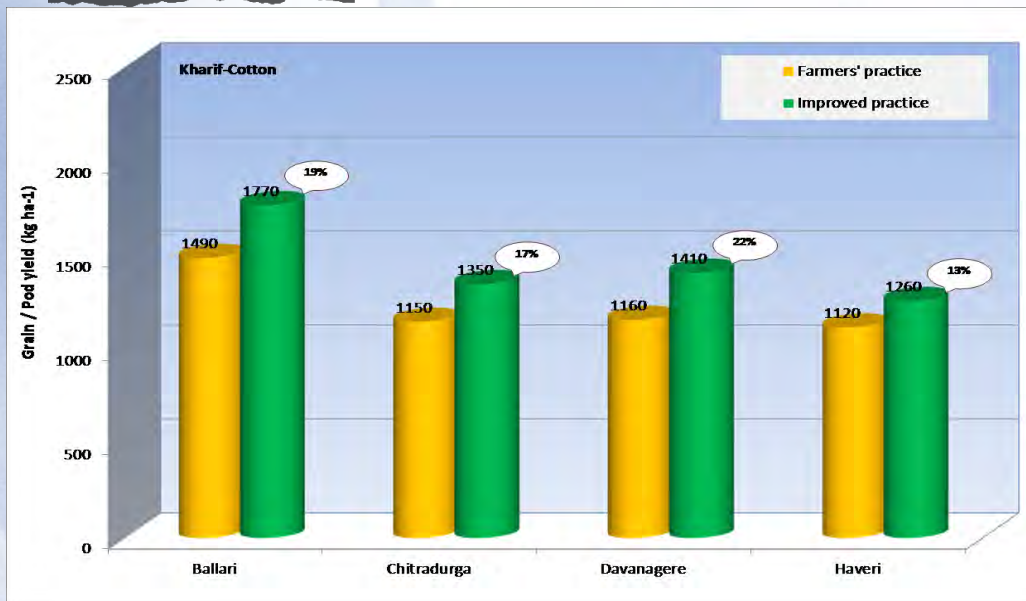
Pearl Millet



Pearl millet yield in different districts during kharif season in response to improved Bhoochetana practices

During *kharif* season, pearl millet grain yield was increased by 23% to 38% for improved practices when compared to farmers' practices.

Cotton



Cotton yield in different districts during kharif season in response to improved Bhoochetana practices.

Cotton as a cash crop has showed huge potential across districts with 13% to 22% increase in yield with improved management practices.

Transplanting of Paddy by Machine



Transplanting paddy by mechanization has yielded an additional net income of ₹ 14,400 for the farmer

S.Hanumanthappa from Pamminahalli village in Harihar taluk in Davanagere district holds 30 acres of land and is predominately into paddy cultivation. Due to labor shortages, the farmer would spend almost ₹ 25870 on cultivation alone.

After attending Bhoochetana organized training activities and krishi melas, he was convinced about mechanical transplanting of paddy. With the new method adopted, the farmer has cut his cost of cultivation to ₹ 18090/acre and yield has also increased to 3550kg/acre compared to 2750 kg/acre with farmer's method.

He also earns a net income of ₹ 45,810 in comparison to only ₹ 23,630 with farmer's practice thus earning an additional income of ₹ 14,400.

Micronutrients to the Rescue



Groundnut yields boosted for the farmer due to Bhoochetana interventions



U Nagaraja is a small holder farmer who has 5 acres living at Hariyabbe village of Hiriyr taluk. After Bhoochetana project, he was advised incorporation of agricultural wastes immediately after harvest of the monsoon crop. With the help of Department staff and ICRISAT staff, he was given enough technical information for the cultivation of Groundnut K 6 variety crop.

Accordingly, 7 tonnes of farm yard manure, 200 kg of Gypsum, 10 kg Zinc sulphate, 2 kg Borax were applied to the field before sowing. The seeds were treated with 100 ml liquid Rhizobium and 100 ml Phosphate Solubilizing Bacteria (PSB) and 200 grams of Trichoderma powder. The seeds were sown across the slope one foot apart from row to row.

The yield of the organic manure treated plot was 4 Quintals per acre when compare to other plots where in the yield level was only 2 quintals per acre and the fodder levels were 2 tonnes and 1.5 tonnes respectively.

The cost of cultivation was ₹ 8500/ and the farmer obtained ₹ 3550/- as net income per acre and had made double the net income in comparison to the neighboring farmers who had grown the same crop.

Intercrop of Groundnut and Red gram

Farmer managed to create a village level seed bank with the increased yield obtained from improved practices



Intercrop of Groundnut and Red gram with 30 percent reduction in use of chemicals and plant protection chemicals and instead the project has helped the farmer improve production through the use of Bio fertilizer and micro nutrients



M.C.Sannajja from Mustur in Jagalur taluk in Davanagere district holds 6.20 acres of land. After Bhoochetana program was initiated, he attended a training program on crop production and attended a number of Krishi melas (Exhibition for farmers).

After the new exposure he used methods such as seed treatment with Trichoderma, Bio-fertilizers such as Rizobium and PSB. He also intercropped groundnut with Red gram and used micronutrients as per recommendations.

With the new method, the yield was 850 kg/acre for seeds and fodder yield was 2000kg. With the farmer's method, seeds yield was only 600kg and fodder yield was 1500 kg.

This has reduced cost of cultivation by ₹ 2000 in addition to higher yield. With the new method the farmer earns a net income of ₹ 29,500 and generates an additional income of ₹ 11,000 in comparison to farmer's method .



Neighboring farmers also visited groundnut demo plot

Somanna from Mandanahalli village from Jayapura hobli in Mysore taluk has earned ₹7450 more profit by using Bhoochetana technology for cotton as compared to farmer's normal practice.



Particulars	2014-15	
	Farmer Plot (check)	Bhoochethana plot (Treated)
Area (Acres)	1	1
Cost of cultivation	6100	8900
Yield (Quintal)	4.5	7
Rate in ₹/Quintal	4100	4100
Gross Income (₹)	18450	28700
Net Income (₹)	12350	19800



Thayamma from Kandegala village in Kandalike Hobli in H D Kote taluk received an additional ₹ 3325 net income by using Bhoochetana technology in maize as compared to farmer's normal practice

Particulars	2014-15	
	Farmer Plot (check)	Bhoochetana plot (Treated)
Area (Ac)	1	1
Cost of cultivation	5200	7100
Yield (Qt)	15.5	21
Rate/Qt	950	950
Gross Income (₹)	14725	19950
Net Income (₹)	9525	12850

Consortium Partners:

The consortium comprises the Karnataka State Department of Agriculture, with its Commissioner as the nodal officer for implementing the project. Other partners include:

- Watershed Development Department with its Commissioner as the focal person to co-ordinate activities
- Four Universities of Agricultural Sciences (Bengaluru, Raichur, Dharwad and Shivamogga) in the state of Karnataka with their Vice-Chancellors as State Coordination Committee (SCC) members and supporting technical help from university scientists
- Karnataka State Natural Disaster Monitoring Center





Consortium Partners:

- Karnataka State Seed Corporation
- Department of Economics & Statistics
- Krishi Vigyan Kendras in the state
- 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
- Private companies

Summary

The Bhoochetana Mission Program (BCMP) was launched by the Government of Karnataka . The project covers all 30 districts in the State of Karnataka and dryland as well as irrigated crops are grown in the State.

The project has ensured that 5 per cent annual growth in agricultural productivity has been reached.

In the last 3 years, the Government of Karnataka has clocked 5 per cent annual growth in agricultural productivity has been reached. The last 3 years has seen an increase in productivity mainly due to the Bhoochetana Mission Program and also in the last 5 years crop yields has increased from 20 to 66 %.

Under the new Bhoochetana programme, farmers are getting a return of ₹3 to ₹15 per every ₹1 invested.

