

TECHNICAL SHEET

Manual Rotary Weeder

Definition of weeder

The weeder is a hoe for mechanical weeding <https://www.larousse.fr/dictionnaires/francais/sarcluse/70992>.

Mechanical weeders are hand-held devices that provide fast and efficient weeding of seeded or transplanted rice. They can cut, uproot, and bury weeds <https://www.africarice-fr.org/>. This process must be followed by manual weeding of the remaining weeds that are very close to the rice plants. Several types of weeders are available specifically for lowland and upland rice cultivation. <https://www.africarice-fr.org/sarcluse>

Benefits of mechanical weeding (CORAF-PPAAO, 2014)

Mechanical weeding has a number of important benefits. In addition to simply killing weeds, mechanical weeding aerates the soil and reincorporates weeds into the soil to enrich it with more organic matter. It also helps to improve field leveling to reduce puddle areas and redistribute water more evenly across the field. When a weeder is used after irrigation, soil nutrients become more easily soluble, providing an influx of nutrients to the rice plants, and helping to produce a clear fertilizer effect.

All these roles are essential for the use of a weeder, so it is an important management intervention for yield improvement. Furthermore, with each additional weeding (farmers can usually do up to four weeding in a season), yields will continue to increase.

When and how often to use a weeder

- Mechanical weeding should be done just after each watering in irrigated/flooded fields and when the soils are neither too wet nor too dry in rainfed lowland fields. This optimizes aeration and prevents weeds from returning.
- Early in the vegetative growth phase the plants are small and leave plenty of space between the rows for weeding. As the plants grow, the space between the rows becomes crowded and weeding becomes more difficult, and eventually impossible. Farmers can usually do up to four weeding at 7–10-day intervals before running out of space. Once the canopy is formed, shading often provides sufficient weed control.

Limits of the technology

The crops should be row planted with at least 25cm apart which local farmers find it difficult to do. The rotary weeder is 100% metal, which made it prone to rust and corrosion when it meets with water. Also, movement in clay soils is difficult because the weeder easily get stuck in the soil

Targets of the technology

Farm families especially women farmers because of the gender friendliness of the technology.

Application field of the technology

- ✓ Rice farmers
- ✓ Maize farmers

Development or deployment level of technology

The technology still requires upgrading to address some of the challenges observed during the testing before it can be outscaled.

Bibliographic references

CORAF-PPAAO (2014) : Manuel Technique sur le SRI en Afrique de l'Ouest ; Amélioration et mise à échelle du Système de Riziculture Intensive en Afrique de l'Ouest ; 61p.

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<https://www.larousse.fr/dictionnaires/francais/sarcleuse/70992> ; 24/09/2021 at 14h14

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<https://sriwestafrica.files.wordpress.com/2014/05/manuel-technique-sri-v2.pdf> ; 24/09/2021 at 14h47

Other references

National Center of Specialization on Mangrove Rice ; Host Institution: ROKUPR Agricultural Research Center (RARC) ; NSC MEMBER INSTITUTIONS : The ROKUPR Agricultural Research Center (RARC) is one of the eight centres of the Sierra Leone; Agricultural Research Institute (SLARI) ; Host country: Sierra Leone ; Coordinator: Dr Matthew L.S. GBOKU ; Email: m.gboku@slari.gov.sl ; Telephone: +232 78 529 642