

Best Management Practices for the Reduction of Mosquitoes in Rice Fields

Adopted by the Board of Trustees of the San Joaquin County Mosquito & Vector Control District
April 20, 2004

Following are standard practices and strategies that San Joaquin County rice growers should implement to reduce mosquito development in their rice fields:

1. Prior to planting rice, contact the District at 1-800-300-4675 or (209) 982-4675 and identify locations of all fields to be planted.
 - a. Provide the name(s) of the grower(s) and all up-to-date contact phone numbers (cell and home number if possible).
 - b. Provide the location(s) of rice fields. Include the names of roads, cross roads, T-R-S, landmarks, etc. If grower maps are available, fax copies to the District at: (209) 982-0120, or mail to the Districts Stockton office: SJCMVCD, 7759 S. Airport Way, Stockton, CA., 95206. Maps provided by growers to the San Joaquin County Agriculture Commissioner for pesticide application purposes are also suitable for use by the District to identify rice fields for mosquito surveillance and control purposes.
 - c. Provide approximate initial flood date and estimated date of planting.
2. Implement mosquito management guidelines (as provided by the University of California):
 - Make a provision for year round rapid drainage of excess water into free-flowing main drains that are free of vegetation.
 - Construct access roads around each field for checking and repairing levee breaks and for mosquito abatement personnel to use to check fields.
 - Drain and eliminate borrow pits and seepage areas external to the field.
 - Cover all crop residues and green manure crops to a soil depth of 4 to 6 inches (10-15 cm) when preparing seed beds. Large amounts of decomposing organic matter at the soil surface provide an especially attractive site for mosquitoes to lay eggs. Covering residues also reduces the likelihood of "scum" or algae buildup, which is also attractive to mosquitoes.
 - Practice good weed control within the rice fields and along levees. Mosquitoes retreat to weedy, swampy areas; as adults, they use these areas to lay eggs; as larvae, these areas protect them from wind and predation.
 - Seek the assistance of local mosquito abatement district staff (*San Joaquin County Mosquito & Vector Control District, 1-800-300-4675 or (209) 982-4675*) to develop the best possible abatement program for your operation.
 - Plan water management practices that allow the mosquito abatement district to recapture mosquito-eating fish when you are draining your fields.
 - Several pesticide materials are toxic to mosquito-eating fish. Check with your mosquito abatement district to find out how to minimize impacts of pesticides used in your pest control program.

3. Implement mosquito management requirements (as provided by the San Joaquin County Mosquito & Vector Control District):
 - a. Confine irrigation water to planted checks only; do not allow irrigation water into unfarmed or fallow areas. If water must be drained into unfarmed or fallow areas, provide weed-free and watertight ditches to transport water and completely disc all emergent vegetation in the unfarmed or fallow areas prior to discharging water.
 - b. Notify the District at 1-800-300-4675 or 209-982-4675 of any plans to use pesticides detrimental to mosquitofish (e.g. Warrior, Sevin, parathion, etc.) or other mosquito control activities. With advanced notice, the District can effectively plan for activities such as mosquitofish planting, rice field inspection, mosquito control pesticide application, etc.

4. If harvested rice fields will be re-flooded for rice straw management, the grower should incorporate the following mosquito management practices:
 - a. Postpone any re-flooding as long as practical while still being able to achieve expected agricultural requirements.
 1. Notify the District and report which fields will be re-flooded. Provide locations, field numbers, maps, etc. so that District personnel know the exact location of re-flooded fields.
 2. Incorporate recommended rice straw decomposition strategies (e.g. incorporation, moisture, chopping/spreading, etc.).
 3. Flood paddies as quickly and completely as possible. Do not allow irrigation water to enter unfarmed or fallow fields unless these fields are properly prepared (i.e., disced, etc.).

5. If harvested rice fields will be re-flooded for waterfowl hunting or wildlife purposes, the grower or land manager should incorporate the following mosquito management practices:
 - a. Postpone any flooding until after November 1. If flooding is required prior to November 1, prepare and flood the fields to prevent mosquitoes by following these requirements:
 1. Notify the District and report which fields will be re-flooded. Provide locations, field numbers, maps, etc. so that District personnel know the exact location of re-flooded fields.
 2. Disc or mow at least 50% of the emergent vegetation and crop residue in a checkerboard or strip design prior to flooding.
 3. Flood paddies as quickly and completely as possible. Do not allow irrigation water to enter unfarmed or fallow fields unless these fields are properly prepared (i.e., disced, etc.).

For questions or to receive additional information, contact:

San Joaquin County Mosquito & Vector Control District
7759 S. Airport Way
Stockton, CA 95206
Telephone (209) 982-4675 or 1-800-300-4675
Fax (209) 982-0120
Email sjcmvcd@worldnet.att.net

References

- Integrated Pest Management for Rice, 2nd edition.
University of California, Division of Agriculture and Natural Resources
Publication 3280, 1993
- UC IPM Pest Management Guidelines: Rice
University of California, Division of Agriculture and Natural Resources
Publication 3465, 2002
- Rice Straw Incorporation
University of California, Department of Agronomy and Range Science
Fact Sheet Series 1995-1, 1995
- Mosquito Control on the Farm
University of California, Division of Agricultural Sciences
Leaflet 2850, 1976
- Mosquitoes
University of California, Division of Agriculture and Natural Resources
Publication 7451, 1998
- The Biology and Control of Mosquitoes in California
Mosquito and Vector Control Association of California, 1996