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Consumers Union Research Team Shows: Organic Foods Really DO Have Less Pesticides

WASHINGTON – Do organically-grown foods contain fewer residues of toxic crop pesticides than conventionally-grown foods do? The answer is an emphatic *yes*, according to a scientific study published today in the peer-reviewed journal *Food Additives and Contaminants*. The study team included analysts from Consumers Union (CU), the Yonkers, NY-based publisher of *Consumer Reports* magazine, and from the Organic Materials Research Institute (OMRI), an independent research, education and evaluation organization in Eugene, OR.

Organic foods are grown without most synthetic chemical inputs used in conventional farming, and many consumers who buy organic do so to avoid dietary pesticides. But the issue has been surprisingly controversial, with some conservative and media commentators claiming organic foods have just as many residues as foods grown conventionally.

“We have shown that consumers who buy organic fruits and vegetables are exposed to just one-third as many residues as they’d eat in conventionally-grown foods, and the residues are usually lower as well,” said Edward Groth III, Senior Scientist at CU and one of the paper’s co-authors.

The paper published today is the first detailed analysis of pesticide residue data in foods grown organically and conventionally. “Until now, the scientific community had few empirical data to answer this question,” explains Charles Benbrook, a consultant to CU and co-author of the paper. “But in the last few years, enough good data have become available to do a rigorous analysis.”

The authors obtained and analyzed test data on pesticide residues in organic and non-organic foods from three independent sources: Tests done on selected foods by CU in 1997; surveys of residues in a wide array of foods on the US market conducted by the Pesticide Data Program of the US Department of Agriculture in 1994 through ‘99; and surveys of residues in foods sold in California, tested by the California Department of Pesticide Regulation in 1989 through ‘98. The combined residue data sets covered more than 94,000 food samples from more than 20 different crops; 1,291 of those samples were organically grown. “We’ve pulled together the best available data on residues in organic produce to generate a clear picture of the category as a whole,” says co-author Karen Benbrook, who carried out much of the data analysis for CU.

The USDA data showed that 73 percent of conventionally grown foods had at least one pesticide residue, while only 23 percent of organically grown samples of the same crops had any residues. More than 90 percent of the USDA’s samples of conventionally-grown apples, peaches, pears, strawberries and celery had residues, and conventionally-grown crops were six times as likely as organic to contain multiple pesticide residues. The California data (based on tests with less sensitive detection limits) found residues in 31 percent of conventionally grown foods and only 6.5 percent of organic samples, and found multiple residues nine times as often in conventional samples. CU tests found residues in 79 percent of conventionally grown samples and 27 percent of organically grown

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samples, with multiple residues ten times as common in the former. The levels of residues found in organic samples were also consistently lower than levels of the same pesticides found in conventional samples, in all three sets of residue data.

“The results are remarkably consistent across all three data sets,” says Brian Baker of OMRI, a co-author of the study. “If we take the results as a whole, the evidence is very convincing that—as you’d expect—there are fewer residues by far in organically grown foods.”

The USDA and CU tests also included some samples of “green labeled” foods—foods that are not organically grown, but are marketed with claims based on reduced pesticide use, or “no detectable residues.” Foods in this category had residues in 47 percent of USDA samples and 51 percent of CU samples—intermediate between results for organic and conventional crops.

The authors explored reasons why organic foods contain any pesticide residues at all. When they excluded residues of persistent, long-banned organochlorine insecticides such as DDT from their analysis of the USDA data, the fraction of organic samples with residues dropped from 23 to 13 percent. Most residues in organic foods (and some of the residues in conventional foods) can readily be explained as unavoidable results of environmental contamination by past pesticide use, or by “drift” (sprays blown in from adjacent non-organic farms). Some tested samples may also have been mislabeled as organic, either because of fraud or because of lapses in maintaining the identity of foods as they moved from the farm to point of purchase. Such problems represent opportunities for producers to improve their performance, says Baker.

What about residues of natural pesticides, used by some organic (and non-organic) farmers? Critics of organic agriculture have suggested that residues of natural pesticides in organic foods pose risks comparable to those of residues of conventional crop chemicals in non-organic foods. The paper concludes there is no current evidence to support that assertion, although the authors see this as an interesting question that should be pursued with better data.

“At present there are no good residue data on the botanicals and other natural pesticides, and some of those substances definitely should be more fully evaluated for potential toxic effects,” says Groth. But he emphasized that “There is now no objective evidence of a problem with residues of natural pesticides, whereas health risks associated with residues of conventional pesticides in foods are well-established and the focus of substantial regulatory efforts.”

While the analysis for this study was conducted with no funding from outside sources, the CU database that made that portion of the analysis possible was developed with partial support in recent years by since-completed grants from the Pew Charitable Trusts, the Joyce Foundation, and the W. Alton Jones Foundation.

A summary of the study can be found at <http://www.consumersunion.org>. The full paper can be purchased (obtained free by press) from the publisher of *Food Additives and Contaminants*; go to <http://www.biosciencearena.com> for a link to the paper.