

Weed Control

Weeds are any unwanted plant species that compete with crops for sunlight, water, nutrients, air and space, hindering crop growth and in some cases are even toxic to crop plants. Weed control measures can be applied in an integrated manner to help prevent the growth and spread of weeds in agricultural systems. An integrated weed management approach aims to restrict weed growth until a crop is well established and can outcompete weeds. This integrated approach includes biological, chemical, cultural and/or physical tactics to combat weed spread and growth and these practices can be more cost effective than herbicide applications. Integrated weed management is climate smart as it combines multiple climate smart practices that increase farmers resilience, limits GHG releases and increases productivity. Options for weed control include crop rotation, intercropping, cover crops (which can be used as green manure or mulch), mulching, seed-bed preparation, livestock grazing, seed/variety selection, mowing, and hand-weeding.

The application of integrated weed control is climate smart as it reduces herbicide application and reduction in machinery usage (i.e. through no-tillage practices).

MOST SUITABLE AGRO-ECOLOGICAL CONDITIONS

Value chain



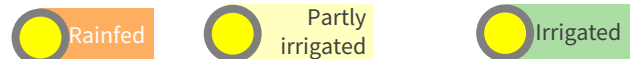
Soil texture



Climatic zone



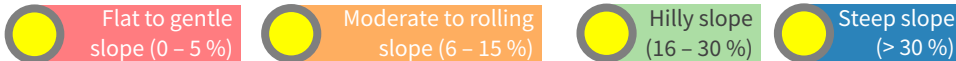
Water source



Annual average rainfall (mm)



Topography



MOST APPROPRIATE CONDITIONS AND REQUIRED INPUTS

Farming system

Does it require collective action



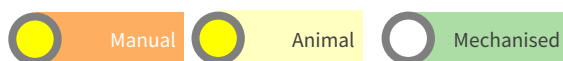
Characteristics



Farm size (ha)

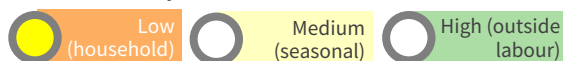


Mechanisation



Human resources

Labour intensity - level of effort

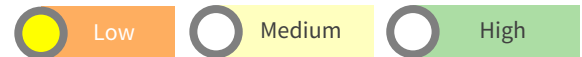


Gender/youth smart (low investment/low labour requirements)

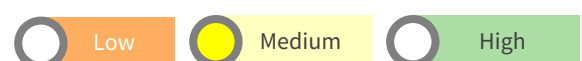


Financial resources

Initial investment



Maintenance Costs



Access to finance capital or credit required



Enabling Environment

Extension support



Access to inputs



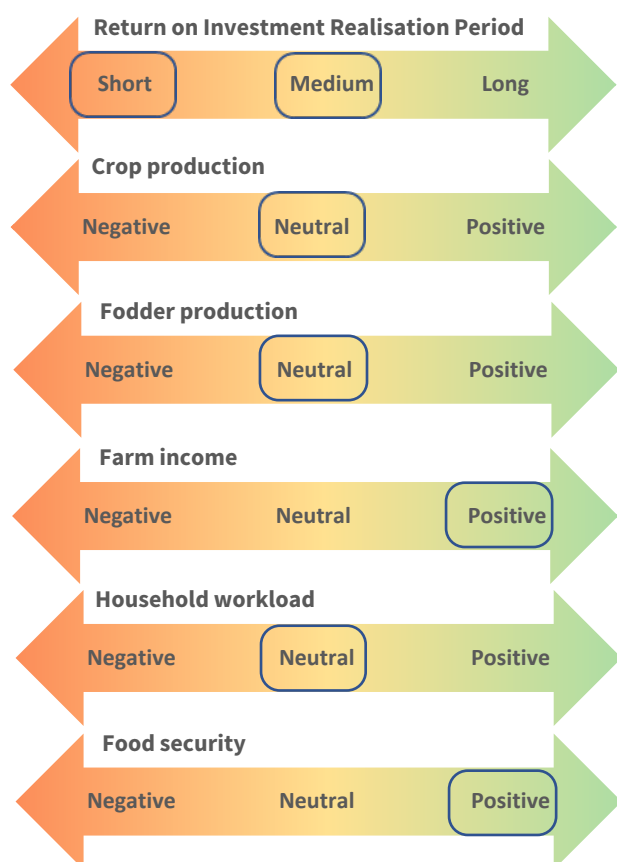
Market access



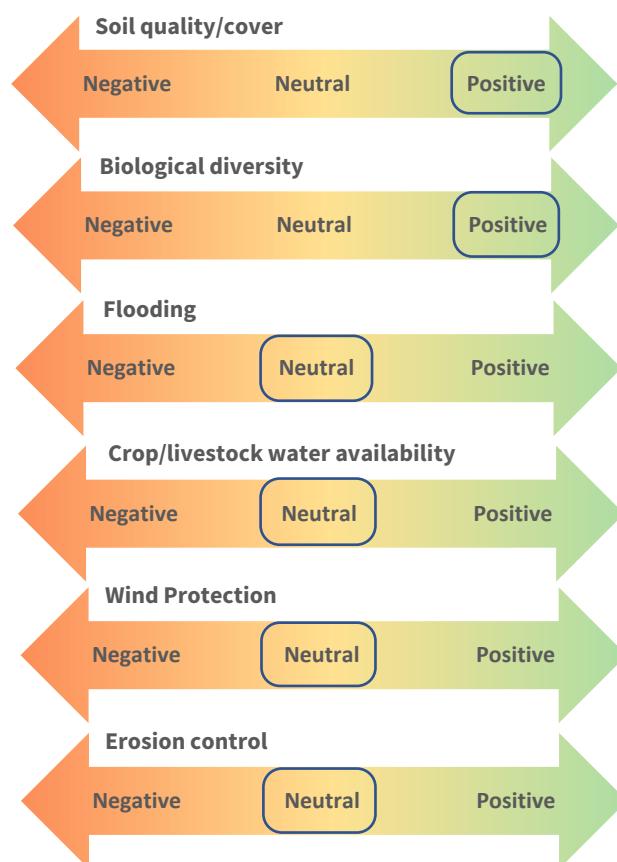
The purpose of this technical brief is to guide where this **practice, technology or strategy** could be applied. It may be applicable in other circumstances, but this brief focuses on where it is possibly **most suitable**. Content is general, and should be contextualised depending upon locality. The brief provides an overview, details of appropriate agroecological characteristics, appropriate conditions and inputs, possible outcomes and impacts, how the **practice, technology or strategy** should be applied, potential benefits and drawbacks, and provides suggestions for further reading in terms of CCARDESA materials and other sources, including those used to develop this technical brief.

POSSIBLE IMPACT/OUTCOMES

Socio-Economic Impacts Positive or Negative



Ecological Impacts Positive or Negative



These descriptors indicate whether the practice, technology or strategy has a positive, neutral, or negative impact or outcome
Those with no box are deemed not-applicable

TECHNICAL APPLICATION

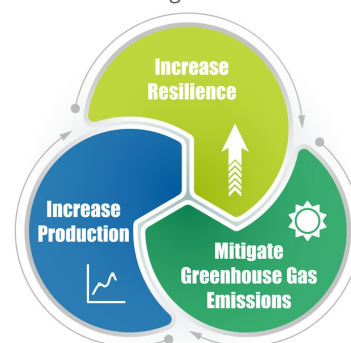
To effectively undertake weed control measures:

- Step 1:** Review weed control measures - crop rotation, intercropping, cover crops, mulching, seed-bed preparation, livestock grazing, seed/variety selection, mowing, hand-weeding and adjustments to tillage practices - and determine which methods are available and appropriate for the farming system and farmer. Two or more of these techniques can be applied to assist in ensuring farmers have more chance of success. Understand possible negative impacts of each weed control method.
- Step 2:** Improve weed identification knowledge in specific areas.
- Step 3:** Prevent weeds from spreading – clean clothes, animals, machinery, vehicles to limit weed transport; use only well stored/rotted manure (4-5 months) (Knowledge Product 16), include fencing, irrigation and other farm ‘breaks’ where possible
- Step 4:** Apply a combination of weed control methods including – cover crops (Technical Brief 15), mulching, intercropping (Technical Brief 07), crop rotation (Technical Brief 09), livestock grazing, seed selection (Technical Brief 20), mowing, hand-weeding. Try to avoid the application of herbicides, tillage and burning.
- Step 5:** monitor and document most effective weed management strategies for each farmer, and use lessons learned from the area with other farmers where applicable.

CLIMATE SMART AGRICULTURE OUTCOME(S)

Reflecting how this **practice, technology or strategy** contributes to Climate Smart Agriculture outcomes

Weed control supports agricultural productivity by removing competition while reducing the need for herbicides.



SUMMARY/KEY ISSUES

Benefits

- Integrated weed management involves employing two or more climate smart practices.
- Reduced consumption of chemicals
- Cost effective methods that do not require additional inputs.

Drawbacks

- More time consuming than applying herbicides or other more destructive methods.
- Strategy requires careful planning
- May not be 100% effective

REFERENCE MATERIAL

CCARDESA Related Content

- CCARDESA, 2019. Knowledge Product 08, Decision Tool: Climate Smart Land Preparation Options.
- CCARDESA, 2019. Technical Brief 07, Intercropping.
- CCARDESA, 2019. Technical Brief 09, Crop Rotation.
- CCARDESA, 2019. Technical Brief 12, No Tillage.
- CCARDESA, 2019. Technical Brief 15, Cover Crops.
- CCARDESA, 2019. Technical Brief 20, Variety Selection.

Additional Information

- The Food and Agriculture Organisation (FAO), 2019. [Integrated Weed Management \(IWM\)](#). Rome, Italy.
- Food and Organisation (FAO), 2006. [Recommendations for improved weed management](#). Rome, Italy.
- Crop Life International, 2012. [Implementing Integrated Weed Management for Herbicide Tolerant Crops](#).