Instruction for Direct Seeding for Rice
- Activities in each workshop in FFS -

Domestic rice project
27/02/2023

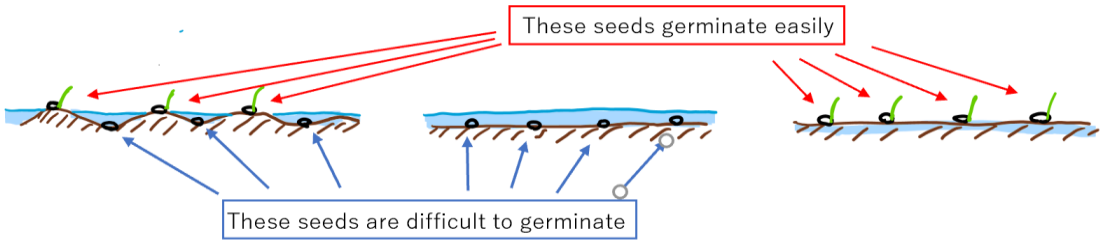
1. Preparation before the workshop

Site selection

- Apply Roundup (herbicide) to the field to kill rice family weeds.
- 1- 2 weeks after spray plow, harrow.
- level the field a day before sowing

Level the field thoroughly, no high and low spots

Seeds for direct seeding should be produced under field with good water management and with transplanting method.
The important points for Direct seeding rice are leveling and water management.
If the field is rough, many seeds can't germinate. It could be a big seed loss. Therefore, direct seeding rice needs more harrow than transplanted rice. Good harrowing and leveling makes the field flat and then many seeds can establish. Remaining straw from previous season should be incorporated into soil but not just before sowing. Burning straw cannot be recommended because of 90% of Nitrogen can go into the air..



2. First workshop (Day 0)

- Land preparation especially leveling (done before workshop but explain it)
- Sowing seed
  sowing seed, water control
  <Preparation>
  Shovel, Hoe, Rake, Rope, Scale, measuring tape, Bucket, Drum seeder

  Seed soaked for 24h then pre-germinated for 6-12h and dried for 2h, then seeds (80 kg/ha) are sown in a width of 30cm by a drum seeder. The field is drained up before sowing seed until emergence to prevent low establishment of seedling due to oxygen deficiency. In the case that the field is too dry, flash irrigation is needed. Dug up drainage in the plot to control the water level or in case of excessive rain.
  After emergence apply post emergence herbicide like Logran (1:5000, seedling less 5 cm or 3 leaves in wet condition). All application of pesticide and herbicide need to be done early morning to avoid rain (need at least 3 hours without rainfall to maximize effect of spray).
  Apply NPK 200kg (N-P-K=30-30-30kg/ha) after 20 to 25 days (3-4 leave stage) of seeding. Because early fertilization can be wasted since the root is not yet developed to absorb nutrients.

3. Second workshop (30 DAS[1])

[1] Days After Sowing

- Weeding
  Rotary weeder, water control, DMA6
  <Preparation>
  Rotary weeder (18cm width for 30cm), weeding hoe, fertilizer
- Top dressing Urea

  Apply DMA6 20 to 25 days after sowing (DMA6 1 cup (32ml) for 15L water). If Logran works well, then application of DMA6 can be omitted. Then Rotary weeders (Randak) can be used to do weeding around 35-40 DAS. DMA6 is only effective for broadleaf weed so we still need mechanical weeding. It can also control the plant population.
  Urea (50kg/ha) will be applied as the 1st top dressing after the 1st weeding. Those farmers growing traditional cultivars (landraces) do not have to top-dress Urea.

4. Third workshop (60 DAS, panicle formation stage)

- 2nd top dressing Urea
  Timing and purpose (for ripening rate)
- Pest and diseases
  Pest varieties, Pesticide use, Integrated pest management
  <Preparation>
  Fertilizer, pesticide and spray leaf color chart

  Urea (50kg/ha) can be applied as the 2nd top dressing.
  About pesticide, do not overdose. Need protection for hand by globe, mouth or nose by mask and long sleeve trousers and shirts.
  We also need to discuss Integrated Pest management (IPM) which is not only dependent on chemicals but also maintains a less pest environment by cleaning up Kabubu and maintaining plants health. For example weed flowers accommodate rice bugs and later move into paddy fields. Too much fertilizer at once also disturbs the balance of nutrients and pests can easily attack rice. Especially in dry seasons, check the water condition at least once a week (irrigation management). Second top dressing check by leaf chart to avoid excessive application.

  <around 70 DAS at heading stage>
- Pest and diseases (Besvidor)
  Pest varieties, Pesticide use, Integrated pest management

5. Forth workshop (around 80 DAS at heading stage)

- Seed production & maintenance
  Calculation of required seed for next season, Off type logging, How to maintain good seed

Talk to farmers that MAF cannot provide seed for every year. Current production of seed is about 1/3 or less of necessary amount for the whole country. Means every 3 years farmers can access quality seed. So they need to maintain it for 3 years at least. Though maintenance is not difficult and just needs some concentration.

If farmers need 80 kg of seed for the next season for 1ha, assuming yield of the field is 3 ton/ha, then farmers need about 16m*17m field for seed production. At farmers level what is important is logging off type plants. This process can be done at the flowering

stage by checking the color of flower and timing of flowering. Maturing the same timing is the best for yield and quality. Let everyone get into the field and remove the off type. Usually, farmers hesitate such a process and keep off type until harvest which causes contamination of seed.

(Farmer Field Day (FFD) (around 110 DAS)) -this can be done just before harvest period. At this moment;

- Share the experience of Model farmers
- Sensitize farmers to those who live in the surrounding area.

6. Harvest workshop (around 115 DAS)

- Harvest
  Appropriate harvest timing, Harvest method (include Pedal thresher)
- Postharvest
  Drying and moisture
  <Preparation>
  Sickle, scale, sack, basket(winnower) or bucket, thresher, tarpaulin.

  This is time to discuss the quality of rice. Quality of rice is decided by appropriate harvest timing and after harvest treatment. If rice over matured in the field, then rice starts cracking and, in some cases, starts germinating. After harvest, it is important to thresh as early as possible to avoid contact with water and soil. Also, dry rice slowly for less than 3 hours in a day for 3 days preferably half shade until 14% (hard enough crack when you bite) then keep it in the granary.
  To conduct a simple yield survey in advance in a model farmers field to show farmers about the rough estimation of yield and also discuss about good practice by yield component.