Original Research Article

Sustainability, Livelihood Security and Resilience to Climate Variability of Small Holders Through Vegetable and Flower Cropping in NICRA Village of Namakkal district

ABSTRACT

In Vadavathur&Jambumadai village, small onion is the major vegetable crop cultivated as an annual crop in more than 400 acres and it is the only source of income. In scarce rainfall situations in NICRA village of Vadavathur and Jambumadai, practice of sole cropping is predominant but it is risky and often results in low yields or sometimes even in crop failure due to erratic monsoon rainfall and skewed distribution. To alleviate these problems in such areas of drought villages of Namakkal district crop diversification with perennial crop is a feasible option to minimize risk in crop production, ensure reasonable returns with limited care. Additional crop of onion with Jasmine is more profitable and is a key drought coping strategy especially for small and marginal farmers. Hence jasmine (20 cent) + small onion (80 cent) cultivation model is demonstrated in crop component mode in NICRA village instead of cultivating small onion as a sole crop in an area of 1 acre/ 0.4 ha. Considering the yield, jasmine flower yield was obtained in the range of 545 to 747 kg/ 20 cent and in case of small onion, the bulb yield of 4800 kg was harvested from 80 cent/season. Highest net returns of Rs.73575 to 1,34622/ 20 cent was obtained from Jasmine cultivation compared to small onion of Rs.48,810 / 80 cent /season.

Keywords: Jasmine – Onion – Cropping -NICRA

INTRODUCTION

Erumapatti is the main block in Namakkal District in which small onion is cultivated in an area of 980 ha. It has a total of 24 panchayat villages. KVK,Namakkal has implemented National Innovations on Climate Resilient Agriculture (NICRA) at Vadavathur and Jambumadai village of Erumapatti block, which has recorded an average rainfall of only 400 mm for the past 20 years. In Vadavathur village, small onion/ Multiplier onion is the major crop cultivated as annual crop in more than 300 acres and it is the only source of income. In Vadavathur village, small onion is cultivated in two main seasons *viz.,* Early kharif (May –August) and Rabi (November – January). Practice of sole cropping is predominant in NICRA village of Vadavathur and Jambumadai, due to scarce rainfall situations, but is risky and often results in low yields or sometimes even in crop failure due to erratic monsoon rainfall and skewed distribution.To alleviate these problems an additional crop in small area with perennial flowers in the ratio of 20: 80 a feasible option to minimize risk in crop production, ensure reasonable returns with limited resources and care for small land holders was assessed from 2011 - 22.Floriculture is a vital sub-sector of horticulture, having potential for providing enhanced

returns to farmers and employment opportunities especially to small and marginal farmers and female labour. Hence jasmine (20 cent) + small onion (80 cent) cultivation model is demonstrated in crop component mode in NICRA village instead of cultivating small onion as a sole crop in an area of 1 acre/ 0.4 ha by supplying 20,000 number of three months old rooted cuttings of jasmine variety Ramanathapuram Gundu Malligai to fourteen number of farmers covering in an area of 2 ha. It was found from the results that the additional crop of onion with Jasmine is more profitable and is a key drought coping strategy especially for small and marginal farmers.

MATERIALS AND METHODS

Vadavathur and Jambumadai village of Erumapatti block has been purposively selected for the present study. From this village a total of 70 jasmine growers have been selected for the present study by adopting random sampling technique. In order to understand the socio-economic status of jasmine growers, the frequency and percentage analysis have worked out.

RESULTS AND DISCUSSION

Socio-Economic Status of Jasmine Growers

The profiles of the Jasmine growers wereanalyzed and the results are presented in Table-1. The results showed that 17.14 per cent of jasmine growers are uneducated, 68.57 per cent of jasmine growers have school level education and 14.28 per cent of them have college level education. 81.42 per cent of jasmine growers are married and 18.57 per cent of them are unmarried. The results indicated that 8.57 per cent of jasmine growers belong to the joint family and 91.42 per cent of them belong to the nuclear family. It is observed that 67.14 per cent of jasmine growers own less than 2 acres, 28.57 per cent of them own 2.1 - 3 acres and 4.28 per cent of jasmine growers own more than 3 acres. The results revealed that 17.14 per cent of growers have less than 3 years of experience in jasmine cultivation, 44.28 per cent of them have 3 - 5 years of experience in jasmine cultivation, 38.57 per cent of them have more than 5 years of experience in jasmine cultivation.

TABLE 1. SOCIO-ECONOMIC STATUS OF JASMINE GROWERS

Socio-Economic Conditions	Number of Consumers	Percentage
Educational Qualification		
Uneducated	12	17.14
School level	48	68.57
College level	10	14.28
Marital Status		
Married	57	81.42

Unmarried	13	18.57
Type of Family		
Joint Family	6	8.57
Nuclear Family	64	91.42
Ownership of Land		
Less than 2 acres	47	67.14
2.1 – 3.0 acres	20	28.57
More than 3 acres	3	4.28
Experience in Jasmine Cultivation		
Less than 3 years	12	17.14
3 – 5 years	31	44.28
More than 5 years	27	38.57

Returns from Jasmine + Small onion cultivation

In Vadavathur village, Jasmine plants started flowering at 4 months after planting. But commercial flowering was started two years after planting. From second year onwards, beneficiaries harvested an average of 100 grams of unopened flower buds / plant for a period of seven months. Each flower cluster consisted of nine buds with 2.8 – 3 cm of bud length, 1.1 – 1.3 cm of diameter and 50 grams of flower contained 160 flower buds. The peak flowering season was April – June and lean period was October to January. When comparing water requirement,both the crops are irrigated at 5 cm depth under flood irrigation. 8,40,000litre of water is required to irrigate the jasmine from 21 irrigation in an area of 20 cent in 7 months period. Whereas in small onion, 51,20,000 litre of water is required to irrigate 2 season crops (@ 25,60,000 litre of water/ crop/3 months) from 16 irrigations/season in an area of 80 cent in 3 months. Considering the yield, jasmine flower yield was obtained in the range of 545 to 676 kg/ 20 cent from 4thyear onwards and in case of small onion, the bulb yield of 4800 kg was harvested from 80 cent/season. Highest net returns of Rs.73575 to 1,34,622/ 20 cent was obtained from Jasmine cultivation compared to small onion of Rs.48,810 / 80 cent /season (Table 2). This is in conformity with the findings of Ganapathi, 2015.

TABLE 2: JASMINE FLOWER YIELD / 20 CENT FROM JULY 2012 – MARCH 2022

Year	Month	Flower yield (Kgs)	Sales amount (Rs)	Debit amount (Bus fare @10 % in total sales amount (Rs.)	Net sales amount (Rs.)
2012	July 12 – Oct 12	23.9	4561	456	4105
2013	Jan 13 – Nov 13	296.05	46272	4627	41645

2014	Jan 14 – Nov 14	420.1	64195	6419	57776
2015	Jan 15 – Nov 15	545.6	81750	8175	73575
2016	Jan 16 – Nov 16	505.2	101040	10104	90936
2017	Jan 17 – Nov 17	520.6	104120	10412	93708
2018	Jan 18 – Nov 18	618.2	123640	12364	111276
2019	Jan 19 –Nov 19	676.5	135300	13530	121770
2020	Jan 20 – Nov 20	712.6	142520	14252	128268
2021	Jan 21 – Nov 21	747.9	149580	14958	134622
2022	Jan 22 – March 22	86.7	17340	1734	15606
	Grand Total	**5153.35**	**970318**	**97031**	**873287**

Marketing of Jasmine

The marketing of jasmine was analyzed and the results are presented in Table-3. It is observed that 70 per cent of jasmine growers market their jasmine flowers through village traders, 17.15 per cent of them market their jasmine flowers through commission agent, 10 per cent of jasmine growers market their jasmine flowers through local market and 2.85 per cent of them market their jasmine flowers through local shop. This is in conformity with the findings of Latha and Pichumani, 2018.The flower rates in the market varied daily on the basis of demand and supply. The farmers were paid on a monthly basis after deducting the expenditure incurred on marketing. Each member spent 10 % of the sale price towards transport and marketing. The price of one kg flower bud of *Jasminum Sambac*ranged between Rs.100 – 300/- till July. Thereafter, the price of one kg of Jasmine flower fetched around Rs.700. It touched Rs.2000/- per kg during October end – January.

TABLE -3. MARKETING OF JASMINE

Market	Number of Jasmine Growers	Percentage
Village traders	49	70.00
Commission agent	12	17.15
Local market	7	10.00
Local shop	2	2.85
Total	**70**	**100.00**

TABLE 4: INCREASING AREA OF JASMINE CULTIVATION IN ERUMAPATTI BLOCK OF NAMAKKAL DISTRICT FROM 2011 TO 2022

Sl.No	Year	Area (ha)
1	2011 - 2012	17
2	2012 - 2013	18.2
3	2013- 2014	21

4	2014 - 2015	23.1
5	2015 - 2016	27.2
6	2016 - 2017	29
7	2017 - 2018	31.7
8	2018 - 2019	37.5
9	2019 - 2020	39.1
10	2020 - 2021	40.5
11	2021 - 2022	78.9

(Source: Department of Horticulture, Erumapatti block)

By seeing the success of KVK intervention in NICRA villages, Department of Horticulture, Erumapattiblock has provided jasmine planting material under IHDS scheme to farmers year after year. Hence the area of jasmine flower cultivation in Erumapatti block is increasing impressively over the years (Table 4). The area under Jasmine cultivation in Erumapatti block had increased from 17 hectares in 2011 -2012 to 29 ha in 2016 -17, which further increased to 78.9 ha in 2021 -22. It seems that preference of farmers and benefits accrued from Jasmine cultivation (Sharmila Bharathi *et al*.,2015).

CONCLUSION

The cultivation of jasmine flower and onion generated impressive returns to the farmers and good employment opportunities for farm family as well as agricultural labourers especially for female workers. Performance of the perennial flower crop with drought and high temperature tolerant Jasmine gave the highest B:C ratio of 3.9 - 4.0 compared to sole crop of small onion (2 to 2.3). Hence flower crop gives daily income for about nine months a year and in addition to effective utilization of time, resourcesand improves the livelihoodsecurity of the farmer. By seeing the success of this technology, vegetable and flower cropping up scaled in the 24 villages of Erumapatti block of Namakal District in an area of 78.9 ha.

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