Pesticides Sold in Grocery Stores are Potential Health Hazards

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MANY public health workers have voiced concern about the potential health hazards associated with the sale of pesticides in grocery stores, primarily because of the possible contamination of foodstuffs. This contamination may occur in the room where the pesticide is received, while the product is on display, through sacking and transfer from the store to the consumer's home, or by airborne transport of pesticides in store dust. The potential health hazard "represented by" or "associated with" exposure of customers (especially small children) to pesticides displayed in areas accessible to them is also of concern.

During the past legislative session in Colorado, only limited data were available to support an effort to restrict the sale of pesticides in grocery stores. Convenience for the consumer is the reason usually given, and in some sparsely populated areas the grocery store may be the only easily available source from which to buy these items.

During the spring of 1971, the Institute of Rural Environmental Health (IREH) of Colorado State University, in cooperation with the Colorado State Department of Public Health, gave a series of training courses on environmental toxicology at five locations in the State. A number of questions were raised by public health workers attending these courses about the continued practice of selling pesticides in grocery stores. The common practice of displaying and selling pesticides in grocery stores raised a question about the potential contamination of fresh produce and other food products by airborne particles inside the stores.

To learn more about the potential health hazard, the chemical epidemiology section of the IREH conducted a study during July–August 1971 of 29 stores in five northern Colorado communities.

Methods

The 29 stores randomly selected for the study included 17 supermarkets and 12 privately owned and operated grocery stores. An epidemiologist from the IREH contacted each store manager, stated the purpose of the study, and completed a survey form. The form included information on pesticides displayed, location of displays in relation to fresh fruits and vegetables, statements on labels of pesticide containers, types of pesticides sold, place where pesticides were received in

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the store, procedures for sacking pesticides for transport by customers, and data regarding the training of managers and employees in the safe handling of the pesticides.

Results

The distance of pesticide displays from displays of fruits, vegetables, and baked goods in the store is shown in table 1. In approximately half the stores, pesticides were located more than 50 feet from the fruit and vegetable displays, and in 24 percent of the stores, pesticide displays were within 10 feet of the fruit displays. In 17.3 percent, the displays were located less than 10 feet from the vegetable counters.

Because many people have expressed concern about the accessibility to children of pesticides in grocery stores, two survey questions focused on this problem. One question concerned the height of the pesticide display above the floor and the other concerned pesticide labeling. As shown in table 2, practically all pesticides were displayed on shelves that were within easy reach of children. The height range of the pesticide displays varied from less than 1 foot to 5 feet off the floor surface. The pesticides were packaged in metal, plastic, paper, and glass containers. Metal, plastic, and paper containers were frequently displayed on shelves 2 feet above the floor.

Since warning, caution, and poison classifications on the label are related to the degree of pesticide toxicity, the distance from the floor of the shelf at which toxic pesticides were displayed was noted. Few stores handled pesticides that were labeled poisons. In the two stores that did handle them, they were displayed on shelves 3 feet above the floor. In 18 stores, 62 percent, some pesticides with the caution label were displayed less than 1 foot from the floor. In eight stores, 28 percent, pesticides with warning labels were displayed on shelves less than 1 foot above the floor.

The types of pesticides sold in the grocery stores were also noted. Insecticides were sold in all stores, and in addition more than 90 percent of the stores sold herbicides and miticides. Approximately one store in four sold rodenticides, and 62 percent of the stores sold fungicides.

Tabulations of the types of chemicals in the pesticides sold were made. The survey revealed that botanicals were sold in two-thirds of the stores, and chlorinated hydrocarbons were sold in slightly less than two-thirds. Organophosphates, carbamates, and heavy metals were sold in approximately one of every three stores handling pesticides (table 3).

In the past, DDVP (0, 0-dimethyl-2, 2-dichlorovinyl phosphate) strips have been used extensively in homes, restaurants, campers, and horse barns. Because a change in labeling of DDVP strips had recently occurred, we were interested in determing if any of the stores had the product under both the old and new label in their stock. More than two-thirds of the stores had DDVP strips and one-third of these handled strips sold under both the old and the revised label. On one label was the statement that the strips could be used in homes, restaurants, motels, milk rooms, and animal shelters, and on the other label was the state-

Table 3. Types of pesticides sold in grocery stores

Pesticide type	Stores	
	Number	Percent
Organophosphates..	10	34
Carbamates.....	9	31
Chlorinated hydrocarbons.....	17	58
Botanicals.....	19	65
Heavy metals.....	10	34

Table 1. Percentages of 29 grocery stores displaying pesticides at various distances from counters bearing fruits, vegetables, and baked goods, August 1971

Distance (feet)	Fruit display	Vegetable display	Baked goods display
Less than 10.....	24.2	17.3	0
11–20.....	6.9	17.3	0
21–30.....	17.3	6.9	6.9
31–40.....	0	6.9	3.4
41–50.....	3.4	3.4	6.9
More than 50.....	48.3	48.3	55.2

Table 2. Number of stores displaying pesticides at various heights above the floor, by types of containers, August 1971

Distance (feet)	Metal containers	Plastic containers	Paper containers	Glass containers
Less than 1.....	11	8	9	2
1.....	3	1	1	0
2.....	5	2	2	6
3.....	3	6	3	4
4.....	3	0	0	1
5.....	0	2	4	3

ment that the strips should not be used in kitchens, restaurants, or areas where food was prepared.

An opportunity exists for contamination of food products by pesticides in the room where supplies are received and at the checkout counter. We were interested in determining the number of stores that used a common room for receiving pesticides and grocery products and in observing any procedure being followed to keep pesticides separated from groceries at the checkout counter. In more than 70 percent of the stores surveyed, pesticides and food products were received in the same room. In 24 of the 29 stores surveyed, pesticides and food products were packaged separately at the checkout counter.

The desirability of providing training for managers and employees in the safe handling of pesticides has been suggested. Our study showed that less than 7 percent of the employees and employers had received any specialized training in the handling of pesticides.

Discussion

Although the record for safety as related to acute accidental exposure to pesticides in grocery stores in this country is excellent, the potential for exposure through direct contact and contamination of foodstuffs exist. The fact that any person can walk into a grocery store and purchase pesticides and groceries concurrently is not a good public health practice. Some health departments have attacked the problem by prohibiting the sale of pesticides in grocery stores. If this measure is not feasible, store managers should be trained to use isolated areas away from fresh food products for the display and sales of pesticides.

Pesticides in ambient air inside the store pose another problem. Because legal tolerances of contamination of food products are low, the possibility of contamination of fresh food products by airborne particles in stores where pesticides are sold should not be overlooked. It is absurd for producers to be extremely careful to avoid contamination of food products before marketing—only to have the produce contaminated in the marketplace.

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Health professionals have frequently expressed concern about the storage, display, sale, and distribution of pesticides in grocery stores. The potential hazard from pesticide spillage in grocery bags, the easy access of pesticide displays to small children, and the airborne contamination of fresh produce have contributed to this concern. Legislation was introduced in several States this past year to prohibit such sales.

A combination of interviews of store operators and surveys of current handling practices was used to evaluate the problem in 29 randomly selected stores in northern Colorado communities. Results of the study indicated that storage, display, and sale of pesticides in grocery stores were widespread and that less than 7 percent of the employees and employers had had specialized training in the handling of pesticides.

Pesticides sold in grocery stores included fungicides, miticides, insecticides, rodenticides, and herbicides. Pesticides were frequently displayed in areas adjacent to fresh fruits and vegetables, and display areas were easily accessible to children. Customers usually did not receive pesticides in the same sack with other groceries.