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Nature Overwhelms Efforts to Reduce Pesticide Use in the '90s, New Report Finds

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In a newly released study comparing pesticide usage in U.S. agriculture between 1992 and 1997, the National Center for Food and Agricultural Policy (NCFAP) estimates that although overall annual usage increased by 93 million pounds, there were many instances of major reductions in use. The NCFAP report points out that uncontrollable natural and economic forces resulted in a few major increases in use that overwhelmed reductions. Trends in Crop Pesticide Use: Comparing 1992 and 1997 by Leonard P. Gianessi and Cressida S. Silvers, quantifies and describes changes in the nation's pesticide use patterns for 87 crops.

The estimated increase of 93 million pounds of pesticides may seem impressive, but as the trends study explains, it is the sum of hundreds of increases and decreases in individual use patterns. In fact, reductions in use occurred in more than one half of the comparisons analyzed in the comprehensive national study. Major reductions in pesticide use in the mid 1990s occurred due to farmers using newly registered pesticides to replace older products. In many cases these new registrations were expedited by the federal government with the stated goal of reducing overall use. Many recently registered pesticides are more effective pound for pound than their counterparts already on the market. That means the newer products may be applied at lower rates and less frequently than older products. According to Gianessi and Silvers, registration of these newer products, including fungicides, herbicides and insecticides, on a wide variety of crops led to a reduction of 17 million pounds in annual pesticides applied. They also cite a reduction of 2 million pounds of insecticides in cotton because of plantings of recently registered biotech cotton varieties that produce the insecticidal protein of *Bacillus thuringiensis* (Bt cotton), thus eliminating the need for numerous insecticide sprays.

But these and other instances of reductions in pesticide use were overshadowed by instances of increased use, some of which were also the result of governmental policies. Most notable is a 6 million pound increase in herbicide use attributed to growers switching to reduced tillage production practices, which is encouraged by federal farm policies in order to reduce the deleterious effects of soil erosion. An increase of 2 million pounds of insecticide use in cotton occurred due to expansion of the

federally sponsored Boll Weevil Eradication Program, which, when completed, should result in a significant pesticide use reduction. Even more significant in the mid 1990's were changes in pest populations caused by environmental factors, such as the appearance of a new, more virulent strain of potato late blight fungus. In a successful strategy to prevent major losses in U.S. potato production, U.S. farmers increased their use of fungicides and vine desiccants by 37 million pounds per year. Gianessi and Silvers cite numerous other examples of increases in pesticide use that occurred in the mid 1990s due to the appearance of new pests and changes in pest populations already present.

The single largest increase in pesticide use that occurred was due to an economic factor: the significant lowering of prices that growers received for processed oranges. As the result of lower income, orange growers in Florida reduced their expenditures for pesticides by switching to oil products that were cheaper to apply but which are used at significantly higher rates per acre. This single change in a usage pattern resulted in an increase of 48 million pounds of pesticide use.

The 93 million pound increase in usage represents a 10% overall increase in U.S. agricultural crop pesticide use. Increases in individual categories of use were smaller. Overall pounds used of fungicides and herbicides each increased by 2%. If the new late blight fungus biotype had not appeared, U.S. farmers would have recorded a significant reduction in overall fungicide use. Although the NCFAP study estimates that insecticide use rose by 22%, this is largely a result of the increased oil usage for processed oranges in Florida. If this single use is removed from the calculation, the NCFAP study indicates that there was a reduction in annual insecticide use of 18 million pounds. These reductions are largely attributed to better pest management tools. Insect pests that had been controlled with tremendous spraying in the early 1990s, such as the sweet potato whitefly, Colorado potato beetle, tobacco bollworm and budworm, and corn rootworm, were being managed with significantly fewer pounds of insecticides by the late 1990s.

The NCFAP trends study is based on NCFAP's National Pesticide Use Database for 1992 and the recently updated version for 1997, available at www.ncfap.org. The NCFAP databases are the only publicly available, comprehensive, national pesticide use databases for the U.S., and provided the NCFAP researchers a unique opportunity to analyze trends in usage. For information on the trends observed in the databases, NCFAP researchers searched the farm press and pest management literature, and interviewed university extension specialists and other agricultural experts.

NCFAP is an independent, non-profit, research organization dedicated to furthering public understanding of agricultural issues. [Trends in Crop Pesticide Use: Comparing 1992 and 1997](#) was funded by USDA's Office of Pest Management Policy.