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Production constraints faced by the farmers in groundnut, sesame and sunflower cultivation in Andhra Pradesh

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Abstract
Increased edible oil demand in the country propel to probe the production constraints in oilseeds cultivation. Andhra Pradesh is one of the major states in India in terms of area and production of important oilseed crops. Present study investigates the production constraints faced by the farmers in groundnut, sesame and sunflower cultivation in the state. Stratified multistage random sampling technique was adopted for the sample design encompassing the sample size of 440 oilseed farmers. Sampled farmers were personally interviewed with the help of pre-tested schedules. Garrett's ranking technique was used to rank the intensity indicated by the respondents among different constraints. To conclude, factors *viz.*, the lower spread of suitable high yielding varieties/hybrids, moisture stress, high costs of production; untimely availability of inputs; low and fluctuating prices were found to be some of the key production constraints confronted at the farm level for the cultivation of all the three important oilseed crops in the state.

Keywords: Production constraints, groundnut, sesame, sunflower, Andhra Pradesh

1. Introduction
The per capita food consumption (kcal/person/day) is estimated to be 2,980 by 2050 with 38% contribution from oil products, which reflects the prospects of increased demand for vegetable oils in the dietary composition and emphasizing for increased productivity of edible oils on the global platform that include India as well (Kumar, 2015) [5].

The per capita consumption of vegetable oil which was 9.50 kg per annum during 1999 -2000 increased to 19.20 kg per annum during 2019-2020. This upsurge is attributed to changing life style, rise in population, increasing out of home consumption, increasing per capita income, price elasticity of edible oils favouring consumer and the import tariff rates announced by the government from time to time. However, self-sufficiency of oilseeds achieved during the "Yellow Revolution" in the early 1990s could not be maintained in the present millennium, and currently, India is one of the major importers of vegetable oils the world, with imports of about 15 million tonnes and an exchequer of Rs. 82,098 crores for 2020-21. In current scenario, increased edible oil demand in the country propel to probe the production constraints in oilseeds cultivation.

Andhra Pradesh is one of the major states in the country in terms of area and production of important oilseed crops. Among the nine annual oilseed crops grown in the state, groundnut and sesame occupy the principal share in terms of area and production. These crops are important at global, national and state level, due to their significant contribution to the edible oils. Sunflower, which was introduced in the later half of 1970's performed very well in the initial years after its introduction with high growth rates. However, due to numerous factors, the trends of area and production of the crop declined.

Numerous research studies were carried out by many researchers to identify the constraints in production of oilseed crop at state and national level. Review of literature regarding the constraints in the cultivation of oilseeds is presented here:

Madhusudhana (2013) [6] studied the problems of groundnut production in Anantapur district of Andhra Pradesh and reported that, due to lack of irrigation facilities and poor alternative cropping patterns in rainfed areas like Ananthapuramu and in other Rayalaseema districts the farmers have been cultivating groundnut crop and mainly depends on it from the last several decades.

Raviya *et al.* (2016) [8] studied the constraints faced by farmers in adoption of recommended groundnut production technologies in Junagadh district of South Saurashtra Agroclimatic Zone of Gujarat State and indicated that failure of crop was attributed due to heavy rainfall (89.16%), timely unavailability of fertilizers (85%), weight and quality loss during storage and transportation (80%), inadequate storage facility (75%), lack of marketing infrastructure facilities (71.66%), fluctuation of groundnut price in the market (66.67%). Farmers in the study area opined that, remunerative price followed by strengthened market facilities, subsidized inputs should be made available to them.

Das and Rout (2018) [3] worked on the economic analysis of sunflower enterprise in Western Odisha and studied the constraints in production of the sunflower crop. The study revealed that, unavailability of labour in peak period, irrigation supply, electricity, lack of storage facility at farm level, weeding problem, unawareness of the seed rate were the major constraints identified in production of oilseed crops.

Patel *et al.* (2018) [7] studied the constraints faced by the groundnut growers in adoption of recommended *kharif* groundnut production technology in Banaskantha district of Gujarat and observed that, the major constraints faced by the groundnut growers in adoption of recommended *kharif* groundnut production technology were; high cost of input (96.67%), high wages of labour (92.00%), high cost of seed (85.33%), lack of pure and good quality seed/certified seed (80.00%), non-availability of sufficient labour in time (72.00%) and lack of improved implements (70.00%).

Veeraiah *et al.* (2019) [9] worked on constraint analysis of groundnut cultivation in YSR Kadapa district of Andhra Pradesh, using interview schedule. The results showed that non-availability of new varieties of seed material, high cost of fertilizers, lack of knowledge on recommended pesticides for each pest and disease, high cost of labour, complications in adoption of improved technology, inadequate quantity of credit, high cost of labour for harvesting, low market price to the produce and occurrence of drought were the important constraints perceived by the majority of respondents.

However, the comprehensive study encompassing all three important oilseed crops in Andhra Pradesh is found scanty. Hence, the present study was undertaken to record the production constraints faced by the farmers in the three important oilseed crops cultivation *viz*., groundnut, sesame and sunflower in Andhra Pradesh.

2. Methodology

Stratified multistage random sampling technique was followed to select the districts, mandals, villages and finally the farmers in the state. The sampling procedure followed is discussed below and tabulated in Table 1.

2.1 Selection of the Districts

Out of the total 13 districts in Andhra Pradesh state, eight districts were selected for the study, where the selected crops were consistently grown. Care was taken to select districts under different agro-climatic zones for the respective oilseed crops. These selected districts were stratified into two categories *viz*., high area and low productivity districts; low area and high productivity districts with respect to selected crops.

2.2 Selection of the Mandals

From each district, based on the mandal wise triennium average of area was obtained from Chief Planning Officer (CPO), top two mandals were selected with respective to each crop.

2.3 Selection of Villages

From each mandal, based on the village wise triennium average of area obtained from CPO, top two villages were selected with respective to each crop.

2.4 Selection of Farmers

From each village, 10 farmers were selected on random basis. Thus, from a district, the sample size is 40 and for the study as a whole, a total of 440 farm households (200 from groundnut, 120 from sesame and 120 from sunflower) formed the basis for the study.

2.5 Data collection

The data used in the study were collected from the selected farmers through personal interview with the help of pre-tested schedules designed for the purpose. The data for the present study pertained to the agricultural year 2017-2018. Frequent problems faced by the farmers were recorded and shortlisted. These numerous constraints were further grouped in to seven prime constraints. Ranking for these seven constraints was recorded from sampled farmers to arrive proper conclusions.

Table 1: Sampling design of the study

Crop	Criterion	Districts	Mandals	Villages	No. of Farmers
Groundnut	High Area & Low Productivity	YSR Kadapa	Gaaliveedu	Pulikunta	10
				Nooliveedu	10
			Lingala	Murarichintala	10
				Kommanuthala	10
		Chittoor	Thambalapalle	Thambalapalle	10
				Kosuvaripalle	10
			Peddathippa-samudam	Rangasamudram	10
				T.sadum	10
		Ananthapuramu	Vajrakarur	Ganjikunta	10
				Pandikunta	10
			Kalyandurg	Manirevu	10
				Muddinayanapalli	10
	Low Area & High Productivity	Srikakulam	Santhakavati	GN Puram	10
				Manthena	10
			Ranasthalam	Sitaramapuram	10
				Ranasthalam	10
		SPSR Nellore	Vidavalur	Kancharlapalem	10

				Ramathirtham	10
			Kavali	Thallapalem	10
				Thummalapenta	10

Table 1: Cont…

Sesamum	High Area & Low Productivity	Vizianagaram	Jiyyamvalasa	Jiyyamvalasa	10
				Bommika Jagannadhapuram	10
			Merakamudidham	Garbham	10
				Byripuram	10
		Prakasam	Racherla	Paluguntipalli	10
				Palakaveedu	10
			Bestavaripeta	Basinepalli	10
				Pittikayagulla	10
	Low Area & High Productivity	YSR Kadapa	Pendlimarri	Ganganpalle	10
				Thippireddypalle	10
			ChinthakommaDinne	Sugali Thanda	10
				Busireddypalle	10
Sunflower	High area & Low Productivity	YSR Kadapa	Kondapuram	ThallaProddatur	10
				Regadipalle	10
			Simhadripuram	Sunkesula	10
				BidinaCherla	10
		Kurnool	Kalluru	Nayakal	10
				Konganapadu	10
			Veldhurthi	Mallepalli	10
				Cherukulapadu	10
	Low area & High Productivity	Prakasam	Chandrashekarapuram	Nallamadugula	10
				Uppalapadu	10
			Komarolu	Allinagram	10
				Chinthalapalli	10

2.6 Garrett's ranking

Garrett's ranking technique was used to rank the preference indicated by the respondents on different factors. This method helps to identify the most significant variable/constraint influencing the respondent. In the current study, the respondents were asked to rank the intensity of seven prime constraints identified. The resultant outcomes of such rankings are converted to per cent position using the formula:

$$\text{Percent position} = \frac{100(R_{ij}-0.5)}{N_j}$$

Where, R_{ij}= Rank given by the i^{th} variable by the j^{th} respondent N*j* =Number of variables ranked by j^{th} respondents

From the Garrett's Table, the percent position calculated is converted into scores. Then for each constraint, the scores of each individual are added and then total value of scores and mean values of score is calculated. The constraint having highest mean value is declared as the most important factor.

3. Results and Discussion

Production constraints faced by sampled farmers in groundnut, sesame and sunflower crops in the study area, which were analyzed using Garrett ranking technique are presented in the Table 2.

Table 2: Production constraints in groundnut, sesame and sunflower cultivation

Sl. no.	Constraints in production	Groundnut		Sesame		Sunflower	
		Mean Garrett Score	Rank	Mean Garrett Score	Rank	Mean Garrett Score	Rank
1	Non-availability of better quality seed	59.25	III	56.84	III	26.60	VII
2	High cost of seeds	71.44	I	-	-	29.92	VI
3	Drought/Water logging	43.28	V	50.22	IV	40.17	V
4	Pest and disease attack	52.10	IV	60.95	II	49.94	IV
5	Low yields	39.24	VI	68.27	I	64.21	II
6	Input intensive nature of production	28.60	VII	-	-	56.72	III
7	Non-remunerative prices/ Fluctuation in prices	68.96	II	48.94	V	70.88	I

3.1 Groundnut

Perusal of Table 2 revealed that high cost of seed was ranked first among all the production constraints. Seed cost is one of the major contributors to the total cost, while non-remunerative prices of the groundnut was identified as second major production constraint. Low prices and high variability in prices; high prices of output prevailing at the time sowing and low / depressed prices at the time of harvesting were some specific causes opined by farmers to face this constraint of non- remunerative prices.

The third major constraint face by the problem was non-availability of better quality seeds. Though there were considerable efforts from the government of Andhra Pradesh to provide seed on subsidy, these subsidies have quantity restriction as specified by government. So, famers invariably depend on other sources for seeds *viz.*, private input dealers, commission agents, progressive farmers, Regional Agricultural Research Stations (RARS) etc., These other

sources, particularly private input dealers and commission agents were not meeting the desired quality standards, as perceived by farmers.

Fourth major constraint faced by the farmer was pest and disease attack. These biotic stresses were frequent and intense in cultivation of groundnut, specifically, insect pests such as tobacco cut worm and aphids; and diseases like stem and collar rot, early and late leaf spot, bud necrosis, stem necrosis etc., were found to be problematic in the study area. Drought, which is a frequent phenomenon in rainfed conditions is the fourth major constraint identified. Farmers resort to life saving irrigation in the study area to tackle this situation.

Low yield was the sixth major constraint observed in the study area. It could be ascribed to many factors like rainfed cultivation of groundnut, prolonged drought spells, lack of good seed, low field level efficiency etc., Input intensive nature of production was the last constraint perceived by the farmers.

3.2 Sesame

Low yields in the sesame was the first major constraint faced by the sampled farmers. This could be attributed to low adaptability of existing High Yielding Varieties (HYVs), low input application, cultivation of the crop under rainfed conditions, minimal inter-cultivation/ management practices etc.

The second most vital constraint was observed as pest and disease attack. Incidence of sesame phyllody was frequently observed in the study area. The third major constraint observed was non-availability of better quality seeds, which is purchased from input dealers or commission agents or traders. More often, farmers using their own seed for the next crop was also evidenced in the study area. The fourth major constraint was observed as moisture stress affecting the yield. The fifth major constraint faced by farmers was non-remunerative prices. Prices were fluctuating and low, which played a pivotal role in allocation of farmers' fields under sesame.

3.3 Sunflower

Non-remunerative prices were found to be first major constraint among the sampled farmers. Effect of trade liberalization, which led to favourable import of sunflower oil may be attributed to this problem. Second major constraint was noticed as low yields, which could be ascribed to extension of sunflower cultivation to marginal and sub-marginal or low fertile lands, high biotic and abiotic stresses.

In order to cope-up with high biotic and abiotic stresses, farmers consistently resort to high input application, which has resulted in the input intensive cultivation of the crop. Hence, input intensive cultivation is ranked third important constraint. Pest and disease attack was ranked fourth, specifically Necrosis and Alternaria leaf spot was the most affected diseases at field level, as opined by the farmers. Drought was found to be fifth most important constraint. Farmers, especially in rainfed ecosystem evidenced the moisture stress ultimately resulting to lower yields. High cost of seed was perceived as sixth major constraint. In sunflower, only hybrid seeds from private companies were prevalent. Eventually, these hybrid seeds cannot be used for the next season by the farmers. This scenario intensified the cost of the seed, as the farmers are entirely depending on private players for the seed. The last constraint opined by the farmers in the study area was non- availability of better quality seed. Farmers experienced poor seed set with smaller head diameter, which ultimately resulting to lower yields.

4. Conclusion

It can be observed that, intensity of perceived constraints faced by the three oilseed crops in the study varied with respective to crop. However, briefly it can be summarized that, factors *viz.*, the lower spread of suitable high yielding varieties/hybrids, moisture stress, high costs of production; untimely availability of inputs; low and fluctuating prices were some of the key production constraints confronted at the farm level for the cultivation of the three important oilseed crops in Andhra Pradesh.

5. References

1. Badhan A, Mousumi MA. Farmers' problems associated with cultivation of sunflower: a case study of Barguna District, Bangladesh. Asian Journal of Agricultural Extension, Economics & Sociology. 2020;38(11):8-14.
2. Chief Planning Officer. Hand book of Statistics of Ananthapuramu, Chittoor, Kurnool, Prakasam, SPSR Nellore, Srikakulam, Vizianagaram and YSR Kadapa.
3. Das LK, Rout RK. Economic analysis of sunflower enterprise in Western Odisha. International Journal of Pure and Applied Bioscience. 2018;6(4):498-505.
4. Directorate of Economics and Statistics. Area, production and production. https://eands.dacnet.nic.in/. 17th May, 2021.
5. Kumar A. Dr. M. V. Rao Lecture on Stakeholders access to oilseed technologies towards self-sufficiency. ICAR-Directorate of Rapeseed Mustard Research. Bharatpur, Rajastan; c2015 February 19. p. 3-9.
6. Madhusudhana B. A survey on area, production and productivity of groundnut crop in India. IOSR Journal of Economics and Finance. 2013;1(3):1-7.
7. Patel SM, Dodiya HD, Prajapati RS. Constraints faced by the groundnut growers in adoption of recommended *kharif* groundnut production technology. International Journal of Chemical Studies; c2018. p. 1443-1444.
8. Raviya PB, Fulmaliya AM, Mavani DB, Kalsariya BN. Constraints faced by farmers in adoption of recommended groundnut production technologies. International Journal of Agricultural Sciences. 2016;8(26):1557-1559.
9. Veeraiah A, Shilpakala V, Ramalakshmi SD, Kumar AK. Constraint analysis of Groundnut cultivation in YSR district of Andhra Pradesh, India. International Journal of Current Microbiology and Applied Sciences. 2019;8(7):1488-1493.