



JFE

Guideline of KONABIJIN™

**Iron Powder products
suitable for Direct Seeded Rice**

Contents



1. Summary of Iron-Coating Technology

- 1-1. Improvement of Anchorage
- 1-2. Water-seeding and Weed Control
- 1-3. Bird & Seed-borne diseases Control



2. Iron-Coating on Rice Seed

- 2-1. Safety Instructions
- 2-2. Manual Iron-Coating
- 2-3. Mechanical Iron-Coating



3. Direct Seeding with Iron-coated Seed

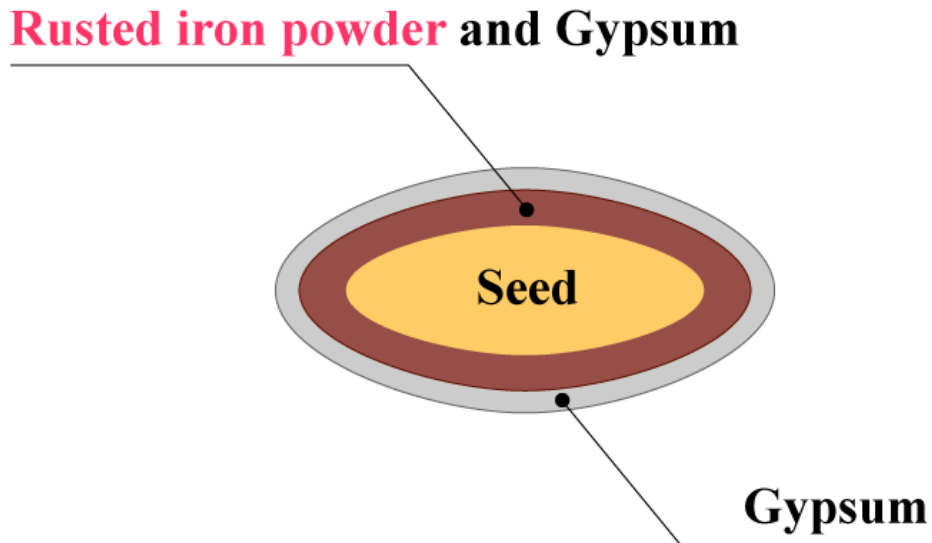
- 3-1. Land Preparation
- 3-2. Sowing
- 3-3. Water & Weed management



1. Summary of Iron-Coating Technology

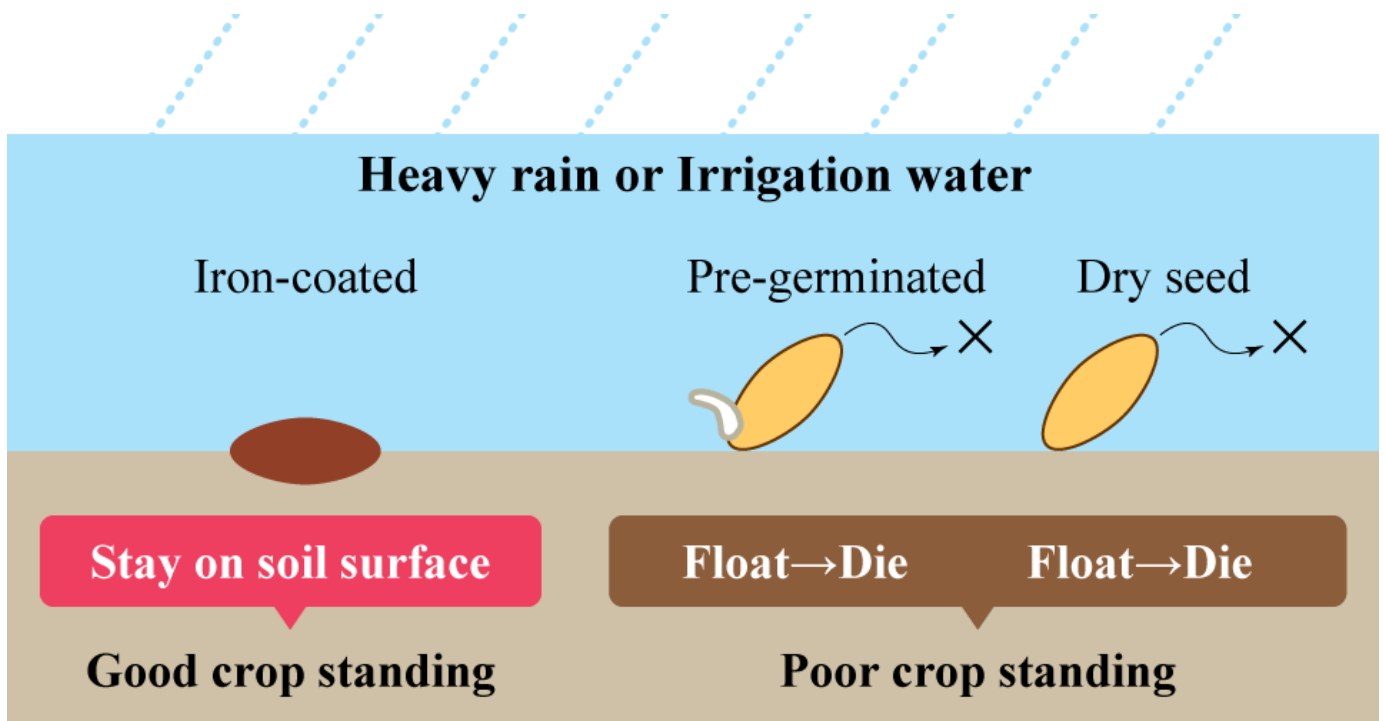
1-1. Improvement of Anchorage

◆ Cross sectional image of iron-coated seed



Seed density becomes heavier.

◆ Anchorage effect by iron-coated seed



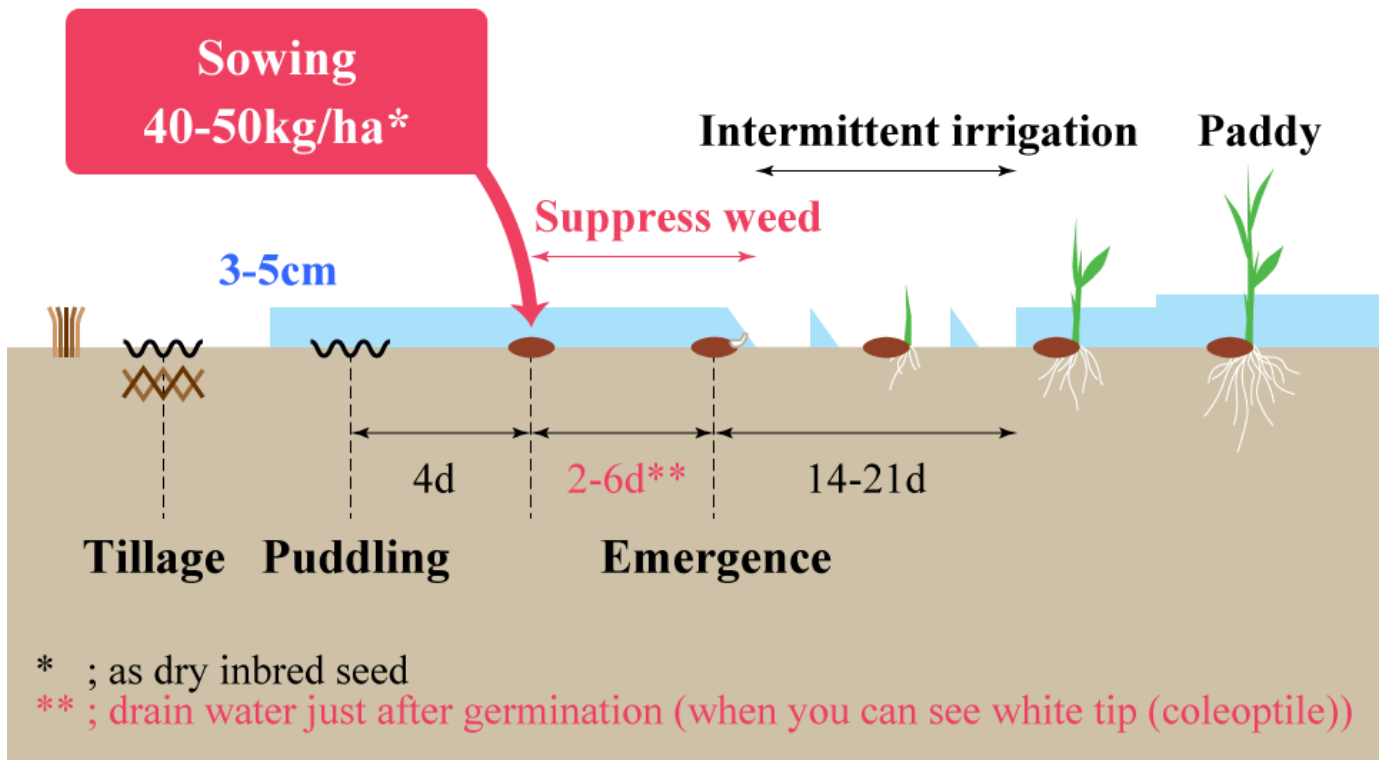
Iron-coated seeds sink and stay on soil surface.

⇒ Root can penetrate into soil under water.

⇒ Seedling can grow up healthier.

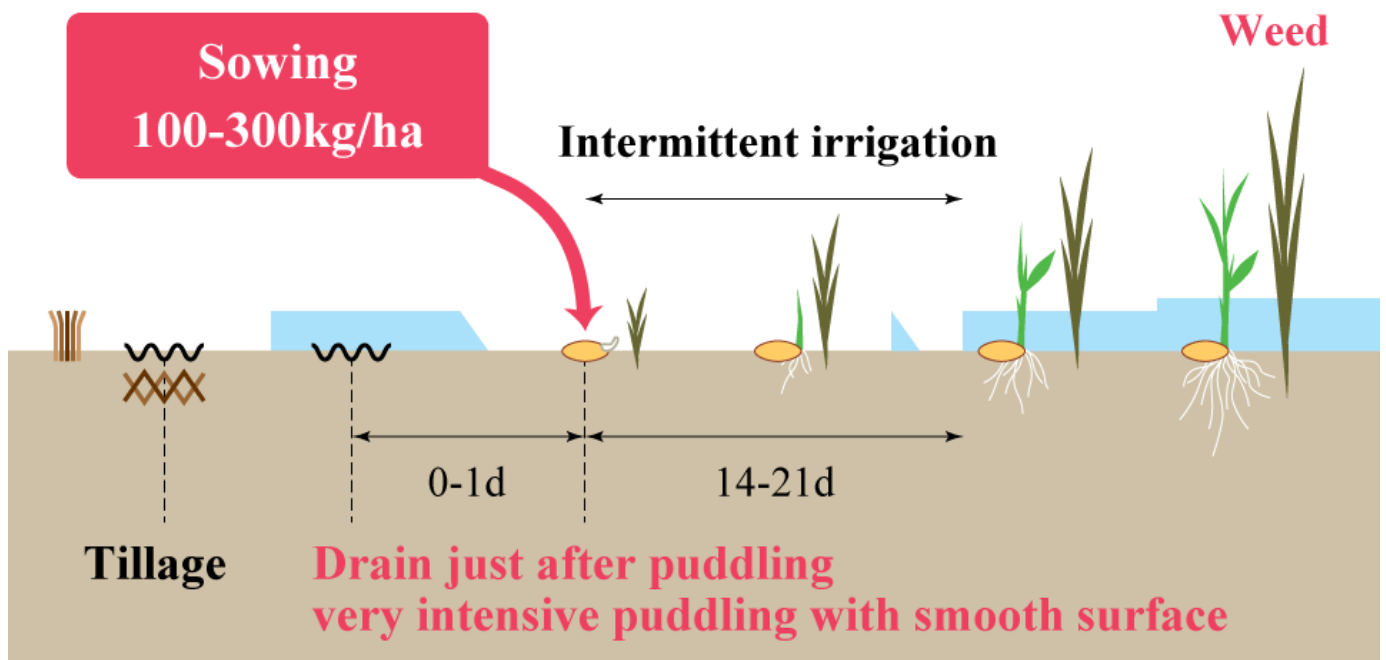
1-2. Water-seeding and Weed Control

◆Water-seeding by iron-coated seed



- Good crop standing by smaller amount of seed
- **Suppress weed** by flooded water

◆ Conventional wet-seeding by pre-germinated seed



- Weed problem
- Difficult to keep wet soil condition (unpredictable rain fall in rainy season)
- Larger amount of seed rate
- Water pollution (lost of nutrient)

1-3. Bird & Seed-borne diseases Control

- Hard surface of iron-coated seed prevent bird attack (especially sparrow)

- Rusted iron suppress seed-born diseases

Details of iron-coated seed technology is described as following link.

[A Review of Iron - Coating Technology to Stabilize Rice Direct Seeding onto Puddled Soil \(wiley.com\)](#)



2. Iron-Coating on Rice Seed

2-1. Safety Instructions

- ◆ Please confirm “Safety Data Sheets” of materials (iron powder and calcined gypsum) and “WARNING and CAUTION” of concrete mixer.
- ◆ Wear protective equipment (Safety glasses, Dust-proof mask, Rubber gloves) during handling materials (iron powder and calcined gypsum) and granulation.
- ◆ Do not touch the moving parts directly so as not to get caught.



2-2. Manual Iron-Coating

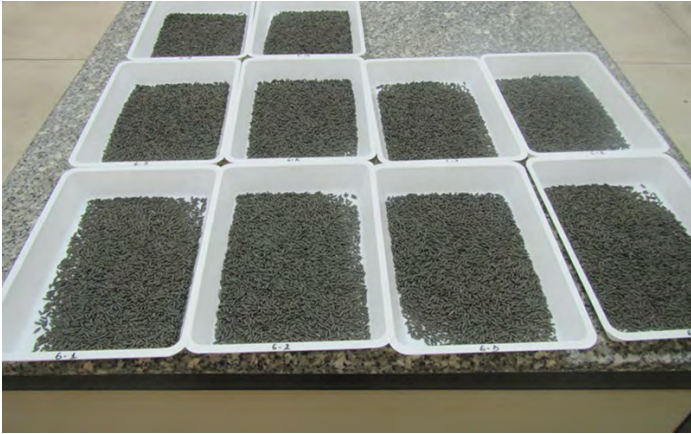


1. Add iron powder on wet seed and mixing.

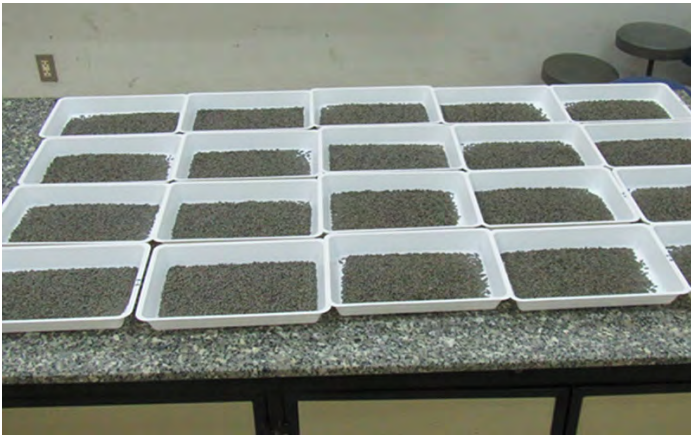


2. Water spray adequately and mixing.





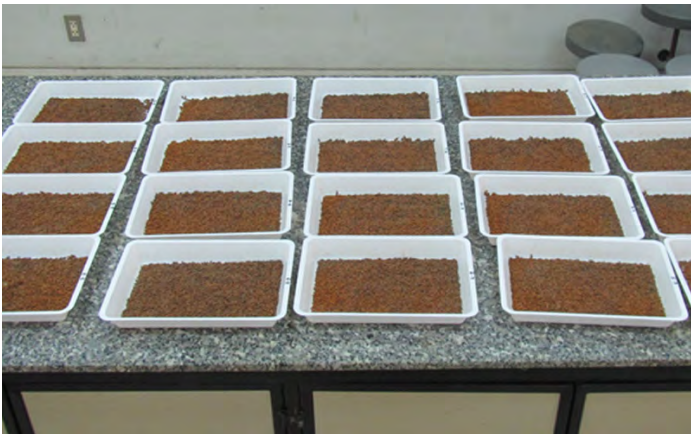
5. Spread out the granulated seed.



6. Air cooled.(one night)



7. Water spray and dry repeatedly until enough rusting.



8. Rusted seed.

2-3. Mechanical Iron-Coating



1. Blade of concrete mixer should be removed before iron-coating.



2. Add (mixing) iron powder on wet seed.



3. Water spray adequately and mixing.



4. Add finish calcined gypsum and mixing.



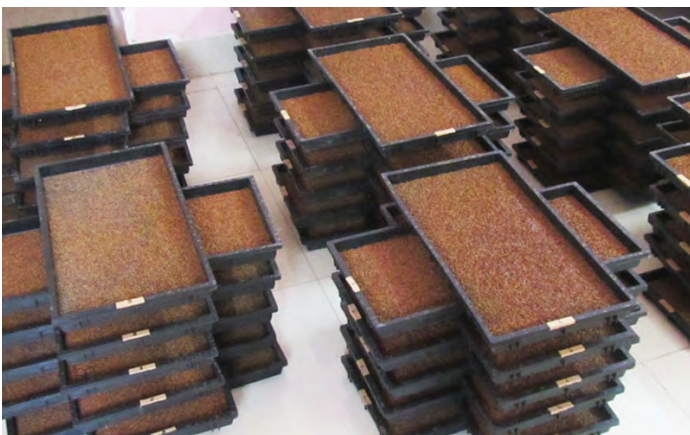
5. Turn off the switch and unplug the concrete mixer, then unload the granulated seed.



6. Spread out the granulated seed for air cooling.



7. Water spray and dry repeatedly until enough rusting.



8. Rusted seed should be dried for one week and more.
 - ✘ It is better to measure seed temperature during rusting and drying process.
 - ✘✘ Beware of damage from rat attack. (use cover or barrier in this case)

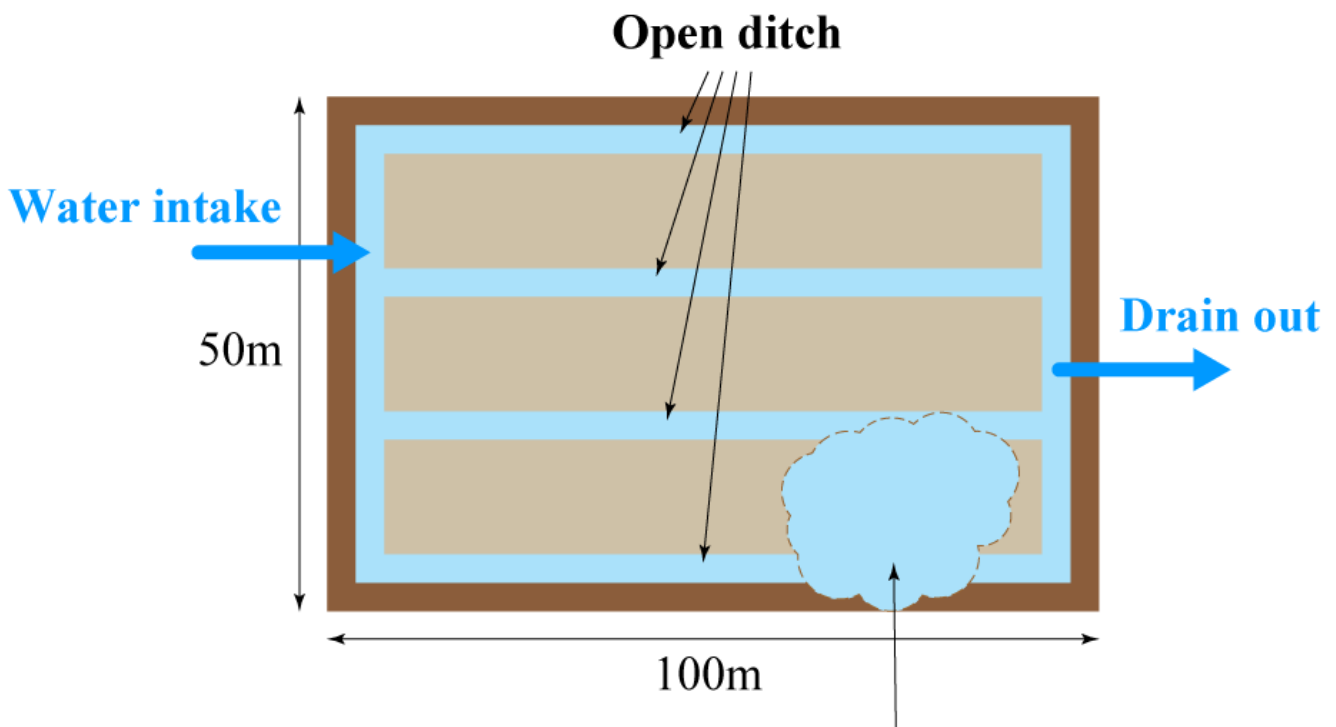
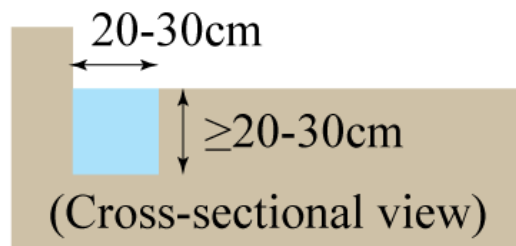


3. Direct Seeding with Iron-coated Seed

3-1. Land Preparation

◆ Install open ditch for better water control

The open ditch is always filled with water during drainage period.
⇒ Avoid drought condition.



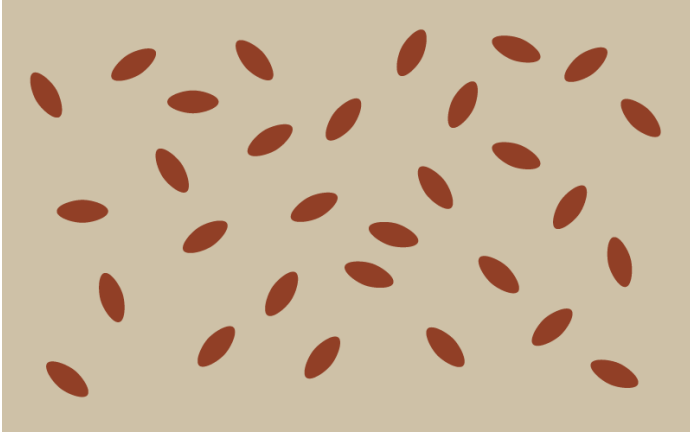
Seed would be died in continuous flooded area.
⇒ Open ditch helps to drain water easily.

3-2. Sowing

◆Sowing seed on soil surface

Sowing method

Broadcasting



Application

Hand broadcasting/
Drone (broadcasting)



Line seeding



Drum seeder



Hill seeding

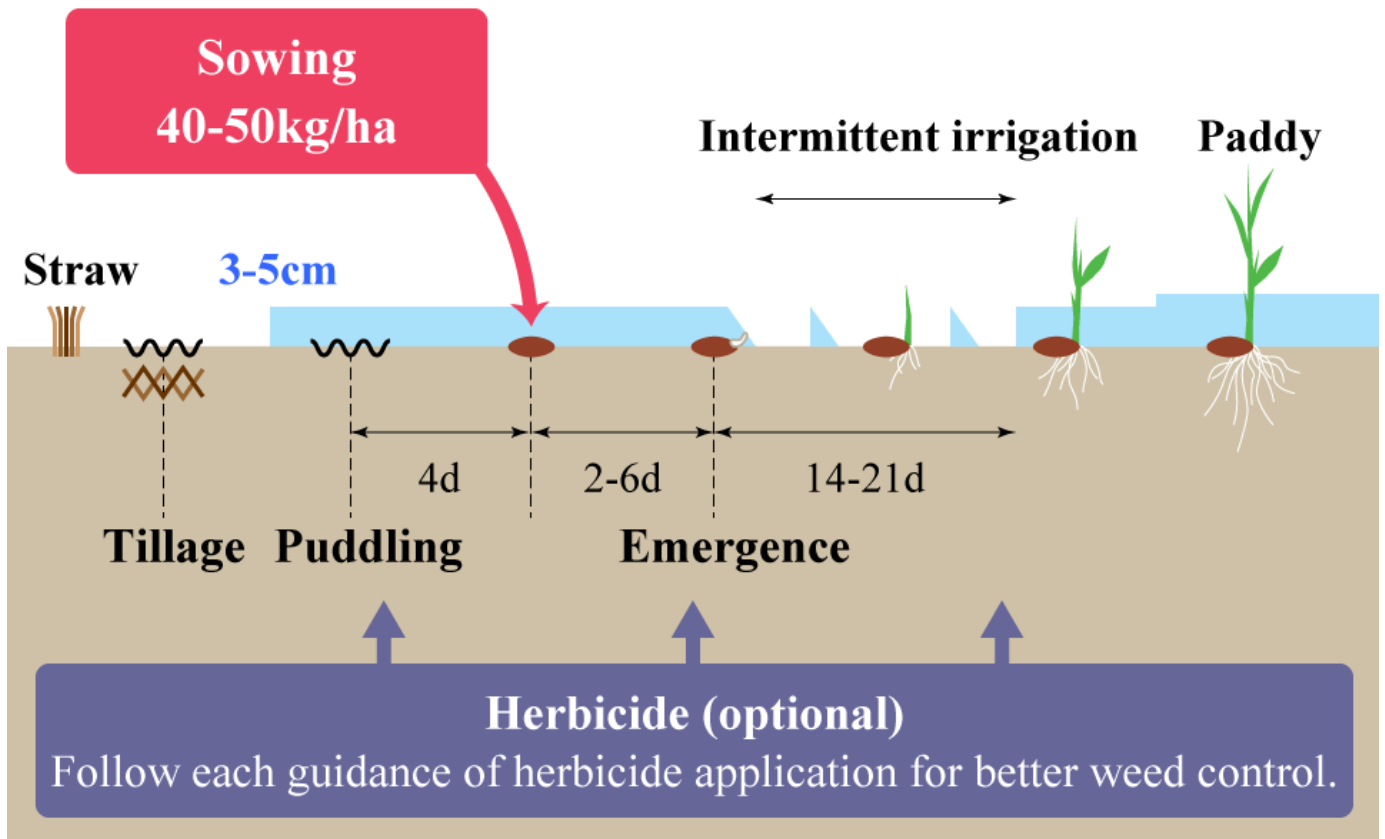


Manual hill seeding

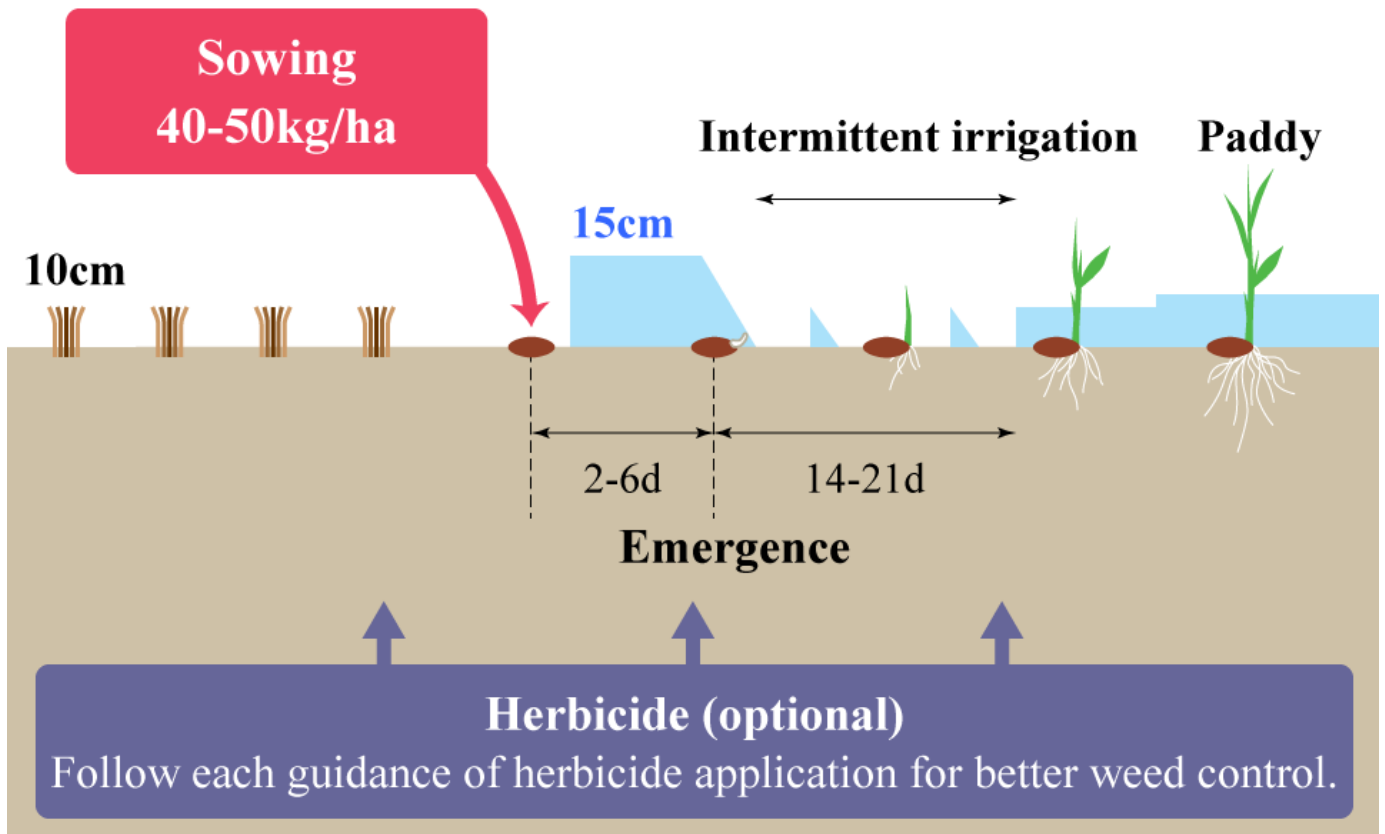


3-3. Water & Weed management

◆Water-seeding



◆Zero-tillage/Non-puddled/Dry-seeding





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