Impact assessment of rabi Onion variety Agrifound Light Red (AFLR) through OFTs in Sidhi District of Madhya Pradesh

Dr Richa Singh[1], Dr R.H. Dahiya and Dr M S Baghel
JNKVV Collge of Agriculture, Balaghat (M.P.) 481001

ABSTRACT

Sidhi district is situated in Kaymore plateau and satpura hills of Madhya Pradesh. Onion is one of the major vegetable crops grown in rabi season in district. Krishi Vigyan Kendra laid down On Farm Demonstration in the year 2012-13 with scientific package of practices, high yielding variety "Agrifound Light Red (AFLR)" and applying scientific practices in their cultivation. The OFTs were carried out in village "Chorgadhi" block Rampur Naikin of Sidhi district in supervision of KVK scientist. The productivity and economic returns of Onion in improved technologies were calculated and compared with the corresponding farmer's practices (local check). The improved technology recorded higher yield of 285 q/ha respectively 192 q/ha. The average yield increase was observed 48.43 per cent. In spite of increase in yield of Onion, technology gap, extension gap and technology index existed. The improved technology gave higher gross return (285000 & 192000 Rs./ha), net return (245000 & 162000 Rs./ha) with higher benefit cost ratio (1.4.8 & 1.5) as compared to farmer's practices. The increase in the yield was found to be due to the lack of good agriculture practices, lack of knowledge dissemination and lower socio economic condition. Under sustainable agricultural practices, with this study it is concluded that the OFTs programmes were effective in changing attitude, skill and knowledge of improved package and practices of HYV of Onion adoption.
Keywords: Rabi Onion, OFTs, Economic impact, Adoption, B:C ratio

INTRODUCTION

Onion (*Allium cepa*) is one of the most important vegetable and spice crop grown in the world. A global scenario of major vegetable crops shows that after tomato onion ranks second in area. Approximately about 58 million tons of onions are produced on 3.2 million hectare all over the world. In India onion is cultivated in approximately 7,56,000 ha area with production of about 12.16 million tons. The leading onion growing countries in the world are China, India, USA, USSR, Japan, Spain, Turkey, Brazil, Italy, Egypt, Pakistan, Iran and Brazil, FAOSTAT (2006). The reason for the low production with small holders is the limited and minimal use of inputs, especially lack of improved seeds and proper nutrients. The use of poor quality seed with respect to genetic potential is one of the factors for low yield. Approximately 95% of seed is from farm which is save d by the farmers and is not of any important variety. Imported supplies may be disrupted by political changes and outbreaks of insects and diseases abroad may force the importation of seeds to be banned. The imported seeds may be of low quality both genetically and physically (Lemma, 1998).

Krishi Vigyan Kendra is an institution which brings in the research scientists face to face with farmers for knowledge and technology transmission. The main objective of Krishi Vigyan Kendra is to transfer the new technology to the farmers for increase in productivity and income from the agriculture and allied sectors on sustainable basis. KVKs are grass root level organizations meant

for application of technology through assessment, refinement and demonstration of proven technologies under different micro farming situation at district (Das, 2007). On farm testing demonstration is a short term educational activity conducted in a systematic manner in farmer's field to compare local check Vs demonstrated check. In many parts of India farmers are still growing and producing crops based on the technology and knowledge transferred to them by their forefathers which has lead to a unscientific agronomic and pest- disease management practices. As a result, farmers fail to achieve the desired and good yield of various crops and adoption of new varieties.

The survey conducted by Krishi Vigyan Kendra , in this baseline survey it was found that farmers were generally using old varieties without proper and timely use of fertilizers, herbicides and pesticides. Keeping in view the constraint, Krishi Vigyan Kendra, Sidhi conducted front line demonstration on Onion variety Agri found Light Red (AFLR) with crop management practices under irrigated condition.

MATERIALS AND METHODS

On farm testing demonstration (OFTs) on Onion variety Agrifound Light Red (AFLR) was conducted by Krishi Vigya Kendra, Sidhi (M.P.) during the period 2012-13 in village Chorgadhi , Block Rampur Naikin of district Sidhi. The total 05 number of demonstration was conducted in this village. In general soil of the area under study was sandy loam with low to medium fertility status. The component demonstration of On Farm technology in Onion was comprised i.e. improved variety Agrifound Light Red (AFLR), proper seed rate and sowing method, balance dose of fertilizer (150:50:80:50 (N:P:K:S), use of Trichoderma @ of 2g/kg of seed as seed treatment, proper irrigation, weed management and protection measure (Table-1). The total 02 ha area was covered in in a year. In the demonstration, one control plot was also kept where farmers practices was carried out. The OFTs was conducted to study the technology gap between the potential yield and demonstrated yield, extension gap between demonstrated yield and yield under existing practice and technology index. The yield data were collected from both the demonstration and farmers practice by random crop cutting method and analyzed by using simple statistical tools. The technology gap, extension gap and technological index (Samui *et. al*., 2000) were calculated by using following formula as given below-

$$\text{Percent increase yield} = \frac{\text{Demonstration yield-farmers yield}}{\text{Farmers yield}} \times 100$$

Technology gap= Potential yield-Demonstrated yield

Extension gap= Demonstrated yield – Yield under existing practice

$$\text{Technology index} = \frac{\text{Potential yield - Demonstrated yield}}{\text{Potential yield}} \times 100$$

RESULTS AND DISCUSSION

The gap between the existing and recommended technologies of Onion in district Sidhi was presented in Table-1&3. Full gap was observed in case of use of sowing technique, seed treatment, staking and partial gap was observed in HYVs, Fertilizer dose, weed management and plant protection measures, that can be surely due to not been able to achieve potential and optimum yield. Farmers were not aware about recommended technologies. Farmers normally have been using traditional and locally grown seeds in place of the high yielding, hybrid and recommended seeds**.** Singh and Narain (2014) found similar results .Farmers followed poor nursery beds with broadcast method of raising seedlings without seed treatment, closer spacing (15x10 cm) against the recommended spacing (30x30cm) and they were not applied Sulphar at recommended doses.

Yield

Results obtained are presented in Table-2. The results revealed that the OFTs on Onion an average yield was recorded 285 q/ha under demonstrated plots as compare to farmers practice 192 q/ha. . This results clearly indicated that the higher average Onion yield in demonstration plots over the years compare to local check due to knowledge and adoption of full package of practices i.e. appropriate varieties such as Agrifound Light Red (AFLR), healthy seedlings, proper spacing, seed treatment with Trichoderma @ 2g/kg of seed, use of balanced dose of fertilizer 100:50:80:50 (N: P: K:S), method and time of sowing, timely weed management and need based plant protection. The average yield of Onion increased 48.43%. The yield of Onion could be increased over the yield obtained under farmers practices (use of non descriptive local variety, no use of the balanced dose of fertilizer, untimely sowing and no control measure adopted for pest management) of Onion cultivation.

Technology gap

The technology gap, the differences between potential yield and yield of demonstration plots were 13.63/ha during 2012-13, respectively. . This gap of technology gap which was seen can be a reason for the differences in the status of fertility of soil, good agricultural practices and climatic conditions of local region.

Extension gap

Extension gap of 93 q/ha was observed during 2012-13 respectively. This means there should be emphasis on educating the farmers via different types of extension education methods i.e. On farm testing demonstration for adoption of improved production and protection technologies, to revert the trend of wide extension gap. Extensive and broad use of new technologies with regards to adoption of high yielding varieties which will subsequently and eventually change this fast trend of extension gap.

Technology index

As shown in (Table-3)with regard to the technology index , it is the clear indication of the feasibility of the demonstrated technology at the farmer's field. The technology index varied from 15.79 per cent

Table-1 : Differences between technological intervention and farmers practices under OFTs in Onion.

S.No.	Particulars	Technological intervention	Existing practices	Gap
1	Variety	Agrifound Light Red	AgrifoundLight Red	Nil
2	Land preparation	Two Ploughing	Two ploughing	Nil
3	Soil Treatment	Soil Solarization	No	Full gap
4	Spacing	30x30 cm	15x10 cm	Partial gap
5	Sowing Technique	Raised bed	Flat bed	Full gap
6	Seed treatment	Trichoderma@ 2g/kg of seed	No seed treatment	Full gap
7	Fertilizer dose	180:50:80:50	60:30:20	Partial Gap
8	Weed management	Wheel hoe+ weedicide	Hand weeding	Partial Gap
9	Plant protection	IPM	Chemical	Partial gap

Table-2 : Yield and yield attributing character of Onion variety Agrifound Light Red (AFLR) under OFTs.

Year	Variety	Trial	Area	Average yield		Per cent increase	Fruits Size cm	
				Trial	Farmer's		Trial	Farmer's
	Agrifound Light Red	05	2ha	285	192	48.43	40	30.3

Table-3 : Technology & Extension gap and Technological Index of Onion variety Agrifound Light Red (AFLR) under OFTs.

Year	Variety	Trial No.	Area (ha)	Technology gap (q/ha)	Extension gap (q/ha)	Technological Gap index (%)
	Agrifound Light Red	05	2ha	45	93	13.63

Table 4. Economic Impact of Onion variety Agrifound Light Red under OFTs.

Year	Variety	Trial	Area	Gross Income (Rs./ha)		Net Return (Rs./ha)		B:C Ratio	
				Trial	Farmer's	Trial	Farmer's	Trial	Farmer's
	Agrifound Light Red	05	2ha	285000	192000	245000	162000	1:4.8	1:5.1

OFTs programme, which shows the efficacy of good performance of technical interventions. This will accelerate the adoption of demonstrated technical intervention to increase the yield performance of Onion.

Economic return

During the study of demonstration which were taken for calculating net return and Benefit : cost ratio (Table-4) prices of commodities as input and output prices were prevalent. The cultivation of Onion under improved technologies gave higher net return Rs. 245000/ha, respectively as compared to farmers practices. Similar findings were reported by Gajanana *et al.* (2006). The Benefit : cost ratio of okra cultivation under improved cultivation practices were 1.5 as compared to 1.48 under farmer's practice. The reason for which can be due to obtaining of better and higher yield with improved and new technologies compared to farmer's own local agricultural practices.

The OFT produces a significant positive result and provided the researcher an opportunity to demonstrate the productivity potential and profitability of the latest technology (Intervention) under real farming situation, which they have been advocating for long time. This could be circumventing some of the constraints in the existing transfer of technology system in the district, Sidhi of Madhya Pradesh. The productivity gain under OFT over existing practices of Onion cultivation created greater awareness and motivated the other farmers to adopt suitable production technology of Onion in the district. The difficulties and constraints which the farmers faced were seen to be of different nature for different technologies adopted by them. Efforts should, therefore, be made by the extension agencies in their transfer of technology programmes to consider the constraints as perceived by the farmers in this investigations as well as personal. Therefore, for enhancing the production and productivity of Onion, strategy should be made for getting the more and more recommended technologies adopted by the farmers.

References

Das, P., 2007. Proceedings of the Meeting of DDG (AE),ICAR, with officials of State Departments, ICAR, Institutes d Agricultural Universities, NRC Mithun, Jharnapani; Zonal Coordinating Unit, Zone-III,Barapani, Meghalaya, India. **6.**

Food and Agriculture organization of united nation statistical data 2006.

Gajanana, T.M.; Krishna Moorthy, P.N.; Anupama, H.L.;Raghunatha, R. and Prasanna Kumar, G.T., 2006. Integrated Pest and Disease Management in Tomato :An Economic Analysis *Agricultural Economics Research Review*, **19** : 269-280.

Lemma Dessalegne. 1998. Seed production Guide for Tomatoes, Onion and Hot pepper, IAR, Addis Abeba.

Samui, S.K.; Mitra, S.; Roy, D.K.; Mandal, A.K. and Saha,D., 2000. Evaluation of frontline demonstration on groundnut. *Journal of the Indian Society Costal Agricultural Research,* **18**(2):180-183.