United States Environmental Protection Agency | Prevention, Pesticides and Toxic Substances (7508C) | EPAF-00-020 October 2000

EPA Tribufos Facts

EPA has assessed the risks of tribufos and reached an Interim Reregistration Eligibility Decision (IRED) for this organophosphate (OP) pesticide. Tribufos is eligible for reregistration, pending a full reassessment of the cumulative risk from all OPs.

Used only on cotton crops, tribufos residues in food and drinking water do not pose risk concerns. Tribufos has no residential uses. With the implementation of certain risk mitigation measures, worker and ecological risks from tribufos use are believed to be significantly reduced. Additional data are also to be submitted to the Agency to confirm this conclusion.

EPA is reviewing the OP pesticides to determine whether they meet current health and safety standards. OPs need decisions about their eligibility for reregistration under FIFRA. Additional OPs with residues in food, drinking water, and other non-occupational exposures also must be reassessed to make sure they meet the new Food Quality Protection Act (FQPA) safety standard.

The OP Pilot Public Participation Process

The organophosphates are a group of related pesticides that affect the functioning of the nervous system. They are among EPA's highest priority for review under the Food Quality Protection Act.

EPA is encouraging the public to participate in the review of the OP pesticides. Through a six-phased pilot public participation process, the Agency is releasing for review and comment its preliminary and revised scientific risk assessments for individual OPs. (Please contact the OP Docket, telephone 703-305-5805, or see EPA's web site, www.epa.gov/pesticides/op .)

EPA is exchanging information with stakeholders and the public about the OPs, their uses, and risks through Technical Briefings, stakeholder meetings, and other fora. USDA is coordinating input from growers and other OP pesticide users.

Based on current information from interested stakeholders and the public, EPA is making interim risk management decisions for individual OP pesticides, and will make final decisions through a cumulative OP assessment.

EPA's next step under the FQPA is to complete a cumulative risk assessment and risk management decision encompassing all the OP pesticides, which share a common mechanism of toxicity. The interim decision on tribufos cannot be considered final until this cumulative assessment is complete. Further risk mitigation may be necessary at that time.

The tribufos IRED was made through the OP pilot public participation process, which increases transparency and maximizes stakeholder involvement in EPA's development of risk assessments and risk management decisions. EPA worked extensively with affected parties to reach the decisions presented in this interim decision document, which concludes the OP pilot process for tribufos.

Uses

- Tribufos is an organophosphate defoliant used for cotton crops. It is specifically used to defoliate cotton in preparation for machine harvesting.

- There are about 4,500,000 pounds of active ingredient (ai) applied annually to between 4 and 5 million acres (A) or about 35% of planted cotton acreage in the United States. The typical rate of application varies from 0.50 lb ai/A to1.875 lb ai/A. Tribufos is most often applied in a tank-mix. When it is tank-mixed, the application rate is typically significantly lower than the maximum label rate.

- There are no residential uses of tribufos.

Health Effects

- Tribufos can cause cholinesterase inhibition in humans; that is, it can overstimulate the nervous system causing nausea, dizziness, confusion, and at very high exposures (e.g., accidents or major spills), respiratory paralysis and death.

Risks

- Dietary risks from food and drinking water are not of concern to the Agency for all segments of the population, including children.

- The current occupational risk assessment indicates risk concerns for aerial mixers/loaders and aerial applicators (with closed mixing/loading systems and enclosed cockpits). However, the Agency believes actual exposures are lower. Risks to workers who mix, load, and apply tribufos via groundboom are not of concern to the Agency but risks to workers who enter fields shortly after treatment are of concern.

- Ecological risks include acute and chronic concerns for both birds and mammals. The Agency is also concerned with acute risks to marine fish. Several studies conducted in a variety of climates where tribufos is used resulted in risks of concern to freshwater and marine invertebrates.

Risk Mitigation

To mitigate risks to workers, the following measures are necessary:

1) The maximum application rate is to be reduced to 1.5 pints/A (1.125 lbs ai/A) in all states, except California and Arizona, which would remain at the higher rate of 2.5 pints/A (1.875 lb ai/A). California and Arizona grow hardier varieties of cotton, which require more defoliant.

2) The restricted entry interval (REI) is to be increased from 24 hours to 7 days;
3) Tribufos products are to be distributed in closed systems starting with the 2002 season.
4) Aerial applicators are to be in enclosed cockpits.
5) A biomonitoring study is to be conducted to confirm the Agency's risk management decision that occupational risks associated with the use of tribufos are not of concern. The biomonitoring study will be submitted to the Agency by September 2003.

- The Agency also examines the benefits associated the use of a chemical when worker and ecological risks are of concern to the Agency. For tribufos, the Agency has received and reviewed benefits analyses from several stakeholders that ascertain the benefits from the use of tribufos are numerous, including its efficacy at lower temperatures. The Agency has considered these submissions and concurs that the benefits from tribufos are numerous and its loss to the cotton industry would be substantial.

- Although the Agency's analyses indicate concern for several ecological species, the Agency is confident that the above mitigation measures that will be implemented to address human health risks will also reduce ecological risks. For instance, it is expected that a reduction in the application rate, largely through tank-mixing, will result in less pesticide availability in the ecosystem.

Next Steps

- Numerous opportunities for public comment were offered as this decision was being developed. The tribufos IRED, therefore, is issued in final (see www.epa.gov/REDs/ or www.epa.gov/pesticides/op), without a formal public comment period. The docket remains open, however, and any comments submitted in the future will be placed in this public docket.

- To implement risk mitigation as quickly as possible, time frames for making the changes required by the Tribufos IRED are shorter than those in a usual RED. Tribufos labels must be amended to include the above mitigation and submitted to the Agency within 90 days after issuance of this IRED.

- When the cumulative risk assessment for all organophosphate pesticides is completed, EPA will issue its final tolerance reassessment decision for tribufos and may result in further risk mitigation measures. Similarly, the Agency may reconsider any part of this interim decision based on new information which may come to the Agency's attention. The Agency will revoke one tolerance because there are no registered uses and amend one tolerance. For all OPs, raising and/or establishing tolerances will be considered once a cumulative assessment is completed.