US Environmental Protection Agency
Office of Pesticide Programs

Mandatory Pesticide Use Limitations for Thiobencarb Bulletins

November 2014

The National Marine Fisheries Service has determined that thiobencarb, when used in California according to the label and existing regulations, is not likely to jeopardize the continued existence of endangered or threatened salmonid species, nor is it likely to destroy or adversely modify designated critical habitat of these species. The use limitations in the Bulletins and this document are adapted from recommended pesticide use permit conditions for rice pesticides outlined in the California Department of Pesticide Regulation's (DPR) Pesticide Use Enforcement Standards Compendium; use limitations for the use of thiobencarb in PRESCRIBE, DPR's online database application that provided recommended protective measures for endangered and threatened species; and management practices the California Rice Commission receives from the California Regional Water Quality Control Board – Central Valley Region. Enforcement of the use limitations in the Bulletins will be by the County Agriculture Commissioners.

Mandatory language follows:

Drift:

- For sprayable formulations: when the air is calm or moving away from salmon habitat, commence applications on the side nearest the habitat and proceed away from the habitat. When air currents are moving toward habitat, do not make applications within 200 yards by air or 40 yards by ground upwind from occupied habitat. Under authority of the California county agricultural commissioner, buffer zones may be reduced or waived following a site inspection, if there is an adequate hedgerow, windbreak, riparian corridor or other physical barrier that substantially reduces the probability of drift.

- Aircraft application equipment used to apply a pesticide spray solution shall be configured as follows:
  1. Functional boom length, measured from outboard nozzle to outboard nozzle, shall not exceed 75% of the overall wing span or rotor length.
  2. Boom pressure shall not exceed 40 pounds per square inch for the nozzles being used.
  3. The flow of liquid from each nozzle shall be controlled by a positive shutoff system.
  4. Nozzle orifices shall be directed backward, neutral to the airstream.
  5. Aircraft shall be equipped with:
     (a) Jet nozzles having an orifice of not less than one-sixteenth of an inch in diameter. Nozzles shall not be equipped with any device or mechanism which would cause a sheet, cone, fan, or similar type dispersion of the discharged material, except helicopters operating at 60 miles per hour or less may add a number 46 (or equivalent) or larger whirlplate;
     (b) Fan nozzles with a fan angle number not larger than 80 degrees and a flow rate not less than one gallon per minute at 40 pounds per square inch pressure (or equivalent), as an alternative to (a) for helicopters operating at 60 miles per hour or less; or
     (c) Other nozzles for aircraft use, as authorized by the director of the California Department of Pesticide Regulation, after evaluation.

- Aerial applications of a pesticide spray solution shall meet the following requirements:
    1. Apply only when there is a positive air flow. Wind speed shall not be more than ten miles per hour at the application site, as measured by an anemometer positioned four feet above the ground.
    2. Discharge shall start after entering the target site; discharge height shall not exceed ten feet above the crop or target; discharge shall be shut off whenever necessary to raise the equipment over obstacles; discharge shall be shut off before exiting the target site.

- Vehicle-mounted or towed ground equipment, other than handguns, used to make applications shall be equipped with:
    1. Nozzles having an orifice not less than one-sixteenth of an inch in diameter (or equivalent) and operated at a boom pressure not to exceed the manufacturer's recommended pressure for the nozzles being used; or
    2. Low-pressure fan nozzles with a fan angle number not larger than 80 degrees and nozzle orifice not less than 0.2 gallon per minute flow rate (or equivalent) and operated at a boom pressure not to exceed the manufacturer's recommended pressure for the nozzles being used.

- Applications of a pesticide spray solution made by vehicle-mounted or towed ground equipment shall meet the following requirements:
    1. Apply only when wind speed is ten miles per hour or less at the application site, as measured by an anemometer positioned four feet above the ground.
    2. Discharge shall start after entering the target site; discharge shall be shut off before exiting the target site.

- In Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo, and Yuba Counties, no aerial applications shall be made or continued within ½ mile of the Sacramento or Feather Rivers unless there is a continuous positive airflow away from the river.

- In Butte, Colusa, Glenn, Placer, Sacramento, Sutter, Tehama, Yolo, and Yuba Counties, no aerial application shall be made or continued within ½ mile of the Sacramento or Feather Rivers when the wind speed exceeds seven miles per hour.

- In Sacramento and Yolo Counties, no aerial applications shall be made or continued within ¼ mile of the Sacramento River unless they are made under the direct supervision and authority of the county agricultural commissioner or representative.

- In Sacramento and Yolo Counties, the maximum acres treated by air each day within ¼ mile of the Sacramento River shall not exceed 33 percent of the average acres treated per day by air within this area in each county during 2002.

General Water-Holding:

- Do not release water from the treated field during the water-holding period.

- Prevent seepage[1] from moving offsite during the water-holding period.
  1. Thiobencarb shall not be applied to rice fields exhibiting visible water seepage that moves offsite into drains that are considered state waters.
  2. Borders surrounding each rice field shall be compacted before water is allowed to fill the field; the degree of compaction shall be sufficient to prevent water from seeping through the border. For example, compaction may be achieved by driving the tires or tracks of a tractor, or other heavy vehicle, on one side of the border.
  3. This requirement (2) applies to new or reworked existing borders for the current rice season.
  4. A common border between two existing rice fields does not need to be compacted.

Rice pesticides water management requirements summary.

Water must be held for the indicated number of 24 hour periods on the treated field, or within the containment area specified below before release into State waters.		**Bolero® UltraMax & League® MVP** (Thiobencarb Plus Imazosulfuron)	**Abolish® 8EC**
		Holding Period (Days after application)	**Holding Period (Days after application)**
NORTH SAC VALLEY	Single treated fields.	30 (b)	19 (c)
	Release into tailwater recovery system or ponded onto fallow land or contained in other systems appropriate for preventing discharge.	19	
	System controlled by one permittee, then water may be discharged into the system in manner consistent with product labeling.	14	
	System includes drainage from more than one permittee, then water must be retained on site.	6	
	Water on fields within bounds of areas that discharge negligible amounts of drainage onto perennial streams. Commissioner must evaluate such sites and verify the hydrologic isolation of the fields.	6	
	CAC may authorize emergency release of tailwater.	19	
SOUTH SAC	All water on treated fields must be retained on the treated fields.	19(c)	
	Release into tailwater recovery system or ponded onto fallow land or contained in other systems appropriate for preventing discharge.	19	
	System controlled by one permittee, then water may be discharged in manner consistent with product labeling.	14	
	System includes drainage from more than one permittee, then water must be retained on site.	6	

[1] Seepage is lateral movement of irrigation water through a rice field levee or border to an area outside the normally flooded production area. Seepage can occur through levees into adjacent dry fields or into adjacent drains and canals.

& SJ V A L L E Y (a)	Water on fields within bounds of areas that discharge negligible amounts of drainage onto perennial streams. Commissioner must evaluate such sites and verify the hydrologic isolation of the fields.	6
	CAC may authorize emergency release of tailwater.	19

a – Sacramento/San Joaquin Valley defined as: South of the line defined by Roads E10 and 116 in Yolo County and the American River in Sacramento County.

b – When drainage begins, discharge must not exceed two inches of water over a drain box weir for seven additional days. Unregulated discharge from these fields may than begin after 37 days.

c – When drainage begins, discharge must not exceed two inches of water over a drain box weir for seven additional days. Unregulated discharge from these fields may than begin after 26 days.

- On rice fields treated with thiobencarb in the Sacramento Valley (north of the line defined by Roads E10 and 116 in Yolo County and the American River in Sacramento County), except those treated with liquid formulations e.g., Abolish® 8EC, all water must be retained on the treated fields for at least 30 days following application, except as described below. When drainage begins, discharge must not exceed two inches of water over a drain box weir for seven additional days. Unregulated discharges from these fields may then begin after 37 days.

  When water is contained within a tailwater recovery system, ponded on fallow land, or contained in other systems appropriate for preventing discharge, the water must be retained in the system for 19 days, unless:
  (a) The system is under the control of one permittee, then water may be discharged from the application after a 14-day water hold period.
  (b) The system includes drainage from more than one permittee, then water must be retained on the site of application for six days before being discharged from the application site into the system.
  (c) Water is on fields within the bounds of areas that discharge negligible amounts of rice field drainage into perennial streams until fields are drained for harvest. Water-hold may be reduced to six days if the county agricultural commissioner evaluates such sites and verifies the hydrologic isolation of the fields.

- On rice fields treated with thiobencarb in the Sacramento/San Joaquin Valley (south of the line defined by Roads E10 and 116 in Yolo County and the American River in Sacramento County), except those treated with liquid formulations e.g., Abolish® 8EC, all water must be retained on the treated fields for at least 19 days following application, except as described below. When drainage begins, water discharge must not exceed two inches of water over a drain box weir for an additional seven days. Unregulated discharges from these fields may begin after 26 days.

  When water is contained within a tailwater recovery system, ponded on fallow land, or contained in other systems appropriate for preventing discharge, the system may discharge 19 days following the last application of thiobencarb within the system unless:

(a) The system is under the control of one permittee, then water may be discharged from the application after a 14-day water-hold period.
(b) The system includes drainage from more than one permittee, then water must be retained on the site of application for six days before discharged from the application site into the system.
(c) Water is on fields within the bounds of areas that discharge negligible amounts of rice field drainage into perennial streams until fields are drained for harvest. Water-hold may be reduced to six days, if the county agricultural commissioner evaluates such sites and verifies the hydrologic isolation of the fields.

- On all areas and fields treated with liquid formulations e.g., Abolish® 8EC, all water must be retained on the treated fields for at least 19 days following application, except as described below. When drainage begins, water discharge must be released at a volume not to exceed two inches of water over a drain box weir for an additional seven days. Unregulated discharges from these fields may begin after 26 days.

  For water contained within a tailwater recovery system, ponded on fallow land, or contained in other systems appropriate for preventing discharge, the system may discharge 19 days following the last application within the system unless:
  (a) The system is under the control of one permittee, then water may be discharged from the application after a 14-day water-hold period.
  (b) The system includes drainage from more than one permittee, then water must be retained on the site of application for six days before discharged from the application site into the system.
  (c) Water is on fields within the bounds of areas that discharge negligible amounts of rice field drainage into perennial streams until fields are drained for harvest, then water-hold may be reduced to six days if the county agricultural commissioner evaluates such sites and verifies the hydrologic isolation of the fields.

Training:

- Anyone who handles, manages, or applies thiobencarb shall receive mandatory thiobencarb stewardship training. This requirement is satisfied by:
  1. Attending the Preseason Thiobencarb Stewardship Meeting, or receiving certification from the County Agricultural Commissioner after viewing a video of the Preseason Thiobencarb Stewardship Meeting.

PRECAUTIONARY NOTICE: There have been no reported instances of fish kills when thiobencarb is used according to the label and existing regulations. Incidents where salmon appear injured or killed as a result of pesticide applications shall be reported to

the appropriate local county agricultural commissioner. For the contact information of each county agricultural commissioner, please consult the following website: http://www.cdfa.ca.gov/exec/county/countymap. Additionally, incidents shall be reported to NMFS OPR at 301-427-8400 and to the National Pesticide Information Center (NPIC) at 1-800-858-7378. The finder should leave the fish alone, make note of any circumstances likely causing the death or injury, location and number of fish involved, and take photographs, if possible. Adult fish should generally not be disturbed unless circumstances arise where an adult fish is obviously injured or killed by pesticide exposure, or some unnatural cause. The finder may be asked to carry out instructions provided by NMFS OPR to collect specimens or take other measures to ensure that evidence intrinsic to the specimen is preserved.