



## Information content needs of farmers regarding redgram cultivation for the development of decision support system

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### ABSTRACT

Ascertaining the information needs of farmers engaged in redgram (pigeon pea or arhar) cultivation is essential for enhancing productivity and sustainability. Farmers often face many challenges regarding redgram cultivation. This approach ensures the dissemination of relevant, timely and actionable knowledge, thereby empowering farmers to make decisions and improve their income and resilience. This study was conducted in the year 2025 among 120 farmers selected from three mandals, from which four villages were chosen randomly. Ten persons in each village were selected randomly in those chosen villages of Prakasam district (Andhra Pradesh) to find their information needs regarding redgram Cultivation. The study revealed that the majority of the farmers are cultivating redgram and they don't know much information about modern agriculture, like the adoption of precision farming, digital tools and climate-resilient technologies, which have transformed traditional farming into a data-driven and efficient system that maximizes productivity while ensuring sustainability. They needed information regarding different aspects of cultivation of redgram, mainly regarding intercrops, selection and source of high-yielding varieties, pest and disease management. Mostly information required regarding integrated nutrition management, protected agriculture, weather information, post-harvest storage. To address these information needs, we attempted to access farmers with the Decision Supporting System, which includes all the recommended cultivation content related to the redgram, which we developed as a part of our research.

**Keywords:** *Information needs; Prakasam District and Redgram*

Agriculture plays a vital Role in India's socio economic fabric, supporting rural livelihoods, ensuring food and nutritional security and sustaining agro-industries (FAO, 2021; Singh *et al.*, 2020). Among pulse crops, redgram (*Cajanus cajan*) stands out for its protein content, nitrogen-fixing ability and suitability in crop rotations (Reed *et al.*, 1989; Mallikarjun and Devaraja, 2023). In Andhra Pradesh, Prakasam leads with 60,000 hectares under redgram cultivation within the state's 323 kg ha<sup>-1</sup> average productivity (ANGRAU Crop Outlook Report, 2023-24). Yet, redgram yields in Prakasam continue to lag, reflecting a critical need to address production bottlenecks.

Farmers encounter numerous agronomic challenges, including erratic rainfall, pest outbreaks, soil degradation and entrenched use of traditional cultivation practices (ANGRAU Redgram Outlook, 2023-24). Studies across India demonstrate that farmers frequently lack essential information on variety selection, soil and water testing, integrated nutrient

and pest management, herbicide use, post-harvest handling and market trends (Singh *et al.*) In Uttar Pradesh, over 70% of farmers reported significant information deficiency in sowing operations, pest control, fertilizer regimes, storage and irrigation practices-highlighting widespread knowledge gaps across crops (Singh *et al.*, 2024).

Pinpointing the specific information needs of redgram growers in Prakasam is therefore indispensable for fostering improved production outcomes. Research in nearby regions shows that farmer demographics (e.g., education level, mass-media exposure, mobile usage) strongly influence their information-seeking behaviour and sourcing choices (Vardhan and Prabhavathi, Andhra Pradesh; Karan and Ghosh, Bihar). A Karnataka-based study on redgram growers also underscores the importance of inclusive extension, using multiple channels-government, private, NGO, ICT for delivering need-based advisories (Borah *et al.*).

This study thus focuses on developing a detailed socio-economic and communication profile of Prakasam's redgram growers and systematically identifying their priority information needs at different crop stages: pre-sowing, cultivation, pest and disease management, harvesting, post-harvest handling and marketing. By aligning extension strategies with these specific needs, agricultural programs can become more relevant, accessible and impactful. Empowering farmers to make informed decisions, adopt scientific practices and drive sustainable increases in productivity and rural incomes (Anderson and Feder, 2004; Braun *et al.*, 2000; Van den Ban and Hawkins, 1998).

## MATERIAL AND METHODS

The study was conducted in the year 2025 among three purposively selected mandals namely

Darsi, Kanigiri and Podili in the district of Prakasam which was purposively chosen as it consists highest redgram cultivation area (ANGRAU Crop Outlook Report, 2023-24). Four villages from each mandal were selected randomly. From each village ten farmers were selected randomly. Thus a total of 120 farmers were selected as the sample for the study. All the cultivation practices of redgram from land preparation to post-harvest handling along with some supportive facts was included to ascertain the needs of the farmers to improve the productivity percentage by providing them right and timely information on redgram cultivation. An appropriate schedule was used for collecting different data using personal interviews and group discussion methods. The data collected were tabulated and analyzed statistically for interpretation of results.

**Table 1. Information needs regarding redgram cultivation**

S.No	Information needs on crop husbandry	No. of Farmers	
		Weighted Mean Score	Rank
<b>A. Seasons and soil suitability</b>			
1	Rabi season cultivation practices	2.65	I
2	Difference between kharif and rabi season cultivations	2.43	II
3	Suitable seasons for redgram cultivation	2.1	III
4	Recommended season	2	IV
5	Type of soil suitable for redgram cultivation	1.58	V
<b>B. Variety</b>			
6	Contact details of the source of seed	2.55	I
7	Source of suitable HYV seeds	2.45	II
8	Characteristics of a suitable HYV	2.35	III
9	Recommended high-yielding variety (HYV) suitable for different seasons and areas	2.32	IV
10	Cost of seeds	1.7	V
<b>C. Land preparation and sowing</b>			
11	Recommended seed spacing	2.27	I
12	Recommended method of sowing	2.21	II
13	Recommended seed rate	1.8	III
14	Time of sowing	1.7	IV
15	Place of availability of seed treatment inputs	1.54	V
16	Depth of sowing	1.44	VI
17	Price of seed treatment inputs	1.42	VII
18	Soil treatment inputs	1.41	VIII
19	Seed treatment inputs	1.38	IX
20	Recommended land preparation practices	1.37	X
21	Gap filling method	1.3	XI
22	Place of availability of soil treatment inputs	1.28	XII
23	Price of soil treatment inputs	1.27	XIII

S.No	Information needs on crop husbandry	Weighted Mean Score	Rank
<b>D. Fertilizer management</b>			
24	Calculating the dose of chemical fertilizer	2.51	I
25	Deficiency symptoms of nutrients	2.44	II
26	Nutrient Requirements of Redgram	2.21	III
27	Method, time and dosage of fertilizer application	2.16	IV
28	Making organic manure from farm waste	1.97	V
29	Organic manure types and dosage	1.69	VI
30	Green manuring	1.44	VII
31	Bio-fertilizers usage	1.42	VIII
32	Place of availability of fertilizers	1.28	IX
33	Price of fertilizers	1.2	X
<b>E. Weed management and Intercultivation</b>			
34	Chemical weed control methods	2.64	I
35	Precautions while applying weedicides	2.08	II
36	Inter-cultivation operations	2.04	III
37	Specific method of application	1.78	IV
38	Hand weeding practices	1.31	V
<b>F. Water management</b>			
39	Drought management methods	2.81	I
40	Critical stage of irrigation	2.35	II
41	Method of irrigation	1.72	III
42	Schedule of irrigation	1.4	IV
<b>G. Intercrops</b>			
43	Type of recommended intercrops	2.7	I
44	Ratio of intercrops	2.67	II
45	Fertiliser doses for each type of intercrop	2.6	III
<b>H. Insect Pest Management</b>			
<b>i. BORERS:</b>			
46	Spotted pod borer	2.96	I
47	Gram pod borer	2.91	II
48	Red gram pod fly	2.8	III
49	Stem fly	2.69	IV
50	Plume moth	1.8	V
51	Blue butterfly	1.19	VI
<b>ii. SAP FEEDERS:</b>			
52	Eriophyid mite	2.59	I
53	Leaf hopper	2.35	II
54	Pod bugs	2.32	III
55	Whitefly	2.26	IV
56	Lab, Labbug or stink bug	1.6	V
57	Aphids	1.29	VI
<b>iii. LEAF FEEDERS:</b>			
58	Leaf webber	2.84	I
59	Leaf folder	2.61	II
60	Redgram leaf roller	1.92	III
<b>iv. FLOWER FEEDERS:</b>			
61	Blister beetle	2.92	I
62	Flower Webber	2.45	II

S.No	Information needs on crop husbandry	No. of Farmers	
		Weighted Mean Score	Rank
<b>I. Disease management</b>			
63	Dry root Rot	2.71	I
64	Fusarium Wilt	2.7	II
65	Pigeon pea sterility mosaic	2.65	III
66	Alternaria leaf Spot	2.63	IV
67	Mungbean yellow mosaic virus	2.6	V
68	Powdery mildew	2.42	VI
<b>J. Nutritional Disorders</b>			
69	Zinc	2.65	I
70	Iron	1.85	II
<b>K. Farm machinery</b>			
71	Cost of the machinery	2.46	I
72	Source of farm machinery for purchase	2.45	II
73	Type of farm machinery available for redgram cultivation	2.13	III
<b>L. Harvesting and Post-harvest technology</b>			
74	Value addition to redgram	2.72	I
75	Grading, Threshing, packaging and forwarding of Redgram to the market	2.7	II
76	Storage pest management	2.58	III
77	Farm-level processing of redgram	2.55	IV
78	Time of harvest	1.41	V
79	Method of harvesting	1.39	VI
80	Care after harvesting of redgram	1.36	VII
81	Care during harvesting of redgram	1.22	VIII
<b>M. Supportive facts</b>			
82	Contact numbers for agro advisories	2.8	I
83	Information and contact details of extension centres (KVKs/DAATTCs)	2.59	II
84	Source of weather forecast	2.58	III

## RESULTS AND DISCUSSION

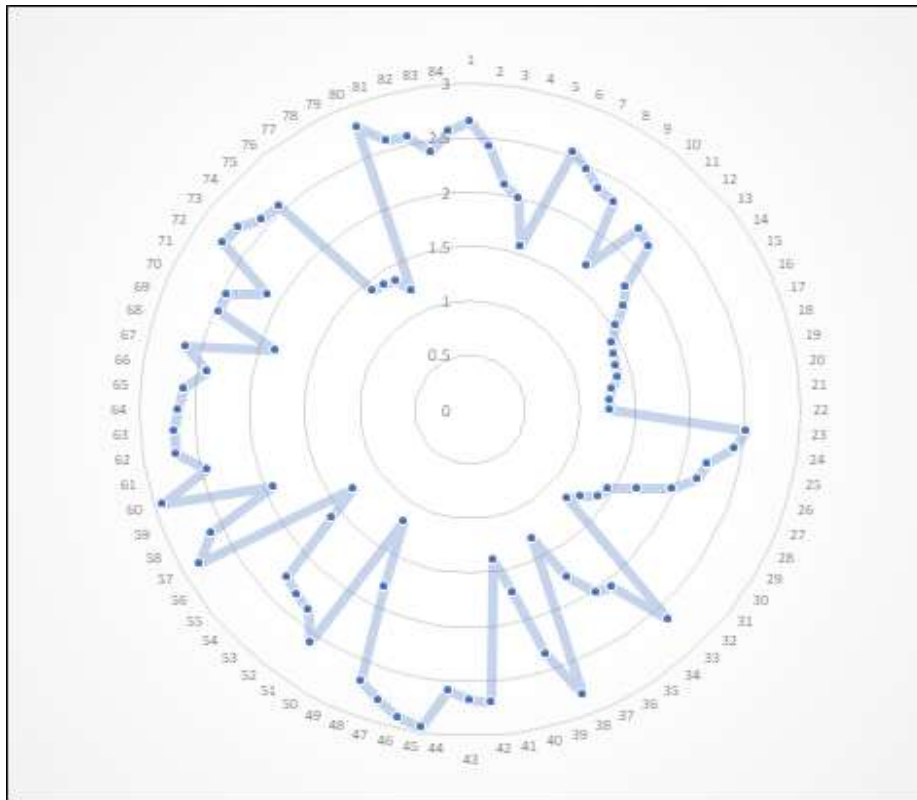
The information needs considered for the study were seasons and soil suitability, variety, land preparation and sowing, fertilizer management, weed management and inter cultivation, need based water management, intercrops, pest and disease management, nutritional management, farm machinery, harvesting and storage and supportive facts. The data analyzed in this respect and presented in Table 1 and Fig 1.

The present study systematically assessed the information needs of farmers regarding various aspects of redgram cultivation. The data, categorized into multiple thematic areas provides clear insights into the prioritized domains where knowledge gaps exist. It is revealed that from the data in Table 1 under seasons and soil suitability, the most sought-after information was regarding rabi season cultivation

practices (WMS: 2.65), followed by understanding the difference between kharif and rabi seasons (2.43). This indicates that seasonal planning remains a critical concern for farmers. Notably, the type of soil suitable for redgram was ranked the lowest (1.58), suggesting either awareness or a lack of perceived importance

In the variety category, contact details for seed sources (2.55) and access to HYV seeds (2.45) emerged as key needs, emphasizing the significance of seed accessibility. Similarly, under land preparation and sowing, information about recommended seed spacing (2.27) and sowing methods (2.21) ranked high, reflecting farmers' inclination towards precision agriculture for optimizing yields.

Fertilizer Management needs revealed a preference for understanding chemical fertilizer dosages (2.51) and nutrient deficiency symptoms (2.44), indicating a tilt towards evidence-based



**Fig 1. Information needs across redgram production stages**

nutrient management. Conversely, awareness regarding organic manure and bio-fertilizer was comparatively low (below 2.0), pointing to a possible knowledge gap in sustainable practices.

When it comes to weed and water Management sections revealed highly ranked needs across various pests and diseases. For instance, spotted pod borer (2.96), dry root rot (2.71) and zinc-related disorders (2.65) were top concerns. These findings stress the need for timely pest/disease identification and integrated management strategies. In terms of Insect pests management, farmers showed interest in getting the information regarding spotted pod borer as highest among the borers (2.96) followed by eriophyid mite (2.59) among mites, leaf webber (2.84) under leaf feeders, and blister beetle (2.92) under flower feeders for timely identification and to take management strategies accordingly.

In terms of farm mechanization, farmers showed interest in cost and availability of machinery (2.46, 2.45), suggesting that affordability and access remain significant barriers. The harvesting and post-harvest needs prominently featured value addition (2.72) and grading and marketing logistics (2.70), highlighting a shift towards income enhancing practices beyond production.

Lastly, under supportive information, access to agro-advisory contacts (2.80), extension centers (2.59) and weather forecasts (2.58) were ranked high, reaffirming the growing importance of reliable and timely information in enhancing decision-making and risk mitigation.

## CONCLUSION

The analysis of information needs across various aspects of redgram cultivation reveals significant knowledge gaps among farmers, particularly in areas such as seasonal planning, pest and disease management, fertilizer application and post-harvest handling. Highly weighted mean scores in categories like drought management, pest control and agro-advisory services highlight the farmers' demand for timely and actionable information to enhance productivity and reduce crop losses. Furthermore, the emphasis is on seed accessibility, modern cultivation techniques and sustainability. These findings emphasize the need for robust, localized and demand-driven agricultural extension services that cater specifically to the prioritized needs of redgram growers. Addressing these needs effectively will not only improve redgram production but also contribute

to the socio-economic well-being of farming communities.

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