Resource Id # 5416

Bringing Home More than a Paycheck

group of the sample—couples in which neither person had ever been a smoker—the women had lower intakes per body weight of cadmium than men, but had 1.8 times higher BCd and 1.4 times higher UCd. This may be due, the researchers say, to the lower iron status typical of premenopausal women, because lower iron levels have been linked to increased cadmium retention. In spite of the relationship between low iron status and higher cadmium levels, subjects who took vitamins, which usually contain iron, had higher BCd and UCd levels. The researchers suggest that the vitamins may have been contaminated with cadmium, as has happened before with vitamin–mineral supplements used for pig feed.

The researchers also compared cadmium levels in the kidneys of slaughtered pigs with the BCd and UCd of people living on the farms on which the animals were raised. Because the pigs were fed locally grown grain, their kidney cadmium levels was presumed to reflect the cadmium levels in the soil. But cadmium levels in the pigs did not predict cadmium levels in people living on the same farms. A possible explanation, the researchers say, is that much of the cereals and other foods that the subjects ate wasn't grown locally; another is that ingredients besides locally produced grain were contributing to the pigs' cadmium intake. **–Scott Fields**

Bringing Home More than a Paycheck

Workers and Pesticides

Agricultural workers exposed to pesticides in the course of their labors may transport those chemicals to their residences, putting children in their homes at risk of potentially dangerous exposure to contaminants. This "take-home" exposure pathway has been shown to be a significant contributor to residential contamination in the homes of agricultural workers. In this month's issue, a team of investigators from the University of Washington and the Fred Hutchinson Cancer Research Center reports the results of their 1999 study of 218 farmworker households in the Yakima Valley area of Washington state [*EHP* 110:A789–A794]. Their findings lend further credence to the take-home exposure pathway hypothesis.

The researchers collected dust samples from 156 homes and 190 commuting vehicles, as well as urine samples from the adult farmworkers themselves and a child between the ages of 2 and 6 in each household. Dust samples were analyzed for the presence of six organophosphorus (OP) pesticides commonly applied to the apple, pear, and cherry crops raised in the area: azinphosmethyl, malathion, methyl parathion, phosmet, chlorpyrifos, and diazinon. Urine samples were analyzed to detect five dialkylphosphate (DAP) compounds produced by the metabolism of most OP pesticides.

Azinphosmethyl was the most commonly detected compound. It was found in 85% of the household dust samples and 87% of the vehicle dust samples—more than an order of magnitude higher than concentrations of any of the other pesticides in either household or vehicle dust. These relatively high concentrations correspond with the heavy use of the pesticide on fruit crops in the state in 1999. There was a significant association between azinphosmethyl concentrations in the vehicle and household dust samples from the same residence, supporting the likelihood that the pesticide was transported from the clothing or skin of the workers exposed in the field into their vehicles, and then into their homes. Although the researchers

Harvesting hazards. Agricultural workers may "wear" pesticides on their clothing and transfer the chemicals to their homes and families.

are careful to point out that spray drift of the pesticide from application to fields near the homes cannot be ruled out as a potential source of residential exposure, questionnaires completed by the participants included information about their homes' proximity to treated fields, and those data did not reveal a significant pattern. This led the investigators to conclude that spray drift is unlikely to have confounded the association they discovered.

Urine sample analysis showed that one of the metabolites of azinphosmethyl was present in the urine of 88% of the children and 92% of the adults. Further, there was a significant association between dimethyl DAP levels in the urine of children and adults from the same household. Although possible confounding—exposure to a variety of OP pesticides and not only those used exclusively in agriculture—makes these findings less persuasive than the vehicle and household dust association, they still lend further support to the take-home exposure pathway hypothesis.

One of the goals of this study was to establish baseline exposure information for use in the evaluation of a community intervention project intended to reduce take-home exposure in 24 agricultural communities in the Yakima Valley area. After the 1999 sample collections, the communities were randomized into either intervention or control status, and in 2002 similar measurements were collected. These more recent data will not only shed light on the effectiveness of the intervention project, but should also add to the weight of evidence suggesting that the take-home pathway is putting the children of agricultural workers at risk for adverse health effects from exposure to these acutely toxic compounds. **–Ernie Hood**