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Groundnut Production and Marketing Constraint as Perceived by the Farmers of Wanaparthy District Telangana

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Abstract

The present study was conducted during March to June 2021–2022 in Wanaparthy district, of Telangana State. The objective of the study was to investigate and analyse the perceived constraints of the groundnut farmers in this district encounter in both the production and marketing phases. A sample of 120 groundnut farmers within Wanaparthy district was selected for the study. To rank the various constraints, the study utilized Garrett's ranking technique, a statistical tool designed to provide a clear hierarchy of constraints based on their perceived severity. Data collection was carried out through a pre-tested interview schedule. The results revealed that the most critical constraint farmers faced was the limited access to improved, or pure seed varieties. This was identified as the top-ranked constraint followed by low germination rates of available seeds, which further exacerbated production challenges. Many farmers also reported encountering spurious seeds being sold in the market. Another major constraint highlighted in the study was the inadequacy of extension services provided to the farmers. In response to these findings, the study recommended stronger collaboration between public and private stakeholders to improve seed quality and availability. It stressed the need for certified seeds and better information dissemination to farmers. Additionally, enhancing the export quality of groundnuts was proposed as a way to increase profitability and make agriculture more sustainable and financially viable in the long run.

Keywords: Constraints, groundnut, production technology, garrett ranking technique

1. Introduction

Groundnut (*Arachis hypogaea*) is a significant self-pollinated crop cultivated worldwide in the tropics and subtropics, valued both as a grain legume and an oil crop. It is known by various names such as peanut, goobe, goober pea, pindar, or monkey nut depending on the region, it is primarily grown for its edible seeds. Belonging to the botanical family Fabaceae (or Leguminosae), commonly referred to as legumes, groundnuts, like any other legumes, host nitrogen-fixing bacteria in their root nodules, which enhance soil fertility, making them beneficial in crop rotations (Seijo Guillermo et al., 2007). Nutritionally, groundnuts provide approximately 570 calories 100 g^{-1} and are rich in essential nutrients such as B vitamins, vitamin E, and dietary minerals including manganese (95% DV), magnesium (52% DV), phosphorus (48% DV), and dietary fiber (Kaushik, 1993, Rai et al., 2020). They also contain about 25% protein 100 g^{-1}, a higher proportion compared to many tree nuts (Raja Madhushakar et al., 2022)

India ranks as the world's second-largest producer of groundnuts, following China. In India groundnut which occupies first position in terms of area and second position in terms of production after soyabean. Groundnut contributes significantly to the country's oilseed production, accounting for half of the total output (Anonymous, 2023). In India, groundnut cultivation is predominantly concentrated in the southern and northwestern states. Amongst Telangana stands first in area with 1.14 lakh ha followed by Karnataka (1.01 lakh ha), Andhra Pradesh (0.23 lakh ha), Odisha (0.16 lakh ha), Tamil Nadu (0.15 lakh ha) along with Gujarat, Maharashtra and Madhya Pradesh which together occupy 84% of the acreage in India (Raja Madhushakar et al., 2022).

The crop is mostly grown under irrigation sources during the Rabi season and is cultivated across almost all districts, with Nagarkurnool, Wanaparthy, Vikarabad, Nalgonda, and Gadwal districts recording the highest cultivation areas in 2022–23 (Anonymous, 2023). However, the total oilseed

production, especially of groundnuts, saw a significant decline in 2022–23 compared to the previous year. The cultivated area for groundnuts in 2022–23 decreased to 1,07,870 acres from 2,70,435 acres in 2021–22.

There have been notable fluctuations in both the area under cultivation and the production of groundnuts in the state. The agricultural department has encouraged paddy farmers, particularly in Nagarkurnool and Wanaparthy districts, to switch to groundnut cultivation, considering these districts' favourable conditions for groundnut growth. However, despite efforts, farmers have struggled to achieve desired yields and competitive prices for their groundnuts (Anonymous, 2022).

In this context, the study was conducted in Wanaparthy district of Telangana, where groundnut cultivation is predominantly undertaken during the post-rainy season (*rabi*) and to a lesser extent during the rainy season (*kharif*). The preferred cultivar among farmers is Kadiri 6 (K 6), followed by TAG 24. In Wanaparthy district, groundnut cultivation covered 32,798 acres in 2021–22, but this decreased to 15,040 acres in 2022–23. Despite the reduction in cultivated area, farmers encountered difficulties in achieving their target yields due to various factors.

According to Banla et al. (2018), groundnut yields have been declining due to the absence of organized breeding programs addressing production constraints. Factors such as diseases, insects, and drought are significant challenges in groundnut production (Banla et al., 2018). Similarly, in Tanzania, Happy et al. (2018) highlighted that groundnut production is hindered by numerous biotic and abiotic stresses as well as socioeconomic constraints. Kalyan et al. (2011) identified problems faced by the farmers were lack of improved seeds, insufficient extension services, and shortages of gypsum and fertilizers (both organic and inorganic).

Thus, this study aimed to investigate farmers' perceived constraints on production and marketing in Wanaparthy district, Telangana. Addressing these constraints is crucial not only for sustaining groundnut production and ensuring farmers' livelihoods but also for meeting global demand for this valuable crop.

2. Materials and Methods

The proposed study was undertaken in Wanaparthy district of Telangana, India during March–June, 2021–22 in which Ex-post facto research design used. A sample of 30 groundnut farmers purposively from each 4 adopted villages of KVK (Nervin, Biniyadpuram, Miyapur and Ranipet Thanda) of 4 mandals (Kothakota, Pebbair, Chinnambhavi and Wanaparthy respectively) of Wanaparthy district. This a total of 120 groundnut farmers were selected for the study from Pedamandadi and randomly. Primary data regarding different constraints perceived by the farmers were collected through personal interview method using a well-structured interview schedule.

The constraints were ranked based on Henry Garrett Ranking Technique. In this technique, farmers were asked to rank the constraints from most serious constraint to the least serious constraint in Table 1. In Table 2, percent position was calculated using the following formula. Percent position was converted into Garrett value using conversion table given by Garrett and Woodworth Garret and Woodworth (1969).

Percent position=100 (Rij–0.5)/Nj
Where, Rij=Rank given for the i^{th} variable by j^{th} respondents
Nj=Number of constraints ranked by j^{th} farmer

In Table 3, for each constraint, the scores of each farmer were added together and then divided by total number of farmers selected for the study to obtain mean score. Ranks were assigned based on descending order of mean score i.e., from highest to the lowest mean score. All the calculations were done using Windows Statistical Package of Social Sciences (SPSS) version 16.0.

3. Results and Discussion

As per the data represented in The Table 1 the ranking of farmers on the constraints perceived in production and marketing of Groundnut crop. Among 120 of farmers selected, the constraint that is Low germination percentage was ranked as first by 24 farmers which is the major constraint according to the table 1 on the other hand the second factor Quoting of lower price for the price in the market was ranked as first by 13 farers followed by 09 gave second rank and 10 of them mentioned it as least constraint. It is highlighted from the table that, the factor 'Requirement high investment-Risk aversion' as the first rank preferred by the respondents. The Garret table values and calculated value of each constraint (factors) of quality seed production showed in

The Table 2, obtained by calculating percent position formula for each factor. The result is provided in Table 3. The values from the above table are obtained by multiplying the ranks of each factor, with the obtained Garrett values for each percentage position value, obtained from the Table 4. Finally, by adding each row, the total Garret score were obtained. The finial position/ranks of factors/constraints in quality seed production at farmer's level were obtained by taking mean score of each total score obtained by adding each row in Garret ranking method.

Where "Least access to improved/pure seed" obtained 1st position. The results are in line with Abady et al. (2019) where in their study, majority (75.5%) of the farmers reported a lack of information about improved varieties in their areas where as, low germination percentage and Spurious seeds in the market are in 2^{nd}, 3^{rd} positions followed by, Inadequate extension services received 4^{th} position which is in line with the results drawn by Abady et al. (2019) shows that there is poor access to extension services (41.5%), the study also showcases that the stronger the linkage between technology provider institutes and extension service providers stronger the technology adoption. and Water management (No.

Table 1: Depicts the ranking given by the farmers towards the constraints perceived in groundnut farming (n=120)

Sl. No.	Constraints	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
1.	Lower yields	11	16	14	8	11	10	10	9	11	14	3	3
2.	Least acceptance of new seed variety in the market (other than K6 and Tag 24)	13	9	14	11	9	14	12	9	10	7	2	10
3.	Low germination percentage	24	12	11	9	10	10	14	5	10	6	2	7
4.	Lacks the information on new seed material and its availability	9	13	12	11	16	7	17	11	10	6	4	4
5.	Limited knowledge on groundnut processing	14	12	12	8	12	14	10	6	8	7	7	10
6.	Water management (No. of irrigation and irrigation on critical stages)	11	19	12	10	14	10	11	10	7	3	3	10
7.	Inadequate extension services	13	13	10	13	19	6	13	11	5	9	2	6
8.	Least access to improved/pure seed	19	17	13	12	10	7	11	6	9	7	4	5
9.	Spurious seeds in the market	11	11	12	19	17	9	11	9	5	7	4	5
10.	Lack of information on recommended chemical dos-age for pest and disease management	15	16	11	9	9	12	10	6	10	7	7	8

Table 2: Percent positions and their corresponding Garrett table values

Ranks	Calculated value (100*(Rij-0.5)/Nj)	Garrett table values
1	100*(1-0.5)/12	4.166666667	84
2	100*(2-0.5)/12	12.5	72
3	100*(4-0.5)/12	29.16666667	61
4	100*(5-0.5)/12	37.5	56
5	100*(6-0.5)/12	45.83333333	52
6	100*(8-0.5)/12	62.5	44
7	100*(9-0.5)/12	70.83333333	39
8	100*(10-0.5)/12	79.16666667	34
9	100*(11-0.5)/12	87.5	27
10	100*(12-0.5)/12	95.83333333	16

Table 3: Computation of the Garrett's value

Constraints	Rank												Total	Average	Finial ranks
	1×84	2×72	3×66	4×61	5×56	6×52	7×48	8×44	9×39	10×34	11×27	12×16			
Lower yields	924	1152	924	488	616	520	480	396	429	476	81	48	6534	54.45	6
Least acceptance of new seed variety in the market (other than K6 and Tag 24)	1092	648	924	671	504	728	576	396	390	238	54	160	6381	53.175	10
Low germination percentage	2016	864	726	549	560	520	672	220	390	204	54	112	6887	57.39167	2
lacks the information on new seed material and its availability	756	936	792	671	896	364	816	484	390	204	108	64	6481	54.00833	9

Table 3: Continue...

Constraints	Rank												Total	Average	Finial ranks
	1×84	2×72	3×66	4×61	5×56	6×52	7×48	8×44	9×39	10×34	11×27	12×16			
Limited knowledge on groundnut processing	1176	864	792	488	672	728	480	264	312	238	189	160	6363	53.025	11
Water management (No. of irriga-tion and irrigation on critical stag-es)	924	1368	792	610	784	520	528	440	273	102	81	160	6582	54.85	5
Inadequate extension services	1092	936	660	793	1064	312	624	484	195	306	54	96	6616	55.13333	4
Least access to improved/pure seed	1596	1224	858	732	560	364	528	264	351	238	108	80	6903	57.525	1
Spurious seeds in the market	924	792	792	1159	952	468	528	396	195	238	108	80	6632	55.26667	3
lack of information on recom-mended chemical dosage for pest and disease management	1260	1152	726	549	504	624	480	264	390	238	189	128	6504	54.2	8

Table 4: Ranking of farmers perceived constraints on production and marketing of groundnut crop

Sl. No.	Constraints	Final rank averages
1.	Least access to improved/pure seed	57.52
2.	Low germination percentage	57.39
3.	Spurious seeds in the market	55.26
4.	Inadequate extension services	55.13
5.	Water management (No. of irrigation and irrigation on critical stages)	54.84
6.	Lower yields	54.45
8.	Lack of information on recommended chemical dosage for pest and disease man-agement	54.2
9.	Lacks the information on new seed material and its availability	54
10.	Least acceptance of new seed variety in the market (other than K6 and Tag 24)	53.17
11.	Limited knowledge on groundnut processing	53.02

of irrigation and irrigation on critical stages received 5th position which is in line with the results drawn by Abady et al. (2019) shows that farmers identified the one of the major groundnut production constraints was drought stress (90% of respondents), and as follow.

4. Conclusion

The major constraints perceived by the groundnut farmers in production and marketing of groundnut crop in study area were least access to improved or pure seed of preferred variety, low germination percentage, spurious seed in the market, inadequate extension services standing out as a major constraint.

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