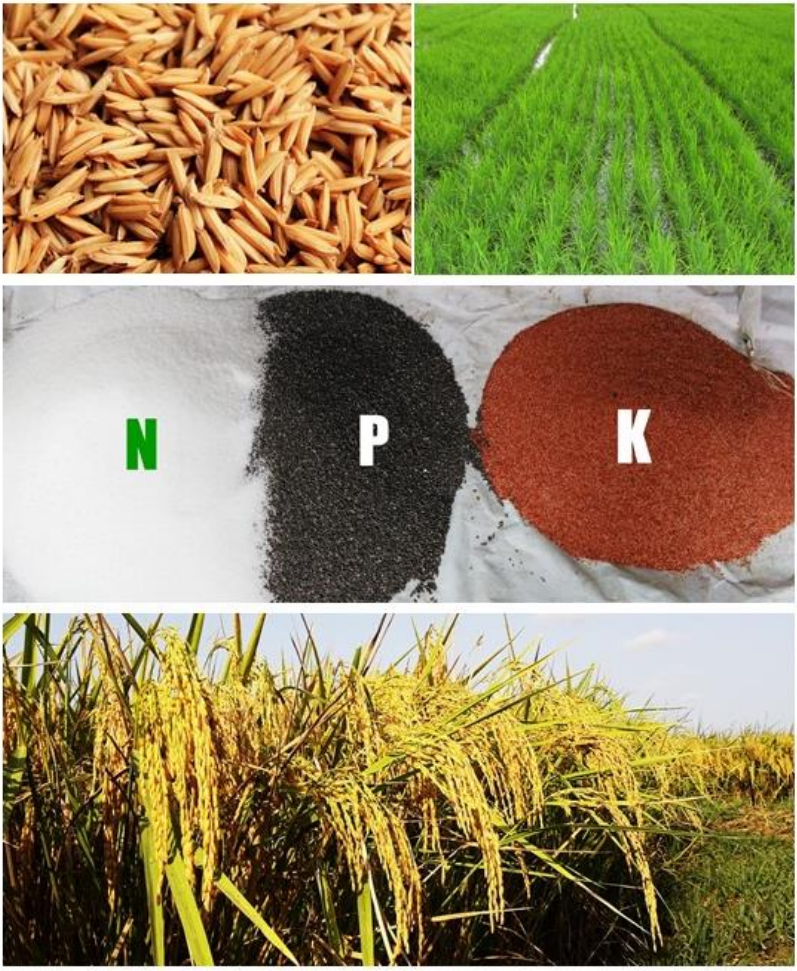
Food and Agriculture Organization of the United Nations

Rice: Integrated crop and pest management



Rice: Integrated crop management

There are five general strategies to get strong and healthy crop plants in the fields.

1. use good quality seeds;
2. practice good land preparation and land levelling;
3. practice good water management;
4. practice balanced fertilizer management; and
5. monitor and scout the farm regularly.

Seed selection

Selecting good quality seed is one of the most important steps in rice production. Good quality seed must be true to type, germinate and be free from pests, diseases and seeds of other rice varieties and different species, including weeds. Sowing / using good quality seeds can reduce seed rate, because of better emergence and establishment of seedlings. It can reduce the incidences of insects and diseases, decrease weeds, ensure more uniformity, and vigorous early growth, resulting in an increase of yield.

1. Choose varieties adapted to local conditions.
2. Use refreshed seeds of right varieties and good quality. Do not use old, stored seeds as they could lose seed viability.
3. Practice seed selection methods such as salt-water seed selection, to get good quality seeds. Discard the floating seeds and keep the ones at the bottom for sowing.

4. Soak the seeds for 24 hours and change the soaking water 2–3 times, as needed, and incubate 2–3 days for optimum germination growth.
5. Cover the seeds properly to get enough heat during incubation.

Land preparation

1. Plow the land 6–8 inches when there is enough moisture.
2. Harrowing (2 times) should be done one week after ploughing.
3. Another harrowing should be done and apply basal fertilizers 1–2 days before seed broadcasting.
4. Make sure to well puddle and level land which is better for water management, easier weed management, pest and disease management.

Seed broadcasting

1. Drain out the water from the fields.
2. Broadcast evenly pre germinated seeds.
3. Do not over use seed rates and use good quality seeds about two baskets acre^{-1}.
4. Slight irrigation can be done when the roots of seedlings are firmly attached to puddle soil after ten days.
5. Protect the broadcasted seeds from birds and rodents.
6. Monitor the fields regularly and check the seedlings losses and establishing conditions.

Water management

1. Make sure land is levelled which is better for water management.
2. Prepare drainage canals for easier water management.
3. The field does not need to be always flooded. Alternating wetting and drying can help to manage pests and improve water use efficiency. Water saturation level should be monitored to know when to flood again.
4. Drain out water as much as possible before applying fertilizer.
5. Keep at least 5 cm of water one week before and after flowering.

Integrated weed management

1. Practice salt water seed selection to get the weed free seeds.
2. Ensure land levelling and good water management to suppress the weed growth.

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4. Ensure land levelling and good water management to suppress the weed growth.
5. Release ducks into rice field after transplant-recovery time.
6. Farmers are also advised to practice hand weeding.
7. Apply herbicides as needed and strictly follow the instructions on products.

Integrated pest management of major pests

Pesticide application is not the most important activity in pest management. Pesticide is the last option. Regularly monitor and scout in the field is necessary. Even though there are damages in vegetative during early 40 days, it can be compensated and does not cause any yield loss if pests can be properly managed. Remember that not all insects are pests. Some insects are beneficial and help manage pests.

Rice Caseworm

The adult moth is snowy white with light brown to black specks and two or three submarginal bands. The larvae have branched and threadlike gills alongside of their bodies and can only take in oxygen from water. For that reason, the caseworm infestation starts from the prolong water lodged areas in rice fields.

Control measures

1. Do not keep the standing water for long time.
2. Drain out the rice field 3–5 days.
3. If it's not an easy task to drain out the water from the field especially in the raining season, push or pull the net across the water surface of rice field.
4. Apply the solution of soap and oil by reducing the water level as much as you can. The solution is made of three tablespoons of cooking oil and three tablespoons of soap power in 1 gallon of water. Spray the soap oil solution thoroughly water surface of rice field.
5. Only if all of the above-mentioned methods are not working well in your field conditions, make careful use of systemic insecticides or spot treatments with good water management.

Brown Plant Hopper (BPH)

Leafhoppers and plant hoppers damage plants by sucking the sap**.** In addition to damaging plants by direct feeding, plant hoppers and leafhoppers are also vectors of most currently known rice viral diseases. BPH can transmit grassy stunt and ragged stunt viral diseases**.**

Since the plant hoppers prefer high humidity, they congregate in areas of more rigorous plant growth and multiply near the basal parts of the plant. Under favorable conditions, such as high N application, high humidity, optimum temperatures, and little air movement, the population rapidly increases and hopper burn occurs. Sometimes hopper burn is also caused by large numbers of plant hoppers migrating from adjacent areas.

Control measures

1. Drain out the rice field immediately, as soon as it's seen BPH and small patches of "Hopper Burn" symptom.
2. Avoid dense planting and make way for ventilation and sunlight.
3. Monitor and scout daily for the infested fields.
4. If you find more than one BPH per stem, increase flooding to drown out the pest. Observe for natural enemies such as water striders and spiders. Use the systemic insecticides only if you don't observe natural enemies, or BPH outnumbers the natural enemies.

Rice blast disease

Rice blast is one of the most destructive diseases of rice. Rice can have blast in all growth stages.

Rice blast disease occurs in areas with excessive uses of urea fertilizers, low soil moisture, frequent and prolonged periods of rain shower, and cool temperature in the daytime. In upland/ dry season rice, large day-night temperature differences that cause dew formation on leaves and overall cooler temperatures favor the development of the disease.

Control measures

5. Do not practice over seed rates and avoid dense planting density.
6. Practice balanced fertilizers managements and no exceed uses of only Urea.
7. Uproot the rice plants with active symptoms and put into bags and destroy them.
8. Drain out the rice field immediately to reduce humidity of the fields.
9. Make careful uses of fungicides or spot treatments properly.

We want to hear from you

For any feedback and complaints, please contact the following phone numbers.

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U Aung Thein	09 894 494 091
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Time : 8:30 AM to 5:00 PM (Monday to Friday)

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All information and complaints will be handled in a confidential manner.

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