

**RESEARCH ARTICLE :**

Vegetable cultivation in Pathanamthitta district of Kerala - A constraint analysis

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SUMMARY : A study was conducted during 2012-13 among the vegetable farmers of Pathanamthitta district to analyze the problems and prospects of vegetable cultivation. A total of 402 progressive vegetables farmers were identified in consultation with the Agricultural Officers of State Department of Agriculture. Two stage stratified random sampling was adopted. The various socio-personal and communication perspectives analyzed during the study revealed that 83 per cent of the farmers fell in the age range of 46 years and above and that 76 per cent had an education background of upto primary level only. The family status of majority of the farmers fell to the group of nuclear family (74%) with a maximum of four members, which also reveals the changing system of family relations in the society. The work also throws light on a major issue faced presently in agriculture, which is the dependence on external labour. Crop loss due to the attack of diseases and pests has been identified as the most important problem faced in vegetable cultivation as opined by 83.3 per cent of the surveyed farmers. The study clearly demonstrated the lacuna between development of scientific cultivation practices and its adoption by the farmers, as only 12.9 to 46.3 per cent of the total respondents adopted scientific practices of vegetable cultivation. Thus, the study necessitates the need for bridging the gap between technology creation and technology adoption at farmer's level. The measures to be adopted for making vegetable cultivation a profitable venture are adoption of scientific cultivation practices; general awareness on pest management, soil test based fertilizer usage as well as forecasting natural disasters. Encouragement of the progressive farmers through awards and other recognitions as well as assuring reasonable sale price for agricultural produce can attract younger generation to take up agriculture as a profession thereby reducing the dependence of our state on others states for food and other commodities.

KEY WORDS :Vegetable cultivation,
Constraints

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BACKGROUND AND OBJECTIVES

Vegetables play an inevitable role in providing essential nutrients and minerals vital for enhancing our health. They also contribute

elements for activating our defense system. Our state is invariably depending upon other states for consumption of vegetables. It is essential to bring back vegetable cultivation

to an increased pace to counter the conundrum of health hazards due to pesticide residues in vegetable produce. A study was conducted during 2012-13 among the vegetable farmers of Pathanamthitta district to analyze the problems and prospects of vegetable cultivation. The work was done as part of a project under “The State Food Security Programme”.

RESOURCES AND METHODS

Eight blocks of Pathanamthitta district were identified for the study. Among the blocks, the Panchayats having maximum area under vegetables were selected. From such Panchayats, progressive vegetable farmers were identified in consultation with the Agricultural Officers of State Department of Agriculture. Two stage stratified random sampling was adopted. Thus, a total of 402 vegetable farmers were selected throughout the district, covering the entire eight blocks.

OBSERVATIONS AND ANALYSIS

Various socio-personal and communication perspectives were analysed initially (Patil *et al.*, 2014) and is tabulated as in Table 1. The study reveals that 83 per cent of the farmers fell in the age range of 46 years and above, which throws light on the reduced involvement of younger generation towards taking up agriculture as a

profession. Among the total respondents, 76 per cent had an educational background of upto primary level only. 5 per cent of the farmers only had an educational level upto XIIth standard.

The joint family system which prevailed extensively during the past has been revealed to be diminishing as observed from the survey. The family status of majority of the farmers surveyed falls in the group of nuclear family (74%) with a maximum of four members, which also reveals the changing system of family relations in the society.

The study indicated that 79 per cent of the farmers had exposure to trainings on vegetable cultivation, of which 58 per cent was organized by department of agriculture and 30 per cent by Kerala Agricultural University. The work also throws light on a major issue faced in agriculture presently, which is dependence on external labour. 68 per cent of the farmer's agreed on the usage of labour other than that of the family members. Availability of labour is thus, becoming a burning issue in agriculture in the present context. Dependence of labour from other states is creating new socio-ecological problems.

The major problems and prospects in vegetable cultivation are detailed below (Table 2 and Fig. 1). Crop loss due to the attack of diseases and pests have been identified as the most important problem faced in

Table 1 : Distribution of the vegetable farmers according to their personal characteristics

Variables	Category	Range	Percentage
Age	Upto 35 years	–	3
	36–45 years		14
	46 years and above		83
Education	Illiterate	–	7
	Upto primary passed		76
	Middle school passed		12
	XII passed		5
	Graduate and above		–
Size of family	Small (nuclear)	Upto 4 members	74
	Medium (Joint)	5-7 members	25
	Large (Joint)	8 and above	1
Training exposure	Yes	–	79
	No		21
Training at	KAU	–	30
	Department	–	58
	VFPCK	–	7
	Others		5
Awards	Panchayat level	–	18.2

Table 2 : Major problems and prospects of vegetable cultivation in the district

Problems	Per cent	Prospects	Per cent
Disease and pests	83.3	Pest and disease management	86.4
Natural disasters	69.2	Making available good quality planting materials, fertilizers and pesticides	68.9
Availability of labour	58.3	Timely labour availability	32.6
Marketing and storage facility	15.1	Technical advice through classes and trainings	29.5
Less price for the produce	9.7	Timely assistance for natural calamity	21.9
Technical knowledge	8.1	Subsidy for seeds, fertilizers and pesticides	17.9
Animal attack	6.7	Marketing facility	9.5
		Timely soil testing facility	7.7
		Mechanization	5.7
		Bank loans	5.0

Table 3 : Major diseases and pests affecting vegetable crops of the district

Vegetable	Disease	Per cent	Pest	Per cent
Cowpea	Wilt	66.8	Black aphid	92.0
	Rust	33.4	Pod bug	73.3
	Mosaic	27.9	Serpentine leaf miner	19.8
	Anthraxnose	25.7	Leaf eating caterpillar	20.1
	Root rot	16.2	Stem borer	18.7
	Bacterial wilt	1.0	-	-
Bitter gourd	Mosaic	83.1	Fruit fly	80.7
	Phytoplasma	60.6	Pumpkin beetle	11.6
	Root rot	11.9	<i>Epilachna</i> beetle	4.6
	Wilt	0.4	-	-
Snake gourd	Mosaic	45.2	Fruit fly	83.4
	Root rot	41.0	Stem fly	55.5
	Wilt	1.4	Leaf eating caterpillar	34.9
			Pumpkin beetle	15.1
			Serpentine leaf miner	1.4
Amaranthus	Leaf spot	90.8	Leaf webber	72.5
Cucumber	Downy mildew	46.7	Pumpkin beetle	54.2
	Mosaic	43.9	Fruit fly	24.74
	Root rot	12.1	<i>Epilachna</i> beetle	18.7
	Bacterial wilt	1.9	-	-
<i>Coccinia</i>	Downy mildew	7.5	Stem fly	47.5
	Root rot		Fruit fly	42.5
	Mosaic	77.5	Thrips	22.5
Brinjal	Bacterial wilt	28.8	Fruit borer	51.9
Chilly	Mosaic	78.6	Thrips	68.4
Okra	Yellow vein mosaic	81.3	Fruit borer	32.6

Table 4 : Extend of adoption of scientific practices by the farmers

Scientific technology adoption	Percentage
Seed treatment	23.4
Pit burning /field sanitation	33.3
Lime application	31.6
Soil test based fertilization	12.9
Weedicide application	46.3
Organic practices	16.5

vegetable cultivation (Adebisi-Adelani *et al.*, 2011), (Ajibade and Amusa, 2001) as opined by 83.3 per cent of the surveyed farmers followed by loss due to natural disasters (69.2%) (Huong *et al.*, 2013), availability of labour (58.3%), lack of marketing and storage facilities (15.1%) and dissemination of technical knowledge through seminars (8.1%).

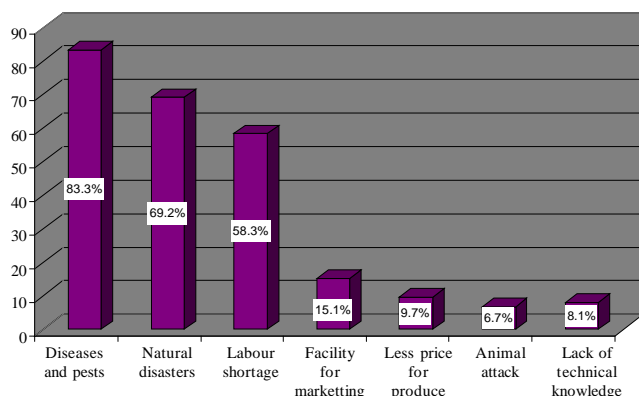


Fig. 1 : Analysis of the problems faced in vegetable cultivation

From the study, it was revealed that diseases and pests are the major threat in vegetable cultivation. Hence, an attempt was made to identify the major vegetable crops cultivated extensively in the district as well as the major diseases and pests affecting them as in Table 3.

The study clearly demonstrated the lacuna between development of scientific cultivation practices and its adoption by the farmers (Table 4). The data confirms that only 12.9 to 46.3 per cent of the total respondents were adopting scientific practices of vegetable cultivation such as seed treatment (23.4%), clean cultivation (33.3%), application of lime to correct soil acidity (31.6%), soil test based fertilizer application (12.9%), weedicide usage (46.3%) and adoption of organic practices (16.5%).

Thus, the study necessitates the need for bridging the gap between technology creation and technology adoption at farmer's level (Samantaray *et al.*, 2009 and Tsoho and Salau, 2012). Even though scientific cultivation practices for each crop have been developed (Ghosh, 2012), their rate of adoption by farmers is relatively less (Arya and Sahah, 1984 and Jati and Patra, 1980). This gap need to be bridged by measures such as adoption of scientific cultivation practices (Suman, 2014 and Bello *et al.* 1998), general awareness on the various pests and diseases as well as their timely management practices

(Cramer, 1967; Adams, 1990 and Mohammed, 2002) through trainings at Agricultural University and department level, providing facility for timely soil testing for scientific fertilizer usage as well as forecasting natural disasters and timely assurance of assistance for the disasters. Labour shortage can be managed by provision of labour through NREGs besides ensuring involvement of entire family members in agriculture along with mechanization to the extent possible, thereby making vegetable cultivation a profitable venture. Encouragement of the progressive farmers through awards and other recognitions as well as assuring reasonable sale price (Bhattarai and Mariyono, 2007) for the various agricultural produce can attract younger generation to take up agriculture as a profession which can result in reducing the dependence of our state on others states for food and other commodities. All these can lead to prevention of health hazards and a pollution free environment. Similar work related to the present investigation was also conducted by Mohan and Helen (2014), Tirilapur *et al.* (2014), Ghosal (2012) and Sharma *et al.* (2012) and the results found were more or less similar to the present investigation.

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