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### Constraints and suggestions as expressed by Redgram farmers for low productivity in Anantapur district of Andhra Pradesh

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#### Abstract

India is the world's top producer and consumer of pulses. A purposive and random sampling technique was used for the study and conducted in KVK operated mandals of Anantapur district. Six mandals of KVK operational area were selected purposively where Cluster Front-Line Demonstrations were conducted and from each mandal 20 farmers were selected randomly, thus making a total of 120 respondents for this study. An *ex-post facto* research design was used and the data were collected by interview method and enquired about the constraints faced by them for low redgram productivity and queried suggestions to overcome the constraints faced by them. From the study, it was revealed that major constraints of the farmers faced were uncertainty in rainfall during crop growth period (95%) followed by lack of irrigation facility (85%) and low production due to pest and disease infestation (85%), shortage of labour during critical stages (82.5%) and High price of herbicide/fungicide/Pesticide (80%) as reported by the farmers. Among the suggestions offered by farmers it was the provision of inputs at subsidized rates (92.5%) ranked first followed by development of Short duration varieties resistant to pest and diseases. (87.5%) ranked second and assured market and remunerative prices for redgram particularly during drought (80%) ranked third.

**Keywords:** Constraints, suggestions, productivity, technology

#### Introduction

India's population is predicted to grow to 1.68 billion people by 2030, with projected pulse requirement of 32 million with an anticipated required growth rate of 4.2% (IIPR Vision-2030 2011) [7]. To safeguard its own pulse production, India must not only grow enough pulses but also maintain its competitiveness. In view of this, India has to develop and adopt more efficient crop production technologies along with favorable policies to encourage farmers to bring more area under pulses (Gowda *et al.* 2013) [5]. India is the world's top producer and consumer of pulses. The major pulse crops include chickpea, pigeon pea, mungbean, urdbean and lentil, of this pigeon pea popularly known as redgram, arhar or tur is predominantly grown in *kharif* season either as sole or intercrop in various agro-ecological conditions. Its deep rooting and drought tolerant characters makes it a successful crop in the areas of low and uncertain rainfall. Its deep roots system extracts nutrients and moisture from deeper soil layers, making it ideal for rainfed situations (Ramesh and Rao 2013) [13]. According to FAO data, redgram covers 63.57 lakh hectares globally, producing 54.75 lakh tons with a productivity of 861.25 kg per hectare (FAO STAT, 2021) [4]. In India, redgram ranks second in total pulse production behind Bengalgram. India is the world leader in redgram production with 43.4 lakh tons growing in 49.8 lakh hectares with productivity of 871 kg/hectare (agricoop.nic.in, 2022) [3]. The top producing states were Maharashtra and Karnataka with 12.98 and 12.40 lakh hectares, respectively. Andhra Pradesh produced 0.66 lakh tons of redgram, contributing for 1.52% of total

Indian production on an area of 2.52 lakh hectares with 363 kg/hectare yield. In Andhra Pradesh, Anantapur district has an area of 47000 ha and produces 4000 tons with an average yield of 73 kg/ha as compared to 363 kg/ha of state productivity (ANGRAU 2022) [1]. Anantapur farmers have a number of limitations, which contribute to their low productivity. The constraints include low and variable rainfall often with midseason drought, inadequate irrigation facilities, declining soil fertility due to poor crop management, low nutrient application, limited support services such as extension and credit facilities, pests and diseases etc. Therefore, it was thought necessary to identify the main causes of the low productivity of redgram in farmers fields. Keeping these facts in mind, the present study was undertaken to know about the constraints faced by redgram growers in Anantapur district and to seek suggestions from the redgram farmers to overcome the constraints faced by them.

#### Materials and Methods

The study was carried out in Anantapur district which comes under scarce rainfall zone of Andhra Pradesh. Six mandals of KVK operated area were selected purposively where Cluster front-line demonstrations (CFLDs) were conducted and from each mandal 2 villages were selected purposively by KVK. Ten farmers from each village were selected randomly, thus making a total of 120 respondents for this study. An *ex-post facto* research design was used and the data were collected by interview method (Online/Offline) and enquired about the constraints faced by

them for low redgram productivity and suggestions required to overcome those constraints. Data was collected from selected farmers utilizing a pre-tested standardized questionnaire administered via personal interviews. The surveys were pre-tested on a group of farmers from the study area. Data collection was done in the month of July, 2023 along with support of programme assistants at KVK supporting the process and assisting illiterate farmers. The collected data were classified, tabulated and analyzed by using statistical measures such as frequency, percentage and mean score. Rank was also provided under various constraints and suggestions on the basis of the percentage and the data was tabulated, analyzed and conclusions were drawn keeping objectives of the study in mind.

## Results and Discussions

### Constraints faced by the redgram growers

Redgram productivity in the study area was limited by various constraints and the adoption of improved redgram production technology was evaluated on ten criteria. Table 1 validates that uncertainty in rainfall (95%) was recognized as a major constraint with great intensity by redgram farmers, as evidenced by the first rank, followed by lack of irrigation facility and low production due to pest and disease infestation (92.5%) both ranked II, shortage of labour during critical stages (82.5%) ranked III, high price of herbicide/fungicide/pesticide (80%) ranked IV, lack of knowledge about critical stages of irrigation and pest management (77.5%) ranked V, non-availability of appropriate market price for redgram (75%) ranked VI, lack of guidance about recommended technology (67.5%) ranked VII, less availability of improved seed at village level (60%) ranked VIII and lack of timely and appropriate extension services (52.5) ranked IX. Because of the aforementioned constraints majority of farmers in the district are unable to get adequate productivity from the redgram crop in the district. Hanif *et al.* (2024) [6] also found that pulses yields are low in Cauvery delta region, with the primary reason being high incidence of pest and diseases, poor marketing guidance, lack of technical knowledge and low market

price. Similar findings of constraints for low productivity and adaption of recommended crop technology were also reported by Jayswal *et al.* (2019) [8], Biradar *et al.* (2022) [2], Shashikant *et al.* (2011) [16] and Rao *et al.* (2020) [14].

### Suggestions from the respondents to overcome constraints faced by them

The suggestions are a viewpoint of constraints that can be applied to mitigate or eliminate them. To improve redgram productivity, a dependable extension strategy must be developed based on the feedback from the respondents. The constraints they encounter can occasionally be imagined, while other times they result from a lack of coordination across many levels. As a result, in this study, all farmers were asked to make useful suggestions to overcome the constraints faced by them at various levels to improve redgram productivity and economic stability for farm produce. The data presented in Table 2 indicated that out of all ten suggestions offered by farmers, the most important suggestion offered was that provision of inputs at subsidized rate (92.5%) ranked first followed by development of short duration varieties that are resistant to pest and diseases (87.5%) ranked II, assured market and remunerative prices for redgram particularly during drought (80%) got III rank, establishing an organized supply chain without many intermediaries. (77.5%) ranked IV, Implements for deep ploughing and moisture conservation should be made available at village level (72.5%) ranked V, regular demonstrations for controlling pests and diseases in redgram (70%) ranked VI, provision of biofertilizers and biopesticides at mandal level for efficient redgram production (65%) ranked VII, provision of infrastructure [irrigation facilities, electricity] (62.5%) ranked VIII, provision for suitable market infrastructure (transportation, storage, weighment facilities) (60%) ranked IX and provision of storage and processing facilities (55%) ranked X. Similar suggestions for improving productivity and income of farmers were also reported by Patel *et al.* (2024) [12], Murugan *et al.* (2024) [10], Parvathisankar (2023) [11], Mallikarjun *et al.* (2024) [9].

**Table 1:** Distribution of redgram farmers based on their constraints

| S. No | Constraints   | No. | %    | Rank |
|-------|---|-----|------|------|
| 1     | Non-availability of appropriate market price for farm Produce             | 90  | 75   | VI   |
| 2     | Less Availability of improved seed at village level                       | 72  | 60   | VIII |
| 3     | Uncertainty of rainfall   | 114 | 95   | I    |
| 4     | Shortage of labour during critical stages                                 | 99  | 82.5 | III  |
| 5     | Lack of knowledge about critical stages of irrigation and pest management | 93  | 77.5 | V    |
| 6     | Lack of timely and appropriate extension services                         | 63  | 52.5 | IX   |
| 7     | Low production due to pest and disease infestation                        | 102 | 85   | II   |
| 8     | High price of herbicide/fungicide/Pesticide                               | 96  | 80   | IV   |
| 9     | Lack of irrigation water  | 102 | 85   | II   |
| 10    | Lack of guidance about recommended technology                             | 81  | 67.5 | VII  |

**Table 2:** Farmers suggestions for overcoming constraints for redgram production

| S. No | Suggestion  | No. | Percent | Rank |
|-------|---|-----|---------|------|
| 1     | Provision of inputs at subsidized rates   | 111 | 92.5    | I    |
| 2     | Development of Short duration varieties resistant to pest and diseases.                           | 105 | 87.5    | II   |
| 3     | Assured market and remunerative prices for redgram particularly during drought years              | 96  | 80      | III  |
| 4     | Establishing an organized supply chain without many intermediaries.                               | 93  | 77.5    | IV   |
| 5     | Implements for deep ploughing and moisture conservation should be made accessible at ground level | 87  | 72.5    | V    |
| 6     | Regular demonstrations for controlling pests and diseases in redgram                              | 84  | 70      | VI   |
| 7     | Provision of biofertilizers and biopesticides at mandal level for efficient redgram production.   | 78  | 65      | VII  |
| 8     | Provision of infrastructure [irrigation facilities and electricity]                               | 75  | 62.5    | VIII |
| 9     | Provision for suitable market infrastructure (transportation, storage, weighment facilities)      | 72  | 60      | IX   |
| 10    | Provision of storage and processing facilities  | 66  | 55      | X    |

### Conclusion

From the above study it can be concluded that out of all constraints reported by the respondents, uncertainty in rainfall during crop growth period, lack of irrigation facility, low production due to pest and diseases were top three major constraints for low productivity in redgram, whereas in case of suggestions, provision of inputs at subsidized rate, development of short duration varieties that are resistant to pest and diseases and assured market and remunerative prices for redgram particularly during drought were top three most important suggestions among farmers.

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