

# Impact of front line demonstration on production technology of onion var. PHULE SAMARTH in Dhule district of Maharashtra

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## ABSTRACT

The Front Line Demonstration on Production Technology of Onion var. PHULE SAMARTH was conducted for five years (2004-05 to 2008-09) on farmer's field in four different villages in all the four talukas of Dhule district in *Kharif* season. It was observed that the average yield performance of 60 demonstrated Onion crop in an area of 14 hectares ranged from 210 to 220 q / ha. The average yield of five demonstrations of onion crop for five years was found to be 213.20 q /ha, whereas for local crop, it was found to be 162q / ha. There was 31.68 per cent increase in demonstration yield over local crop during all the five years. The farmers have incurred average higher returns of Rs. 104836/ ha. Thus, the comparative results of the demonstration high light the cost benefit ratio of 3.99 on against the local crop which recorded 3.15, respectively. Results of the demonstrations had shown that the use of improved variety, improved cultivation practices, proper post-harvest management and plant protection measures resulted in higher production of onion.

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**O**nion (*Allium cepa* L.) is one of the most important commercial vegetable crops grown in about 0.49 million ha area with the production of 5.4 million tons of bulbs in the country which makes it second the largest producer of onion bulbs in the world after China.

India is the second largest producer of vegetables that accounts about 16% world's production. Onion is the major vegetable grown in India. The area under vegetables was covered by 7164000 ha with production of 109050 metric tonnes in 2005-06. India's export vegetables have increased from Rs. 267.69 crores in 2005-06 to Rs. 430 crores in 2006-07. Major importing countries of Indian vegetables are UAE, Pakistan, Srilanka, Nepal and Bangladesh. Onions are high in food energy, intermediate in protein content and rich in calcium and riboflavin. Carbohydrates, proteins, minerals and vitamins are the major constituents of onion. Small sized onions are more nutritive than large sized onions. The pungency in onion is due to the presence of volatile allyl propyl disulphide. The red and yellow colour of outer skin of onion is due to the presence of anthocyanin and quercetin, respectively. Anti-fungal properties in onion is due to a phenolic factor *i.e.* Catechol (Yawalkar and Hari Har Ram, 2004).

In the year 2005-06, the area under onion in Maharashtra was found to be 154000 ha with the production of 1878800 metric tonnes and the productivity recorded was 12.2 metric tonnes/ha. Dhule is the second major onion growing districts after Nashik in MPKV

jurisdiction of Maharashtra. It occupies an area of about 81,000 (2007-08) under onion cultivation. Though the area under onion cultivation is very large, productivity of onion in the district is very poor (13.25 mt/ha). Onion crop requires specialized type of farming techniques and skill. The efforts are underway to increase the productivity of onion by imparting training and conducting demonstrations. The present study therefore, was undertaken to ascertain the role of demonstrations in exhibiting the Production Technology of onion and thus increasing the yield.

## Constraints in adoption of technologies:

- Unavailability of suitable variety of seed in proper season and use of same local variety all around the year.
- Improper nutritional management and lack of soil testing.
- Lack of knowledge of pre and post harvest practices.
- Low yield.
- Inadequate plant protection measures.
- Uncertain market prices *i.e.* price decreases to a greater extent at the time of crop harvesting.

## MATERIALS AND METHODS

Krishi Vigyan Kendra, Dhule conducted front line demonstrations on onion var. *Phule Samarth* during the year 2004-05, 2005-06, 2006-07, 2007-08 and 2008-09 in *Kharif* season. Totally 60 demonstrations in an area of 14 hectares was conducted on onion crop on farmer's

field in all the four talukas viz., Dhule, Sakri, Shindkheda and Shirpur talukas of Dhule district. The demonstrations were conducted in irrigated conditions and the soils of demonstration plots ranged from medium to black cotton soils. The demonstrations included important technologies like improved variety, seed bed and seedling preparation, drenching and spraying in seed bed, nursery management, transplanting, balanced use of manures and fertilizers, irrigations and chemical sprays. Crop was transplanted in 2<sup>nd</sup> week of July and harvested in 2<sup>nd</sup> week of October. Yield data was recorded from demonstrated plots as well as from local plots.

## RESULTS AND DISCUSSION

Pre sowing training programmes of selected farmers was conducted by the KVK scientist for seedling preparation in the raised bed. The KVK scientists visited the villages for monitoring the demonstrations and guided the farmers. The method demonstrations on seed treatment by *Trichoderma* (5g / Kg), proper use of organic and inorganic fertilizers and spray of neem seed kernel extract (5%) and effective sprays of inorganic

chemicals were carried out as per scheduled dates. Training Programme as well as frequent field visits on onion grower's field was conducted and the information on transplanting, nutrient management and spraying was given to the farmers.

The data of front line demonstrations presented in Table 1 showed that the yield performance of demonstrated onion crop ranged from 210 to 220 q / ha. The average yield of five years for onion crop was found to be 213.20q /ha, whereas for local crop it was found to be 162q / ha. There was 31.68 per cent increase in demonstration yield over local during all the five years (Table 1). The increase in demonstration yield over local check was the impact of improved production technology of onion crop adopted in front line demonstrations. Similar results were also reported by Kalalbandi *et al* (2006) in chilli crop.

Results of the demonstration had shown that the use of improved variety, improved cultivation practices, proper post harvest management and plant protection measures resulted in higher productivity of onion. The farmers have incurred average higher returns of Rs. 104836/ ha (Table

**Table 1 : Yield performance of front line demonstration on onion var. *Phule Samarth* in Kharif season**

Sr. No.	Year	Name of the Taluka (Village)	Name of the variety/ component	No. of demonstrations	Area (ha)	Avg. yield (qtl/ha)			Per cent increase in yield
						Demonstration	Control/ check		
						Max.	Avg.	Avg.	
1.	2004-05	Dhule (Navlane) Sakri (Ambapur) Shindkheda (Khalane) Shirpur (Pimpri)	<i>Phule Samarth</i> +INM + PHT	20	4	240	210	165	27.27
2.	2005-06	Dhule (Navlane) Sakri (Ambapur) Shindkheda (Khalane) Shirpur (Pimpri)	<i>Phule Samarth</i> +INM + PHT	20	4	245	211	162	30.25
3.	2006-07	Dhule (Navlane) Sakri (Ambapur) Shindkheda (Khalane) Shirpur (Pimpri)	<i>Phule Samarth</i> +INM + PHT	15	3	223	218	158	37.97
4.	2007-08	Dhule (Navlane) Sakri (Ambapur) Shindkheda (Khalane) Shirpur (Pimpri)	<i>Phule Samarth</i> +INM + PHT	10	2	219	207	165	25.45
5.	2008-09	Dhule (Navlane) Sakri (Ambapur) Shindkheda (Khalane) Shirpur (Pimpri)	<i>Phule Samarth</i> +INM + PHT	05	1	229	220	160	37.50
Total / Average				60	14	234.00	213.20	162	31.68

INM: Integrated nutrient management, PHT: Post harvest Technology

**Table 2 : Economics of front line demonstration of onion var. Phule Samarth in Kharif season**

Sr. No.	Year	Demo		Control		B:C ratio	
		Total cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Total cost of cultivation (Rs./ha)	Gross return (Rs/ha)	Demo.	Check
1.	2004-05	26870	105550	21400	62000	3.93	2.90
2.	2005-06	26687	103850	21600	64000	3.89	2.96
3.	2006-07	26810	103680	21920	71000	3.86	3.24
4.	2007-08	26820	103500	19970	66000	3.85	3.30
5.	2008-09	24320	107600	19000	64000	4.42	3.36
	Average	26361.40	104836	20778	65400	3.99	3.15

2). Thus, the comparative results of the demonstration high light the cost benefit ratio of 3.99 on against the local crop which recorded 3.15, respectively (Table 2).

#### Conclusion:

- Use of improved variety in proper season *i.e.* *Phule samarth* in *Kharif* season.
  - Use of biofertiliser for seed treatment.
  - Preparation of seedlings in raised bed with proper nursery management.
  - Nutritional management as per soil test report.
  - Proper harvesting, handling and storage of onion.
  - Pests and diseases management practices at proper time.
- Selling of onion bulbs in the market when prices are high.

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