

6. Herbicides

Topic 6c

How to Apply Herbicides

FACT SHEET

6. Herbicides

Topic 6c: How to Apply Herbicides

The application of herbicides is the same as any other pesticide. For recommendations on **preparations** and **aftercare** when spraying, see Topic 13c on the use of a knapsack sprayer.

There are several things that need to be taken into consideration when applying herbicides, depending on the **type of herbicide** and the **method of treatment**.

Applying pre-emergence herbicides

- Apply pre-emergence herbicides before the weed seeds germinate.
- Cover the target area completely.
- Apply exactly as described on the label.
- Adhere to the recommended timing on the labels. It will recommend how many days the pre-emergence herbicides must be applied before sowing.

Applying post-emergence herbicides

- Apply post-emergence herbicides **after** the weeds germinate and are actively growing.
- Apply **before** the weeds produce seeds.
- Apply exactly as described on the label.
- Wet the target weeds properly with the herbicide. The better the weeds are covered with herbicides, the better the results.
- Avoid herbicide contact with non-target plants. Herbicides can cause severe damage to non-target plants.
- Only apply to actively growing, healthy weeds. Half-dead or wilted weeds can be skipped.

Spot treatment with herbicides:

- Apply only at the spot where a problem occurs.
- Apply exactly as described on the label.
- Wet the target weeds properly with the herbicide. The better the weeds are covered with herbicides, the better the results.
- Avoid herbicide contact with non-target plants. Herbicides can cause severe damage to non-target plants.
- Only apply to actively growing, healthy weeds. Half-dead or wilted weeds can be skipped.

- Apply **before** the weeds produce seeds.

Total vegetation control

With total vegetation control, an entire area is cleared of all vegetation.

- Use a non-selective contact and systemic herbicide.
- Use a pre- and post-emergence herbicide.
- Apply exactly as described on the label.
- Cover the entire area with the herbicide.

Dos and don'ts of herbicide application:

- Do wear protective clothing and equipment at all times.
- Don't apply herbicides when it is windy. The herbicide drift might kill other plants.
- Do keep people and domestic animals away from the field while spraying.
- Don't spray when rain is anticipated. Read the label to see the rain-free period recommended.
- The use of a spray cone is highly recommended. It fits over the point of the spray lance and will stop drift and accidental contact of herbicides with other non-target plants.
- Do concentrate while spraying. Mistakes can be dangerous to other plants and crops.

Reasons for failure of herbicides

Sometimes herbicides are sprayed but do not work. Customers are upset and blame the agri-input dealer for selling inferior herbicides. Herbicides fail because of the following:

- Farmers do not read the label. They apply what their friend, brother or neighbor says.
- Farmers select a wrong type of herbicide for the weed problem.
- Rain or irrigation occurs immediately after application of a post-emergence herbicide.
- Farmers mix at a lower rate to save money.
- The sprayer is not calibrated and delivers less than specified.

INSTRUCTIONS

6. Herbicides

Topic 6c: How to Apply Herbicides

Materials needed:

- Flip-sheet board with flip-sheets
- Markers (1 black, 1 blue, 1 green, 1 red)

Time needed: 45 minutes

Preparations:

- Flip-sheet with the heading *How to apply herbicides*
- Flip-sheet with the heading *Application pre-emergence herbicides*
- Flip-sheet with the heading *Application post-emergence herbicides*
- Flip-sheet with the heading *Spot treatment*
- Flip-sheet with the heading *Total vegetation control*

Set up

Attention: Tell participants that we have just learned what the difference is between pre and post-emergence herbicides. Ask if someone can explain the difference. We have also learned the difference between selective and non-selective herbicides. Ask if someone can explain the difference.

Title: Tell participants the title while showing the flip-sheet with the title: *How to apply herbicides*.

Credibility: Explain your experience in herbicides and weed control.

Objectives: To explain how to apply different types of herbicides.

Benefits: If you know how to apply herbicides, you can advise your customers on how to eliminate their weeds.

Direction: During this session, we will only focus on the specifics of herbicide application. We will not discuss general application procedures.

Delivery

Explanation, Demonstration, Exercise, and Guidance:

1. Tell participants that in one of the previous sessions (topic 13b on the use of the knapsack sprayer) we discussed in detail how to **prepare** pesticides and what to do **after application** of pesticides. These procedures are valid for herbicides as well.
2. Repeat the advice for **preparations**, but do not take any questions on this, since it was already discussed in another session:
 - Read the label to know how to apply the pesticide, the recommended nozzle type, and the application recommendations.
 - Inspect the equipment for leakage, loose fittings, and signs of wear and tear. Repair any problems before spraying.
 - Select the correct nozzle and fit it to the sprayer.
 - Check the weather conditions. Do not spray when it is raining (the pesticide will be washed off) or when there are strong winds (the spray will be blown away).
 - Plan the spray activities in the field: measure the size of the spraying area, measure how many times to refill the knapsack sprayer, and estimate the duration of the application (see topic 13a).
 - Check the protective clothing for signs of wear and tear. Fix any problems before putting it on. Put the protective clothing on.
 - Measure and mix the correct dosage (see topic 13b).
3. Repeat the procedures for **aftercare** without discussing them in detail:
 - Empty the knapsack sprayer completely. Do not apply the remaining spray mix to the target area because you will over-apply. Rather, spray it out on the area around your field where pests may also be.
 - Clean the knapsack sprayer by triple rinsing with clean water. Leave your protective clothing on while rinsing.
 - Clean the nozzle with a soft brush.
 - Leave the equipment to dry.
 - Remove your protective clothing.
 - Clean the protective clothing and equipment.
 - Wash yourself properly.
4. Tell participants that we will now discuss how to **apply herbicides**. Put the flip-sheets with the headings *Application pre-emergence herbicide* and *Application post-emergence herbicide* next to each other on the wall. Divide the participants in small groups (2-3 persons per group) and let them discuss the following question:

What is the difference in application of a **pre-emergence** herbicide and a **post-emergence** herbicide? Let them discuss for a few minutes.

5. Collect a few answers and write the correct answers under the headings. Make sure to mention the following:
 - a. **Applying pre-emergence herbicides**
 - Apply pre-emergence herbicides before the weed seeds germinate.
 - Cover the target area completely.
 - Apply exactly as described on the label.
 - Adhere to the recommended timing on the label. The label will recommend how many days the pre-emergence herbicides must be applied before sowing.
 - b. **Applying post-emergence herbicides**
 - Apply post-emergence herbicides **after** the weeds germinate and are actively growing.
 - Apply **before** the weeds produce seeds.
 - Apply exactly as described on the label.
 - Wet the target weeds properly with the herbicide. The better the weeds are covered with herbicides, the better the results.
 - Avoid herbicide contact with non-target plants. Herbicides can cause severe damage to non-target plants.
 - Only apply to actively growing, healthy weeds. Half-dead or wilted weeds can be skipped.
6. Paste the flip-sheets with the heading *Spot treatment* and *Total vegetation control* next to each other on the wall. Let the small groups discuss the following question: What is the difference in application of herbicides for **spot treatment** and for **total vegetation control**? Let them discuss for a few minutes.
7. Discuss the results in the same way as with the previous question. Make sure to mention:
 - a. **Spot treatment with herbicides:**
 - Apply only at the spot where a problem occurs.
 - Apply exactly as described on the label.
 - Wet the target weeds properly with the herbicide. The better the weeds are covered with herbicides, the better the results.
 - Avoid herbicide contact with non-target plants. Herbicides can cause severe damage to non-target plants.
 - Only apply to actively growing, healthy weeds. Half-dead or wilted weeds can be skipped.
 - Apply **before** the weeds produce seeds.
 - b. **Total vegetation control:** With total vegetation control, an entire area is cleared of all vegetation.
 - Use a non-selective contact and systemic herbicide.
 - Use a pre- and post-emergence herbicide.
 - Apply exactly as described on the label.

- Cover the entire area with the herbicide.
8. Mention a few **dos and don'ts** when applying herbicides.
- Do wear protective clothing and equipment at all times.
 - Don't apply herbicides when it is windy. The herbicide drift might kill other plants.
 - Do keep people and domestic animals away from the field while spraying.
 - Don't spray when rain is anticipated. Read the label to see the rain-free period recommended.
 - The use of a spray cone is highly recommended. It fits over the point of the spray lance and will stop drift and accidental contact of herbicides with other non-target plants.
 - Do concentrate while spraying. Mistakes can be dangerous to other plants and crops.
9. Ask participants what will happen if farmers spray herbicides and nothing happens. They will complain to their agri-input dealer and blame them for the failure. Ask if someone can mention some reasons for **failure** of herbicides. Collect a few answers. Make sure the following are mentioned:
- Farmers do not read the label. They apply what their friend, brother, or neighbor says.
 - Farmers select a wrong type of herbicide for the weed problem.
 - Rain or irrigation occurs immediately after application of a post-emergence herbicide.
 - Farmers mix at a lower rate to save money.
 - The sprayer is not calibrated and delivers less than specified.

Finish

Summary: Give a summary mentioning the difference between application of pre- and post-emergence herbicides and between spot treatment and total vegetation control. Mention a few dos and don'ts.

Questions: Ask if anyone has a question or comment.

Evaluation: Ask participants to name the difference between application of pre- and post-emergence herbicides and spot treatment and total vegetation control. Ask what could be reasons for herbicide failure.

Next step: In the next session, we will discuss pesticide recommendations for some major crops.

Distribute the **fact sheet** to all participants.

