

# DDT Regulatory History: A Brief Survey (to 1975)

[EPA report, July 1975]

## Background

DDT (Dichloro-diphenyl-trichloroethane), for many years one of the most widely used pesticidal chemicals in the United States, was first synthesized in 1874. Its effectiveness as an insecticide, however, was only discovered in 1939. Shortly thereafter, particularly during World War II, the U.S. began producing large quantities of DDT for control of vector-borne diseases such as typhus and malaria abroad.

After 1945, agricultural and commercial usage of DDT became widespread in the U.S. The early popularity of DDT, a member of the chlorinated hydrocarbon group, was due to its reasonable cost, effectiveness, persistence, and versatility. During the 30 years prior to its cancellation, a total of approximately 1,350,000,000 pounds of DDT was used domestically.

After 1959, DDT usage in the U.S. declined greatly, dropping from a peak of approximately 80 million pounds in that year to just under 12 million pounds in the early 1970s. Of the quantity of the pesticide used in 1970-72, over 80 percent was applied to cotton crops, with the remainder being used predominantly on peanut and soybean crops. The decline in DDT usage was the result of (1) increased insect resistance; (2) the development of more effective alternative pesticides; (3) growing public concern over adverse environmental side effects; and (4) increasing government restrictions on DDT use.

In addition to domestic consumption, large quantities of DDT have been purchased by the Agency for International Development and the United Nations and exported for malaria control. DDT exports increased from 12 percent of the total production in 1950 to 67 percent in 1969. However, exports have shown a marked decrease in recent years dropping from approximately 70 million pounds in 1970 to 35 million in 1972.

## Public Concern

Certain characteristics of DDT which contributed to the early popularity of the chemical, particularly its persistence, later became the basis for

public concern over possible hazards involved in the pesticide's use. Although warnings against such hazards were voiced by scientists as early as the mid-1940s, it was the publication of Rachel Carson's book *Silent Spring* in 1962 that stimulated widespread public concern over use of the chemical. After Carson's alert to the public concerning the dangers of improper pesticide use and the need for better pesticide controls, it was only natural that DDT, as one of the most widely used pesticides of the time, should come under intensive investigation.

Throughout the last decade, proponents and opponents of DDT have faced one another in a growing series of confrontations. Proponents argue that DDT has a good human health record and that alternatives to DDT are more hazardous to the user and more costly. Opponents to DDT, admitting that there may be little evidence of direct harm to man, emphasize other hazards connected with its use. They argue that DDT is a persistent, toxic chemical which easily collects in the food chain posing a proven hazard to non-target organisms such as fish and wildlife and otherwise upsetting the natural ecological balance.

Both the pros and cons of DDT use were considered by four Government committees who issued the following reports: (1) May 1963, "Use of Pesticides," A Report of the President's Science Advisory Committee (PSAC); (2) November 1965, "Restoring the Quality of Our Environment," A Report of the Environmental Protection Panel, PSAC; (3) May 1969, Report of the Committee on Persistent Pesticides, Division of Biology and Agriculture, National Research Council, to the Agriculture Department; (4) December 1969, Mrak Commission Report. All four reports recommended an orderly phasing out of the pesticide over a limited period of time.

Public concern further manifested itself through the activities of various environmental organizations. Beginning in 1967, the Environmental Defense Fund, the National Audubon Society, the National Wildlife Federation, the Izaak Walton League and other environmental groups became increasingly active in initiating court proceedings leading to the restriction of DDT use at both local and Federal levels.

### **State Regulatory Actions**

Varying restrictions were placed on DDT in different States.

DDT use was outlawed except under emergency conditions in Illinois, Iowa, Massachusetts, New Mexico, New York, Rhode Island, Vermont, and Wisconsin.

Alaska, Arizona, California, Colorado, Connecticut, Florida, Idaho, Kentucky, Maine, Maryland, Michigan, Minnesota, New Hampshire, North Carolina, Ohio, Utah, Virginia, and Washington have all placed

some limitation on the use of DDT.

Although the remaining States have provisions for the "restricted use" classification of pesticides, no specific mention is made of DDT.

### **Initial Federal Regulatory Actions**

The Federal Government has not been oblivious to the hazards of DDT use as is indicated by various Government studies and actions undertaken since the late 50s.

1. In 1957, as a matter of policy, the Forest Service, U.S. Department of Agriculture (USDA), prohibited the spraying of DDT in specified protective strips around aquatic areas on lands under its jurisdiction.
2. In 1958, after having applied approximately 9-1/2 million pounds of the chemical in its Federal-State control programs since 1945, USDA began to phase out its use of DDT. They reduced spraying of DDT from 4.9 million acres in 1957 to just over 100,000 acres in 1967 and used persistent pesticides thereafter only in the absence of effective alternatives. The major uses of DDT by the Forest Service have been against the gypsy moth and the spruce budworm. The development of alternative pesticides such as Zectran, which was in operation in 1966, contributed to further reduction in DDT use by the Department.
3. In 1964, the Secretary of the Interior issued a directive stating that the use of chlorinated hydrocarbons on Interior lands should be avoided unless no other substitutes were available. This regulatory measure, as well as others which followed, was reaffirmed and extended in June 1970, when the Secretary issued an order banning use of 16 types of pesticides, including DDT, on any lands or in any programs managed by the Department's bureaus and agencies.
4. Between November 1967 and April 1969, USDA canceled DDT registrations for use against house flies and roaches, on foliage of more than 17 crops, in milk rooms, and on cabbage and lettuce.
5. In August 1969, DDT usage was sharply reduced in certain areas of USDA's cooperative Federal-State pest control programs following a review of these programs in relation to environmental contamination.
6. In November 1969, USDA initiated action to cancel all DDT registrations for use against pests of shade trees, aquatic areas, the house and garden and tobacco. USDA further announced its intention to discontinue all uses nonessential to human health and for which there were safe and effective substitutes.
7. In August 1970, in another major action, USDA canceled Federal

registrations of DDT products used as follows: (1) on 50 food crops, beef cattle, goats, sheep, swine, seasoned lumber, finished wood products and buildings; (2) around commercial, institutional, and industrial establishments including all nonfood areas in food processing plants and restaurants, and (3) on flowers and ornamental turf areas.

## **EPA Regulatory Actions**

On December 2, 1970, major responsibility for Federal regulation of pesticides was transferred to the U.S. Environmental Protection Agency (EPA).

1. In January 1971, under a court order following a suit by the Environmental Defense Fund (EDF), EPA issued notices of intent to cancel all remaining Federal registrations of products containing DDT. The principal crops affected by this action were cotton, citrus, and certain vegetables.
2. In March 1971, EPA issued cancellation notices for all registrations of products containing TDE, a DDT metabolite. The EPA Administrator further announced that no suspension of the registration of DDT products was warranted because evidence of imminent hazard to the public welfare was lacking. (Suspension, in contrast to cancellation, is the more severe action taken against pesticide products under the law.) Because of the decision not to suspend, companies were able to continue marketing their products in interstate commerce pending the final resolution of the administrative cancellation process. After reconsideration of the March order, in light of a scientific advisory committee report, the Administrator later reaffirmed his refusal to suspend the DDT registrations. The report was requested by Montrose Chemical Corporation, sole remaining manufacturer of the basic DDT chemical.
3. In August 1971, upon the request of 31 DDT formulators, a hearing began on the cancellation of all remaining Federally registered uses of products containing DDT. When the hearing ended in March 1972, the transcripts of 9,312 pages contained testimony from 125 expert witnesses and over 300 documents. The principal parties to the hearings were various formulators of DDT products, USDA, the EDF, and EPA.
4. On June 14, 1972, the EPA Administrator announced the final cancellation of all remaining crop uses of DDT in the U.S. effective December 31, 1972. The order did not affect public health and quarantine uses, or exports of DDT. The Administrator based his decision on findings of persistence, transport, biomagnification, toxicological effects and on the absence of

benefits of DDT in relation to the availability of effective and less environmentally harmful substitutes. The effective date of the prohibition was delayed for six months in order to permit an orderly transition to substitute pesticides. In conjunction with this transition, EPA and USDA jointly developed "Project Safeguard," a program of education in the use of highly toxic organophosphate substitutes for DDT.

5. Immediately following the DDT prohibition by EPA, the pesticides industry and EDF filed appeals contesting the June order with several U.S. courts. Industry filed suit to nullify the EPA ruling while EDF sought to extend the prohibition to those few uses not covered by the order. The appeals were consolidated in the U.S. Court of Appeals for the District of Columbia.

On December 13, 1973, the Court ruled that there was "substantial evidence" in the record to support the EPA Administrator's ban on DDT.

### **Actions Taken Under the New Pesticide Law**

On October 21, 1972, the Federal Environmental Pesticides Control Act, a far-reaching amendment to the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) was enacted. These amendments provide EPA with more effective pesticide regulation mechanisms than were previously available under the FIFRA.

1. In April 1973, EPA, in accordance with authority granted by the amended law, required that all products containing DDT be registered with the Agency by June 10, 1973.
2. On April 27, 1973, EPA granted a request by the States of Washington and Idaho for a temporary registration of DDT for use against the pea leaf weevil. A similar application was approved on February 22, 1974, for use of DDT during the 1974 growing season. The chemical was registered for 90 days following a determination by EPA that control of the pea leaf weevil was an economic necessity and that DDT was the only practical and effective control agent available. The EPA order designated spray restrictions, monitoring guidelines, and research requirements for the control program. The order provided for further testing of three chemicals--methoxychlor, Imidan, and malathion ULV--which have shown some promise as alternatives to DDT. Other possible long-range alternatives to DDT were tested in 1974, as well.
3. On February 26, 1974, EPA granted a request by the Forest Service for use of DDT to combat the Douglas-fir tussock moth epidemic in the Northwest. Previous requests by the Forest Service had been denied on the grounds that the risks of DDT use

were not outweighed by the benefits. A week long investigation in September 1973, a technical seminar on November 16, 1973, and a series of hearings in January 1974, aided EPA in reassessing the need for DDT. On the basis of information acquired during these sessions, the Administrator concluded that the potential for an economic emergency existed in 1974 and that no effective alternative to DDT was available. The control program was carried out under strict spraying restrictions and with a requirement that research programs evaluate alternatives to DDT, and monitoring activities be conducted by the Forest Service.

Use of a canceled pesticide is made possible by the recent amendments to FIFRA which permit EPA to exempt any Federal or State agency from any of the provisions of the Act if emergency conditions exist. All such requests are considered on a case-by-case basis.

4. On March 14, 1975, the Administrator denied the State of Louisiana a request for emergency use of 2.25 million pounds of DDT on 450,000 acres of cotton to control the tobacco budworm in 1975. This decision was affirmed by the Administrator on April 1, 1975, after reconsideration on the grounds of "no substantial new evidence which may materially affect the 1972 order with respect to the human cancer risk posed by DDT, the environmental hazards of DDT and the need to use DDT on cotton." (Federal Register, April 8, 1974, p. 15, 962).

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Excerpt from *DDT, A Review of Scientific and Economic Aspects of the Decision To Ban Its Use as a Pesticide*, prepared for the Committee on Appropriations of the U.S. House of Representatives by EPA, July 1975, EPA-540/1-75-022

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