Integrated weed management

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Rice Fact Sheet

Introduction

Weed control is essential to avoid yield losses and the cost of production. It also helps maintain good grain quality. Management of weed is important during specific growth stages of rice like, land preparation, nursery, early crop growth until canopy closes.

Why control weeds

• Prevent yield loss due to weed competition.
• Maintain purity and/or quality and market price of harvested grain.
• Prevent build-up of weed seeds in soil.
• Prevent weeds that may attract insects or rodents (rats) or act as a host for diseases.
• Prevent clogging of field irrigation channels to facilitate water flow.
• Reduce time and cost of land preparation and weeding operations.

Manual control

- Start hand weeding within 2 weeks of planting (or when weeds are large enough to grasp).
- Repeat the weeding once or twice more at 30-32 and 40-42 DAT or 40-42 and 50-52 DAS
- Do not allow weeds to flower and set seeds in a crop field.

Advantages:

• Nonchemical; ecologically sound.
• Provides clean and thorough weeding.
• Good for resource-poor farmers where labor is available at low wages.

Mechanical control

- Weeds need to be controlled from planting until the crop canopy closes.
- With 23 cm of water in the field, start using a rotating hoe when emerged weeds are young (3 to 4 leaf stage).
- Repeat the hoeing onto two more times at 20-22 and 30-32 DAT or 30-32 and 40-42 DAS.
- Remove the weeds near the plants by hand.
- Generally hoeing follows the row direction up the field and back. If the field is uniformly transplanted on a regular square pattern, it may be possible to hoe in perpendicular directions.

Advantages

• Non-chemical and ecologically sound.
• Less labor needed and costs less than hand weeding.
• Less drudgery and stress than in hand weeding.

Chemical control

In chemical weed control, chemicals called herbicides are used to kill certain plants or inhibit their growth. Chemical weed control is an option in integrated weed management that refers to the integrated use of cultural, manual, mechanical and/or chemical control methods.

Pre-emergence herbicide

Apply Pre-emergence herbicide at 2-3 days after transplanting in 3-5-cm standing water in the field. Use butachlor 50 EC at 1.25-1.50 kg ai/ha (2.5 to 3.0 liter/ha) or pretilachlor 50 EC 750 g ai/ha (1500 ml/ha product dose).

Post-emergence herbicide

If Pre-emergence herbicide is not applied then apply Post-emergence herbicide at 15-25 DAT. Use bispyribac sodium10 EC at 25 g ai/ha (250 ml/ha product dose).

Advantages

- Less labor (0.5 person-day per ha per application) and less drudgery
- Cost-effective, if practiced properly
- No need to wait for weeds to grow bigger for hand weeding
- Selective Herbicides can differentiate between rice and weeds, even at seedling stage where it is very difficult for people to see the difference

Cultural control

1. Weeds need to be controlled from planting until the crop canopy closes
2. Use land preparation to control growing weeds and to allow weed seeds to germinate. Kill newly emerging weeds by repeat tillage at adequate (~10day) intervals.
3. Prevent the introduction of weeds into fields by: use clean good quality seed, keep seedling nurseries free of weeds, keep bunds free of weeds, use clean equipment, rotate crops to break weed cycles.
4. Kill weeds in fallow fields (e.g., use tillage)
5. Select a weed competitive variety with early seedling vigor, and high tillering to suppress weeds.
6. Maintain a 2 to 5 cm water level in the field to minimize weed emergence and lower weed pressure.

Advantages

- Cost effective and easy to practice
- Acceptable and accessible to small & large farmers

Prepare and level field

Use good clean seed

Ploughed fallow field

Keeps canals and bunds clean and use water to control weeds

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