

FQPA - Special Issue

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FQPA Activities

The Food Quality Protection Act, enacted in 1996, sets a more stringent safety standard for most pesticides and offers special protection for children. EPA has developed a framework for conducting cumulative risk assessments for the organophosphates (OPs) and other pesticides that have a common mechanism of toxicity.

Pesticides are determined to have a "common mechanism of toxicity" if they act the same way in the body; that is, if scientifically reliable data demonstrate that upon exposure to these chemicals, the same toxic effect occurs in or at the same organ or tissue by essentially the same sequence of major biochemical events.

By assessing the cumulative effects of groups of pesticides that have common mechanisms of toxicity, EPA believes it can determine if pesticides that act the same way in the body meet the current safety standard. The debate continues regarding the process EPA uses for grouping certain pesticides together. Scientists and industry representatives have also questioned the timeline given for some cumulative risk assessments.

Organophosphate Timeline Questioned

The FIFRA Scientific Advisory Panel (SAP) reviewed the cumulative risk assessment progress for organophosphate (OP) pesticides by EPA. OPs are part of the first group of pesticides being reassessed with the FQPA. Sixty-six percent of pesticide tolerances (including those for organophosphates and other higher-risk chemicals) must be reassessed by next August in order to meet deadlines set by the FQPA.

EPA says the agency has been devoting significant resources to developing a cumulative risk assessment methodology that will be used not only for organophosphates, but for other groups of pesticides as well.

During the SAP review, the panel discussed EPA's deadline to complete a preliminary cumulative risk assessment for OPs by December. The members of the panel expressed concern that EPA needs to pay closer attention to the methodology and assessment than adhering to the timeline. Concern was raised that the assessment procedure developed for OPs would become the agency standard; so industry urged EPA to take their time and develop an appropriate risk assessment.

Before estimating the cumulative risk of the 25 OPs under review, EPA must determine the relative toxic potency of each OP using the same common response derived from comparable measurement methodology, species and sex for all exposure routes of interest, according to the agency's report.

In the case of the OPs, this is their ability to exert neurotoxicity by binding to and phosphorylation of the enzyme acetylcholinesterase in the central and peripheral nervous systems. EPA focused its analysis on plasma, red blood cells and brain cholinesterase inhibition in laboratory animals. (*Source: Pesticide & Toxic Chemical News, September 10, 2001*)

Organophosphate Updates

Phosmet & Azinphos-methyl Usage Restricted

New use restrictions for phosmet and azinphos-methyl are being implemented. These two organophosphate pesticides have been in the growers' arsenals for 35 years.

Phosmet will be authorized for use "under specific terms" for five years on apples, apricots, blueberries, crab apples, grapes, nectarines, peaches, pears and plums/dried plums. Phosmet has been voluntarily cancelled for uses on domestic pets, household ornamentals and household fruit trees. The preservation of the phosmet registration for apples, and many other minor crops, was a major issue for growers because phosmet is viewed as the prime replacement for azinphos-methyl (AZM)

Azinphos-methyl uses for almonds, tart cherries, cotton, cranberries, peaches, pistachios and walnuts will be phased out in four years. Twenty-eight other crops uses of azinphos-methyl are being cancelled. A four-year "time-limited" use will be allowed on apples/crab apples, blueberries, sweet cherries, pears, pine seed orchards, Brussels sprouts, cane berries and in nurseries for quarantine procedures. (*Source: Pesticide & Toxic Chemical News, November 5, 2001*)

Temephos Most Likely to Remain Registered

Temephos is one of the few organophosphates used against mosquito larvae. The registrant is currently revising product labels to require occupational and ecological risk mitigation to qualify for re-registration. This includes adding some personal protective equipment (PPE) which is currently not listed on the label. Temephos is considered the most reliable tool for controlling the larvae of mosquitoes that transmit eastern equine encephalitis and dengue fever.

Temephos doesn't have any food uses, or pose a significant risk to drinking water sources so it will be excluded from the cumulative risk assessment for organophosphates. Because of its short half-life and limited use-patterns, the larvicidal use of temephos is not expected to result in significant exposures to the general public or children. (*Source: Pesticide & Toxic Chemical News, October 15, 2001.*)

Phorate Faces Extensive Risk Mitigation

EPA has proposed numerous risk mitigation measures that must be addressed before phorate, an organophosphate insecticide and nematicide, can be re-registered. EPA has determined that use of phorate poses occupational and ecological risks of concern. Phorate is currently used on sweet corn, potatoes, cotton and peanuts.

While the dietary risks of the pesticide were considered acceptable, there's concern that drinking water risks of phorate in groundwater are "slightly greater" than standards. Because of its high dermal, oral and inhalation toxicity, phorate use is

restricted, and it is not registered for any residential uses. The revised risk assessment determined that worker risks are potentially high. The risks to mixers, loaders and flaggers handling phorate are high. Additionally, study results indicate that ingestion of phorate poses acute and chronic risks to birds. This causes the ecological risks of phorate to be termed as high. (*Source: Pesticide & Toxic Chemical News, October 15, 2001.*)

Chlorpyrifos methyl Phase Out

Grain growers have a two-year window to look for alternatives to chlorpyrifos methyl (CPM). The organophosphate insecticide, used to protect stored grain will begin a phase-out process. CPM has been part of the organophosphate review by EPA. Dow AgriSciences, the technical registrant of CPM, decided to request cancellation of CPM.

Dow pointed to the cost of additional studies required by EPA for the review as reason for the cancellation. Annual applications of CPM's active ingredient total only 80,000 pounds. The phase-out timetable is:

- Sale and distribution of dust formulations was discontinued in March, all other sales and distribution of dust formulation will end on December 31.
- Registrants will not be allowed to sell or distribute liquid products with old labeling after stamped approval date of new labels.
- Registrants will be allowed to sell liquid products with revised labels until December 3, 2003, and sales of existing stocks of liquid products may continue until December 31, 2004. No CPM can be used on grain after December 31, 2004.

EPA intends to revoke most tolerances in 2008 as it takes approximately four years for treated grain to cycle through the channels of trade. (*Source: Pesticide & Toxic Chemical News, October 15, 2001*)

Ethion & Ethyl parathion Cancellations

Ethion, an organophosphate pesticide, will be phased out over the next several years. A number of occupational and ecological risks were identified for ethion during the revised preliminary risk assessment. Registered for use on cattle and citrus, the registrants of ethion requested cancellation of their products rather than committing to develop the additional data requested by EPA.

All uses of ethyl parathion will be cancelled, according to an EPA re-registration eligibility decision. EPA ranks the organophosphate insecticide as among the most

highly toxic chemicals registered with EPA. (*Source: Pesticide & Toxic Chemical News, October 15, 2001.*)

Organochlorine Update

Lindane Used for Seed Treatment

Lindane, an organochlorine, was once widely used in U.S. agriculture. EPA registrations for lindane are now limited to seed treatment. Lindane is classified as moderately toxic, but questions remain about its carcinogenic potential.

Organochlorines are considered more persistent than organophosphates and carbamates, the first group of pesticides up for FQPA reassessment. Most organochlorines have been banned by EPA, including technical grade lindane. However, many organochlorines still are used around the world, and their lipid-soluble residues are distributed globally by atmospheric deposition - particularly in the Arctic.

In a unique supplementary assessment and study, the EPA has determined that the dietary risk of lindane exposure to indigenous populations in Alaska is not excessive. The Office of Pesticide Program's Health Effects Division has not performed this evaluation for any of the other pesticides assessed so far under FQPA. (*Source: Pesticide & Toxic Chemical News, September 3, 2001*)

Endosulfan Poses Ecological Risks

EPA has released the preliminary assessment for endosulfan, available in the Federal Register (66 FR 47666). The assessment states that endosulfan, a widely-used, organochlorine insecticide, poses ecological and occupation risks. The insecticide is used on squash, cantaloupe, pumpkins, honeydew melons and strawberries.

Currently, EPA is planning to issue an interim re-registration eligibility decision for endosulfan by July 31, 2002. However, endosulfan still may be reevaluated if it is placed in a common mechanism group for a cumulative risk assessment. (*Source: Pesticide & Toxic Chemical News, September 17, 2001*)

Carbamate Update

Dithiocarbamate Fungicide Debate

An example of the debate surrounding the grouping of pesticides for purposes of a cumulative risk assessment is the dithiocarbamate fungicides; some dithiocarbamates

are also used as insecticides. The basis of the grouping, and its common mechanism of toxicity is the metabolic release of carbon disulfide.

The Scientific Advisory Panel (SAP) for FIFRA, which advises EPA's Office of Pesticide Programs on cumulative risk assessments, had raised reservations about selecting carbon disulfide as the common mechanisms of these pesticides. EPA has hypothesized that these pesticides all break down into carbon disulfide, warranting the grouping. The scientists, though not unanimous, brought up reservations about the hypothesis and the effects of carbon disulfide on test animals.

Industry representatives said animal studies fail to support the EPA hypothesis that ethylene-(bis)-dithiocarbamates (EBDCs) break down into carbon disulfide in vivo, and that the agency should not group them in a common mechanism group for a cumulative risk assessment of dithiocarbamates. (*Source: Pesticide & Toxic Chemical News, September 3, 2001*)

Butylate Tolerances May Be Approved

Butylate, a herbicide which is registered solely for corn, may be regarded as safe and acceptable with current established food tolerances. The approval is pending the outcome of the cumulative risk assessment for the thiocarbamates. (*Source: Pesticide & Toxic Chemical News, September 3, 2001*)

Atrazine Update

The ecological fate and effects risk assessment is being finalized for atrazine. Although it is not acutely toxic to wildlife, atrazine may pose risks of concern to fish and mammals in chronic exposure scenarios, the Office of Pesticide Programs' Environmental Fate and Effects Division has determined in its preliminary screening-level assessment of the herbicide. Because of its persistence and mobility, atrazine and its metabolites are frequently detected in the ground and surface waters of high-use areas.

EPA estimates that 76 to 85 million pounds of atrazine, which is applied pre- and post-emergence to control broadleaf and grassy weeds, are produced annually. According to the assessment, atrazine ranks second in annual U.S. herbicide applications, with the bulk - 83% of total active ingredient produced - applied to 60 to 75 million acres of corn. These assessments were developed as part of a pilot public participation process for making reregistration eligibility decisions for a number of pesticides, include the organophosphates and for tolerance reassessments under FQPA.

Recently, the French government announced plans to ban the use of atrazine and other triazine herbicides by 2003. France is the eighth European Union member to ban the herbicide, which is currently used on 80 percent of French sorghum and corn. Much of the ban is over concern about levels of atrazine residues in drinking water.

EPA Releases Minor Use Pesticide Report

An EPA report on minor use pesticides indicates the difficulty in registering pesticides for use on minor crops. EPA contends that pesticide efficacy testing and field demonstrations are rarely conducted on fruits and vegetables, leaving crucial data gaps that impede pesticide registrations for these specialty crops.

According to the agency, registrants do not find it cost effective to generate this data for minor crops. This is because the amount of pesticides needed for them is low, meaning corporate revenue from these registrations is low while the expense of obtaining and maintaining them is high. As a result, minor crop registrations are hardest hit by the ongoing re-registration process under FQPA.

The minor use pesticide program is further hindered, EPA notes, by a lack of trained professionals to provide education, monitoring and damage threshold evaluations required to use these products effectively and economically.

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