The LowDown on Dursban; MOEd* Down By EPA

Do EPA Negotiations With Pesticide Manufacturers Compromise Public Health?

By Jay Feldman

It was widely reported in the media as the U.S. banning of chlorpyrifos (Dursban™), one of the most widely used home and garden insecticides. Buyer beware! Public exposure, use and sales in the home use market could continue for several years to come. Agricultural, golf course, mosquito control and containerized baits use will continue with no time limit.

On June 8, 2000, the U.S. Environmental Protection (EPA) announced an agreement it had reached with Dow AgroSciences which phases out most home uses of the commonly used insecticide, but allows sales to continue through 2001 and all existing stocks to be used by the general public and sold by pest control companies for as long as they last.[1] This announcement spurred New York State Attorney General Eliot Spitzer into action, calling on retailers in his state to stop the sale of Dursban immediately.[2]

Chlorpyrifos is in the family of approximately 40 widely used organophosphate pesticides, known neurotoxic chemicals that together can cause cumulative adverse effects. It is the third most commonly used home-use and commercially applied pesticide, with 11 million pounds applied annually, and is the thirteenth most commonly used pesticide in agriculture, with 13 million pounds applied annually.[3] Chlorpyrifos is the active ingredient in over 800 pesticide products including Dursban™ and Lorsban™. Because of its high volume and common uses, chlorpyrifos represents one of the most significant sources of organophosphate exposure in non-occupational settings. It is used extensively in commercial buildings, schools, daycare centers, hotels, restaurants, hospitals, stores, warehouses, food manufacturing plants and agriculture. With the exception of uses on tomatoes, agricultural uses will continue under this decision.

Could EPA have struck a better deal with Dow than it did? Should EPA have struck a deal that allowed for continued exposure to many chlorpyrifos uses whose risks are off the EPA risk charts? Why doesn't EPA use it regulatory authority to cancel pesticides like chlorpyrifos and stop exposure as soon as the hazard is fully characterized? Does not the data support the conclusion that continued exposure to chlorpyrifos represents an imminent hazard? Why doesn't EPA just stop the use of this chemical, institute a product recall, and move on?

After the EPA press conference, Beyond Pesticides/NCAMP was quick to point out that the EPA chlorpyrifos announcement begins the process of getting high consumer and children exposure uses of Dursban off the market, but puts people at risk by not stopping its uses immediately. The decision allows for an 18-month phase-out of sales of deleted uses, and a lengthy period, probably years, during which pest control companies and other applicators can use up existing stocks of the chemical. Beyond Pesticides/NCAMP has expressed concern about the extraordinarily high risks associated with use during the phase-out period, some that exceed EPA levels of concern by over 100 times.

No public notice is required during the phase-out period for continued retail sales and use of existing stocks. Production of the phased-out products can continue until the end of 2000, and in some cases longer.

In a letter to major retailers, Mr. Spitzer said the voluntary pullback agreed to by EPA and chemical manufacturers does not go far enough in protecting children and pets. "The danger from this product is clear," Mr. Spitzer said in the letter to Wal-Mart, Home Depot, Ace Hardware and other stores. "We must do more to prevent exposure to this dangerous chemical" by yanking products with Dursban off the shelves immediately.[5]

* MOE, EPA's Margin of Exposure, measures adverse effects on humans in terms of effects seen in laboratory animals. Mathematically, it is the ratio of estimated actual human exposure to the level that had no adverse effect on laboratory animals. The exposure level causing no effect in animal studies may actually cause effects in humans because of factors like the different metabolism of humans compared to mice and rats and the genetic diversity of humans as opposed to uniform laboratory strains. Generally, EPA considers MOEs below 100 to be "of concern," to take into account those factors. Under the *Food Quality Protection Act*, where the agency has a higher degree of uncertainty or inadequate data with which to make a determination that children will be protected, EPA must apply an additional 10-fold factor, making the MOE level of concern 1000. That is what EPA has done in the case of Dursban, making any level below 1000 unacceptable.

Commercial Pesticide Sprayers Hail Victory

Meanwhile, in the state of Georgia, the Georgia Pest Control Association (GPCA) is notifying its members and congratulating the industry for limiting the reach of the Dow agreement with EPA, explaining that pest control companies could continue to sell Dursban treatments as long as they had stocks.[6] One can only suspect that this is going on throughout the pest control industry. On the EPA announcement, GPCA writes, "The National Pest Management Association has done a gargantuan job of meeting with EPA, manufacturers, the press and lawyers. Without their work, our industry would be facing much more stringent restrictions and more threatening legal issues."[7]

On continuing to sell Dursban to unsuspecting customers, GPCA explains that, despite the phase-out period, the pest control industry's use may go on for many years. GPCA says, "It's important to note, however, that any product in channel (in your warehouse, from distributors, etc.) can be used according to the label directions on the package. Distributors can not sell "old label" Dursban after February 2001, but you could still use what you might have in stock."[8] GPCA also tells its members that Dursban will no longer be labeled for use in schools, hospitals, daycare centers and other indoor non-residential settings, except bait applications and any formulation in warehouses, ship holds, railroad box cars, industrial plants, and manufacturing or food processing plants.

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Uses Continue for Golf Courses, Mosquitoes, Fire Ants, in Containerized Baits and Food Production

EPA negotiations with Dow also resulted in the allowance of continued uses that could certainly cause exposure (although application rates are being reduced through a phase-out process, allowing for old label stocks to be used up) to those who play golf or live near golf courses, live in communities with mosquito spray programs, or utilize indoor spaces that use containerized baits (those hockey puck-looking containers in the corners of rooms) for cockroach control.

Furthermore, the phase out of Dursban as a termite insecticide for new residential construction treatment will not take effect until the end of 2005. Nor will the prohibition on production kick in until the end of 2004. According to Dow, "This date may be extended, however, based on the results of an exposure study specific to this application."[9] At this point, Dow has not submitted to EPA any plan for conducting such a study, which presumably would involve human subjects living in new homes that had been treated pre-construction for termites. "Spot and local" treatment of existing buildings will not stop until the end of 2002.

The Big MOE: EPA Risk Assessment Shows Extraordinary Risk

As part of the ongoing implementation on the *Food Quality Protection Act* (FQPA), EPA has been working on the revised risk assessment for chlorpyrifos. Risk assessments are mathematical calculations, based on certain exposure assumptions, used to calculate human risk from toxic materials. A review of EPA's risk assessment for chlorpyrifos[10] reveals the fact that the public and workers face immediate extraordinary danger from continued exposure to the chemical because the risk factors are far above EPA's level of concern. This raises serious health concerns given the long phase-out period, the existing stock allowance, and continued worker/applicator exposure.

Using EPA's numbers, many of the risks the public and workers face exceed EPA levels of concern by over 100 times. For example, while EPA has set an acceptable Margin of Exposure (MOE) for residential exposure to chlorpyrifos at 1000, any number below that is defined as unacceptable. Normally EPA sets the MOE at 100, however, under FQPA, the agency has adopted an additional 10-fold margin of safety. Some of the risks EPA indicates for children include the following MOEs: 7.5-60 for lawn treatment of liquid formulation, 73 for lawn treatment of granular formulation, 110 for indoor crack and crevice, 360 for adolescent golfer. From a flea collar, a young dog is exposed to an MOE of 140 and a young cat 530.

Because FQPA specifically exempts occupational exposure and given an EPA history of allowing especially high risks to workers who use pesticides, the agency sets the worker MOE for chlorpyrifos at 100. Some of the risks EPA indicates for workers include the following MOEs: 6-23 for liquid hose-end sprayer for broadcast turf. 37-15 for liquid low pressure handwand for spot treatment of turf, 17 for hand application of granular for broadcast turf, and 100 for indoor crack and crevice.

Even some of the retained chlorpyrifos uses result in risks to workers that are very high, such as an MOE of 14 for the mixer/loader of spray planes treating for mosquitoes. In agriculture the risks are even higher. Some of the high risks EPA

indicates for farmers and farmworkers include the following MOEs: 23 for cranberries and corn, 34 for citrus, and 38 for sodfarms.

According to EPA, "Risk is measured by a Margin of Exposure (MOE) which determines how close the exposure comes to the No Observed Adverse Effect Level (NOAEL) taken from animal studies."[11] Because of the uncertainty associated with the extrapolation of animal data to human effects, additional margins of safety are viewed as necessary to setting acceptable human exposure levels. However, when Beyond Pesticides/NCAMP raised the concern of the extraordinarily low MOE's associated with continued chlorpyrifos exposure, such as the 7.5 MOE for one type of exposure to children, an EPA science staffer said it is "not a level that will cause any effect." On the one hand, EPA scientists created the MOE approach to alert regulators to the need for action. On the other hand, EPA staff in a policy discussion with Beyond Pesticides/NCAMP on the MOE for chlorpyrifos diminished the value of the agency's scientific standard. In raising the question of whether chlorpyrifos presents an imminent threat to public health and safety, an EPA attorney told Beyond Pesticides/NCAMP that there is "no clear threshold for imminent hazard," rather it is a policy level decision.

Under the category of ecological risk, EPA has identified risks of concern for nontarget terrestrial and aquatic animals. In EPA's words, "Chlorpyrifos use poses acute and reproductive risks to many nontarget aquatic and terrestrial animals for all outdoor uses assessed."[12]

Provisions of the Agreement and Associated EPA Actions

Food Uses

Crop	Mitigation Measures	Effective Date
Apples	Production of chlorpyrifos products labeled for post-bloom application is prohibited (only production for pre-bloom, dormant application is allowed). Post-bloom use is prohibited. Tolerances will be lowered.	August – September 2000 Stop use (use prohibited) as of 12-31-00
Tomatoes	Production of products for tomato use is prohibited. Use will be canceled. Tolerances will be revoked.	August – September 2000 Stop use as of 12-31-00
Grapes	Tolerance will be lowered.	
All Agricultural Uses	Classify new end-use products for restricted use of package in large containers. New end-use products must bear revised Restricted Entry Intervals (REIs).	As of 12-1-00 As of 12-1-00

Home Uses

Site	Mitigation Measures	Effective Dates
Home lawn and most other outdoor uses	Classify new end-use products for restricted use or package in large containers (except baits in child resistant packaging) Use will be canceled.	As of 12-1-00 Stop formulation 12-1-00 Formulators stop sale 2-1-01 Retailers stop sale 12-31-01
Crack and crevice and most other indoor uses	Classify new end-use products for restricted use or package in large containers. Use will be canceled.	As of 12-1-00 Stop formulation 12-1-00 Formulators stop sale 2-1-01 Retailers stop sale 12-31-01
Termiticides	Classify new products for restricted use or package in large containers. Limit use to 0.5% solution.	As of 12-1-00 In label directions as of 12-1-00
Full barrier (whole house) post-construction use	Use will be canceled.	Stop formulation 12-1-00 Formulators stop sale 2-1-01 Retailers stop sale 12-31-01
Spot and local post-construction use	Use will be canceled.	Stop formulation 12-1-00 unless label has stop use date of 12-31-02
Pre-construction use	Use will be canceled.	Stop production 12-21-04 Stop use 12-31-05

Non-Residential Uses

Site	Mitigation Measures	Effective Dates
Indoor areas where children could be exposed (such as schools)	Uses will be canceled	Stop formulation 12-1-00 Formulators stop sale 2-1-01 Retailers stop sale 12-31-01
Outdoor areas where children could be exposed (such as parks)	Uses will be canceled	Stop formulation 12-1-00 Formulators stop sale 2-1-01 Retailers stop sale 12-31-01

Non-Agricultural Uses That Will Remain

Crop	Mitigation Measures	Effective Date
Residential use of containerized baits	Already in child resistant packaging	(Use allowed to continue)
Indoor areas where children will not be exposed, including only ship holds, railroad boxcars, industrial plants, manufacturing plants, or food processing plants		New end-use product labels must reflect only these changes as of 12-1-00
Outdoor areas where children will not be exposed, including only:	Reduce application rate from 4 lbs/acre to 1 lb/acre	New end-use product labels must reflect only these changes as of 12-1-00
Road medians	Reduce maximum application rate to 1 lb ai/acre	
Industrial plant sites	Reduce maximum application rate to 1 lb ai/acre	
Non-structural wood treatments including: fenceposts, utility poles, railroad ties, landscape timers, logs, pallets, wooden containers, poles, posts, and processed wood products	(Continue at current rate)	
Public health uses: Fire ant mounds (drench and granular treatment)	For professional use only	
Mosquito control	For professional use only	

The EPA Administrator Double Speaks

When EPA Administrator Carol Browner announced the agency agreement with Dow in June, she said, "With today's announcement, we are taking the fastest action possible for removing these household products from the market."[13] Instead of educating the public on the phase-out and the risks associated with continuing exposure to existing stocks, Ms. Browner said at the press conference and stated in her press release, "This action will virtually eliminate home, lawn and garden uses by the end of the year."[14] In fact, this is not factual. While the decision stops labeling of the withdrawn uses by the end of the year, the EPA agreement certainly does not eliminate these uses for many years.

Should EPA Stop Use in the Public Interest

When the Administrator tells the public that the negotiated settlement with Dow represents the fastest action possible to remove chlorpyrifos from the market, it is assumed that EPA has fully calculated the "aggregate" risks of exposure required by the *Food Quality Protection Act*. In fact, according to agency documents, the full risk of continued exposure during the phase-out and use of existing stocks has not been calculated. EPA writes, "Aggregate risk is defined as the combined risk from exposure through food, drinking water, and residential uses." It continues, "The short-term and intermediate-term aggregate risks were not originally calculated for chlorpyrifos because the risks from residential exposure alone exceeded the Agency's level of concern based on currently registered uses."[15] The same is said for long-term aggregate risk.

In effect, EPA is saying that it has not calculated the aggregate risks associated with continued exposure to chlorpyrifos during the period of phase-out and use of existing stocks. Given how high the individual exposure risks are for some uses of chlorpyrifos, it is likely that combined or aggregate exposures (i.e. lawn care, indoor use and food) during the time period of continued exposure qualifies chlorpyrifos, with EPA's own numbers, for a faster removal from the market, utilizing the "imminent hazard" provisions for pesticide suspension. Beyond Pes-

ticides/NCAMP argues that EPA has a duty to at least make the calculation before negotiating the public's health.

Analogies to Another Harmful Insecticide Chlordane

Environmentalists have criticized a long-standing pattern of EPA regulation by negotiation with chemical companies that has resulted in decisions that allow continued exposure to known hazards for extended time periods. It was the late-1980's when EPA announced a similar agreement on the termiticides heptachlor and chlordane. In August, 1987, EPA announced that Velsicol had voluntarily agreed to cancel the registration of the termiticide uses of heptachlor and chlordane. While Velsicol agreed not to sell or distribute the deleted uses of its products, the chlordane agreement, like the chlorpyrfos agreement, allowed all existing stocks to be used in any manner permitted prior to the agreement, including the deleted uses. This agreement followed the filing of a lawsuit by NCAMP in July, 1987, challenging EPA's failure to act on these hazardous chemicals. After the EPA agreement was announced, an action was filed in U.S. District Court (District of Columbia), *NCAMP v. EPA*, challenging the existing stock provision. After considering EPA findings of human health effects associated with continued exposure, Judge Louis Oberdorfer ordered in February, 1988 that "commercial use and commercial application of existing stocks of chlordane and heptachlor which have been the subject of voluntary cancellations shall cease."[16] The court found that the agency's decision to permit continued use of the chlordane stocks under the agreement constituted arbitrary and capricious action. The court further found that, "EPA's policy of exchanging use authorization on existing stocks for voluntary cancellations . . .does not satisfy the agency's obligation under 7 U.S.C. 136(a)(1)."[17] During a successful appeal by EPA on questions of acceptable cancer risks, the agency, Velsicol and the pest control industry implemented a stop use and product recall of heptachlor and chlordane products. This approach represents the fastest way that hazardous products like chlorpyrifos can, and, according to many, should be taken off the market.

Conclusion

Many in the environmental community and those who have been the victims of pesticide poisoning and contamination believe that the public should expect more of its Environmental Protection Agency than decisions, like chlorpyrifos, which allow continued lengthy exposure to toxic substances known to cause harm. To these people, EPA's agreement with Dow AgroSciences reflects the worst of regulation by negotiation, compromises with the public's health, where compromise is not warranted or acceptable. Should thousands, or perhaps hundreds of thousands, more children have their nervous system weakened, brain development compromised or respiratory system injured? Should one more child be harmed? For whose benefit should this be done? There is certainly agreement that chlorpyrifos is not needed for home and garden use and wide recognition that there are less toxic ways of managing and preventing pests.

Action: You can speak up and let EPA know how you feel about this decision and regulation by industry negotiation. EPA has set up a comment period during which the public is invited to comment on the chlorpyrifos decision. It is expected that the comment period will run through mid-September. At the writing the docket has not be established, contact Beyond Pesticides/NCAMP for the docket number and send you comments by MAIL: Public Information and Records Integrity Branch, Information Resources and Services Division (7502C), Office of Pesticide Programs, USEPA, 401 M Street, SW, Washington, DC 20460; or by E-MAIL: HtmlResAnchor opp-docket@epa.gov. **Electronic submissions will be accepted in WordPerfect 6.1/8.0 or ASCII file. Tell EPA to stop the poisoning now.**

Endnotes

1 U.S. Environmental Protection Agency, Prevention, Pesticides and Toxic Substances, *Chlorpyrifos Revised Risk Assessment and Agreement with Registrants*, Washington, DC, June 2000.
2 The Honorable Eliot Spitzer, Attorney General, State of New York, Albany, NY, letter to Arthur M. Blank, President/CEO, Home Depot, Inc., June 8, 2000.
3 U.S. Environmental Protection Agency, Pesticides Industry Sales and Usage, 1996-1997, Market Estimates, November, 1999, pp21-22.
4 Spitzer
5 Valera Jessee, Georgia Pest Control Association, *GPCA News Alert*, June 19, 2000.
6 Jessee
7 Jessee
8 Heather Woolford, Dow AgroSciences, Press Release, Dow AgroSciences Announces Changes in Use of Chlorpyrifos Products, June 8, 2000.
9 U.S. Environmental Protection Agency, *Overview of Chlorpyrifos Revised Risk Assessment*, June 8, 2000.
10 EPA, *Overview*, p.8.
11 EPA, *Overview*, p.24.
12 The Honorable Carol M. Browner, Administrator, EPA, *Dursban Announcement, Remarks Prepared for Delivery*, June 8, 2000, p.2.
13 Browner, p.2.
14 EPA, *Overview*, p.18.
15 The Honorable Louis F. Oberdorfer, United States District Court for the District of Columbia (February 23, 1988), NCAMP v. EPA, 679 F. Spp. 55 (D.D.C.1988), p.60.
16 Oberdorfer, p. 59.