

Impact of Technology Dissemination through Demonstration (TDTD) on Yield and Economics of Rabi Onion Crop in Kurnool District of AP

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ABSTRACT

Onion production and post harvest management problem and their solution studied with onion growers of Kurnool district of Andhra Pradesh through planned Technology dissemination through demonstration (TDTD) were conducted on farmer's field with Rabi onion variety Agrifound Light Red (ALR) and Trichoderma viride (TV) application in nursery sowing as seed dressing and spray since 2011-12 to 2015-16 for five years. Result of study indicated good performance over check recorded since five years and maximum per cent over check was recorded 23.39%, technical gap was noticed 64.30 qt/ha with decreasing trend, maximum extension gap recorded 56.62 qt/ha while minimum technology index 12.62% in same year. The maximum gross return, net return and B: C ratio was recorded highest in 2014-15 due to maximum market price as compared with all study seasons.

Keywords: TDTD, Trichoderma Viride, Economics,

Onion *Allium cepa* L. is one of the important commercial vegetable crop produced in India for its domestic consumption and export significance. India accounts 16% of world average in area and occupy second position after china in production with a share of around 14% of world average (FAO state 2010). The productivity of onion is much lower in India than world average (Pandey 2000) & (Lawandey 2005). Area of onion may vary year by year due to demand and supply of onion bulb market rate. The most of onion area of India in rain fed situation and farmers using local and admixer onion variety with traditional practices result in poor yield.

Therefore, technological intervention is required to replacement of old, local and admixes onion seed through Technology dissemination through demonstration (TDTD) with critical inputs as improved variety and Trichoderma viride for nursery application to prevent seedling damage and promote healthy seedling which must enhance production and productivity of onion crop and also fetches good income to onion growers of Kurnool districts of Andhra Pradesh state.

Keeping in the view as above the TDTD on Rabi onion by improved variety and Trichoderma viride application in nursery stage with good agricultural practices (GAP) on farmer's field have been undertaken since 2011-12 to 2015-16.

METHODOLOGY

The present study was conducted by NHRDF Regional Centre Kurnool AP at the farm of selected onion growers. The material used for study is good agriculture practices and recommendation of NHRDF, improved variety of onion Agrifound Light Red (ALR) and Trichoderma viride with comparison of local variety Bellari Red as local check as per Table 1. The 20 demonstration laid down since 2011-12 to 2015-16 for five years in Rabi season. The data of onion production cost and marketing were calculated as per Agriculture Market Yard data of Kurnool for economic feasibility of both the variety. The Technology gap, Extension gap Technology index, Net profit and B: C Ratio were calculated as suggested by Eshwarappa et al (1993) and Samuel et al (2000).

Table 1
Comparison of TDTD and local check practices of farmer

S.No.	Particulars	Existing farmers practices	Improved good agri. practices
1	Farming situation	Irrigated	Irrigated
2	Variety	Local grown Bellary red, ad mixer seed	Agrifound Light Red (ALR) Improved high yielding variety of NHRDF
3	Time of sowing	Oct-Nov-Dec.	Oct-Nov-Dec
4	Method of sowing	Direct sowing/broadcasting	Nursery to transplanting
5	Seed rate	12 -15 kg per ha	10 kg per ha
6	Seed treatment	No seed treated	Treatment with Trichoderma viridi
7	Fertilizer doses	In balance doses 20 to 22 bag urea as top dressing, 12.32.16 10 bag top dressing no use of potash or phosphate fertilizer in basal.	100:50:50 NPK/ha through DAP & MOP as basal doses and urea two top dressing on 30 to 35 days and 55 to 60 days.
8	Weed management	Hand weeding/goal high doses	Pendimethline 1 kg/ha and one hand/ hoe weeding after 45 days
9	Plant protection	Spraying many insecticide and fungicide without guidance	Trichoderma viridi application in nursery sowing and regent 2.5 ml/lit of water for trips and Corbendazine 2.5gm/lit of water for stemphyllium blight and purple blotch

10	Post harvest management	Irrigate before harvesting, no drying, non scientific cutting and direct supply to market	No irrigation before harvesting of 15 days and good drying by windrow method in field, scientific neck cutting, proper grading & packing etc.
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RESULTS AND DISCUSSION

It is confirmed that demonstration yield of onion var. ALR was better in comparison of local check as per Table 2. The onion Var. ALR yield 262.12 q/ha recorded maximum in Rabi 2015-16 and percentage increase yield over check was recorded highest 23.39 in 2013-14.

The yield improvement of onion ALR was noticed due to effect of good climate and moderate disease incidence of purple blotch, stemphyllium blight and thrips attack. (Heremuth et al 2007).

Result of Table 2 revealed that yield of TDTD and potential yield of variety was compared to estimate the yield of Extension gap, Technology gap and technology index. The technology gap showed gap of demonstration yield and potential yield which was noticed 64.3 qt./ha. highest in 2012-13. It could be due to gap of awareness about improved variety and its seed availability. Hence to minimise Extension gap needs to educate the farmers more about good agricultural practices (GAP).

Further maximum extension gap was noticed in 59.75 qt/ha in 2013-14 and technology Index maximum 21.43% in 2012-13 and seen decreasing

order since 2012-13 to 2015-16. The lower technology index indicated good possibility of onion variety and technology of demonstration 12.62 to 21.43 means fluctuation of technology index percentage gap is appropriation of stable crop performance.

Table 3 showed economic analysis of data of TDTD since 2011-12 to 2015-16. The maximum net return was recorded in 2014-15 the BC ratio also maximum in 2014-15 whether, minimum BC ratio recorded in 2015-16 it TDTD & negative BC ratio in check BC ratio was based on production and net return from the crop due to good market price as mentioned from AMC model rate per year. This is onion crop basically effect due to market price fluctuations and awareness.

Technology gap noticed decreasing order since 2012-13 till 2015-16. It means the initiation taken by us for awareness of onion production and post harvest technology gives positive impact. Whether, Extension gap noticed unchanged ups and down every year shows continuous efforts to educate and train to onion grower for onion production technology and post harvest management.

Table 2
Impact of Rabi onion TDTD on yield, Technology Gap, Extension Gap & Technology Index.

Year	Area (ha)	Number of TDTD	Yield TDTD (q/ha)	Yield control plot(q/ha)	% Increase over control	Technology gap (q/ha)	Extension gap(q/ha)	Technology Index (%)
2011-12	05	20	240.50	190.70	20.7	59.5	49.8	19.83
2012-13	05	20	235.70	182.40	22.6	64.3	53.3	21.43
2013-14	05	20	255.35	195.60	23.4	44.6	59.7	14.88
2014-15	05	20	258.30	210.30	18.6	41.7	48.0	13.90
2015-16	05	20	205.50	205.50	21.6	37.8	56.62	12.62

Potential yield 300 qtl./ ha

Table 3
Economics of onion production under TDTD.

Year wise rate		Cost of cultivation (Rs/ha)		Gross Income (Rs/ha)		Net income (Rs/ha)		B C Ratio	
Year	AMC Rate (q/ha)	TDTD	Control	TDTD	Control	TDTD	Control	TDTD	Control
2011-12	800.00	65000	64000	192400	152560	127400	88560	1.96	1.38
2012-13	820.00	68000	66000	193274	149568	125274	81568	1.84	1.23
2013-14	850.00	73000	70000	217047	166260	144047	96260	2.27	1.37
2014-15	1900.00	75000	72000	439110	357510	364110	285510	4.85	3.96
2015-16	680.00	80000	78000	178241	139740	98241	20241	1.22	--.26

CONCLUSION

Hence it is concluded from the study that yield was associated better due to variety (ALR) and *Trichoderma viride* application in nursery stage. Onion grower should adopt technology transfer through TDTD, It will be profitable and economically viable

based on market rate fluctuation of onion bulb crop. It is also concluded that continuous technology backstopping on onion crop is necessary for improvement of area, production and post harvest management for onion growers of the district.

Received : July 5, 2017

Accepted : November 15, 2017

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