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# Income Enhancement through Crop Diversification in Chandel District under NICRA Project

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## ABSTRACT

Soybean is an important crop of Chandel district but as a general trend the productivity has not been satisfactory due to some technological and extension gaps. The major factors identified by Krishi Vigyan Kendra (KVK) Chandel for low yield of soybean can be listed as traditional and habitual use of local seed, low seed replacement rate, and non-adoption of recommended scientific package of cultivation practices. KVK Chandel conducted extensive frontline demonstrations in several villages for popularization of improved soybean along with recommended package of practices. Also, KVK Chandel organised both on-campus as well as off-campus capacity building programmes for the farmers, field days, group discussions, farmer-scientist interaction meets etc. to popularize cultivation of the hybrid soybean. As an impact of these vigorous efforts put in by KVK, the 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**.** An extensive evaluation of economic returns revealed that the additional production of soybean due to the introduction of improved variety resulted in an additional net income of Rs 92,184/- with a BCR of 3.92 during 2023. Besides being an excellent cover crop (of 125 days duration), it makes possible for the farmer to grow another following crop. The technology has been a great means for moisture conservation. Great yield and surplus demand for soybean for fermentation purpose has boosted the farm income. The time and efforts invested by the subject experts of KVK Chandel has started giving good returns to the tribal farmers of the district by fetching them enhanced farm income from increased farm productivity.

## Situation analysis

Chandel is a hilly border district adjoining Myanmar. Soybean is another major crop grown in rainfed condition, which is consumed mainly in fermented form by a huge majority of the population. The yield of soybean in the district has always been considerably lower than the state average. And the prime factors identified for the low productivity in soybean are: use of local seed, low seed replacement rate and non-adoption of scientific package of agricultural practices. Earlier farmers used random seed spacing and seed rate during planting. Very often, disease and insect-pest induced losses were also high as seeds were not treated with fungicide or insecticide. Due to these practices, the farmers used to harvest 20-30 per cent lesser yield. The tribal farmers were initially reluctant in experimenting with the new variety and were sceptical that the new variety might be more water and labour intensive. The subject experts of KVK Chandel took aggressive role to convince farmers of the district to grow hybrid soybean for enhancing farm productivity.

The approach adopted by KVK Chandel to popularize hybrid soybean and transfer the proven technology among the tribal farmers of the district to enhance the production were: organizing both on-campus as well as off-campus training programmes for the farmers/farm women to mobilise and create awareness and to provide latest information, demonstrate the yield performance of soybean (DSb-19) by conducting on-farm trials (OFTs) and front line demonstrations (FLDs) at the farmers' fields. On top of that, field days, farmers' scientist interaction meets, group discussions etc. were also conducted,

wherein film shows and leaflets were circulated for generating awareness among the tribal farming community. KVK Chandel has organized more than 28 training programmes during the last seven years, to disseminate the technology on soybean DSb-19 and its scientific package of practices. In these programmes; trainings were imparted on different aspects of soybean cultivation to 563 beneficiaries which included farmers, farm women and rural youth of several villages of Chandel district. On farm trials were also conducted related to crop diversification, integrated farming system, integrated nutrient management (INM), weed management and integrated pest management (IPM) to evaluate and standardize local and area specific technologies. Frontline demonstrations (FLDs) on the proven technologies were conducted on the farmers' fields to demonstrate the scientifically proven production technologies. A total of 63 demonstrations were conducted on soybean crop by the subject experts of the KVK Chandel wherein proper mobilisation, precise implementation and continuous technical support greatly changed the production scenario of soybean in Chandel district of Manipur.

**Output**

Certified seeds of soybean (DSb-19) were distributed to the trained and motivated farmers under NICRA Project. With a view to promote horizontal expansion (farmer to farmer) of the technology, a total of eight (8) field days on soybean were organized. In the said field days, a total of 334 farmers participated. Interactions and discussions during the routine follow-up of the activities revealed that besides the farmers of the adopted villages who had grown the new soybean variety with a firm trust and zeal, the farmers of the neighbouring villages have also replaced their traditional seed with the hybrid soybean seed. With an aim to further motivate and boost the morale, group discussions were also organized in which 198 farmers of several villages participated and shared their experiences with the fellow farmers. Moreover; during several state-level agri-fairs, the successful farmers shared their experiences and hurdles and the success they achieved. Since 2009, KVK Chandel has given an additional thrust to its approach towards effective extension activities so as to motivate/convince farmers to replace their outdated soybean seed with high yielding hybrids. The number of front line demonstrations laid was increased several fold to infuse the zest for successful implementation of the new technology. Extensive training programmes brought a revolutionary scenario at Chandel district. The age-old practice of mono-cropping system wherein fields were left fallow, was discarded and this gave Chandel district of Manipur a sense of food as well as social security by demonstrating the potential of hybrids to give enhanced farm productivity.

As a result of continuous on-field programmes and activities, KVK Chandel, the rate of adoption of the soybean hybrid increased impressively and farmers started supplying both grains as well as the seeds to other districts. The area under soybean increased from 4 hectares in 2019 to 21 ha in 2023 which is 80.95 percent change.

There is significant increase in the productivity of soybean in the last few years**.** An extensive evaluation of economic returns revealed in Figure 1 that the additional production of soybean due to the introduction of improved variety resulted in an additional net income of Rs 92,184/- with a BCR of 3.92 during 2023. Besides being an excellent cover crop (of 125 days duration), it makes possible for the farmer to grow another following crop. The technology has been a great means for moisture conservation. Great yield and surplus demand for soybean for fermentation purpose has boosted the farm income.

**Outcome and Impact**

Hence conclusion can be drawn that there is significant enhancement in productivity of soybean due to adoption of the new technology. The efforts of the subject experts of KVK Chandel have resulted in farmers reaping happiness with the introduction and adoption of soybean as is seen in figure 2. Thus, the tribal farmers have been able to significantly improve their farm productivity which has revolutionized and made Chandel the soybean production hub in the state.

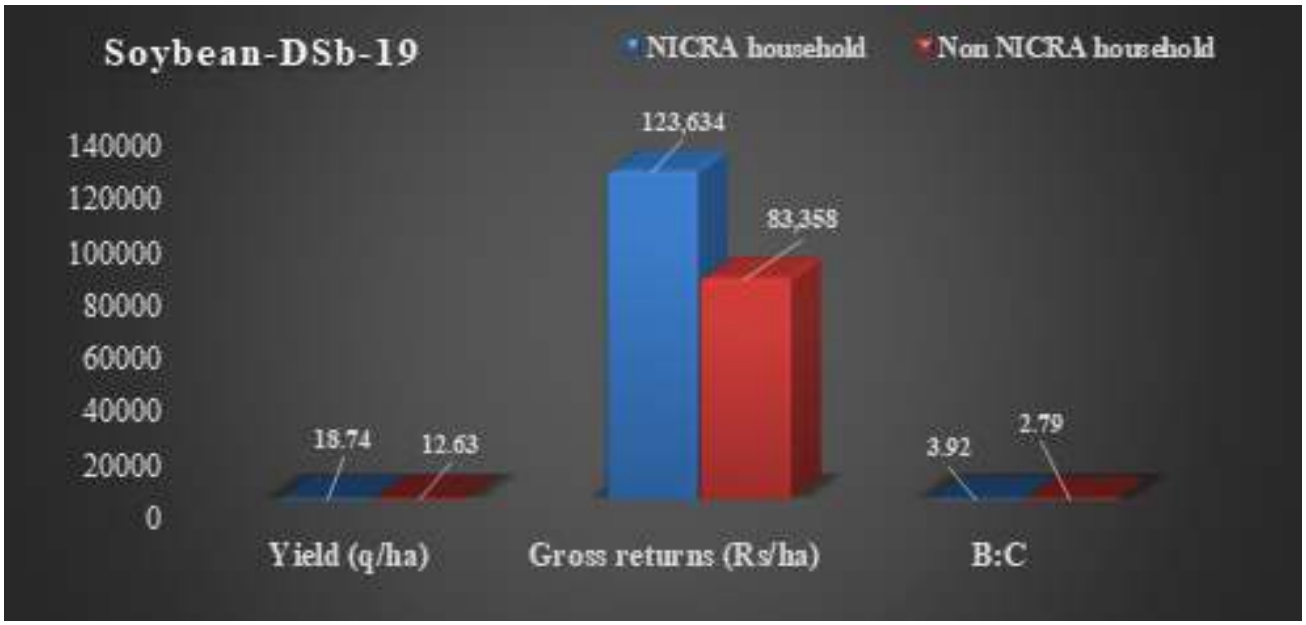


**Fig 1 Performance of soybean (DSb-19) as against the traditional variety**


**Fig 2: Soybean (DSb-19) production in the farmers' fields**