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Constraint Analysis of Small Farmers in Vegetable Production In Guntur District

Deepthi Chintabathini, G Raghunadha Reddy, K Uma Devi, V Srinivasa Rao
Department of Agricultrual Economics, Agricultural College, Bapatla 522 101

ABSTRACT

A study was conducted in Guntur district to identify the constraints faced by small farmers in vegetable production. The data was analysed by using Garrett's ranking technique. The major constraints faced by the small farmers were less farm holding, more disease and pest attack, high wages of labour, credit probems, inadaequate inputs, middle men, low price during harvest *etc.*

Key words: *Constraints, Garrett's ranking technique, Small farmers, Vegetable production.*

Indian agriculture is overwhelmingly dominated by smallholders, and researchers have long debated the ability of a smallholder-dominated subsistence farm economy to diversify into riskier high-value crops. Vegetable production offers the maximum quality of food per unit area, offers three times more employment potential than food grains, grow quickly, responds to intensive technology, generally takes a short growing season and can be grown throughout the year. In India, vegetables constitute to 145 grams of total food intake out of the required amount 250-300 grams which is distressingly low compared to many countries. Number of land holdings of small farmers are 150.85 thousands and area operated is 209.01 thousand hectares. Gross cropped area of Guntur district was 8,66,499 hectares in which vegetables occupied were 12,936 hectares (*Hand book of statistics*, 2014). The per cent share of area under vegetables in Andhra Pradesh was 8.1 (*NHB, 2011)*. Now-a-days most of the small farmers crossing the line of traditional cultivation moving forward to diversify their cropping pattern. But, the farmers were facing many constraints in vegetable production. Keeping this in view, some of the vegetable farmers were identified in the selected area and the constraints faced by dairy farmers were studied.

MATERIAL AND METHODS

Guntur district was purposively selected for the research study as in Guntur district, total area under vegetables is 117000 hectares. Three mandals were selected purposively with the highest vegetable production and two villages from each mandal were selected purposively based on highest vegetable production making a total of six villages in the district for sampling units. 15 farmers from each village, so a total of 90 vegetable farmers were selected. The selected respondents were interviewed personally with the help of well-structured interview schedule. The collected information was tabulated and analyzed using Garrett's ranking technique. For constraints, by using this technique, the ranks given by respondents were then converted into percentage position.

$$\text{Percent position} = \frac{100 * (R_{ij} - 0.50)}{N_j}$$

Where,

R_{ij} = Rank given for i^{th}constraint by j^{th} farmer

N_j= Number of constraints ranked by j^{th} farmer

The per cent position of each rank thus obtained was converted into scores and the scores of individual respondents were added and divided by the total number of respondents. Thus the mean score for all the constraints were arranged in descending order and then ranks were assigned to individual constraints.

RESULTS AND DISCUSSIONS

Constraints imply the problems or difficulties faced by vegetable farmers in vegetable production. Here, constraints faced by vegetable farmers were studied under different categories *i.e.,* Agro-ecological, technical, socio-economic and marketing

constraints. The collected data was analyzed using Garrett ranking technique.

Characteristics of sampled vegetable farmers

Characteristics of vegetable farmers and their households was presented in table 1. Average age of the sampled farmer was 34.6 years. Education level of the farmers was varied *i.e.,* 18.88 per cent were illiterate farmers, 34.45 per cent primary level, 32.23 per cent secondary level, 11.11 per cent had completed intermediate and 3.33 per cent had completed degree. 12.69 years was the average experience age of all the farmers. The average family size of the farmers was 5. The average family labour was 3. The average land holding was 0.5-1 ha.

Consraints faced by small growers in Vegetable production

The constraints faced by small farmers in vegetable production have been ranked their preferences using Garrett's ranking technique and the analytical findings are presented in tables 2 to 6.

The Agro-ecological constraints being faced by the respondents are presented in table (2), shows the garret ranking score and the average score and ranked in ascending order. The main constraint was the less farm holding with the mean score 3.66 indicating that the small farmers have very less farm holding that is 1-2 hectares. Chand (1996) stated that Small and marginal holdings below 2 hectares, constitute more than 85 percent of total holdings in the Western Himalayan region.

The second ranked constraint was more dependence on monsoon with the mean score 5.44, due to weather conditions and inadequate rainfall small farmers would face many problems.

The third ranked constraint was irrigation problem with the mean score 5.93, even if the water is available there is a problem with supply through channels and power cut problems. Chand (1996) stated that the area having access to irrigation would be largely put under vegetable crops which are of high value and are more paying. It was also expected that availability of irrigation would enable deviations in growing seasonal vegetables to take advantage of high price in the lean period. Sachinkumar and Basavaraja (2012) ranked lack of irrigation eighth.

The fourth constraint was lack of irrigation water with the mean score 13.15, there is no sufficient water in some areas. Kumar and Kumar (2008) ranked scarcity of water for irrigation ranked third in place.

The last constraint was land or soil problems with the mean score 13.48, generally in the places where the soil fertility was good then the small farmers choose vegetable production. So it was given last place.

Technical constraints being faced by the respondents are presented in table (3), shows the garret ranking score and the average score and ranked in ascending order. The main constraint in sampled area was high pest damage with the mean score 3.33, there was much pest attack observed in the sample area for which much share of cost is incurred. De and Rahaman (2014) ranked heavy pest and disease infestation first. Pandit and Basak (2013) ranked insect damage seventh.

The second constraint was high wages of labour with the mean score 5.57, as vegetable production is much labour expensive it incurs much of the cost on human labour especially for plucking during harvest.

The third constraint was more disease attack with the mean score 6.11, it was observed from the sampled are there was much attack of diseases in the sampled vegetables. In contrast, Nirmala and Suhasini (2013) for better resistance to pests and diseases given fifth rank in hybrid Rice technology. Pandit and Basak (2013) ranked disease damage eighth.

The fourth constraint was lack of proper varieties (quality seed) with the mean score 13.22, in vegetables there was no good quality seed which yields with good amount of yield with required taste and good for health type. De and Rahaman (2014) stated non availability of quality cabbage seeds ranked as sixth. Pandit and Basak (2013) ranked lack of quality seed as second.

The fifth constraint was lack of farm machinery with the mean score 13.44, as the vegetable cultivation was mostly practiced by the small farmers, their income and financial status were big barriers to maintain farm machinery by their own. Pandit and Basak (2013) ranked lack of farm machinery (20). De and Rahaman (2014) stated that retailers realize very less bargaining power during harvest due to glut and fetch relatively very less price, that positioned first with Garrett score 45.67.

The sixth constraint was low germination with the mean score 21.41, due to poor quality of seed

Table 1. Characteristics of small farmers and their households.

Particulars of the household	Average values (N=90)
Age (years)	34.6
Educational status (Mean education level)	Fifth class
Farming experience (years)	12.69
Family size (No.)	5
Family labour (No.)	3
Land holding (ha.)	0.5-1 ha.

Table 2. Agro-ecological Constraints faced by small farmers in Guntur district.

S.No.	Particulars	Total score	Mean score	Garret rank
1	More dependence on monsoon	490.00	5.44	II
2	Land or soil problems	1213.33	13.48	V
3	Lack of irrigation water	1183.33	13.15	IV
4	Irrigation problem	533.33	5.93	III
5	Less farm holding	330.00	3.66	I

Source: Field Survey data

Table 3. Technical Constraints faced by small farmers in Guntur district.

S.No.	Particulars	Total score	Mean score	Garret rank
1	More disease attack	550	6.11	III
2	High pest damage	300	3.33	I
3	Lack of proper varieties (Quality seed)	1190	13.22	IV
4	Low germination	1926.67	21.41	VI
5	Lack of farm machinery	1210	13.44	V
6	High wages of labour	500	5.57	II
7	Perishability problems	2050	22.78	VII

Source: Field Survey data

Table 4. Socio-economic Constraints faced by small farmers in Guntur district.

S.No.	Particulars	Total score	Mean score	Garret rank
1	High cost of inputs	2216.67	5.56	II
2	Inadequate inputs	2166.67	7.52	III
3	Poor extension services	2266.67	13.00	V
4	Credit problems	1263.33	2.78	I
5	Lack of help from local government like subsidies	1793.33	12.93	IV

Source: Field Survey data

the germination was low sometimes due to improper irrigation and care. Pandit and Basak (2013) ranked low germination as thirteenth.

The last constraint was perishability problems with the mean score 22.78, in the sampled area it was least observed because the selected sample area was the top three mandals of highest vegetable cultivation observed in Guntur district. In this area, one of the reason for small farmers to choose vegetable cultivation was nearer access to markets. So there was very less effect of perishability problem.

Socio-economic constraints being faced by the respondents are presented in table (4), shows the garret ranking score and the average score and ranked in ascending order. The main constraint was the credit problem with the mean score 2.78. There was no loan facility provided to the small farmers in specific for the vegetable cultivation from the higher authorities. Kumar and Kumar (2008) ranked Lack of credit for crop production second in place. Pandit and Basak (2013) ranked lack of credit (15).

The second constraint was high cost of inputs with the mean score 5.56, due to the high costs of plant protection chemicals like insecticides and pesticides and the cost incurred incurred on the available better quality seed inputs costs much part of the total cost in vegetables which was a burden to small farmers. De and Rahaman (2014) ranked high cost of inorganic inputs second in place. Pandit and Basak (2013) ranked high price of pesticide (9), high price of fertilizer (11).

The third constraint was inadequate inputs with the mean score 7.52, sometimes even when the small farmers were ready to pay for the inputs by borrowing, in the peak season due to high demand and less supply of inputs small farmers suffer from inadequate inputs. Sachinkumar and Basavaraja (2012) ranked chemicals and fertilizers not timely available seventh.

The fourth constraint was lack of help from local government with the mean score 12.93, unlike others there is no subsidy on inputs, supply of inputs and seeds is provided to vegetable small farmers. De and Rahaman (2014) stated lack of Government support ranked eleventh in ranking.

The last ranked constraint was poor extension services with the mean score 13, as the small farmers were living nearer fields away from the road, there was poor extension services provided to them. Pandit and Basak (2013) ranked lack of contact with extension agent (24).

Marketing constraints being faced by the respondents are presented in table (5), shows the garret ranking score and the average score and ranked in ascending order. The main constraint was the middlemen known as brokers in local with the mean score 2.22, collect much of the commission percentage from farmers and as well as wholesale buyers. Pavithra and Kunnal (2013) stated high commission charges ranked third in place. Pandit and Basak (2013) ranked middle men (19).

The second constraint was low price during harvest with the mean score 6.37, as the supply was very high during the harvest, the commodities were easily available. So the prices then was very low comparatively. Kumar and Kumar (2008) ranked lower price for crop produce sixth in place. Similarly, Pandit and Basak (2013) ranked low price during harvesting as first.

The Honourable Union Minister for Agriculture acknowledges the problem when he is reported to have said "The biggest difficulty we are facing today is how to handle this excess production. If farmer produces less, we are hurt. If he produces more, he is hurt because he will not get a good price" (Maji and Rahim, 1996). De and Rahaman (2014) during the peak harvesting season, huge volume of cabbage arrival in the market in very short period of time causes glut in the market.

Table 5. Marketing Constraints faced by small farmers in Guntur district.

S.No.	Particulars	Total score	Mean score	Garret rank
1	Middle men	200	2.22	I
2	Low price during peak harvest	573.33	6.37	II
3	Lack of vehicle to transport produce to market	576.67	6.40	III
4	Frequent price fluctuations	589.22	6.52	IV

Source: Field Survey data

Retailers realize very less bargaining power and fetch relatively very less price, that positioned first with Garrett score 45.67.

The third ranked constraint was lack of vehicle to transport produce to market with the mean score 6.40. As the small farmer didn't possess own vehicle to transport produce to market, he is seeking help from transport service providers, for whom small farmers have to pay for transport cost. Pandit and Basak (2013) ranked lack of vehicle carrying to distant market (16).

The last ranked constraint was frequent price fluctuations with mean score of 6.52. The prices of vegetables were frequently fluctuating depending on the supply and demand.

CONCLUSIONS

Agro-ecological constraints faced by small vegetable farmers were less farm holding, more dependence on monsoon, irrigation problem, lack of irrigation water and land or soil problems. Technical constraints were high pest damage, high wages of labour, more disease attack, lack of proper varieties (quality seed), lack of farm machinery, low germination and perishability problems. Socio-economic constraints were Credit problems, high cost of inputs, inadequate inputs, lack of help from local government and poor extension services. Marketing constraints were middle men, low price during harvest, lack of own vehicle to transport produce to market and frequent price fluctuations.

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