

Gold from Marigold

Impact of marigold demonstrations under Farmer FIRST Programme

R K Arora¹, Pawan Kumar Sharma², Parveen Kumar³ and Rajbir Singh⁴

Sher-e-Kashmir University of Agricultural Sciences & Technology of Jammu (J&K) 180 009

Agriculture in India is dominated by marginal and small farmers constituting 86% of the community as per the Agriculture Census 2010-11. For a vast majority of the farming population in the country, agriculture is related to only growing food crops like wheat, paddy, maize, fodder crops like Barseem, Jowar, Bajra for animals and pulses if the land holding permits. The farmers have been carrying out this mono cultural legacy over the generations. In the present era, a lot of inputs from seed to chemical fertilizers to plant protection chemicals including weedicides are required for growing different crops, which increases cost of cultivation. The cost is further escalated by the labour and machinery charges incurred while performing different operations in the fields. Ultimately, it results in a situation where the cost of cultivation exceeds the output. This is basically the reason why the farming is considered as a non-remunerative enterprise. The problems becomes more severe in case of small and marginal farmers who find it difficult to bear the brunt of increased cost escalation and are left with no option except to quit agriculture. This 'quit agriculture' movement has already been recognized at national level.

Keywords: Farmer FIRST Programme, Marigold, Small and marginal farmers

DIVERSIFICATION *vis-a-vis* integrated farming system approach involve the farmer to take on other allied enterprises like goatry, bee keeping, mushroom cultivation, marigold cultivation, poultry, vegetable and many others. It gives the farmer an advantage that the failure of one component to give desired results is compensated by other component. It also makes best and optimum use of the family labour, local resources and the output of one enterprise becomes the input of other enterprise. Among the various enterprises, Marigold cultivation is an income generating option that does not require farmers to incur much on input cost and on the other hand, monetary output far exceeds that of corresponding yield.

The Farmer FIRST Programme (FFP) of Indian Council of Agricultural Research is being operational in different villages of

Block Nud of district Samba from *kharif* 2017. Preliminary studies undertaken on the basis of baseline data revealed that the majority of the farming community in the selected cluster of 12 villages belonged to marginal and small landholders. Regarding the agriculture scenario of the block; it was inferred that farmers were raising maize and wheat crops by traditional and conventional methods. As the region falls in subtropical rainfed '*kandi*' belt; growing crops was dependent on timely and adequate availability of rainfall. Lack of any assured irrigation facility accompanied by use of local varieties often resulted in poor germination and corresponding low yields. The yields were so low that even the cost of cultivation of the farmers was not covered. Depressed with almost negligible income from food crops; some of the farmers switched to marigold cultivation.

Although these farmers were cultivating marigold; yet they were not satisfied with the output. This was mainly due to the use of local varieties, unscientific method of cultivation and lack of marketing support. The locally available seed used by them was poor in germination, consequently resulting into the substantially low yield.

Keeping the above facts into consideration, the marigold farmers were adopted under Farmer 'FIRST' Programme of the Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu. Twenty five farmers were provided technical know-how on marigold cultivation alongwith improved varieties namely, Pusa Narangi (Red) and Pusa Basanti (Yellow). The scientific practices on marigold cultivation were demonstrated over an area of 2 hectares (Fig. 1). The seedlings were grown in lines with proper line to



Fig. 1. Glimpses of marigold demonstrations under the Farmer FIRST Programme

line and plant to plant distance, and with the timely application of recommended doses of nutrients. After germination, the timely inter-culture operations like earthing up and pinching were demonstrated on farmers' fields.

Comparison of operations under traditional and technical plots

The comparison of inputs used and operations performed under traditional and demonstration plots was made to differentiate the practices of marigold cultivation (Table 1). The seed rate under traditional system was 2.5 kg per ha, and was reduced to 1.5 kg per ha due to adoption of recommended spacing between row to row and plant to plant. Therefore, a reduction of seed rate by 1 kg per ha was achieved under the FFP. The seed was also sown at recommended depth of 2 cm under demonstrations, which ensured maximum germination of seed and

that too within 4 to 5 days. The inter-culture operations were also performed after 20 days of sowing, followed by pinching after one week of earthing up. As a result, the time to flowering was reduced by 10 to 15 days. The plant height of locally used seed was 60 cm, whereas in demonstrated varieties, it was up to

one meter, ensuring more flowers per plant. All these interventions resulted in cutting down the input costs with subsequent rise in yield.

Economics of marigold cultivation

The economics of marigold cultivation under traditional plots and demonstrations was compared to assess the benefits of technological interventions. With the traditional practices and local seed, the farmers were getting 2-3 pickings with 600-700 kg yield per picking per ha. However, with the introduction of improved practices and quality seed, farmers obtained 5-6 pickings with yield of 1,100-1,200 kg per picking per ha. The average yield from five pickings was more than 60q per ha. The comparative economics of marigold cultivation under traditional system and under demonstrations is presented in Table 2.

The yield of marigold increased from 31q/ha under traditional plots

Table 1. Comparison of input/operations under traditional and technical plots

Input/Operation	Before	After
Seed rate (kg/ha)	2.5	1.5
Spacing (cm)	Uneven	40x40
Seed depth (cm)	4-5	2
FYM (tonnes/ha)	5-7	20
Urea (Kg)	245	176
DAP (Kg)	180	217
MOP (Kg)	-	166
Earthing up (days)	After 30	After 20
Time to flowering (days)	125-130	145-150
Plant height (meter)	0.7	1.12



Fig. 2. Glimpses of value addition and marketing of marigold

Table 2. Economics of Marigold production

No. of villages	No. of farmers	Area under intervention (ha)	Yield (q/ha)		% increase	BC ratio		Net Income (₹)	
			Hybrid	Local		Hybrid	Local	Hybrid	Local
03	25	02	61.8	41.6	48.55	2.31	1.82	2,22,300	1,65,645



Fig. 3. Glimpses of roof top water harvesting under the Farmer FIRST Programme

to 42 q/ha under demonstration plots, representing a 35.48% increase. The increased yield had also reflected as increase in Cost-Benefit ratio from 1.82 under traditional plots to 2.31 under demonstration plots.

Value addition in Marigold

Besides popularizing marigold cultivation practices, the value addition of loose flowers was also encouraged. Marigold flowers are important inputs for making garlands etc. for decoration and use in temples to worship Hindu deities. With the use of 1 kg of marigold flowers, 6 garlands of useable size were made. The garlands were sold by farmers

themselves at the nearby famous 'Chichi Mata' temple at Samba @ ₹ 30. Garlands were also in huge demand during Dusshera, Diwali and other festivals. Besides, sale of marigold as loose flowers, each individual farmer sold around 750 garlands in one season with a profit of ₹ 20,000-25,000. The loose flowers were also sold at ₹ 40-50 per kg. Thus, the net income from marigold per farming household witnessed an increase from ₹ 1,65,645 under traditional plots to ₹ 2,22,300.

Marketing support

Marketing support was also provided to these potential marigold

entrepreneurs. The linkage was developed with the nearby flower dealers located at famous 'Bahu fort' and 'Chichi Mata' temple in Jammu and Samba districts, respectively. The dealers had lifted the produce directly from the fields for further selling into the markets during festivities. Lifting of marigold directly from the farmers also ensured the saving of transportation cost of the growers.

Roof top water harvesting

Marigold cultivation requires assured irrigation for watering at regular. However, due to the rainfed *kandi* region, it was always a challenging task for the farmers to maintain optimum farm moisture. Some of the farmers were encouraged to store rain water through roof top water harvesting for marigold and vegetable cultivation (Fig. 3). This had been made possible using plastic bottle and plastic pipe of 20 meters in length. A bottom less plastic bottle was inserted at the outlet of roof to channelize water through plastic pipe into the water tank through natural gradient.

Witnessing the success of demonstrations on marigold cultivation, a large number of farmers from adjoining villages were motivated to adopt the enterprise on scientific lines. Exposure to innovative ways of conserving rain water and scientific interventions in farming under the Farmer FIRST Programme has built confidence among farmers to shift to alternate enterprises for raising farm incomes.

¹Associate Director Extension (KVKs) and PI, FFP, ²Scientist (Agril. Economics) and Co-PI, FFP, ³Senior Research Fellow, FFP, ⁴Director ICAR-ATARI, Zone-I, Ludhiana. Associate Director Extension (KVKs) and PI, FFP, ¹Scientist (Agril. Economics) and Co-PI, FFP, ²Senior Research Fellow, FFP, ³Director ICAR-ATARI, Zone-I, Ludhiana. Corresponding email: farmerfirstskuastj@ gmail.com

Pradhan Mantri Krishi Sinchai Yojana

This *Yojana* brings

- Per Drop More Crop.
- Inputs from MoWR and DOLR received.
- Increase in agricultural production and productivity and enhance farm income.