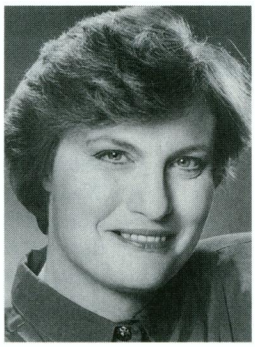
cal in nature and therefore are less likely to be a human health hazard."

Some scientists don't see much of a distinction between the safety of natural and synthetic chemicals. "There doesn't seem to be any toxicological reason it should be the case that naturally occurring chemicals are in some way safer than synthetic chemicals. When we look at the chemicals that are tested for carcinogenicity, the proportion that are carcinogenic in rodent studies are similar for natural and synthetic chemicals," says Lois Gold, a biochemist at the University of California, Berkeley.



EPA

Jean Frane—Lack of synthetic chemicals may not mean a product is nontoxic.

Some "natural" products may be quite harmful. Writing in the October 1990 issue of the *Proceedings of the National Academy of Sciences*, Gold and colleague Bruce Ames described how a type of potato bred to be rich in anti-insect toxins had to be withdrawn from the market because these natural toxins were harmful to people.

Gold and Ames argue that many natural pesticides have not been tested for mutagenicity or carcinogenicity and say "their safety compared to synthetically derived pesticides should not be prematurely assumed."

But there are biological methods of pest control that do offer alternatives. According to Janet Andersen, acting director of EPA's new Biopesticides and Pollution Prevention Division, which was established in November 1994, there are slightly more than 400 "active ingredients," or biological pesticides including viruses, bacteria, fungi, and pheromones. Pheromones, for example, are natural chemicals which are sex attractants. Sold as ingredients in products such as Biolure, Pherocon, and Pherotech, pheromones can be used to disrupt insect mating patterns. Andersen, who said the division actively promotes the use of such biological agents because of their safety, acknowledged that they may be slower acting than chemical alternatives and may require more sophisticated management because they are effective against only one or two insects, compared to chemical pesticides that are often targeted more broadly.

Insecticidal soaps are another nonchemical approach to pest control. These soaps, which are harmless to people, says insect specialist Susan Mahr of the University of Wisconsin-Madison, are not effective against all insect stages and must be applied when the insect is actually on the plant to work.

Conclusion

Although it is clear that "green" products are usually less toxic than conventional ones and can perform effectively, it is also clear that products that may pose less of a risk to health are not necessarily benign. Terms such as "nontoxic," "natural," and "organic" are not necessarily synonmous with safety and have yet to be satisfactorily defined. Government agencies are relatively limited in their ability to regulate green marketing claims. And few private groups offer some sort of evaluation of claims which largely depend on manufacturers' willingness to seek product evaluation. For the consumer, the best advice would seem to be to read product labels thoroughly and be skeptical of sweeping claims and undefined terms. As Consumers Union's Groth warns, "*Caveat emptor*": let the buyer beware.

Harvey Black

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Erratum

The information following the sentence which begins "Mixtures research . . ."of the Focus article entitled "Strange Brew: Assessing Chemical Mixtures" on page 142 of the February 1995 issue (vol. 103, no. 2) was incorrectly attributed to Victor J. Feron. The correct source of the information is Harold Zenick.

The American Health Foundation is an independent biomedical research organization whose mission is research on specific environmental, nutritional and exogenous factors causing cancer, cardiovascular disease, certain genetic diseases and aging. Synthelabo Pharmaceuticals is a private pharmaceutical company which ranks number five in France. In addition to conducting safety studies, one of its primary concerns is education in drug safety. So, with this common interest, the International Course on the Safety Assessment of Pharmaceuticals was started in 1992.

The Course is designed for veterinarians, physicians, pharmacists and scientists of the pharmaceutical industry in charge of nonclinical studies and those responsible for the registration of new drugs. Participants will receive the scientific information necessary for a good comprehension of the results of nonclinical safety studies. Toxicologists and toxicologic pathologists may also benefit from this course by updating their knowledge.

The Course will be held on May 7–12, 1995 at the Hilton Inn in Tarrytown, New York, which is approximately 30 miles north of New York City. For a brochure and registration card please contact:

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