



African Organic Agriculture Manual Booklet Series
No. 9 | Weed Management

HOW DO I MANAGE WEEDS?

What should I know about weeds ?

Weeds can play a valuable role in the farm ecosystem. The better you know their characteristics, the better they can contribute positively to successful farming without becoming harmful.

All plants that compete with our crops for nutrients, water and light, and reduce their harvest and quality are considered weeds. Some plants may also poison domesticated animals when growing on pasture land.

On the other hand weeds provide cover to the soil helping to reduce erosion. They also contribute to biological diversity in the crop fields by providing good living conditions and food for beneficial organisms. Thus we should not struggle to completely eradicate weeds, as they play an important role in the farm ecosystem.

Organic farmers do not try to eradicate all weeds. Rather, they try to keep weed populations in and around the fields at such low levels that they do not become dominant. Poisonous and destructive weeds like *Striga*, however, should be completely removed and destroyed.

Basically, weeds can be grouped into annual and perennial weeds:

Annual weeds are plants that take advantage of temporarily bare soil to produce another generation of seeds before the soil is covered again by crops. They have a short growing cycle, produce seeds, die off and the seeds germinate into new weeds.

Perennial weeds are plants that grow for longer periods, normally for many seasons. They propagate either by seeds or by the spread of vegetative parts, such as roots or tubers, whereby even the smallest root or stem part can reproduce an entire plant.

A good understanding of how weeds behave in relation to the concerned crop and how the crop behaves in relation to weed competition is crucial for efficient management.



Learn to distinguish between the different weeds. This will make their management easier.



Can you answer the following questions about weed species?

- > Is it perennial or annual?
- > Does it spread by seeds, stems or rhizomes?
- > Where does it prefer to grow?
- > When is it easiest to control?

How do I best manage weeds?

Organic weed management excludes the use of synthetic herbicides. Instead it relies on a number of tools for best efficiency. Organic farmers

- › enhance crop growth to increase its ability to out-compete the weeds.
- › monitor weeds regularly to encourage timely intervention.
- › prevent the spread and multiplication of the weeds through seeds and roots by implementing proper soil and crop management.
- › apply direct control measures with minimal negative impact on soil, water, air and biodiversity.

Are you working on improving your weed management strategy?

- › Do you prevent weed growth?
- › Do you choose the ideal timing for weeding?
- › Do you rely on safe and effective control measures?



Covering the soil with mulch



Growing a soil cover in permanent crops



Regular monitoring of weed growth





Repeated pasturing with cattle, sheep and goats in perennial tree crops

Weeding at soil cultivation

Weeding by hand and using tools

When should I start managing the weeds?

A three step approach

Organic weed management can be seen as a three-step approach. Each step consists of multiple tools and builds the foundation for the next step. The aim is to optimize soil and crop management, and habitat management to encourage natural control of weeds. Successful implementation of the preventive measures considerably saves on labour for weeding.

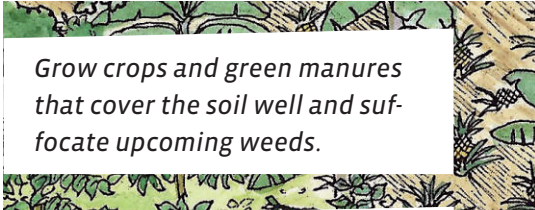
Proper soil and crop management

In a first step organic farmers aim to limit the introduction, the development and the multiplication of weeds with cultural measures.

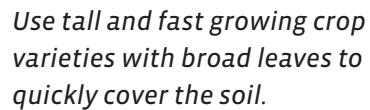
They try to prevent the introduction of weeds through animal manure, infested crop seeds or planting material or machines.

By enhancing rapid crop growth and creating an unstable and often unfriendly environment for the weeds, organic farmers hinder development of weeds. They always try to keep the weeds smaller than the crop to avoid competition.


Removal and proper disposal of weeds that are about to make seeds helps to prevent spreading of annual weeds.



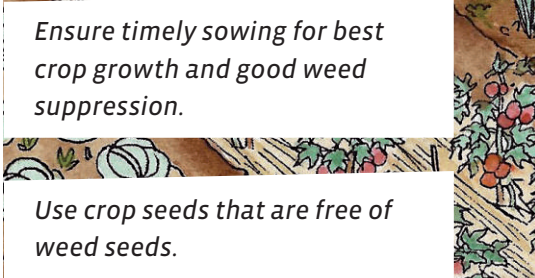
Grow crops and green manures that cover the soil well and suffocate upcoming weeds.



Use tall and fast growing crop varieties with broad leaves to quickly cover the soil.



Ensure timely sowing for best crop growth and good weed suppression.



Use crop seeds that are free of weed seeds.



Prepare the land in a way to promote rapid establishment of the crop.

Dig to a shallow depth only to avoid new weeds from germinating, unless removing rhizomes.

Clean tools and machines before using them in a new field.



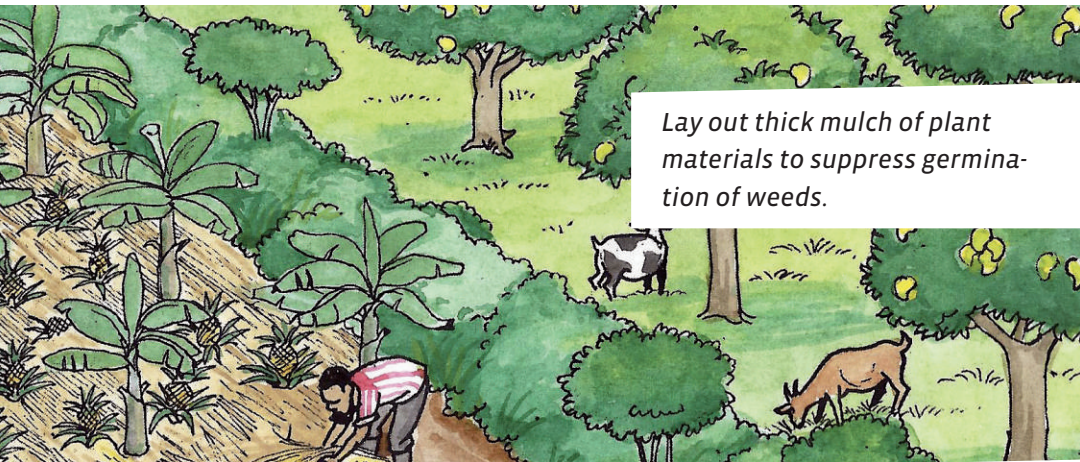
Habitat management

After having optimized the growing conditions for the crops, organic farmers aim to reduce the impact of weeds on growing plants. They do it by

- › intercropping fast growing, weed-suppressive crop species between the rows of the main crop to hinder weed development between the rows.
- › undersowing or cover cropping to cover the ground with a quick-growing, dense layer of vegetation underneath the crop.
- › spreading thick mulches of plant materials to suppress and prevent germination of weeds. This is especially important in the management of noxious weeds with deep rhizomes.
- › repeated pasturing with cattle, sheep and goats to prevent weed growth within perennial tree crops.

Have you ever tried growing a leguminous cover crop underneath a tall growing annual crop or a tree crop to suppress weeds?





Lay out thick mulch of plant materials to suppress germination of weeds.



Repeatedly pasture with cattle, sheep and goats in perennial tree crops.



Direct control

Organic farmers apply direct control measures at critical growth stages of the crop when preventive measures do not prove efficient enough to prevent the weeds from competing with the crop and from producing seeds.

Most weeds are very susceptible to damage during sprouting and when they have 2 to 4 leaves. Thus, effective weed control must take place at this stage of growth. Beyond this stage, it becomes difficult and labour-intensive to control them.

Most crops are sensitive to weed competition during a certain growth period only. After this time, weeds may grow without damaging the crop.

Direct control practices include pulling the weeds by hand or digging or cutting them with a wheel hoe, an ox or tractor-drawn equipment.

Flame weeding just before crop emergence or in early growth stages of some crops is an effective, but expensive method to control weeds.



Ideally weeds are destroyed before the crop emerges, thus giving the young crop a good start.

Depending on the crop, manual weeding in the row is necessary.

Wheeled hoes are very efficient for inter-row weed control in row crops.



Do the weeding when the soil is dry or has little moisture. And preferably loosely spread out the weeds so that they wilt.

Remove competing weeds before they exceed 4 leaves.

This booklet is an outcome of the African Organic Agriculture Training Manual project and was conceived as a handout for farmers.

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