ROK varieties: High Yielding Climate Resilient Rice Varieties for Africa

Climate resilient ROK varieties for enhanced rice productivity and nutrition

This technology is a group of improved rice varieties, ROK 42 and ROK 43, combining higher yield potential, early maturity and adaptation to rainfed lowland and upland conditions. Their tolerance to flooding and iron toxicity or drought can help strengthen domestic rice production, food security and climate resilience.



Africa Rice Center
Zenna Negussie

This technology is pre-validated.

9·9 Scaling readiness: idea maturity 9/9; level of use9/9

Inclusion assessment 12 12 12

Climate impact 6

Problem

- **Low national productivity:** Low rice yields constrain domestic output and progress towards rice self-sufficiency.
- **Food insecurity:** Insufficient and unstable harvests threaten reliable supplies of a major staple food.
- **Climate and soil vulnerability:** Drought, flooding and iron toxicity undermine production across upland and lowland systems.
- **Pests and diseases:** Crop damage reduces harvests and adds uncertainty to national rice supplies.

Solution

- **Increased national output:** Reported yield advantages of approximately 20% for ROK 42 and 15% for ROK 43 over their respective local checks support domestic rice production.
- **Stronger food security:** Yield potentials of 6 t/ha and 4.5 t/ha, respectively, offer scope to increase rice availability under suitable conditions.
- **Climate resilience:** Complementary flood and drought tolerance address risks across rainfed lowland and upland systems.
- **Sustainable intensification:** Higher yields can increase production on existing farmland, while ROK 42's iron-toxicity tolerance supports affected lowlands.

Key points to design your project

ROK 42 and ROK 43 can support national rice productivity and climate resilience when locally validated and deployed through coordinated seed and extension programmes.

- **National value:** Align investment with food security and domestic rice production objectives, using locally verified yield targets.
- **Targeting:** Assess ROK 42 for lowlands affected by flooding and iron toxicity, and ROK 43 for drought-prone uplands and suitable boli systems.
- **Implementation:** Coordinate quality seed multiplication, timely distribution and farmer training, with locally validated crop management guidance.
- **Scaling:** Confirm local suitability and meet national variety requirements before expanding; use adoption, yield and stress-performance data to guide rollout.

1076 USD	1320 USD	244 USD	23 %
Cost per hectare	Revenue per hectare	Net income per hectare	ROI per hectare

IP

Commodities

Rice

Sustainable Development Goals

1 NO POVERTY · 2 ZERO HUNGER · 13 CLIMATE ACTION

Categories

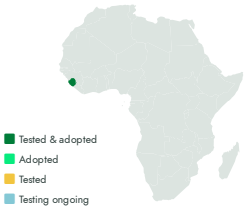
Production, Improved varieties, Disease resistance, Insect resistance, + 2 more

Best used with

Axial flow thresher and improved quality polishing, Integrating rice and fish farming systems

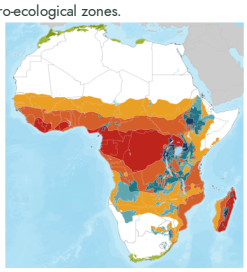
See all 2 technologies online

Tested/adopted in



Where it can be used

This technology can be used in the colored agro-ecological zones.



Target groups

Farmers, Processors, Seed companies, Researcher center, Advisory and Extension Services

Open source / open access

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