

## Nutrient Deficiencies in Redgram: Symptoms and Management Practices

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Redgram (*Cajanus cajan*), commonly referred to as Arhar or Tur, is one of the most significant pulse crops cultivated in India. It plays a crucial role in rainfed, and dryland agriculture and serves as an integral component in multiple cropping systems. Redgram is grown both as a sole crop and as an intercrop alongside groundnut, millets, cotton, and other pulses. It is extensively consumed across South Asia and constitutes a major dietary source of protein for the Indian subcontinent. The protein content in pigeonpea is approximately 20-21%, and its nutritional profile is comparable to other grain legumes. Owing to its deep root system and drought tolerance, redgram is highly suitable for rainfed cultivation, and performs reasonably well under adverse agro-ecological conditions with minimal inputs. As a leguminous crop, it contributes significantly to soil fertility by fixing atmospheric nitrogen, and adding substantial organic matter to the soil, thereby sustaining productivity under low-input systems. Redgram is adaptable to a variety of soil types including red loam, sandy, gravelly, and black soils and can be cultivated in upland and lowland situations, including marginal or slightly alkaline soils. However, improper nutrient management often leads to multiple nutrient deficiencies, which can severely restrict plant growth and productivity. A comprehensive understanding of these deficiencies is critical for effective management, and sustainable production.

### 1. Nitrogen (N) Deficiency

Symptoms	Favourable conditions	Corrective measures
Older leaves turn pale yellow starting from dark green and eventually dry and fall off.	Common in Sandy soils, soils with low fertility or those with poor drainage.	To correct nitrogen deficiency, urea was applied as a foliar spray at a concentration of 20 g per litre of water, administered in two applications at 10-day intervals. Ensure adequate soil moisture and improve soil fertility through regular organic matter addition.



**Nitrogen Deficiency in Redgram**

## 2. Potassium (K) Deficiency

Symptoms	Favourable conditions	Corrective measures
Yellowing of leaf margins, which later become scorched or curled inward.	Common in nutrient-deficient sandy soils with poor water-holding capacity.	To correct potassium deficiency, apply potassium nitrate ( $\text{KNO}_3$ ) as a foliar spray at a concentration of 10 g per litre of water, with 2-3 applications given at 4-5 days intervals. Ensure proper soil moisture and incorporate organic matter to improve nutrient retention.



**Potassium Deficiency in Redgram**

## 3. Zinc (Zn) Deficiency

Symptoms	Favourable conditions	Corrective measures
Zinc deficiency is characterized by interveinal chlorosis (yellowing between veins) in younger leaves, the appearance of reddish-brown spots, stunted plant growth, and reduced internodal length.	Common in soils with high pH (>8.0), especially calcareous or alkaline soils.	To correct zinc deficiency, apply 50 kg zinc sulfate per hectare as basal application. For foliar correction, spray 2 g zinc sulfate per litre of water, twice at 7 days intervals. Ensure good soil drainage and avoid excessive liming.



**Zinc Deficiency in Redgram**

#### 4. Iron (Fe) Deficiency

Symptoms	Favourable conditions	Corrective measures
Iron deficiency (iron chlorosis), is characterized by yellowing of young leaves (interveinal chlorosis) while the veins remain green. In severe cases, leaves may turn almost white and growth is stunted.	Common in soils with high lime content and pH above 8.5, particularly in calcareous soils.	To correct iron deficiency, apply a foliar spray containing 5 g ferrous sulfate ( $\text{FeSO}_4$ ) and 1 g citric acid per litre of water, applied twice at 7-day intervals.



**Iron Deficiency in Redgram**

#### References:

- Rakhode, P.N.; M.D. Koche and A.D. Hame. 2011. Management of powdery mildew of green gram. *Journal of Food Legume*, 24(2): 120-122.
- Rama Subbaiah, K., Sampath Kumar, D and Mahesh Babu, T.2022. Assessing the performance of red gram (*Cajanus cajan*) varieties under rainfed condition in Anantapuramu district of Andhra Pradesh. *The Pharma Innovation Journal*. 11(6): 164-166.
- Saroj SK, Singh MN, Yashpal. Inheritance study of pollen fertility restoration in pigeon pea. *Electronic Journal of Plant Breeding*. 2015; 69(1): 81-86.
- Vijayprabhakar, A and C. Jayanthi, 2018. Study on Growth and Yield Response of Redgram in Various Intercropping System and Its Economics Under Different Land Configurations in North Western Agro Climatic Zone of Tamil Nadu. *Madras Agricultural Journal*. 105 (1-3): 7-12.