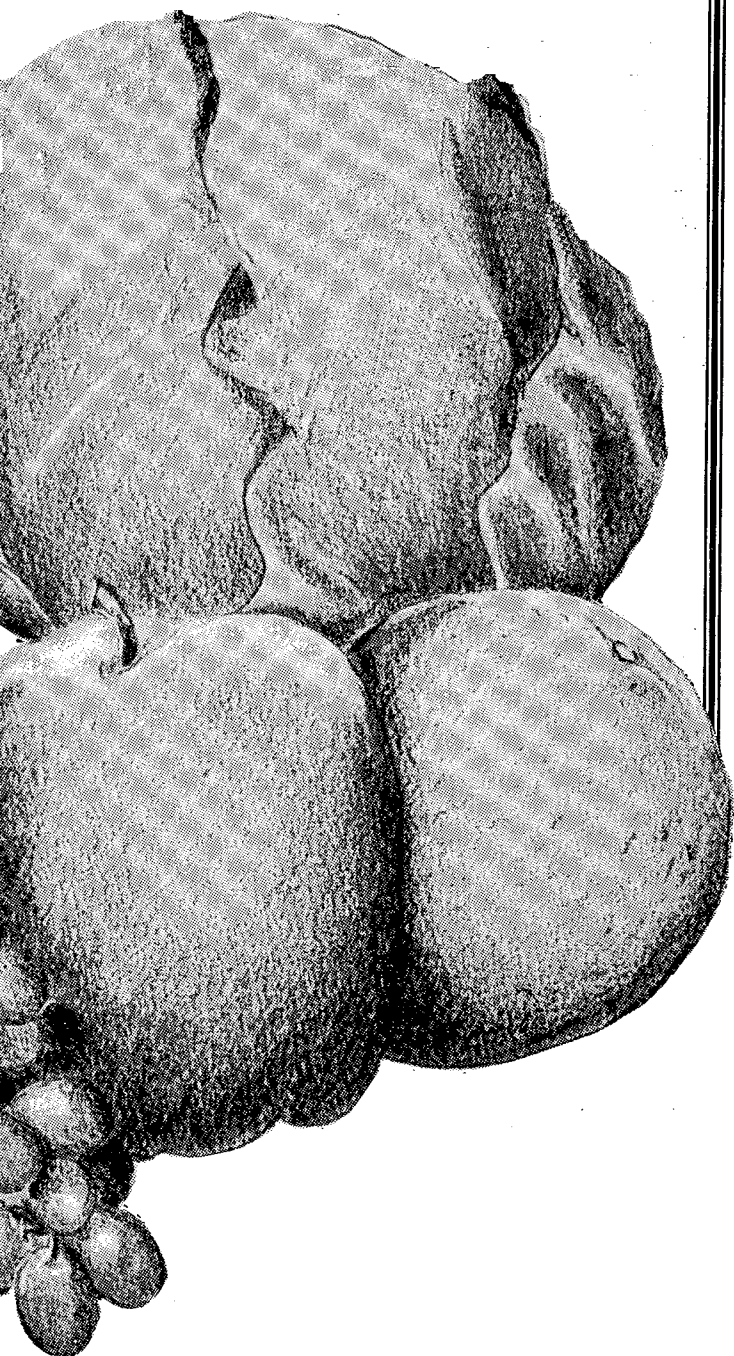


United States
Environmental Protection
Agency

Region 5
230 South Dearborn Street
Chicago, Illinois 60604

Food Safety



INTRODUCTION

Just how safe is the food we eat?

As we learn of the many pesticides that are routinely applied to the country's food crop, several questions arise:

Are we at risk from pesticide-treated food?

Are we being unnecessarily exposed to cancer-causing chemicals?

Do laws regulating pesticides in our food supply adequately protect us?

Because most pesticides must be toxic to kill insects, eliminate weeds, slow-down spoilage, speed up or retard growth, and improve the appearance of some fruits and vegetables — these are legitimate concerns.

This brochure will explain how the U.S. Environmental Protection Agency (EPA) goes about registering a pesticide that will be applied to food or feed produce.

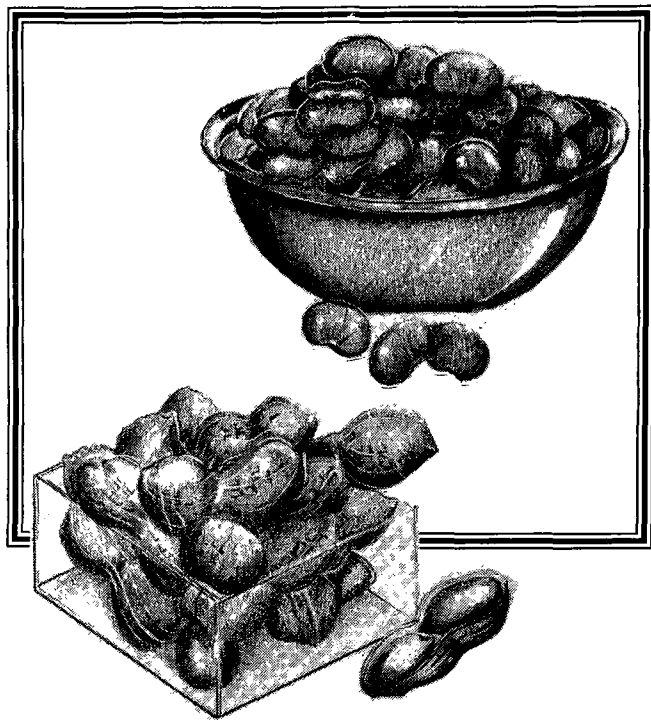
NATURAL CONTAMINANTS

The use of pesticides provides an abundance of insect-and disease-free foods at a relatively low cost. However, there is no way to prove that a pesticide is totally risk-free in all uses and at all dose levels. In fact, there is some inherent risk in every action we take and in everything we eat.

Even eating food without pesticide residues is not totally risk-free. Some so-called natural or organic fruits and vegetables may also present risks. Examples of foods with natural toxins include lima beans (which may have traces of cyanide) and peanut butter (which may contain a carcinogenic mold call aflatoxin). These contaminants can make you sick if consumed in large enough quantities. So, even pesticide-free foods may be poisonous.

FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT

The use of pesticides in or on our food is regulated under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).



Enacted in 1947, this law requires EPA to protect public health, wildlife, and the environment from unreasonable adverse effects of pesticides. In addition, EPA must balance risks to public health, wildlife, and the environment against the social, economic, and environmental benefits identified with a pesticide's use.

Pesticides include insecticides, herbicides, fungicides, rodenticides, disinfectants, and other substances that control pests. Today, there are about 25,000 pesticide products registered in the United States.

REGISTRATION PROCESS

Before a pesticide can be legally sold and used in this country, it first must be licensed, or registered, with EPA. The pesticide manufacturer must show that the pesticide meets all requirements for registration under FIFRA. These requirements include: description of the pesticide's chemistry, toxicity tests, any known effects on people and wildlife, studies of pesticides on crops that will be used as food or as livestock feed, and pesticide behavior in the environment.

EPA evaluates this information and decides whether to approve a new pesticide. If it approves a pesticide, EPA

assigns a product registration number and a pesticide manufacturer's number. In addition, EPA reviews and approves the language on the product container, which specifies how the product should be used. It is illegal to use a pesticide for a purpose, or in a manner, other than stated on the label.

ASSESSING RISK

During the registration process, EPA evaluates the exposure to a pesticide and the potential for disease. Experimental studies are done with animals (usually mice or rats) to estimate the chances of disease as a direct result of pesticide exposure. Animal toxicity studies are based essentially on the theory that pesticide effects on humans can be inferred indirectly from their effects on animals. Mathematical models are used to make these inferences.

Typically, data used in this registration process come from studies of animal exposure to much higher levels of pesticides than the exposure levels expected for humans. Studies include testing animals for acute toxic reactions, (such as cancer, birth defects, and damage to the nervous system, including visual problems, muscle twitching and weakness, and behavioral problems). Studies also note fetal abnormalities, which may result if either parent was exposed to pesticides before conception.

These long-term studies begin with young animals, and continue through their adulthood, thereby imitating human exposure that begins in childhood and continues over a lifetime.

Therefore, when looking at potential adverse effects, it is important to consider the duration and frequency of pesticide exposure as well as pesticide dosages. Repeated exposures, because of a possible pesticide buildup in body tissue, can produce a very different reaction from a single exposure.

It generally takes 6 to 9 years from the time a new pesticide is developed in a company laboratory until it is placed on the shelf for sale. When a pesticide is registered by EPA, you can be sure that the pesticide's health and environmental effects have been thoroughly reviewed by EPA scientists.

CANCELLATION PROCESS

After a pesticide have been registered, if new information shows the pesticide may pose an unreasonable risk to public health or the environment, EPA can revoke its registration. This is called cancellation of a product's registration or suspension of a product's registration. In some cases, the registration may be suspended until additional studies can be done.

If an imminent hazard is found, an emergency suspension can immediately stop the use of a very dangerous pesticide while the cancellation process is in progress.

The cancellation proposal can be challenged by the pesticide manufacturer and by other affected groups. If the cancellation order is challenged while it is being reviewed, the pesticide may be used until the cancellation proceedings are completed — unless that particular use has been suspended.

SETTING TOLERANCES

Under the Federal Food, Drug, and Cosmetic Act, EPA not only registers pesticides but also sets tolerances for pesticides used on food or feed crops. A tolerance is defined as the maximum amount of a pesticide that can safely remain in or on food or feed.

When a pesticide is intended for use on food or feed crops, manufacturers must file a request with EPA to establish a tolerance level. This request must be submitted with the application for registration. EPA will not register a pesticide for use on food crops until a tolerance level has been approved.

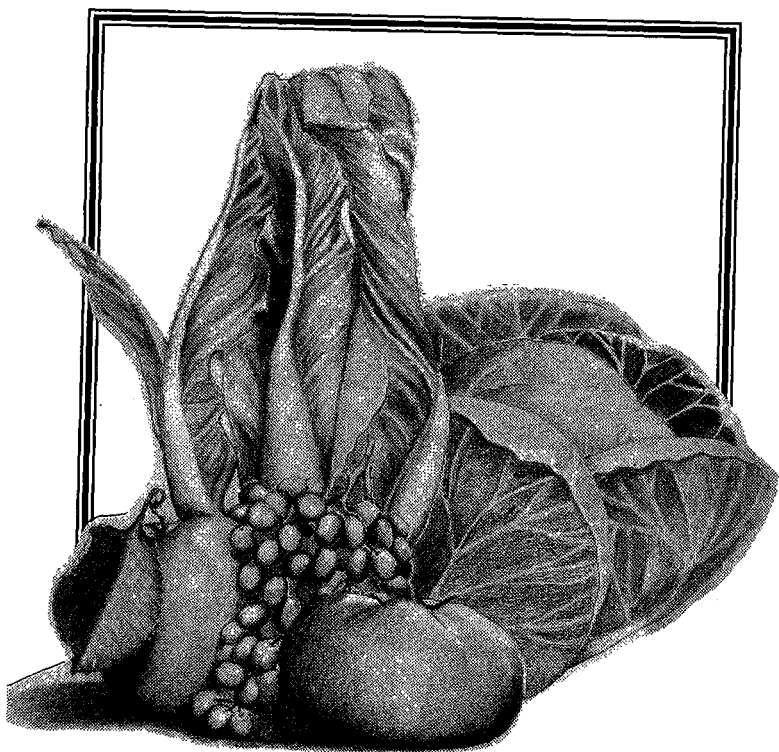
FIELD TESTS

The manufacturer proposes pesticide tolerance levels based on field trial data. This information reflects the maximum residue levels under "worst-case" conditions. For example, crops receive the highest-recommended pesticide doses during the maximum number of times allowed. These tests are

also conducted under weather conditions that would prolong, and in some cases increase, pesticide residues. Therefore, the "worst case" assumptions usually point toward a more restrictive tolerance than indicated by actual pesticide residues at harvest.

APPROVING AND DISAPPROVING TOLERANCES

EPA establishes tolerance for pesticides residues only when toxicological data show that the expected levels will not pose significant dietary risks to consumers even after a lifetime of pesticide exposure. If the data indicate that exposure and risk are high and that harm is likely to occur, EPA will not approve a tolerance.



If EPA does not approve a tolerance, manufacturers can take several steps. They can change the application rate or methods, so that lower residues will remain; they can also lower the proposed tolerance level, eliminate one or more uses, or develop additional information to support their original proposal.

If EPA still does not approve the tolerance level, manufacturers cannot sell the pesticide for specific food or feed use. Several different pesticides may be used on a particular fruit or vegetable, but each pesticide must have its own tolerance level approved by EPA.

In general, most pesticide residues tend to break down as time passes after harvest. If residues are at maximum tolerance when the produce leaves the farm, by the time it reaches the consumer, residue levels will most likely have been reduced. Tolerance levels may be further reduced by washing, peeling, cooking, and processing the food.

Some pesticides are systemic, meaning that they are absorbed by fruits or vegetables and cannot be removed by washing or peeling. Legal tolerances, however, protect consumers from unsafe pesticide residue levels, even if the residues are not reduced before the food is eaten.

ENFORCING TOLERANCES

EPA-set tolerance levels are enforced by the Food and Drug Administration, the U.S. Department of Agriculture, and the State enforcement agencies. The United States food supply, whether grown here or imported, is monitored not only for compliance with pesticide tolerances, but for the presence of aflatoxin, salmonella, and other microbiological contaminants. Federal and State inspectors regularly sample food and feed produce soon after a treated commodity is sent to the market.

SPECIAL CONCERN FOR INFANTS AND CHILDREN

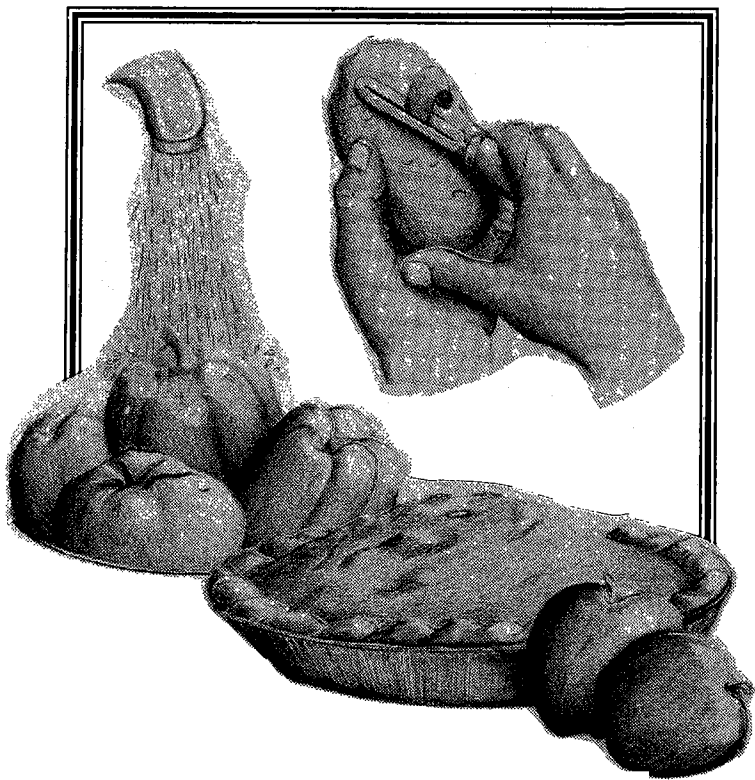
When establishing food tolerances, EPA is especially concerned about infants and children. To guard against possible

problems, EPA routinely calculates lifetime exposure levels for adults as well as for infants and children who may have higher exposures.

EPA's analysis of pesticides in the diet takes into account that infants and children typically eat more food in relation to their body weight — and more of certain types of food — than average adults. Using these exposure estimates, EPA calculates risks accordingly. For example, children generally drink more milk, so this is taken into consideration when EPA sets a tolerance for pesticide residues in milk.

Thus, EPA's tolerance-setting system protects the average person against any short-or long-term harm that might come from a lifetime of exposure to pesticide residues in food, including exposure during childhood.

There have been mixed results concerning the extra chemical sensitivity of infants and children. Some studies indicate they are more sensitive to toxic-chemical exposure when



compared to adults, while other studies say they are less sensitive. To correctly assess this situation, EPA has asked the National Academy of Sciences to do a study on this issue and recommend changes, if any, to the EPA regulatory process. The final report is expected to be out in the spring of 1991.

FURTHER LIMITING EXPOSURE

Throughout our lives, we regularly consume small amounts of pesticides. Meat, fish, produce, poultry, eggs, and milk, are all likely to contain some pesticide residues. Even though EPA limits dietary pesticides through tolerances, you can further reduce your exposure:

- ☐ Rinse fruits and vegetables thoroughly with clear water. Scrub them with a brush and, where possible, peel them. This will not remove systemic (absorbed) pesticide residues; however, it will remove much of the surface residues.
- ☐ Cook or bake food to reduce the amount of some (but not all) pesticide residues.
- ☐ Trim the fat from meat, fish, and poultry. Some pesticide residues concentrate in fat.
- ☐ Do not eat fish from contaminated ponds or lakes. Follow fish advisories of your State.
- ☐ Avoid hunting wild game in areas where pesticide usage is very high.
- ☐ If possible, grow your own food without the use of pesticides.

AMENDMENTS TO FIFRA

While EPA feels that the country's food supply is the safest in the world, it is committed to making food even safer. On

October 22, 1988, President Reagan signed the amendments to FIFRA. One important provision of the amendments gives EPA the authority and additional resources to complete, in 9 years, the updating of information on 600 or so pesticides registered before 1984 and to re-evaluate the data on those chemicals.

Even though EPA has an ongoing process to suspend or cancel unsafe pesticides, this provision will ensure that all previously registered pesticides measure up to current, more advanced, scientific and regulatory standards. To complete the reregistration review of existing pesticides in 9 years represents an enormous challenge to EPA.

In addition, on October 26, 1989, President Bush proposed a program to further increase food safety. The President's plan will:

- ☐ Require all registrants to provide information to EPA, within established time frames, to determine if pesticides meet current standards. If the information is not provided, EPA can suspend the registration.
 - ☐ Define more precisely an "imminent hazard" posed by a pesticide and give EPA the authority to remove pesticides so designated from the market.
 - ☐ Make it easier to cancel the use of a pesticide that is found to be harmful to public health.
 - ☐ Increase penalties for misusing pesticides and give EPA more authority to hold inspections and to collect the necessary data on the distribution, use, and testing of pesticide products.
 - ☐ Establish risk standards for pesticide residues in processed food, as well as in raw commodities, below what is considered to be a threat to the public health.
 - ☐ Establish uniform pesticide tolerances by making State or local standards identical to Federal standards for the same chemical substance.
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SUMMARY

EPA is constantly working to identify and reduce or eliminate unnecessary risks associated with pesticide-treated foods. To this end, EPA continues to focus its efforts on collecting more complete information about pesticides to better assess dietary exposure. The revisions to FIFRA and the plan proposed by the President will go a long way toward helping EPA achieve this goal.

In short, if EPA believes that a pesticide poses an unreasonable risk to the Nation's food, it can — and will — remove that pesticide from the market to protect the American public.

For more information regarding pesticides and food, contact EPA's hotline in the Office of Public Affairs at 1-800-572-2515 in Illinois, or 1-800-621-8431 in Indiana, Michigan, Minnesota, Ohio, and Wisconsin.