CAZRI Moth Bean Varieties

Prelims: *Current events of national and international importance | Environment*

Why in News?

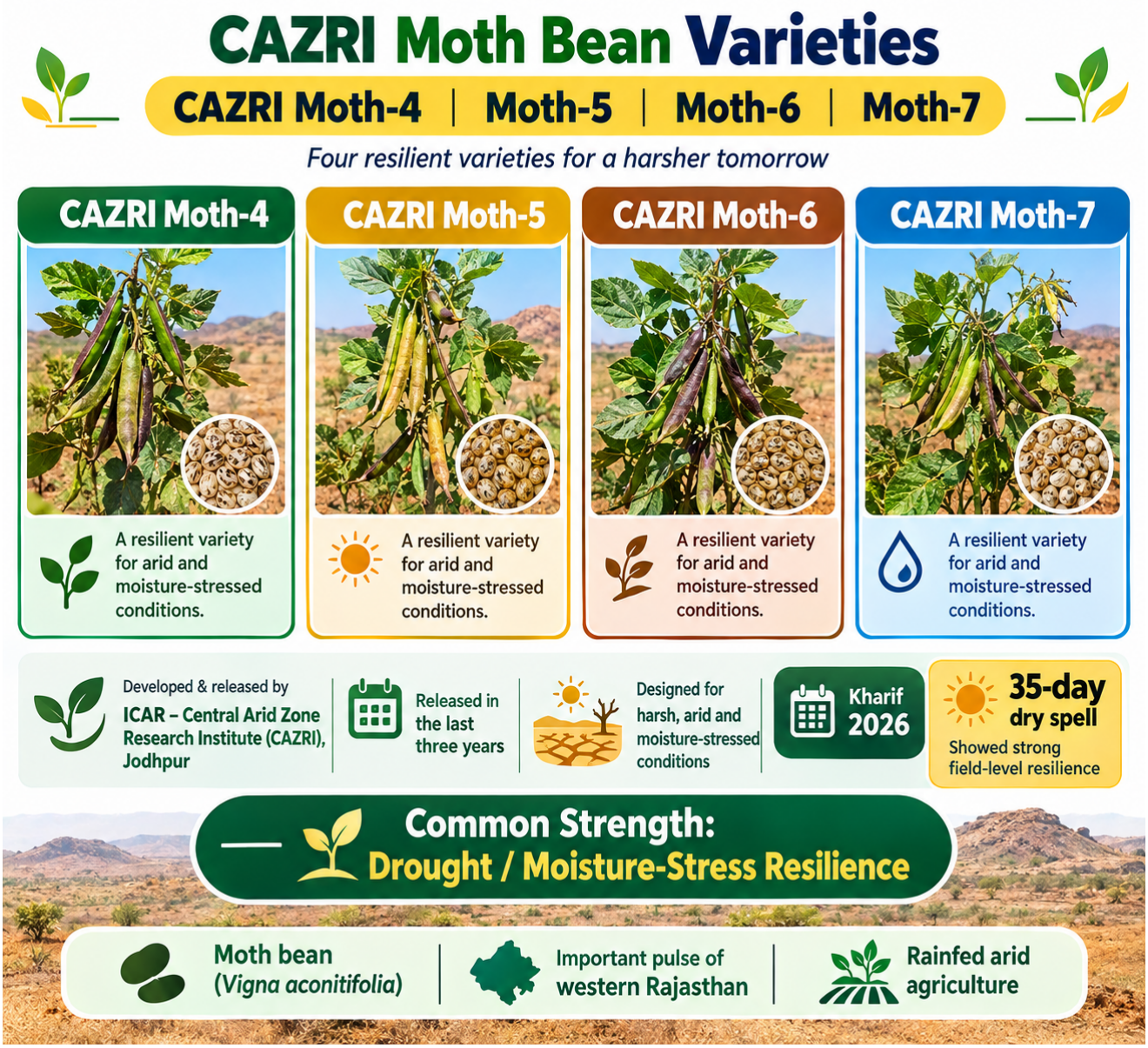
Recently, 4 newly developed drought-tolerant moth bean varieties, CAZRI Moth-4, 5, 6, and 7, developed by the ICAR–Central Arid Zone Research Institute (CAZRI), Jodhpur.

Moth Bean

- It is extremely drought-resistant ***Kharif pulse crop.***
- **Botanical Name -** *Vigna aconitifolia*.
- **Native -** South Asia, predominantly cultivated across hot, rainfed, and marginal desert ecosystems of the Thar Desert (western Rajasthan), Gujarat, Haryana, and Punjab.
- **Agronomic Value**
  - Acts as a vital source of plant-based protein and essential nutrients for arid rural populations.
  - Yields protein-rich green and dry fodder (*pala*) for livestock during dry post-monsoon periods.
  - Assists in soil nitrogen fixation, crop rotation, and sand-dune stabilization.

Key highlights of the recent field performance

- **Severe Moisture Deficit-** During the critical growth phase, the crop experienced a *35-day moisture-less dry spell* with a cumulative pan evaporation of ~180 mm.
- **Resilience at Critical Stage -** Despite surface soil moisture (0–10 cm) dropping from 15–16% to 5–6%, the sub-surface moisture (10–40 cm) sustained the deep root zone, allowing the 55-day-old crop to remain green and set profuse pods.
- **Mechanism of Adaptation**
  - **Early Flowering -** Starts flowering within ~30 days of sowing.
  - **Developmental Plasticity-** The plants dynamically adapt their growth cycle and maturity timeline based on soil water availability.
  - It accelerates reproductive maturity before severe physiological drought sets in.



Optimal Crop Management Practices

- **Sowing Geometry -** Timely sowing with monsoon onset using a spatial arrangement of **45 cm × 10 cm**.
- **Soil Interculture -**Mechanical interculture executed at 20 days post-sowing to conserve soil moisture, break capillary action, and control weeds.
- **Performance in Poor Soil -** Achieved high survival and pod development even under poor soil conditions (low organic carbon of 0.13–0.18% and high alkalinity pH 7.9–8.1).

Reference

Deccan Herald | ICAR-CAZRI's moth bean varieties