

# Pesticides and Agriculture

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In 1989, environmental activists claimed that a chemical called Alar that was used to assist in the production of lush red apples had created what amounted to “poisoned apples.” They used this claim as part of a campaign to have the substance banned. Yet it turned out that these “poisoned” apples were as much of a fairy tale as the apple in Snow White. The Alar hysteria was completely debunked.<sup>1</sup> Nevertheless, Alar has never been used again on apples in the United States.<sup>2</sup> Moreover, the crusade against pesticide use on produce continues. Consumers Union, the group that produces *Consumer Reports*, produces a report on the content of pesticides in

children’s food<sup>3</sup> and another report on the pesticide residues in various foods.<sup>4</sup> These reports conclude that certain foods have unacceptably high pesticide residues and may well cause cancer.<sup>5</sup> The facts point in a very different direction.

## Beyond Safe

Pesticide levels rarely, if ever, approach unsafe levels. Even when activists cry wolf be-

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1. Fredrick J. Stare and Elizabeth Whelan, *Fad-Free Nutrition* (Alameda, CA: Hunter House, 1998), 262.

2. Stare and Whelan, *Fad-Free Nutrition*, 262.

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3. Edward Groth III, Charles Benbrook, and Karen Lutz, *Update: Pesticides in Children’s Foods* (Washington, DC: Consumers Union, 2000).

4. Edward Groth III, Charles Benbrook, and Karen Lutz, *Do You Know What You’re Eating?* (Washington, DC: Consumers Union, 1999), [http://www.consumerunion.org/food/do\\_you\\_know1.htm](http://www.consumerunion.org/food/do_you_know1.htm).

5. Groth, Benbrook, and Lutz, *Update*, 24.

cause residues exceed federal limits that does not mean the products are not safe. In fact, residues can be hundreds of times above regulatory limits and still be safe:

- According to one National Research Council (NRC) report, “the great majority of individual naturally occurring and synthetic chemicals in the diet appears to be present at levels below which any significant adverse biological effect is likely, and so low that they are unlikely to pose any appreciable cancer risk.”<sup>6</sup>
- The American Academy of Pediatrics notes, “The risks of pesticides in the diet are remote, long-term, and theoretical, and there is no cause for immediate concern by parents. The risks to children over their lifetime of experiencing the major chronic diseases associated with the typical American diet far exceed the theoretical risks associated with pesticide residues.”<sup>7</sup>
- Various government agencies test produce for residues to ensure that they meet safety standards. The U.S. Food and Drug Administration (FDA) and the state of California conduct the most comprehensive and regular testing. Both find not only that residue levels are far lower than any standard of the U.S. Environmental Protection Agency (EPA), but also that they are most often undetectable (see details in the next section).

6. Committee on Comparative Toxicity of Naturally Occurring Carcinogens, Board on Environmental Studies and Toxicology, Commission on Life Sciences, National Research Council, *Carcinogens and Anticarcinogens in the Human Diet* (Washington, DC: National Academies Press, 1996), 336–37.

7. International Food Information Council Foundation, *IFIC Review: On Pesticides and Food Safety* (Washington, DC: IFIC Foundation, January 1995).

- Residue levels decline even further when we wash produce. One study shows that washing fruits and vegetables can reduce exposure by 97 percent for some pesticides.<sup>8</sup>

### **FDA Residue Survey: Most Residues are Undetectable**

In its most recent survey, the FDA has made the following discoveries:

- “The findings for 2003 demonstrate that pesticide residue levels in foods are generally well below EPA tolerances, corroborating results presented in earlier reports.”<sup>9</sup>
- Sixty-two percent of domestic fruit and vegetable samples had no detectable pesticide residues.
- Eighty-three percent of imported fruit and vegetable samples had no detectable pesticide residues.
- Only 6 percent of imported fruit and vegetable samples contained residues in excess of federal standards. Only 2 percent of domestic fruit and vegetable samples exceeded standards.
- There were no pesticide residue tolerance violations on 92.9 percent of all imported fruit and vegetable samples.
- FDA reports no residue violations for domestic grains and violations for only 1.4 percent of imported grains.
- FDA found no violations for dairy and egg products and for seafood.
- FDA found no residue violations in baby foods.

8. Henry B. Chin, “The Effect of Processing on Residues in Foods,” in *Pesticide Residues and Food Safety: A Harvest of Viewpoints* (Washington, DC: American Chemical Society, 1991), 171.

9. *Ibid.*, 10.

## Eating Fruits and Veggies Trumps Pesticide Risks

The main cause of cancer is not pesticide residues, but rather the nutritional value of what a person eats.<sup>10</sup>

- In fact, a seminal study by Sir Richard Doll and Richard Peto apportioned 2 percent of cancer cases to causation by all environmental pollutants found in the air, water, and food and 35 percent of all cancers to dietary factors.<sup>11</sup>
- Accordingly, the World Health Organization advocates increased intake of fruits and vegetables, to reduce the cancer incidence rate by 30 percent across the board.<sup>12</sup>
- The quarter of the U.S. population consuming the least amount of fruits and vegetables has a cancer rate twice as high as the quarter of the population consuming the most fruits and vegetables.<sup>13</sup>
- Moreover, only 36 percent of Americans older than two consume the U.S. Department

10. Robert S. Lichter and Stanley Rothman, *Environmental Cancer: A Political Disease?* (New Haven, CT: Yale University Press, 1999).

11. Richard Doll and Richard Peto, "The Causes of Cancer: Quantitative Estimates of Avoidable Risks of Cancer in the United States Today," *Journal of the National Cancer Institute* 66, no. 1192 (1981): 1235, 1251. In addition, Doll and Peto estimate that tobacco use is responsible for 30 percent of the cancer cases in the United States. For more information on cancer risks, see "The True Causes of Cancer" and "Cancer Trends," in *The Environmental Source*.

12. World Health Organization, Programme for Cancer Control, *Developing a Global Strategy for Cancer* (Geneva: World Health Organization, 2000).

13. Bruce N. Ames, and Lois Swirsky Gold, "Environmental Pollution, Pesticides, and the Prevention of Cancer: Misconceptions," *FASEB Journal* 11, no. 3 (1997): 1041–52.

of Agriculture–recommended amount of five servings of fruits and vegetables a day.<sup>14</sup> Hence, if we want to reduce cancer risks, we should focus on consuming more produce.

## Pesticides Promote Health through Affordable Produce

To promote public health, policy should work to ensure that families—particularly lower-income families—are able to afford fresh produce. Pesticides play a key role in increasing supply and thereby keeping these products affordable.

- Use of modern agricultural technology and chemicals has reduced the cost of food, thereby improving nutrition, particularly for lower-income families. In fact, at the turn of the 20th century, before the use of modern agricultural practices, Americans spent 20 percent of their income on food. Now, the average American family spends approximately 10 percent of its disposable income on food.<sup>15</sup>
- Affordability is a key concern for most Americans. Consumers who say that they would pay for residue-free foods are willing to pay only a small increase. In one survey, 46 percent said they would pay more for such products, but only 15 percent of those respondents would pay more than 10 percent extra.<sup>16</sup>

14. "Achievements in Public Health, 1900–1999: Safer and Healthier Foods," *Morbidity and Mortality Weekly Report* 48, no. 40 (1999): 905–13, <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm4840a1.htm>.

15. International Food Information Council Foundation, *IFIC Review*.

16. National Research Council, Commission on Life Sciences, *The Future Role of Pesticides in U.S. Agri-*

- Without pesticides, the price of raising a crop could increase 5 to 200 times, and those costs would be transferred to consumers in the prices of the goods, according to one estimate.<sup>17</sup>
- Scientist Philip Abelson warned that continued banning of pesticides and fungicides could lead to food scarcities.<sup>18</sup>
- Cooking food produces 2,000 milligrams of burnt material per person per day. Burnt material contains many rodent carcinogens and mutagens.
- A person consumes only 0.09 milligrams per day of the residues of 200 synthetic chemicals that the FDA measures.<sup>20</sup>
- As Ames and Gold point out, there is little difference between naturally occurring chemicals and man-made chemicals. They find that 99.99 percent of the chemicals that we eat are natural. Plants produce such chemicals to defend themselves against insects, fungi, and other predators. Ames and Gold estimate that “on average Americans ingest roughly 5,000 to 10,000 different natural pesticides and their breakdown products.”<sup>21</sup> Hence, we consume far more naturally occurring pesticides on plants than we do manmade ones—without ill effect. This reality underscores the fact that current exposure to manmade chemicals is not significant and poses a very low-level risk. Ames and Gold specifically note: “The possible carcinogenic hazards from synthetic pesticides (at average exposures) are minimal compared to the background of nature’s pesticides, though neither may present a hazard at the low doses consumed.”<sup>22</sup>

### “Carcinogens” in Perspective

Environmentalists have long claimed that we should avoid all pesticides because these chemicals cause cancer in rodents and, hence, must be dangerous to humans. But even if pesticides were not used, every time people eat they would shovel in these “rodent carcinogens.” People consume such natural rodent carcinogens without ill effects, and the same is true for low-level pesticide exposures. Consider these facts:

- Bruce Ames and Lois Swirsky Gold of the University of California at Berkeley estimate that the amount of residual carcinogenic pesticides in food is 1,800 times less than the amount of carcinogens derived from 54 natural plant chemicals that are found in food.<sup>19</sup>

*culture* (Washington, DC: National Academy Press, 2000), 85, [http://www.nap.edu/openbook.php?record\\_id=9598&page=R1](http://www.nap.edu/openbook.php?record_id=9598&page=R1).

17. Stare and Whelan, *Fad-Free Nutrition*, 92, citing J. G. Edwards, “Antipesticide Ads’ Lies Are Hazardous to Our Health,” *Priorities* 4, no. 4 (1995): 45–46.

18. Philip Abelson, “Adequate Supplies of Fruits and Vegetables: Fungicide Ban Would Reduce Supply of Healthy Foods,” *Science* 266, no. 5189 (1994): 1303.

19. Bruce Ames and Lois Swirsky Gold, “Chemical Carcinogenesis: Too Many Rodent Carcinogens,” *Proceedings of the National Academy of Science* 87, no. 19 (1990): 7772–76.

### Key Experts

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20. Ames and Gold, “Environmental Pollution, Pesticides, and the Prevention of Cancer,” 1045.

21. *Ibid.*, 1044.

22. Ames and Gold, “Environmental Pollution, Pesticides, and the Prevention of Cancer,” 1147.

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### **Recommended Readings**

Avery, Dennis. 1995. "Saving the Planet with Pesticides: Increasing Food Supplies while Preserving the Earth's Diversity." In *True State of the Planet*, ed. Ronald Bailey, 49–82. New York: Free Press.

Morris, Julian, and Roger Bate, eds. 1999. *Fearing Food: Risk, Health, and Environment*. Boston: Butterworth-Heinemann, 1999.

Smith, Kenneth, and Jack Raso. 1999. "An Unhappy Anniversary: The Alar 'Scare' Ten Years Later." New York: American Council on Science and Health. [http://www.acsh.org/publications/pubID.865/pub\\_detail.asp](http://www.acsh.org/publications/pubID.865/pub_detail.asp).

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