

Yellow Rust and Stem Rust Resistant wheat

Rust-Resistant Wheat for a Flourishing Future

Rust-resistant wheat varieties use All-stage resistance (ASR) and Adult plant resistance (APR) genes to combat rust fungi. ASR provides strong protection but can be overcome by evolving fungi. APR offers partial, longer-lasting, broad-spectrum resistance. Combining ASR and APR enhances resistance.



Symptoms of yellow rust (left) and stem rust (right)

This technology is **TAAT1 validated**.
 Scaling readiness: idea maturity 7/9; level of use 7/9

Gender assessment 4

Climate impact 7

Problem

- Rust Epidemics:** Yellow and stem rust cause significant yield losses and devastate wheat crops in Sub-Saharan Africa.
- Rapid Spread:** These diseases spread rapidly through wind-borne spores, leading to massive losses.
- New Strains & Native Infections:** Continuous emergence of new strains and infections in native grasses make control and eradication challenging.

Solution

- ASR and APR Genes:** Provide strong and broad-spectrum protection against rust fungi at all plant stages.
- High Yield Potential:** Maintain high yield despite rust resistance.
- Robustness:** Exhibit resistance to other diseases and environmental stresses like drought.

Key points to design your project

Rust-resistant wheat varieties mitigate climate change effects on wheat production and contribute to SDGs 2, 5, and 13. Adoption involves:

- Capacity Building:** Training farmers on the benefits and management of these varieties.
- Participatory Variety Selection:** Involving farmers in trials to select suitable varieties.
- Seed Multiplication and Distribution:** Producing and distributing seeds, requiring partnerships with seed companies and local governments.
- Field Demonstrations:** Showcasing the performance of the varieties.
- Monitoring and Evaluation:** Regularly assessing the adoption and impact.
- Advocacy:** Promoting policies and practices that support widespread adoption.

These activities may overlap and their sequence can vary based on the project's context and resources.

4.1 Ton/ha average grain yield
 440 USD Total farming operational costs

Technology originally documented by **ProPAS**

Commodities
Wheat

Sustainable Development Goals

Categories
Production, Improved varieties, Disease resistance, Yield improvement

Best used with

- [Integrated Management of Insects, Diseases and Weeds in Wheat >](#)

