



## **Best Management Practices for Weedy Rice**

### **University of California Cooperative Extension**

#### **Introduction:**

Weedy rice (aka red rice) is a major problem in rice production in many parts of the world, and has been identified on at least 10,000 acres in California. Once weedy rice is established in a field, it is very difficult to eradicate since weedy rice plants cannot be controlled with rice herbicides. Furthermore, weedy rice seeds can survive for a long time in the soil, meaning that eradication measures become more difficult if plants are allowed to produce seed. Yield reductions in the southern US are as high as 60% in weedy rice infested fields. If weedy rice contaminates other rice during drying and storage, extra milling and sorting is required, which increases costs and may cause cracking and reduce milling yields.

#### **To prevent and eliminate infestations, follow these guidelines:**

##### **Equipment:**

- Equipment coming into California from areas known to have weedy rice infestations will be subject to inspection by the County Ag Commissioner in the destination county.

##### **Planting:**

- Only use certified seed.
- Do not use infested fields as a seed field.

##### **During the season:**

- Weedy rice plants are easiest to identify at the heading stage, but it is possible to identify plants before heading. Call UCCE Rice Advisors for assistance in identification.
- Before heading, rogue plants from the field, or cut the plants at the base, under the water to minimize the chance of resprouting.
- If plants have headed, since seeds shatter easily, cut off the seed heads into a bucket or bag to prevent seed loss and spreading.
- Immediately bag and dispose of weedy rice plants and seed in the landfill. Tie all bags to avoid spreading seed or soil while in transport. Do not allow rogued plants to sit on the edges of the field, as the seeds can be viable and spread the infestation.
- For larger infestations, a burn-down herbicide such as glyphosate may be used to kill weedy rice plants. Work with your Agricultural Commissioner to ensure compliance with pesticide use regulations.
- Keep the water on the field with no drainage during the season. Weedy rice germination is promoted when water is drained from field for stand establishment, foliar herbicide applications, etc.

**At harvest:**

- Do not use a stripper header, as it tends to drop a lot of seed onto the soil surface, which can then end up being incorporated into the soil.
- The affected field may be harvested but make sure you do not contaminate other fields by moving equipment from an affected field to a clean field.
- The best option would be to harvest the affected field last in your sequence.
- If harvesting the affected field last is not possible, clean all harvesting equipment thoroughly before moving from the affected field to the next field.
- Straw should be cut as low as possible to the ground to facilitate burning.
- Make sure paddy rice does not get into the seed channel. Minimal moving and mixing of grain should help ensure this.

**After harvest:**

- Harvesting equipment (combine, bank outs, trailers, etc.) should be thoroughly cleaned *in affected field* to make sure there is no carry over of weedy rice seed to other fields.
- Cleaning procedures should include the removal of all plant material from the equipment including mud from tires or tracks that may contain seeds.

**Winter management:**

- If possible, burn straw in affected field. Prioritize burning fields with weedy rice infestations before burning other fields. Prioritization of infested fields will occur at local Air Quality Board.
  - If straw was not cut as close to ground as possible at harvest, cut straw close to ground to reduce the amount of green plant material to obtain an effective burn.
  - Spread and fluff-up straw using a rake or other implement to achieve the most effective burn possible.
  - Burn field on day when conditions are most favorable for achieving a slow and intense burn, which is the most effective way to kill weedy rice seeds.
  - Come back after the burn into affected areas with a propane burner (used in orchards for flaming weeds) to burn exposed seeds on the soil surface. This will provide more heat to destroy seeds than the open field burning.
- **Do not perform** fall tillage as this may bury weedy rice seed.
- It is not known whether winter flooding affects weedy rice seed, so infested fields can be flooded if the grower chooses to do so.

**Long-term management:**

- Vigilance is key to managing weedy rice over the long-term, and growers may need to use several strategies to reduce populations. Scouting throughout the season of all rice fields is recommended. A good weed management program is also crucial, as it is difficult to identify weedy rice in fields that have high infestations of grass species.
- Crop rotation is recommended (if possible), as it allows for the use of herbicide modes of action which are not available in rice.
- Fallowing is the best approach to eliminate weedy rice from a field. Fallowing allows the maximum number of surface seeds to be destroyed. Use tillage or glyphosate on emerged plants.

***Fallow management:***

- Do not till before flooding in the spring
- Flood, block the drain and then allow the water to subside into the soil
- Wait for weedy rice to emerge (approximately 2 weeks), then spray with glyphosate.
- About 2 weeks after application of glyphosate, or when soil is dry enough for equipment, disc the soil.
- After discing, reflood, block the drain, and then allow water to subside into the soil
- Repeat the glyphosate application about two weeks after weedy rice seedling emergence.

**For more information, contact:**

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