At secret locations near orchards in the Yakima Valley, scientists have set up air-monitoring stations to try to find out if dangerous levels of pesticides are drifting near homes, schools or day care centers, threatening public health.

In a state-funded pilot program that began quietly earlier this month, one or more local growers have agreed to allow the air around their orchards to be sampled. But the orchardists have not been publicly identified, and the sites are kept secret so no one can tamper with the equipment or compromise the collection of data.

Monitoring pesticide drift in the Yakima Valley is long overdue, said Sister Mary Rita Rohde, director of Sunnyside's Nuestra Casa, which provides educational opportunities to immigrant women.

"I see these young mothers all the time at our English classes and their eyes are red and they have just come from working in the fields and they say it's the pesticides," she said.

Different sides have different concerns

While the air-monitoring study hasn't received much attention, it is part of a politically and emotionally charged debate among growers, farm-worker advocates and their partisans in the Legislature.

Growers fear the goal may be to restrict their use of pesticides before alternatives can be developed, jeopardizing the state's $6 billion tree-fruit industry.

Jim McFerson, manager of the Wenatchee-based Washington Tree Fruit Research Commission, said growers will cooperate as long as the results aren't used to punish the industry.

"If we're put out of business, the game's off," McFerson said.

Even farm-worker advocates aren't completely comfortable with the design of the air-monitoring program. Carol Dansereau, a tenacious lawyer and executive director of the Seattle-based Farm Worker Pesticide Project, is concerned that because orchard owners know they are being monitored, they will be tempted to instruct their pesticide applicators to alter their spraying.

"My instinct is that this is problematic," Dansereau said.

University of Washington scientist Richard Fenske is leading the air-monitoring effort for the state Department of Health. Samples will also be taken elsewhere in Central Washington, from Wenatchee to the Tri-Cities.

Fenske said the study can't be done without grower cooperation. Besides, he added, "There is not a lot you can do to alter an airblast application."

Most tree fruit pesticides are applied with airblast sprayers pulled behind a tractor. The sprayers direct the chemical from nozzles into a fast-moving stream of air that carries it to the trees.
Legislature pitches in

Fenske acknowledges that growers are wary of the study. But he said including them on his technical advisory committee has helped. For example, Jay Brunner, director of the influential Washington State University Tree Fruit Research and Extension Center, has agreed to be an adviser.

"There was apprehension about air monitoring and I can understand that," Fenske said. "So having people that growers know and trust review what we're doing has helped avoid that acrimony."

Legislators were well aware of the conflict's political implications. When they appropriated $538,000 in 2007 for the air-monitoring study, they also agreed to spend $550,000 for agriculture to find ways to phase out or reduce the amount of certain pesticides used on fruit trees. The Tree Fruit Research Commission in Wenatchee is leading that study, called the pest management transition project.

After first closing its meetings to groups like the Farm Workers Pesticide Project, the tree fruit research commission agreed to let them sit in, although they have no formal say in the process.

Chemical banned indoors

Chlorpyrifos -- pronounced klor-PIE-ra-fus -- is the first pesticide being measured by UW scientists this season. It's widely used by apple growers in the spring to protect trees before they bud.

Until 2002, the chemical was used in pet collars, and as Dursban, the brand name of the residential version of the pesticide, it was the preferred bug killer in schools, apartments, hospitals and nursing homes. But in the 1990s, evidence began to mount regarding the chemical's adverse effects on prenatal and children's health.

Facing regulatory action from the U.S. Environmental Protection Agency, Dow Chemical in 2001 withdrew Dursban from retail shelves. EPA subsequently banned its use as an indoor insecticide.

In 2006, the link between Dursban and developmental problems in babies and toddlers was established. Public health researchers at Columbia University found that children exposed before birth to the chemical had significantly poorer mental and motor development by age 3 and were at increased risk for behavior problems.

But for apple trees and consumers who like perfect-looking fruit, Lorsban, as the agricultural brand is called, has been indispensable. Without Lorsban, cutworms and leafrollers will chomp through the first, second and even third round of buds. Although the buds may still produce a shoot, it won't bear much, if any, fruit.

"It really helps set the tone for a good growing season," said Keith Mathews, executive director of the Yakima Valley Growers-Shippers Association.

Since the mid-1990s, as the EPA has been moving to more closely regulate pesticides, the tree-fruit industry's use of Lorsban and three other common chemicals has dropped nearly 50 percent, according to the Tree Fruit Research Commission.

McFerson said more growers are choosing alternate insecticides or deploying pheromones to disrupt bugs from mating and multiplying. Pheromones are chemical signals between species that stimulate certain behaviors.

Studies consider exposure

In the field, if a worker is accidentally overexposed to Lorsban, the effects are well documented. Symptoms range from dizziness to difficulty breathing and even paralysis as the chemical depresses certain enzymes necessary for everything from proper breathing to muscle coordination.

But the risks of chronic, low-level exposure haven't been definitively studied. Dansereau, the farm-worker advocate, said results from the air-monitoring study could contribute to what she calls "a substantial body of research" regarding the long-term health risks of all organophosphates, the class of pesticides that includes Lorsban and a more toxic product called Guthion.

A 2004 study in Hood River by Oregon Health & Science University found that Latino children of agricultural workers didn't perform as well on certain brain-function tests as children not living in agricultural areas.

Another OHSU study two years later found a similar correlation among adult Latino farm workers and exposure to organophosphates, including Guthion, which kills the dreaded codling moth. Compared with Latinos who hadn't worked in agriculture, the farm workers came up short on tests of motor speed, coordination, ability to sustain attention and how fast they could turn instructions into certain behaviors.
Neither study was definitive. But the 2006 researchers, which included the University of Pennsylvania, concluded: "These findings add to an increasing body of evidence of the association between low levels of pesticide exposure and deficits in neurobehavioral performance."

That's exactly the kind of statement that worries growers. Mathews, of the Growers-Shippers Association, said each incremental study seems to elevate the risk of pesticide exposure beyond what science has already established as safe. Just because something is measurable, he said, doesn't mean it's a health threat.

"These studies feed on each other and unfortunately become the new standard," said Mathews.

Dansereau, who would like to see the air-monitoring study continue next year, said pesticide regulations should be based on science: "But how can it be based on science if we don't even track it in the air?"

The results of the air-monitoring study will be presented to the 2009 Legislature. Fenske has cautioned that whatever the numbers show, they won't be definitive.

"This is a pilot program," he said.

Jim Hazen, executive director of the Washington State Horticultural Association in Wenatchee, said the preliminary and limited nature of the study means its supporters will want it funded for the 2009 growing season.

"I fully expect Mr. Fenske and others will be back before the Legislature saying they need more money," he said.

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