How to control weeds

Weed control is important to prevent losses in yield and production costs, and to preserve good grain quality. Specifically, weeds

- decrease yields by direct competition for sunlight, nutrients, and water
- increase production costs e.g., higher labor or input costs
- reduce grain quality and price
  For example, weed seeds in grain can cause the buyer price to be reduced.

Weed management should be practiced during specific stages of rice production:

During land preparation

Control of weeds during land preparation is crucial to reduce the amount of weed pressure in the field. Land preparation should start 3−4 weeks before planting. Plowing destroys weeds and remaining stubble from the previous crop. Weeds should be allowed to grow before the next cultivation. In addition, a level field helps retain a constant water level that controls weeds.

For wet seeded rice

- Plow and harrow several times before planting. Depending on weed population, three or more operations can be done.
- Allow weeds to emerge for at least 2 weeks then kill by another shallow tillage. This reduces the number of weed seeds in the soil, and greatly reduces weeds for the subsequent crop.

For dry seeded rice

- Allow weeds to emerge within 1−2 weeks, then kill them with either a non-selective herbicide or by light cultivation.
- Spray herbicides, and perform manual and/or mechanical weeding.

Read: Establishing rice plant through direct seeding | Stale seedbed technique

Read: Control weeds by using crop residues as mulches
Fact sheets: Chemical weed control | Cultural weed control

In the nursery

To control weeds in the nursery

- Prepare land two weeks before seeding.
- When using soil mix for nursery beds, make sure the soil is clean and free of weed seeds.
- If there are weed seedlings in the nursery bed, separate them from rice seedlings during pulling and bundling to avoid planting weeds.
- Apply pre-emergence herbicide 2−3 DAS.

Read: What are the different nursery systems
Fact sheets: Chemical weed control | Cultural weed control

During early crop growth

Weed control is critical after planting until the canopy closes. Control methods vary depending on the rice ecosystem and planting method:

For transplanted rice

- Apply pre-emergence herbicide (e.g., pretilachlor or butachlor at 2−3 DAT)
- If grass weeds are the main weed problem, apply early post-emergence herbicide

Read: List of herbicides for transplanted rice in the Philippines (pdf)

- Do not allow soil surface to dry after transplanting. Keep the soil moist to saturated. Dry soil reduces the performance of pre-emergence herbicides.
- Maintain a 5−7 cm water depth to prevent germination of weeds until 7−10 days before harvest.
- If herbicides have not been applied, or if weeds are emerging, you may use push weeder to control weed seedlings that are at 3−4 leaf stages. Irrigate one day later to prevent buried and uprooted weeds from recovering.
    - Maintain shallow flooding 7−10 DAT, drain the field, then push the weeder down the row to bury emerged weed seedlings.
    - Leave the field saturated for 2 days to keep the buried weed seedling in the mud layer then flood the field up to 5 cm of water.
- Handweed as needed until the canopy closes.

For wet seeded rice (broadcast or drum seeded)

- Apply pre-emergence herbicide (e.g., pretilachlor + fenclorim 2−3 DAS)
- If grass weeds are the main weed problem, apply early post-emergence herbicide

> For post-emergence herbicide application, drain water in the field to expose weeds, then spray the herbicide.
>
> *Note:* Post-emergence herbicide should come in contact with leaves of weeds to be absorbed by the weeds. When weeds are submerged in water, post-emergence herbicide will not be effective.

Read: List of herbicides for direct seeded rice in the Philippines (pdf)

- Do not allow soil surface to dry after seeding. Flush irrigate as needed to keep the soil moist to saturated. A dried soil surface will reduce the performance of pre-emergence herbicides. Irrigating more than 10 days after seeding encourages more weed growth and deeper water level is needed to control weeds.
- If herbicides have not been applied, or if weeds are emerging, you may use push weeder in a row-seeded crop to control weed seedlings that are at 3−4 leaf stages. Irrigate one day later to prevent buried and uprooted weeds from recovering.
- Maintain a 5−7 cm water depth to prevent germination of weeds until 7−10 days before harvest.
- Handweed as needed until the canopy closes.

For dry seeded rice

- A weed-free field is essential for early vigor in a dry-seeded rice crop. Be sure to follow steps for weed control during land preparation to avoid yield loss to weeds.

  Read: How to prepare the rice field for planting (Dry Preparation) | List of herbicides for direct seeded rice in the Philippines (pdf)

- Apply pre-emergence herbicide (e.g., oxadiazon or pendimethalin) onto a moist soil 2−3 DAS. If the seed is sown on dry soil, flush irrigate the field first then spray the herbicide.

  > Pre-emergence herbicides should not be applied in standing water to avoid toxicity.

  Read: Knockdown and pre-emergence herbicide in DSR (pdf) from Direct Seeded Rice (DSR) in the Eastern Gangetic Plains of India

- Handweed as needed until the canopy closes.

Fact sheets: Manual weed control | Mechanical weed control | Chemical weed control

Go to web app: Weed Identification tool

Stale seedbed technique

Stale seedbed technique is a weed control method for land preparation. This technique is effective especially when growing irrigated, dry direct seeded rice.
Read more »

Herbicides

Using herbicides for weed control is particularly important in places where agricultural labor is scarce and wage rates are high.
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Manual and mechanical weeding

Direct control of weeds can be done through manual weeding by hand, and mechanical weeding using implements such as push weeder and interrow cultivation weeders.
Read more »

The dirty dozen

The 12 most troublesome weeds of rice in Asia
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