Application of Garret Ranking in Studying the Problems of Ginger Production of West Garo Hills District of Meghalaya

ABSTRACT

The present study was conducted in the West Garo Hills district of Meghalaya State to recognize the constraints in ginger production and marketing as perceived by the ginger growers. Garrett ranking was used. For this study, respondents was selected by using a random sampling method. To derive the inferences of the study, three blocks was selected for the present study. The study covered 300 farmers in the selected villages. Data collected for the study about the period 2021-22. Primary data was collected from selected ginger growers through personal interview methods with the help of a pretested schedule. The main production constraints noticed were problems of storage, disease occurrence, lack of access to credit, inadequate training facility, lack of quality seeds, fragmented land holdings, high cost of inputs, the problem of power supply, damage due to attack of wild animals and variability of rainfall. The main marketing constraints were high price fluctuations, high transportation charges, marketing through middlemen, non-availability of a large market in the locality, absence of market information, inadequate market infrastructure, high rent charges by market committee, absence of price support programs, lack of processing unit in the local area and lack of demand of produce.

Keywords: Ginger crop, production, marketing constraints.

Introduction

Agriculture is the primary profession of the people of Meghalaya. About 83 % of the state's total population depends on agriculture for their living. However, agricultural land is only 48 % of the entire geographic area of the state. The state offers scope for various crops because of highly varied topography, altitude, and climatic conditions. Ginger is one of the state's commercial crops grown in Jhum land without manures, fertilizers, or pesticides. Ginger production is concentrated mainly in East Garo Hills, West Garo Hills, and Ri-Bhoi districts. Many ginger varieties are grown in Shing Bhoi, Shing Bhukir, China, Maran, Nadia, Thingpuri, Wynad, Khasi local, and Tura. The freshly harvested ginger is used for consumption in whole Meghalaya. Intermediaries sell the excess amount outside the region at meager prices. Sometimes, due to marketing problems, the farmers cannot sell their crops since there is less of a prominent local market to absorb and handle fresh ginger in large quantities. (Mawlong, 2017).

Ginger is ready to be harvested within 210 to 240 days. At that time, its leaves became yellowish and the shoots started to die when it completed the first life cycle. Many farmers do not harvest the ginger crop after the first cycle. They continue to irrigate after that also. and the second cycle begins with the progress of a particular rhizome. The second cycle's production is one and a half times greater than the first.

Materials and Methods

The study was based on primary data collected in the West Garo Hills district of Meghalaya. For this study, three blocks was chosen. In the selected area, the study covered 300 farmers. Data for the study was collected in the year 2021-22. Primary data was gathered from

selected ginger growers using a personal interview method and pre-tested schedules to obtain information on constraints in the production and marketing of ginger-related issues. The obtained data was compiled, ordered and analyzed to achieve the study's aim. A schedule was created following the existing literature to analyze the limits. As a result, restrictions were discovered and subdivided into production and marketing constraints, following which the sample farmers' responses were recorded. Simple statistical tools like Garrett's Ranking Technique was used to analyze the data.

Analytical Tools Garrett's Ranking Technique

The ranks given by the respondents were then converted into percentage positions with the help of the formula given by Garrett. Garrett's formula for converting ranks into percent is:

$$\text{Percent position} = 100(R_{ij}-0.5) / N$$

Where,

R_{ij} = rank given to the i^{th} item by the j^{th} individual and

N = number of items ranked by the j^{th} individual.

The per cent position of each rank thus obtained was converted into scores using Garrett's table. Then for each reason, the scores of individual respondents was added and divided by the total number of respondents. Thus, the mean score for each constraint is ranked by arranging them in descending order. The Garett Score is presented below in Table:1

Table:1 Garett Score

Sl.No.	100(RIJ-0.5)/Nij	Calculated Value	Garett Value
1	100(1-0.5)/10	5	82
2	100(2-0.5)/10	15	70
3	100(3-0.5)/10	25	63
4	100(4-0.5)/10	35	58
5	100(5-0.5)/10	45	52
6	100(6-0.5)/10	55	47
7	100(7-0.5)/10	65	42
8	100(8-0.5)/10	75	37
9	100(9-0.5)/10	85	30
10	100(10-0.5)/10	95	18

Result and Discussion

1. Production constraints faced by Ginger growers

   In the research area, the problems faced by the farmers in the production of ginger are depicted in Table 1.2. The production problems faced by farmers are presented in rank according to Garrett's ranking technique. There are ten major problems in ginger production as stated by the sample farmers. The results from the table reveal that the problem of storage was the major problem faced by sample ginger farmers, which was

ranked first with Garrett's score of 78.84. It is found to be a major problem in the study area. The second major problem faced by the sample farmers was the lack of access to credit facilities and Garrett's score was 68.11. Lack of quality seeds was another major problem faced by ginger farmers in the study area with Garrett's score of 54.71 and ranks third among the respondents.

It recognizes that inadequate training facilities, high input costs, variability of rainfall, and fragmented land holdings occupy fourth, fifth, sixth and seventh positions respectively, with Garrett's scores of 52.52, 49.54, 46.17, and 45.97. Disease occurrence was another problem faced by ginger farmers in the study area, ranking eighth with Garrett's score of 43.2. (Zalkuwi et.al 2015, Kuthe and Singh 2015).

Based on the experiences of farmers, it is considered that Damage due to the attack of wild animals was also one of the reasons that affected the expected growth of ginger plants and the problem of power supply was also a major problem reported by ginger farmers with Garrett's score 38. 70 and 20.57 which are ranked ninth and tenth respectively (Viraja et.al 2018)**.**

The production problems the farmers face in the study area are presented in Table 1.2.

Table:1.1 Rank entered by the Respondents

Sl.No	**Production Problems**	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**	**9th**	**10th**	Total number of respondents
1	Problem of storage	221	79	0	0	0	0	0	0	0	0	300
2	Diseases occurrence	0	0	120	0	0	0	0	0	180	0	300
3	Lack of access to credit	0	219	81	0	0	0	0	0	0	0	300
4	Inadequate training facility	79	0	0	71	30	0	0	0	120	0	300
5	Lack of quality seeds	0	0	0	199	25	76	0	0	0	0	300
6	Fragmented land holdings	0	2	0	30	0	131	137	0	0	0	300
7	High cost of inputs	0	0	0	0	199	93	0	0	0	8	300
8	Problem of Power Supply	0	0	19	0	0	0	5	0	0	276	300
9	Damage due to attack of wild animals	0	0	0	0	0	0	101	199	0	0	300
10	Variability of Rainfall	0	0	80	0	46	0	57	101	0	16	300

Table:1.2 Computation of Garett Value for Production Problems of Ginger Crop

Sl.No	**Production Problems**	Rank												
		1st	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**	**9th**	**10th**	**Total Score**	**Total Mean Garett Score**	**Rank**
1	Problem of storage	18122	5530	0	0	0	0	0	0	0	0	23652	78.84	I
2	Diseases occurrence	0	0	7560	0	0	0	0	0	5400	0	12960	43.2	VIII
3	Lack of access to credit	0	15330	5103	0	0	0	0	0	0	0	20433	68.11	II
4	Inadequate training facility	6478	0	0	4118	1560	0	0	0	3600	0	15756	52.52	IV
5	Lack of	0	0	0	11542	1300	3572	0	0	0	0	16414	54.71	III

	quality seeds													
6	Fragmented land holdings	0	140	0	1740	0	6157	5754	0	0	0	13791	45.97	VII
7	High cost of inputs	0	0	0	0	10348	4371	0	0	0	144	14863	49.54	V
8	The problem of Power Supply	0	0	1197	0	0	0	5	0	0	4968	6170	20.57	X
9	Damage due to attack of wild animals	0	0	0	0	0	0	4248	7363	0	0	11611	38.70	IX
10	Variability of Rainfall	0	0	5040	0	2392	0	2394	3737	0	288	13851	46.17	VI

2. Marketing Constraints faced by ginger growers

The problems faced by the farmers in the marketing of ginger are depicted in Table 2.2. The marketing problems faced by farmers are presented in rank according to Garrett's ranking technique. There are ten major problems in ginger marketing as stated by the sample farmers. The results from the table reveal that high price fluctuation was the major problem faced by sample ginger farmers, which was ranked first with Garrett's score of 75.8. It is found to be a major problem in the study area.

The second major problem faced by the sample farmers was the lack of demand for produce and Garrett's score was 65.79. High transportation charges was another major problem faced by ginger farmers in the study area with Garrett's score of 61.28 and ranks third by the respondents. It recognizes that non -availability of a large market in the locality, marketing through middlemen, lack of processing unit in the local area and absence of price support programmes occupy fourth, fifth, sixth and seventh positions respectively, with Garrett's scores of 59.65, 49.05, 46.97 and 37.21. High rent charges by the market committee was another problem faced by ginger farmers in the study area, ranking eighth with Garrett's score of 36.27. (Viraja et.al 2018).

Table: 2.1 Rank entered by the Respondents

Sl.No	**Marketing Problems**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	Total number of respondents
1	High Price fluctuations	145	155	0	0	0	0	0	0	0	0	300
2	High transportation charges	0	0	199	99	2	0	0	0	0	0	300
3	Marketing through middleman	0	0	0	1	121	178	0	0	0	0	300
4	Non-availability of a large market in the locality	0	0	101	198	0	1	0	0	0	0	300
5	Absence of market information	0	0	0	2		0	199	0	0	99	300
6	Inadequate market	0	0	0	0	0	0	0	120	180	0	300

	infrastructure											
7	High rent charges by market committee	0	35	0	0	78	0	0	0	84	103	300
8	Absence of price support programmes	0	66	0	0	0	0	0	100	36	98	300
9	Lack of processing unit in the local area	0	0	0	0	99	100	101	0	0	0	300
10	Lack of demand of produce	155	44	0	0	0	21	0	80	0	0	300

Table:2.2 Computation of Garett Value for Marketing Problems of Ginger Crop

	COMPUTATION OF THE GARETT S VALUE	Rank												
Sl. No	**Marketing Problems**	**1st**	**2nd**	**3rd**	**4th**	**5th**	**6th**	**7th**	**8th**	**9th**	**10th**	**Total Score**	**Total Mean Garett Score**	**Rank**
1	High Price fluctuations	11890	10850	0	0	0	0	0	0	0	0	22740	75.8	I
2	High transportation charges	0	0	12537	5742	104	0	0	0	0	0	18383	61.28	III
3	Marketing through middleman	0	0	0	58	6292	8366	0	0	0	0	14716	49.05	V
4	Non-availability of a large market in the locality	0	0	6363	11484	0	47	0	0	0	0	17894	59.65	IV
5	Absence of market information	0	0	0	116		0	8358	0	0	1782	10256	34.19	IX
6	Inadequate market infrastructure	0	0	0	0	0	0	0	4440	5400	0	9840	32.8	X
7	High rent charges by the market committee	0	2450	0	0	4056	0	0	0	2520	1854	10880	36.27	VIII
8	Absence of price support programmes	0	4620	0	0	0	0	0	3700	1080	1764	11164	37.21	VII
9	Lack of processing unit in the local area	0	0	0	0	5148	4700	4242	0	0	0	14090	46.97	VI
10	Lack of demand for produce	12710	3080	0	0	0	987	0	2960	0	0	19737	65.79	II

Based on the experiences of farmers, it is considered that the absence of market information was also one of the reasons that affected the marketing of ginger and inadequate market infrastructure was also a major problem reported by ginger farmers with Garrett's scores of 34.19 and 32.8, which are ranked ninth and tenth respectively.

The marketing problems the farmers face in the study area are presented in Table 2.2.

Conclusion

Ginger is one of the most essential spices and is used as an important ingredient in culinary all over the world. The results of Garrett's ranking technique on the production of ginger

revealed that problems of storage and lack of access to were the major problems in production. The Farmers felt that high price fluctuations and lack of demand for produce were the major problems in marketing. Hence, establishing contract farming between ginger growers and ginger processing units will reduce price fluctuation and provide remunerative price to the ginger growers during peak season. To overcome the problems, the major suggestions given by the respondents were; the provision of minimum support price for ginger growers followed by the provision of information about current marketing situations, provision of sufficient storage facilities and providing village-level marketing would be highly beneficial in giving them the most recent market information which in turn increase their profits by selling their produce at highest prices.

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