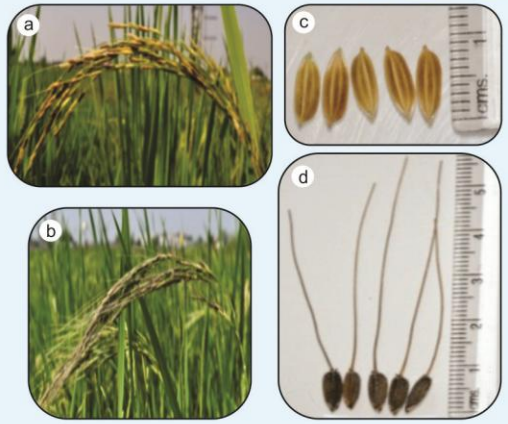
What is weedy rice

Weedy rice is a biosimilar that has weedy attributes. It cannot be differentiated from cultivated rice at vegetative stage. It is usually confused to be pasai, sadva or jangli dhan-the wild counterpart, but is actually a natural hybrid between cultivated and wild rice that is now a big problem to paddy crop, especially in direct seeded rice. This extension bulletin is intended to improve awareness about this problem weed.

How do you identify it?

As weedy rice belongs to the genus Oryza, it has traits similar to rice with a few distinguishing features:

- Weedy rice is usually taller than its cultivated counterpart, but may be dwarf too.
- The panicles show early and asynchronous maturity.
- Grains shatter easily
- They may or may not bear awns varying in length and colour.
- They also vary in hull color, grain size, pericarp color and plant height.
- Flowering period range is generally longer
- Florets also remain open longer by an hour



Different morphotypes and grain types of weedy rice:
(a) Golden brown awns on brown hull grains.
(b) Greenish awns on grey hull grains.
(c) Grains without awns
(d) Grains with awns

How does it spread?

Infestation of weedy rice increases gradually. Early maturity and easy shattering of grains aids in contamination of soil with the weed seed, thus increasing weed seed bank.

- Seed dormancy is not common in cultivated rice whereas inherent variable dormancy in weedy rices is a strong reason for spread of this menace in famers fields.
- Weedy rice can remain viable in soil for many years, and hence occasional management practices in an infested field do not suffice. They need to be practiced over years to remove weedy rice totally.
- Use of contaminated seeds is one of the main reasons of spread.
- The assumption that the weedy rice is basically rice and not a weed, actually, indirectly permits spread by allowing it to grow and mature.
- Use of contaminated machinery like seeders, and combine harvesters also aid in spread of weed seeds.
- Drainage systems that allow flow of water from/to or through contaminated fields carry the weed seeds along with them.

How is it harmful?

- Weedy rice is very competitive to cultivated rice for natural resources. It has higher N-use efficiency and is more vigorous in growth. Its presence in a field of cultivated rice can reduce the yield drastically.
- Once grown to maturity, shattered grains fall on ground and remain there for a long time due to variable dormancy.
- The seeds contaminate rice crop and reduce harvest quality. Presence of varied hull coloured grains in the harvest affects quality and leads to economic loss.

How it can be managed?

- For the fields still not infested with weedy rice, care should be taken to:
  - ❑ Use clean and certified seeds for cultivation
  - ❑ Use clean machinery for harvesting the crop
  - ❑ Keep the drains used for irrigating the fields clean.
  - ❑ Increase awareness amongst farmers
- For the fields that are already infested, we need:

Certified seed

Clean machinery

  - ❑ Proper drainage systems to prevent flow of water from contaminated fields
  - ❑ Timely manual rouging of weedy rice.

- Burning of rice straw to destroy the seeds of weedy rice on soil surface.
- Use of high seed rate e.g. 80kg/ha.

- Timely efforts in land preparation and use of recommended package of practices can also help manage infested fields:
  - Growing rice by the conventional method of puddling and trans-plantation helps reduce weedy rice infestation and also reduce its seed bank.

  - Before sowing, use of stale seed bed technique followed by glyphosate application also helps in reducing weedy rice infestations.
  - Application of oxyfluorfen @ 0.2-0.3 kg/ha in two inches standing water three days before sowing is very helpful. Sowing of pre-germinated seeds can be done when standing water evaporates after 2-3 days of herbicide application.
  - Deep tillage buries the seeds deep down in soil and prevents their germination.
  - Line sowing instead of broadcasting facilitates removal of weedy rice.
  - Broadcasting of pre germinated seedlings is a good option permitting cultivars a competitive edge over weedy rice.
  - Use of rice varieties having different (purple) culm color e.g. Nagkesar helps to distinguish weedy rice from crop rice and will aid in rouging for management practices.
  - Farmers in Karnataka have been using the purple colored rice, Dambersali, every fourth year in rice fields for managing weedy rice.

  - Cultivation of alternate crops in infested fields.
  - Taller weedy rice can be managed by applying herbicide e.g. 7.5 g a.i. quizalafop-p-ethyl to the panicles using wipers.

Remember

- At present, no single approach can effectively manage weedy rice completely.
- Integration of different possible methods is essential over a period of time to remove weedy rice.
- Nothing is useless in nature.
- Weedy rice is edible and hence can be used for consumption by humans.
- Rouged out plants can be used for preparation of vermicompost. Paddy straw can also be used for same.
- Its straw can be used as mulch.

Vermicompost from weedy rice

Weedy rice straw mulch in wheat

References

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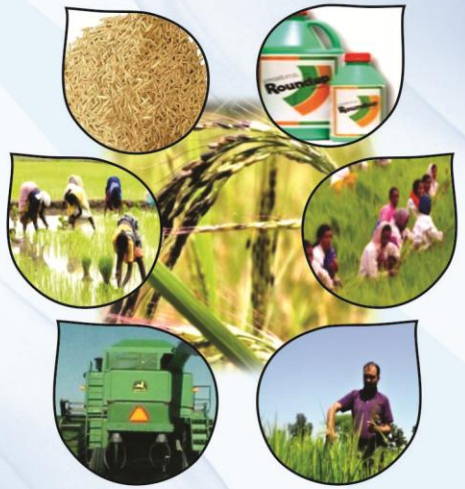

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