

Rachel's Environment & Health News

#530 - How They Lie -- Part 3: The True Story of Alar -- Part 1

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We all know --or think we know --the story of Alar, the apple pesticide. We all know that the "Alar scare" of 1989 was a toxic false alarm, a hoax based on junk science perpetrated by Natural Resources Defense Council (NRDC), Consumer's Union (CU), CBS's "Sixty Minutes" news show, and the movie star Meryl Streep. Alar was in fact a safe chemical, essential for the economic health of the nation's apple industry, but it was suddenly and unexpectedly pulled from the market after environmental and consumer extremists created a sudden storm of frightening publicity in 1989. As a result, the apple industry had to abandon an essential crop protection tool and consequently suffered losses of at least \$100 million. Or so the story goes.

This rendition of the Alar story has been told and retold so many times since 1989 that we have all come to believe it. And the story keeps being repeated like a drum beat right up to the present. The [Phoenix] ARIZONA REPUBLIC April 21, 1995, called the Alar scare a "false alarm." The PROVIDENCE [Rhode Island] JOURNAL-BULLETIN said May 6, 1995, "Alar crisis of 1989... it was soon found that there was no scientific evidence of any harm Alar had done to anyone." The WALL STREET JOURNAL May 7, 1995, referred to the "1989 Alar-on-apples uproar that practically destroyed the reputation of apples as good food using questionable scientific evidence." The RICHMOND (Virginia) TIMES-DISPATCH March 31, 1996 (pg. F6) referred to the "bogus Alar scare of 1989." The Madison, Wisconsin STATE JOURNAL May 17, 1996 (pg. 13A) referred to the "ridiculous Alar scare." The NEW YORK TIMES said October 26, 1996 (pg. 39), "Since the Natural Resources Defense Council warned the public in 1989 about the elevated cancer risk from pesticides like Alar--a scare that turned out to be overblown--there has been heightened anxiety about conventionally cultivated food." The Albany, New York TIMES UNION said November 13, 1996 (pg. B1), "The Alar scare is now widely agreed to have been overblown..." The SAN JOSE [California] MERCURY NEWS November 14, 1996 (pg. B11), said, "In 1989, the Alar scare cost apple growers an estimated \$100 million."

This is a tiny sample of recent re-statements of the Alar story in major newspapers.[1] Unfortunately, all of them are untrue.

The true story of our awakening to the hazards of Alar begins in 1973. The Uniroyal corporation had received a government license to sell Alar for use on apples and peanuts in 1968. Back in those days, U.S. Department of Agriculture (USDA) had legal responsibility for the health and safety aspects of all crop chemicals. Between 1945 and 1966, USDA licensed nearly 60,000 individual pesticides at a time when the agency had only one toxicologist on staff; it was his job to keep abreast of the health and safety literature (if any existed) for each of the 60,000 products.[2] (To help get the size of his task into perspective, U.S. EPA set out in 1972 to examine the health and safety aspects of all 60,000 pesticides; the agency recently announced that it hopes to complete the job in the year 2010.[3]) Therefore, it seems safe to say that the health effects of Alar had been evaluated poorly, if at all, when the chemical first began appearing on the apples in your grocery store in 1969.

Alar is a "growth regulator." It doesn't kill pests, but it prevents fruit from dropping to the ground too early. As a result, it allows apple growers to harvest their crop all at one time, and it makes apples more firm, more resistant to bruises. It also prolongs the shelf life of the fruit, and it darkens the red in apples, giving Alar-sprayed fruit a cosmetic advantage. For all these reasons Alar quickly became very popular with apple growers.

Alar is manufactured by reacting succinic anhydride with 1,1-dimethylhydrazine (UDMH), a toxic component of rocket fuel. Therefore UDMH has always been a contaminant present in Alar.[4] Furthermore, Alar degrades into UDMH when it is heated --as in cooking apple sauce, or sterilizing apple juice for bottling --or when Alar is digested in the human stomach.[5] In tests of

carcinogenicity [cancer-causing power], UDMH proves to be about 1000 times as powerful as Alar itself. So when we discuss the dangers of Alar, we are always necessarily discussing the dangers of Alar and UDMH combined.

For its part, Uniroyal has always played down the inherent dangers of Alar/UDMH. In one formulation the product was marketed under the name B-Nine. Benign, get it?

The benign image of Alar began to erode in 1973, when a study published in the JOURNAL OF THE NATIONAL CANCER INSTITUTE showed that mice given UDMH at high levels in their drinking water developed cancer of the lung, kidney, liver, lymph system, and blood vessels.[6]

A follow-up study of mice published in 1977 confirmed the finding of cancer in the lungs, kidneys, and blood vessels of treated mice. Also published in 1977 was a study of Alar's effect on Golden hamsters, which reported rare blood vessel tumors in both sexes, and tumors of the intestines in both sexes.[7] Benign it was not.

At that time, U.S. Environmental Protection Agency [EPA] had an obligation under law (the so-called Delaney clause) to ban pesticides known to cause cancer in animals or humans if those pesticides concentrated in processed food, such as apple sauce and apple juice. The 1977 studies put Alar/UDMH squarely into the category of chemicals regulated by the Delaney clause. EPA was required to ban it. However, the agency took no action against Alar for the next seven years. (Congress repealed the Delaney clause in 1996.)

On September 19, 1984, U.S. EPA announced that it was investigating the lifetime cancer risks among people eating apples and peanuts sprayed with Alar.[8]

Almost a year later, in August, 1985, EPA announced that it was planning to initiate a process that would result in banning Alar. Such a process might take a decade or even longer.[9]

In 1985, EPA reasoned as follows: Alar was being used on 38% of the U.S. apple crop; it penetrated to the interior of the apple so washing wouldn't remove it; and it might be causing as many as 100 cancers per million people exposed to it in their diet for a lifetime. The official threshold for concern within EPA at that time was one cancer in a million exposed people, so Alar was thought to create a human health hazard at least 100 times as great as the agency considered acceptable.

EPA submitted its Alar ban plan to its Scientific Advisory Board (SAB) in the fall of 1985. At that time, if EPA wanted to ban a pesticide, the burden was on the agency to prove that the ban was scientifically, provably warranted. (This is still true today.) Furthermore, if EPA succeeded in banning a pesticide, the agency was responsible for reimbursing the manufacturer of the chemical for the cost of the remaining stocks of the banned chemical. Under law, it was up to the EPA to purchase, transport, and dispose of banned pesticides. For example, EPA paid the manufacturers of the herbicide 2,4,5-T \$20 million when 2,4,5-T was banned, and EPA paid \$40 million to the manufacturer of Dinoseb when it was banned.[10] At that time, the entire yearly budget of EPA's Office of Pesticide Programs was only \$60 million, so banning a pesticide could seriously deplete the agency's operating funds. A ban was not something that could be undertaken lightly. (In 1988, Congress removed this financial burden from EPA.)

On January 14, 1986, the National Food Processors Association (NFPA) announced that its own tests had detected Alar in 73 samples of apple sauce and 132 samples of apple juice.[11] NFPA had started testing food from grocery stores when EPA had first announced its concerns about Alar and cancer in 1984. Simultaneously, Gerber, the largest manufacturer of baby food, announced finding Alar in its apple juice and apple sauce.

A week after Gerber and NFPA announced finding Alar in baby food and juice, EPA announced that it had changed its mind and would not seek a ban on Alar because the SAB wanted more studies.[12] SAB felt the 1973 and 1977 studies were now too old to form the scientific underpinnings of a major political/legal fight, such as a pesticide ban.

However, while announcing that it was backing off its announced ban plan, EPA said it would seek a 50% reduction in the levels of Alar allowed to remain on apples as they leave the orchard.

At this point the public has a right to be confused and alarmed: at least three studies have shown Alar/UDMH to be a potent carcinogen in both sexes of two animal species. EPA has published its rough assessment that Alar is 100 times more dangerous than is allowed by agency standards. The agency has announced it will seek a ban, then backed off saying it will insist on a 50% reduction in toxic residues on apples. Meanwhile major food marketing organizations --including Gerber --have announced finding Alar in apple sauce and apple juice, which are staples in the diets of most babies. The stage seems set for the "Alar scare" to erupt in the media. But in our story we've only reached 1986 and the "scare" is still 3 years away.

[More next week.]

--Peter Montague (National Writers Union, UAW Local 1981/AFL-CIO)

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[1] The 1995 press coverage of Alar was described in Elliot Negin, "The Alar 'Scare' Was for Real," COLUMBIA JOURNALISM REVIEW September/October, 1996, pgs. 13-15. Negin searched a database of newspapers and found 160 references to Alar in 80 newspaper articles published in the first 7.5 months of 1995; among the 80 articles, "all but a handful present the Alar affair as much ado about nothing," Negin reports.

[2] John Wargo, OUR CHILDREN'S TOXIC LEGACY (New Haven, Connecticut: Yale University Press, 1996), pg. 76.

[3] Charles M. Benbrook and others, PEST MANAGEMENT AT THE CROSSROADS (Yonkers, N.Y.: Consumer's Union, 1996), pg. 110.

[4] Alar is the trade name of daminozide, also known as succinic acid-2,2-dimethylhydrazide, which is CAS #1596-84-5. UDMH is unsymmetrical 1,1-dimethylhydrazine, which is CAS #57-14-7. Sometimes UDMH is referred to as UMDH; see, for example, Shirley Briggs and others, BASIC GUIDE TO PESTICIDES (Washington, D.C.: Hemisphere Publishing, 1992), pg. 128. Of course the CAS number is the only definitive way to specify a particular chemical.

[5] Charles R. Santerre and others, "The Decomposition of Daminozide (Alar) to Form Unsymmetrical Dimethylhydrazine (UDMH) in Heated, pH Adjusted, Canned Solutions," JOURNAL OF FOOD PROTECTION Vol. 54, No. 3 (March 1991), pgs. 225-229.

[6] Bela Toth, "1,1-Dimethylhydrazine (Unsymmetrical) Carcinogenesis in Mice: Light Microscopic and Ultrastructural Studies on Neoplastic Blood Vessels," JOURNAL OF THE NATIONAL CANCER INSTITUTE Vol. 50, No. 1 (January 1973), pgs. 181-187.

[7] Bela Toth and others, "Induction of Tumors in Mice with Herbicide Succinic Acid 2,2-Dimethylhydrazide," CANCER RESEARCH Vol. 37 (1977), pgs. 3497-3500. And: Bela Toth, "The

Large Bowel Carcinogenic Effects of Hydrazine and Related Compounds Occurring in Nature and in the Environment," CANCER SUPPLEMENT Vol. 40 (November 1977), pg. 2427-2431. See also: Janet Raloff, "EPA plans to ban carcinogen daminozide," SCIENCE NEWS Vol. 128 (September 7, 1985), pg. 149.

[8] United Press International, "Pesticide Inquiry Seeks Possible Cancer Link," NEW YORK TIMES July 22, 1984, pg. 30.

[9] Nancy Jenkins, "Fruit-Chemical Ban Weighed," NEW YORK TIMES August 30, 1985, pg. B4. And see United Press International, "U.S. Agency Urges Banning Chemical Used With Apples," NEW YORK TIMES August 29, 1985, pg. B2.

[10] Wargo, cited above in note 2, pgs. 92-93.

[11] Keith Schneider, "Tiny Traces of Suspect Chemical Found in Apple Juice and Sauce," NEW YORK TIMES January 14, 1986, pg. A15.

[12] Philip Shabecoff, "E.P.A. Won't Ban Use of Chemical on Apples," NEW YORK TIMES January 23, 1986, pg. A18.

Descriptor terms: alar; pesticides; apples; news media; nrhc; consumer's union; cbs; sixty minutes; meryl streep; natural resources defense council; epa; usda; bans; regulation;