



## Name of Solution:

Trait specific germplasm of crops for direct use as variety or use in breeding programme for genetic enhancement, disease and insect resistance, abiotic stress tolerance, quality and climate resilience

**Submitter:** Indian Council of Agricultural Research (ICAR)

**Solution Overview:** *What is it, and what problem does it solve? Brief 2–3 sentence description.*

Trait specific germplasm of crops for direct use as variety or use in breeding programme for genetic enhancement, disease and insect resistance, abiotic stress tolerance, quality and climate resilience.

**Key Features & Benefits:** *Main components and why it is useful? Bullet points summarizing methods, tools, and value added.*

- India has 4.71 lakh accessions of around 2200 species in the national gene bank.
- Germplasm can be used as direct introduction and released as variety based on its performance for yield and other traits
- Germplasm is used in the hybridization programmes for development of high yielding varieties
- Crop wild relatives are used for transferring novel genes conferring resistance/ tolerance to various biotic and abiotic stresses and development of CMS/Restorer lines for hybrid development programme.
- Use of markers assisted selection/ genomic selection can be done for faster transfer of a trait from the potential donor(s).

**Where It Works and Where It Can Work:** *Existing and potential target regions, agroecologies, or farming systems. Include examples if available*

- Germplasm can be used for crop improvement activities in any region of the globe.

**Evidence & Impact:** *What results has it shown? Stats, pilot outcomes, or testimonials*

- Through the use of elite germplasm more than 3000 varieties have been bred in India since 2014. More than 85% of these varieties are having one of more traits for biotic and /or abiotic stresses.

**Scalability & Adoption Support:** *Why it can be scaled and what's needed to adopt it? Low-cost, adaptable, partner-ready, etc.*

- Scalability depends upon the use of germplasm in crop improvement which varieties from programme to programme.

**Partners & Contact Info:** *Who's involved and how to connect? List of key contact and partners + email / phone.*

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