

# Enhancement of Farm Income Through Crop Diversification in Chandel District of Manipur

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The crop of soybean is an important crop of Chandel district but the production and productivity on an average has not been very satisfactory due to many technological and extension gaps. The significant factors identified for the unsatisfactory yield of soybean have been observed as habitual and traditional use of local own saved seed, low seed replacement rate and non-adoption of recommended scientific package of cultivation practices. Krishi Vigyan Kendra, Chandel conducted extensive field visits and frontline demonstrations in several villages in the district for popularization of improved soybean varieties along with recommended package of practices. Besides that, KVK Chandel has organised several both on-campus as well as off-campus training programmes for the farmers, farmers' field days, Kisan Gosthis, group discussions, etc. to popularize the cultivation of the hybrid soybean and to increase the farm income of the soybean farmers. As an outcome of these dynamic and persuasive efforts put in by KVK, the total area under hybrid soybean cultivation increased from 4 ha in 2019 to 21 hectares in 2023 resulting into almost 81 percent increase in area under soybean.

A detailed and exhaustive evaluation of farmers' economic returns showed that the additional production of soybean due to the introduction of the improved variety resulted in an extra net income of Rs 92,184/- with a B:C of 3.92 during 2023. Moreover, being an excellent cover crop (of 125 days duration), it makes possible for the cultivator to grow another following crop. The technology has proven to be a blessing in disguise as it turned out to be great means for moisture conservation. Enhanced yield and surplus demand for soybean for fermentation purpose has increased the farmers' income. The sincere efforts and time dedicated and invested by the subject experts of KVK Chandel has started giving good results to the tribal farmers of the aspirational district by assuring them supplemental farm income from the boost in farm productivity.

## The existing scenario

The district of Chandel is a hilly zone adjoining Myanmar. The crop of soybean is a major crop grown in the district mostly in rainfed condition, which is

consumed mainly after fermentation by a large majority of the population. As a general trend, the yield of soybean in the district has always been generally lesser than the average state yield. And the main reasons identified for the low productivity in soybean are: extensive use of local seed, low seed replacement rate and non-adoption of scientific package of agricultural practices. Farmers generally sow the seeds randomly and do not follow any proper seed spacing and seed rate during planting. In general, disease and insect-pest induced losses were found to be also high as seeds were seldom treated with fungicide or insecticide. As a result, the harvest obtained was 20-30 per cent lesser yield. The tribal farmers of the district were initially hostile in trying out the new variety and were in doubt whether the new variety would be more water and labour intensive. The personnel of KVK Chandel took an aggressive role to convince farmers of the district to grow hybrid soybean for enhancing farm productivity.

The method adopted by KVK Chandel to popularize the hybrid soybean and disseminate the proven technology among the tribal farmers of the district to enhance the production were: organizing training programmes (both on-campus as well as off-campus) for the farmers/farm women to mobilise and generate awareness and to provide the latest updates on information, demonstrate the better and improved performance of soybean (DSb-19) at the farmers' fields by conducting on-farm trials (OFTs) and front line demonstrations (FLDs). On top of that, farmers' field days, farmers' scientist interaction meets, Kisan Gosthis, group discussions etc. were also organised, wherein documentary films were screened and pamphlets were distributed for creating awareness among the tribal farming farmers. KVK Chandel has organized above 28 training programmes during the last seven years, to popularize the technology on soybean DSb-19 and its scientific package of practices. In these programmes; vigorous trainings were conducted on various aspects of soybean cultivation to 563 beneficiaries which included farmers, farm women and rural youth from parts of Chandel district. Besides that, On-farm trials were also conducted related to integrated farming system, crop

diversification, integrated nutrient management (INM), weed management and integrated pest management (IPM) to assess and standardize local and area specific technologies. Also, frontline demonstrations (FLDs) on the scientifically proven technologies were conducted on the farmers' fields to demonstrate the scientifically proven production technologies. Altogether, 63 demonstrations were conducted on soybean crop by the subject experts of the KVK Chandel during which proper mobilisation, accurate implementation and constant technical support greatly enhanced the crop production results of soybean in the district.

### Activities undertaken

Distribution of certified seeds of soybean (DSb-19) to the trained and motivated farmers was done. With a view to speed up the horizontal expansion (farmer to

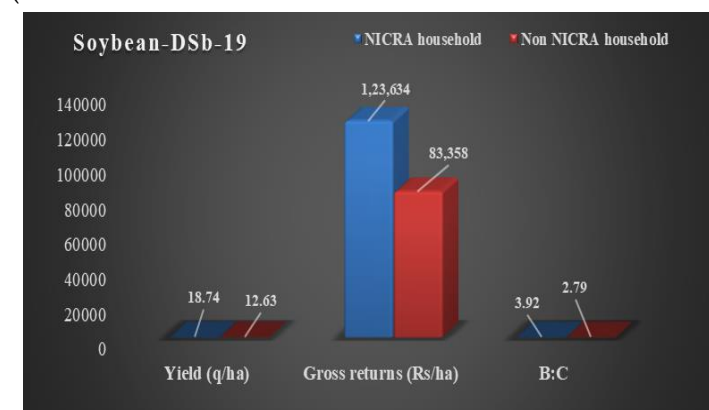
yielding ones. The emphasis on front line demonstrations was increased considerably to in order to achieve successful implementation of the new technology. Robust training programmes brought a drastic change in the farmers' fields at Chandel district. The traditional practice of mono-cropping system which was characterised by fields being left fallow, was considered obsolete by the farmers and this led to the district having a solid vision of food as well as social security by exhibiting the potential of hybrids to give robust farm productivity and farm income.

As a result of regular and constant follow-up activities and on-field programmes by KVK Chandel, the rate of adoption of the soybean hybrid improved considerably in a commendable way and farmers started selling grains as well as the seeds to markets of neighbouring districts. Quite impressively the total area under soybean cultivation increased from 4 hectares in 2019 to 21 ha in 2023 which is 80.95 percent change.

There has been a impressive change in the productivity of soybean in the past few years. An exhaustive economic analysis revealed in Figure 1 that the increased production of soybean after the introduction of the improved variety led to farmers earning an extra net income of Rs 92,184/- with a B:C of 3.92 during the year 2023. Also, additionally being an excellent cover crop (of 125 days duration), it has made the farmers to grow another following crop in the field which otherwise would have been left fallow. The technology has also proven to be a great technique for moisture conservation. Increased in yield and further market demand in local market for soybean for fermentation purpose has greatly surged the farmers' income.



**Fig 2** Farmers' soybean (DSb-19) fields



**Fig 1** The performance of soybean (DSb-19) as compared to the traditional variety

farmer) of the technology, a total number of eight (8) field days on soybean were conducted. In these said field days, altogether 334 farmers participated. Discussions and deliberations after these field days and also the follow-up of the activities made it very clear that not only the farmers of the demonstration villages who had grown the new soybean variety with enthusiasm and passion, the farmers of the neighbouring villages have also replaced their old traditional seed with the hybrid soybean seed. With a vision to further encourage and keep the good spirit, group meetings were also conducted in which 198 farmers of surrounding villages took part and narrated their activities and experiences with the fellow farmers. Moreover; during several district agri-fairs, the successful farmers spoke of their farm activities and challenges and the increased farm income they earned. Long since 2009, KVK Chandel has always given an extra push to its approach towards activities of extension programmes so as to encourage the farmers to discard their outdated low-yielding soybean seed with better

### Result and Effects

To conclude it can be stated that there has been a commendable increase in the productivity of

soybean due to adoption of the new technology. Due to the sincere and enthusiastic efforts of the subject matter experts of KVK Chandel, farmers in the district are earning impressive supplemental income after the introduction and adoption of soybean as can be seen

in figure 2. Thus, the marginal farmers of the tribal district have been able to considerably improve their farm productivity which has revolutionized and made the district the soybean production hub in the state.

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