

Front Line Demonstrations – An effective of upscaling improved varieties of Onion variety Agrifound Dark Red in Mahaboobnagr district of Telangana, India

A B S T R A C T

Onion (*Allium cepa* L.) is one of the important commercial vegetable crops grown in India. One of the main limitations in onion production is cultivar strength. After evaluating the Agrifound dark red onion cultivar, its production and productivity is more than the native onion grown. Between 2012 and 2014, various locations in Mahaboobnagar district of Telangana . The Front-Line demonstration (FLD) of Agri found dark red variety was carried out , Demonstrations focused on maximum productivity per unit area and farmer feedback on cultivar performance. It was observed that the improved onion variety Agrifound dark red recorded a higher yield by 20.3% (2170 kg/ha) over the local check (1800 kg/ha). Further, the technology gap (average 32.3q/ha), technology index (12.9%) and extension gap (37) were also considerably higher in Agrifound Dark red. It is concluded that a wide gap existed in potential and demonstration yield in high yielding Agrifound Dark red variety due to technology and extension gap in Mahaboobnagar district of Telangana. FLD has proven to be the best vehicle for introducing new onion varieties, increasing production to increase yield and income, and generating income for local onion growers.

Keywords: onion, yield, FLD, incremental gap, acceptance index

Introduction:

Onion is one of the oldest commercially cultivated vegetable crops in India for domestic consumption and export. Telangana has 15,000 hectares of land and produces 2.5 thousand tons of onion annually. Mahabubnagar has 3150 hectares of onion planting area and Mahabubnagar sector alone accounts for 80% of Telangana's production. Onion productivity in India is much lower than the world average (Pandy, 2000; Lavande, 2005). However, there is no doubt that technological advances have greatly improved onion production and productivity. However, inadequate and insufficient dissemination activities can lead to non-acceptance of developed improvement packages in research institutions. In addition, the rate of replacement of common varieties with improved varieties and the inability to obtain high-quality seeds of improved varieties in sufficient quantities at a time are the main limitations in onion cultivation. Therefore, under cross-border demonstration, Agri found dark red cultivar was evaluated in local cultivars to improve onion production.

Materials and Methods:

Demonstration of Agri found dark red onion varieties were introduced on a large scale through frontline demonstration of Krishi Vigyan Kendra in Palem at different locations in Mahabunagar district from 2012-13 to 2013-14. The display consisted of 0.4 ha, with local species grown for comparison. For crops, the recommended practice package was followed. Data on production costs, usage inputs, monitored rates of return, technology gaps and technology indicators were collected and analyzed for the economic feasibility of the recommended technologies (Eswaraprasad, *et al.*, 1993), calculated following the steps suggested by SAMUI. Using the formula of *et al.* (2000).

$$\% \text{ increased yield} = \frac{\text{Demonstration yield} - \text{Farmers yield}}{\text{Farmers yield}}$$

$$\text{Technology gap} = (\text{Potential yield}) - (\text{Demonstration yield})$$

$$\text{Adoption index} = (\text{Ai/Pi}) \times 100$$

$$\text{Extension gap} = \text{Demonstration yield} - \text{yield under existing practice}$$

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

Where, Ai=Adoption score obtained by the farming community for ith crop

Table I. Potential yield, Technology index, extension gap and Adoption index of onion

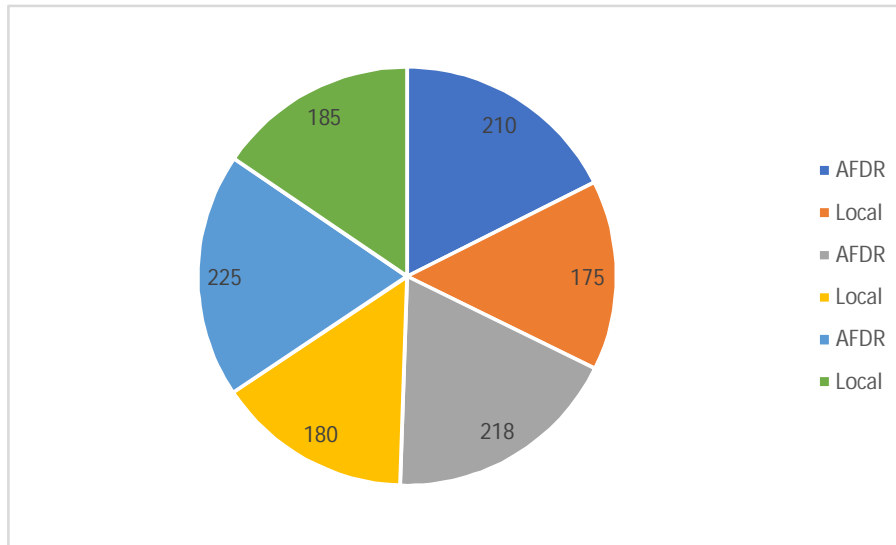
Year	Variety	Potential yield	Demonstration yield	Technology gap	Technology index	Extension gap	Adoption Score by Respondent (AI)	Possible Score	Adoption index
2012-13	Agrifound Dark Red	250	210	40	16	35	05	07	71.4
	Local	200	175	25	12.5		02	07	28.5
2013-14	Agrifound Dark Red	250	218	32	12.8	38	05	07	71.4
	Local	200	180	20	10	40	03	07	28.5
2014-15	Agrifound Dark Red	250	225	25	10		06	07	85.7
	Local	200	185	15	7.5		03	07	42.8

Table II: Economics yield and of onion variety Agrifound Dark Red impact on Local Check

Year	Variety	No. of locations	Yield q/ha	% yield increase over local check	Cost of cultivation	Gross returns	Net returns	B:C ratio
2012-13	Agrifound Dark Red	10	210	20.0	68500	1,46,250	77,750	2.13
	Local		175		61300	1,18,000	56,700	1.92
2013-14	Agrifound Dark Red	10	218	21.1	62400	154500	92,100	2.47

	Local		180		60200	1,21,000	60,800	2.00
2014-15	Agrifound Dark Red	10	225	21.6	65300	1,58,200	92,900	2.40
	Local		185		62500	1,20,200	57,700	1.90

Fig.1: Comparison of Demonstration yield over Local variety



Results and discussion :

To estimate the yield gap, the yield levels of different cultivars were compared to their potential yield during front line demonstration trials. The technology gap is evident in the large difference between the demonstration yield and the potential yield, which was larger in Agrifound dark red than in local varieties in the years 2012–2013 and 2014–2015. (Table I and Figure I). This could be ascribed to the weather, differences in soil fertility, and farmers' lack of knowledge on the improved variety and its production methods. Compared to the local variety, the Agrifound dark red variety had a better adoption index. This can be as a result of the higher market preference compared to local due to the strong yielding capacity and moderate disease resistance for purple leaf blotch. Over local varieties, the variety Agrifound dark red has demonstrated enhanced production. These findings are in line with the results of Hiremath *et al.*, (2007), Hiremath *et al.*, (2014), S. Rajput *et al.*, (2016), Rajput *et al.*, (2018). The yield increase varied from 20.0 to 21.6 percent (Table II). When compared to local, the yield over local check percentage increase was larger (21.6) in 2014–15. The availability of soil moisture, rainfall, soil type, and changes in the position of demonstrations each year could all affect the output of onions, which may vary from year to year. When compared to local check, the improved variety had greater gross return, net return, and benefit cost ratio records (Table II). According to the economic analysis, adopting the better variety Agrifound dark red results in higher

additional net returns than local, demonstrating its profitability, with only a small amount of additional cost. Hiremath et al., (2007) and Hiremath et al., (2014) both found that the profitability of onions was similar.

Conclusion

Due to a technology and extension gap in Telangana's Mahaboobnagar district, a significant gap existed between potential and demonstrated yield in the high yielding Agrifound Dark red variety. FLD has shown to be the most effective method for introducing fresh onion varieties, increasing output to boost yield and revenue, and providing local onion growers with a source of income.

References

1. Eswaraprasad Y, Manohar Rao M, Vijayabhindana B. Analysis of on-farm and level of technology on oilseed and pulse crop in Northern Telangana Zone of Andhra Pradesh. *Indian J Agric. Economics.* 1993; 48:351-356.
2. Hiremath S M Nagaraj MV and Shashidhar KK (2007). Impact of front line demonstrations on onion productivity in farmer's field. National seminar on appropriate extension strategies for management of rural resources, held at University of Agricultural Sciences, Dharwad during 18-20 December, 2007, pp. 100
3. Hiremath S M and Nagaraja M V (2014). Yield gap analysis in onion under Front line Demonstration in Hawaii district Volume: 3 Issue: 10 October 2014 ISSN No 2277 – 8179.
4. Lawande, K.E. (2005). Onion improvement- present status and future thrust. National Symposium on current trends in onion, garlic and seed spices- production, marketing and utilization, held from November, 25 to 27, 2005 at NRCOG, Rajagurunagar, Pune, pp.45-50.
5. Rajput Savita, Jain Vijay and Verma S.K. (2016). Impact of Front Line Demonstration on Okra (*Abelmoschus esculentus* L). Volume: 5 Issue: 1 *J. Krishivigyan* 2016, 5(1):74-76.
6. Pandey UB (2000). Seed production of onion and garlic constraints and strategies. National Symposium on onion and garlic, production and post.
7. Samui SK, Maitra S, Roy DK, Mondal AK, Saha D. Evaluation of front line demonstration on groundnut (*Arachis hypogea* L.). *J Indian Soc. Coa Agric. Res.* 2000; 18:180-183.
8. Rajput S, Rajput AS, Jain V, Verma SK. Analysis of yield gap in onion under front line demonstration at Janjgir-Champa district of Chhattisgarh, India. *Int J Curr Microbiol App Sci.* 2018;7:4104-8.