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Session 4.2



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Weed control under Organic Farming

Identification of weeds

- Identify the types of weed in the crop.

<https://www.gov.mb.ca/agriculture/crops/guides-and-publications/pubs/weed-seedling-id-guide-v08.pdf>

<https://www.doyourownpestcontrol.com/SPEC/Articles/Weed-Identification-Guide.pdf>

- Maintain records of the weed and share it with experts.
- Explain clearly about the symptoms and get inputs from experts



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Weed Management

1. Control weeds during ploughing.
2. Undertake mechanical/manual weeding process at appropriate time to avoid crop damage.
 - With the necessary preventive measures, weed density can be reduced, but it will hardly be enough during the critical periods of the crop at the beginning of cultivation. Therefore, mechanical methods remain an important part of weed management



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- Manual weeding is probably the most important one. As it's very labour intensive, reducing weed density as much as possible in the field will bring less work later on and should therefore be aimed at.
- There are different tools to dig, cut and uprooting the weeds; hand, ox-drawn and tractor-drawn tools.
- Using the right tool can increase work efficiency significantly.
- Weeding should be done before the weeds flower and produce seeds.



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- Flame weeding is another option: Plants are heated briefly to 100°C and higher.
- This provokes coagulation of the proteins in the leaves and a bursting of their cell walls.
- Consequently, the weed dries out and dies. Although it is an effective method, it is quite expensive, as it consumes a large amount of fuel gas and needs machinery. It is not effective against root weeds.



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3. Use mulching sheets for cultivation

Mulching: the weeds find it difficult to receive enough light to grow and may not be able to pass through the mulch layer. Dry, hardy material, that decomposes slowly, keeps its effect longer than fresh mulch material.



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4. Use bio-herbicides for weed control wherever feasible
 - The soil-borne fungus *Fusarium oxysporum* (different isolates from Burkina Faso, Mali and Niger) is very effective in reducing the witch weed (*Striga hermonthica* and *S. asiatica*) in different cereal crops, leading to yield increases in scientific trials.
 - Other *Fusarium* species found in Sudan and Ghana are very effective, too (*Fusarium nygamai*, *F. oxysporum* and *F. solani*). This mycoherbicide is on the way to being formulated and registered in different countries in Africa.



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- Rhizobacteria capable of suppressing germination of witch weed (*Striga* spp.) seeds or actually destroying the seeds are particularly promising biological control agents since they can be easily and cheaply formulated into seed inoculants. *Pseudomonas fluorescens putida* isolates significantly inhibited germination of *Striga hermonthica* seeds. However, currently no biocontrol product is available.
5. Use mechanized weed control equipment