



the PULSE

Newsletter of the ACIAR Pakistan profitable pulse project – CIM/2015/041

Issue 3 – April 2019

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Upcoming events

Whole of project meeting

10-14 June 2019
Islamabad

Aik Saath Annual Project Review and Planning Meeting

7-10 July 2019
Karachi



From the project leader

Welcome once again to our valued collaborators, partners, supporters and everyone interested in the uplift of pulse crops in Pakistan.

This third issue of the newsletter is timely and presents the opportunity for us to look back at what we have achieved in the past two years.

Ever since the contracting out of the project in October 2016, our research collaborating organisations and associated research institutes have been very active in establishing a strong team of Groups of Collaborative Research (GCRs), comprising farm families and researchers. The GCRs have made some valuable outcomes towards achieving project objectives.

We have come a long way from where we started, enabling us to develop appropriate research questions based on the current situation of farm families, and continually refine these questions during the progress of the project. As a result, on-farm varietal trials of promising lentil, chickpea and groundnut varieties were established, enabling farmers to undertake hands-on



pest reconnaissance for timely insecticide application and selection of best yielding varieties for their local conditions.

In addition to providing information on the performance of the varieties under local conditions and developing their capacity, the trials also form the foundation for establishing local village-based seed production systems. At the same time, farmers are being provided with the prospect of undertaking postharvest, commercially scalable value addition projects.

These interventions have empowered farm families to identify and analyse the problems they face, and help them to devise and implement locally-relevant solutions that offer real prospects for sustainable impact.

Dr Ata-ur Rehman,
Charles Sturt University



In collaboration with:





Field view of chickpea crop cultivation through sprinkler irrigation system.

Chickpea cultivation in Thal through life saving irrigation – a success story

Dr Khalid Hussain and Mr Niaz Hussain, Arid Zone Research Institute, Bhakkar

The chickpea is the major source of livelihood of rural people of the Thal desert of Punjab. The region is well known as the home of the chickpea as it cannot support major cash crops due to low fertility and lack of irrigation. Climatic uncertainty due to the Thal desert's erratic rainfall is the main obstacle in crop production under rainfed conditions. During drought periods there is absolutely no produce, leaving farmers no seed to sow the following year.

The major reason for the low yield of chickpea, identified by the Arid Zone Research Institute, Bhakkar during the situational analysis carried out under the ACIAR Pulses Project, is the prolonged drought spell at critical crop growth stages. Supplementary irrigation at these critical stages, and in the required quantity, can play a vital role in achieving high yield versus production. There are opportunities for growers to enhance their income from chickpea cultivation by ensuring lifesaving irrigation to the crop.

It has been observed that sprinkler irrigation has proved very beneficial for the successful cultivation of chickpea crops, as it helps maintain a favourable growing environment by retaining proper soil moisture levels. It is indicated that sprinkler systems have been tested for irrigation for promotion of chickpea cultivation in the Thal area.

Fifty units of this system have been installed successfully and lifesaving irrigation provided to two thousand acres of chickpea, avoiding an initial drastic drought spell. This new intervention has therefore been recommended for sandy and undulating soils. As a result, thousands of acres of Thal land which was previously facing a prolonged drought spell, will be able to provide supplementary irrigation at critical growth stages, and in the required quantity, by sprinkler systems with higher yields.

To sum up – the sprinkler system presents a ray of hope in safeguarding the agricultural economy of tail end arid zones.



Rain gun supplying life-saving irrigation to chickpea crops.

Chickpea – hope for improving livelihood in Thal

Dr Khalid Hussain and Mr Niaz Hussain, Arid Zone Research Institute, Bhakkar

The chickpea (gram) crop is grown predominantly in rainfed areas of Thal Punjab, Pakistan. The crop has been badly affected by a prolonged drought spell for the past few years. The major factors for low productivity and profitability are moisture deficiency at critical crop growth stages. Chickpea is largely planted in four key districts of Thal Punjab, including Bhakkar, Khushab, Layyah and some parts of Jhang and Muzaffargarh. Thal districts contribute more than 90 per cent of the area and production of chickpea of the Punjab.

Good rainfall was received during January and February 2019, which proved very beneficial for the chickpea crop, which has been flourishing well with a good yield expected. Agriculture experts are of the view that chickpea production may exceed 500 thousand tonnes in 2019. Production during 2018 was 300 thousand tonnes. This substantial increase in production will reduce the import bill, however one important issue to note is that the crop has become more vulnerable to insect pests, especially pod borer (*Helicoverpa armigera*) and Ascochyta blight (*Ascochyta rabiei*), due to lush green dense plant population and current weather conditions.

Improved interventions were introduced as transformed agriculture in comparison with traditional practices among farm families to enhance the chickpea productivity and profitability in the Thal area under the ACIAR Pulses Project. Access to quality seed was one of the



Experimental site 3-Mankera

most important constraints faced by chickpea growers in Pakistan. Engagement of farm family groups to produce their own seeds under village based seed production and dissemination systems was implemented in the target area of project site 3 to address the shortage of quality seed. Demonstration plots were planted using approved variety seed treated with Rhizobium inoculum before sowing: a new approach introduced in the area, where untreated grain is traditionally planted. The judicious use of phosphate fertilizer was initiated in the area, where there was no concept of application of fertilizers to improve chickpea productivity. Use of pre-emergence herbicide for the effective control of weeds was also introduced in the area. New innovation such as pheromones lures were installed in a chickpea field of collaborative research for monitoring of Heliothis/pod borer – a major threat to chickpea production in Thal.

Integrated pest management (IPM) is a knowledge-intensive and cost-effective technological intervention to overcome the devastation caused by disease and insect pests. IPM is a new concept and most farmers are unaware of its principles and components. Therefore, adoption of the integrated pest management (IPM) package was promoted among farm families to address the production losses and to improve productivity and profitability of chickpea on a sustainable basis. Farmer training programs on IPM for chickpea are in progress which will speed up the benefits of this promising eco-friendly, cost-effective and income-augmenting technology. Based on the proverb, 'seeing is believing' – during the training workshop farm families will get a great opportunity to learn and adopt this new concept of pest management in chickpea, which could minimize losses and ensure higher yield.



Farmers group discussion at site 3-Mankera

Potential to enhance the pulses area in Pakistan: evidence from the situational analysis

Ms Saima Rani, Scientific Officer, Social Sciences Research Institute, PARC National Agriculture Research Centre, Pakistan

The farm level survey was conducted by the project team in collaboration with the partners, with all farm families in six regions (Attock, Chakwal, Bhakkar, Karak, Larkana and Jafferabad). The purpose of the survey was to do extensive analyses of the current situation of the pulses in the project areas and to characterise the production systems and farm communities.

The results of the survey indicated that production-related issues, besides the low prices obtained by the farmers, included neglect of pulses in the overall agriculture research agenda, low yielding poor varieties available to the farmers, no access to good quality seed, low adoption of modern production technology of pulses, poor crop management, labour shortage and poor mechanisation at harvesting, vulnerability to climatic stress, insect and pest attack – Pod borer, caterpillar, Ascochyta blight and Wilt (*Fusariumlenticis*) – less availability of moisture at the time of sowing, and water shortage limiting pulse production.

Despite these limitations, pulses are the most important and popular crop, therefore there is still potential to expand pulses in the cereal based cropping systems in Pakistan. Exploiting this potential in the project would require addressing constraints in the supply of quality seed by using client-oriented breeding, including participatory varietal selection and village based seed organisations, better crop management conducted at the farmer's field trials and the introduction of mechanisation. This could contribute to solving labour shortages during harvesting and may reduce the drudgery of farm work, especially for women, and involve them in more productive work like value addition, seed sorting and management.

Lentil is also an important pulse crop although the project is working in different sites to enhance the area and production, but still there are some potential areas which are traditionally lentil growing areas which need to be identified. More farmers will explore this, and include in the project for dissemination and adoption of new technologies for pulses promotion.



The situational analysis survey conducted with the farm family at site 5, Larkana, Pakistan



Farm level survey at site 3, Bhakkar, Pakistan



Farm level survey at site 4, Karak, Pakistan



Branding in agriculture: a way forward for growers

Abdul Manan Khan, Project Officer, MNS Multan.

The branding of agriculture products is gaining momentum to increase profitability as farmers hunt a market for their product as they increase their per acre yield.

A brand is a product that gives a guarantee of the same taste every time to its consumers. Marketing of produce to increase farmers' earnings is a requirement in this current age that not only limits the role of the intermediary but also helps farmers flourish. A reduction in the role of the intermediary will boost farmer confidence for commercial farming that can develop a triangle between producer, consumer, and academia.

In Pakistan, fruit growers who are now branding their products at national and international level realise this practice. They are classifying their products for shape, texture, taste and colour, earning substantially more with proper handling, management and finishing. Distinguishing one product from another in the superfluous market is a way to ensure long-term sustainability.

During the last couple of decades, the establishment of orchards has increased significantly, with a shift towards mixed farming observed, especially in water-scarce areas or rainfall dependent regions.

There is space for government, NGOs and social enterprises to play a role in capacity building for developing entrepreneurship and business skills to different community pillars of society. This will directly influence the quality of life of the farming community, which would definitely improve agriculture farming.

Farmers say they have no business skills and insufficient money to support their business. However, they believe that if the next generation are able to get equipped with these skills, they can support them in establishing an agriculture-related business. Farmers who are well educated and have a large piece of land showed interest in selling their produce after value addition. If knowledge regarding chickpea consumption in different areas across the country is shared, then the farmer can transport his chickpea grain to those limited supply areas.

Many opportunities are waiting for agrarians to display their products in an innovative way and to increase their earnings by attracting national and international markets.



Soaking of harvested green pod chickpea to maintain freshness on truck ready to be sold at market.



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