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FIFRA Lite: A Regulatory Solution or Part of the Pesticide Problem?

I. Introduction

The food we eat, the air we breathe, the water we drink, the homes we live in, the clothes we wear, the lawns our children play on, and the offices we work in may contain pesticide¹ residues.² To date, the Environmental Protection Agency (EPA) has registered approximately fifty thousand pesticide products³ derived from six hundred active ingredients.⁴ In 1987, Americans used over one billion pounds of pesticides for agricultural, industrial, and household purposes.⁵

1. "Pesticide" means "(1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, and (2) any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant . . ." 7 U.S.C. § 136(u) (1988). A "pest" is any "insect, rodent, nematode, fungus, weed" or other form of life that "the Administrator [of the EPA] declares to be a pest." 7 U.S.C. § 136(t); 7 U.S.C. § 136(b). A "plant regulator" is generally any substance intended to inhibit or accelerate plant growth. 7 U.S.C. § 136(v). A "defoliant" is any substance designed to cause "leaves or foliage to drop from a plant." 7 U.S.C. § 136(f). A "desiccant" is any substance designed to "artificially accelerat[e] the drying of plant tissue." 7 U.S.C. § 136(g).

2. U.S. GENERAL ACCOUNTING OFFICE, PESTICIDES: EPA'S FORMIDABLE TASK TO ASSESS AND REGULATE THEIR RISKS 10 (RCED-86-125, 1986) [hereinafter GAO].

"Residue" is the "active ingredient(s), metabolite(s), or degradation product(s)" remaining in the environment after the use of a pesticide. EPA, FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT: COMPLIANCE/ENFORCEMENT MANUAL 1-80 (1984).

3. GAO, *supra* note 2.

4. *Id.* Pesticides contain a mixture of "active" and "inert" ingredients. An "active" ingredient is the basic chemical in a pesticide formulated to control a pest. *Id.* at 23. See 7 U.S.C. § 136(a). "Inert" ingredients are inactive. 7 U.S.C. § 136(m). Inert ingredients have no pesticidal effects but are used to "dissolve, dilute, deliver, or stabilize" active ingredients. GAO, *supra* note 2, at 23.

5. EPA, PESTICIDE INDUSTRY SALES AND USAGE: 1987 MARKET ESTIMATES at table 3 (1988). In 1987, Americans used 1.09 billion pounds active ingredient of conventional pesticides. *Id.* at table 4. Seventy-five percent of the products were used by agriculture, eighteen percent were used by industry, and seven percent were used by households. *Id.* at table 3. This usage figure is increased to 2.69 billion pounds when wood preservatives, disinfectants, and sulfur are included. *Id.* at table 4.

Pesticide use has levelled off at approximately one billion pounds per year since

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA),⁶ the nation's key pesticide law, authorizes the EPA to regulate pesticides and their uses.⁷ Unfortunately, most of the pesticides in use today were registered⁸ under versions of FIFRA far less stringent than the one implemented in 1972⁹ and consequently have been inadequately tested for health and environmental effects.¹⁰ When Congress drastically over-

1975. *Id.* at table 8. Several factors account for this phenomenon. The agricultural share of pesticide use has steadied due to more efficient use of pesticides, improved certification programs, better information dissemination for farmers, and more use of integrated pest management. Industrial use has shifted towards reduced insecticide use, stable herbicide use, and increased fungicide use. *Id.* at summary table.

6. 7 U.S.C. §§ 136-136y (1988).

7. 7 U.S.C. § 136(w).

8. Registration requirements are the EPA's chief regulatory tool. A pesticide must be "registered" with the EPA before it can be sold or distributed. 7 U.S.C. § 136a(a). A registration applicant must submit: the applicant's name and address, the pesticide's name, a copy of the label, claims made by the manufacturer, directions for use, and, if requested by the Administrator, the testing procedure descriptions and results, the complete pesticide formula, and a request for classification of the pesticide "for general use, for restricted use, or both." 7 U.S.C. § 136a(c)(1). Registration establishes the terms and conditions for use of the product. An applicant must apply to register any new uses of a registered pesticide. 7 U.S.C. § 136a(c)(1)(D)(i). *See also* 40 C.F.R. §§ 158.20-740, App. A (1988).

A pesticide is classified for "general use" if the Administrator of the EPA determines that the product "will not generally cause unreasonable adverse effects on the environment" when used according to instructions. 7 U.S.C. § 136a(d)(1)(B). A pesticide is classified for "restricted use" if the Administrator determines that it "may generally cause, without additional regulatory restrictions, unreasonable adverse effects on the environment, including injury to the applicator" 7 U.S.C. § 136a(d)(1)(C).

9. Federal Environmental Pesticide Control Act of 1972, Pub. L. No. 92-516, 86 Stat. 973 (1972).

10. GAO, *supra* note 2, at 12-13. Pesticides on the market for many years, especially those registered before 1972, were tested inadequately for oncogenicity (the capacity to form tumors). NATIONAL RESEARCH COUNCIL, REGULATING PESTICIDES IN FOOD: THE DELANEY PARADOX 30, (1987) [hereinafter NATIONAL RESEARCH COUNCIL]. These chemicals were approved based on limited residue chemistry data. More recently registered pesticides have usually undergone rigorous testing. *Id.* at 41.

"Residue chemistry data" helps the EPA "to estimate the exposure of the general population to pesticide residues in food and for setting and enforcing tolerances for pesticide residues in food or feed." 40 C.F.R. § 158.202(c)(1) (1988).

Between 1947 and 1972, the government raised concerns about pesticide-induced health risks. In 1963, tests for liver and kidney damage were first required. Information on the potential for genetic changes was not required until 1972. These tests, however, were required prospectively. Certain health effects studies were found to

hailed FIFRA in 1972,¹¹ the new law required the EPA to use new testing guidelines to assess the safety of, and then reregister,¹² the thirty-five thousand pesticide products in existence at that time.¹³

In 1986, the United States General Accounting Office (GAO) estimated that the EPA would not accomplish this reregistration task until well into the twenty-first century. This is due to the Agency's inadequate resources, the number of active ingredients the EPA must review, the amount of data involved, and the complexity of the regulatory decision-making process.¹⁴ These difficulties were further highlighted, two years later, when the House of Representatives reported that the EPA had completed review of only five active ingredients.¹⁵

On October 25, 1988,¹⁶ President Reagan signed into law S. 659, "The Federal Insecticide, Fungicide, and Rodenticide Act Amendments of 1988" (the Amendments).¹⁷ The Amendments had been eagerly awaited by Congress, the GAO, industry trade representatives, environmentalists, and others who had criticized the EPA for the Agency's inability to progress with the reregistration process.¹⁸ The question arises, however, whether the Amendments assure that pesticide regulation has been substantially improved so as to better protect the public health and the environment. As the Amendments represent a compromise among competing factions, including the chemical industry, environmentalists, farmers, and the

have been improperly conducted or to have used outdated standards. GAO, *supra* note 2, at 21.

11. Federal Environmental Pesticide Control Act of 1972, Pub. L. No. 92-516, 86 Stat. 973 (1972).

12. "Reregistration" requires formerly registered pesticides to comply with current registration requirements. GAO, *supra* note 2, at 22.

13. *Id.* at 12.

14. *Id.* at 2, 25.

15. H.R. REP. NO. 939, 100th Cong., 2d Sess., pt. 1, at 28 (1988).

16. Sine, *FIFRA Lite Tackles Reregistration*, 151 FARM CHEMICALS, Nov. 1988, at 14.

17. Federal Insecticide, Fungicide, and Rodenticide Act Amendments of 1988, Pub. L. No. 100-532, 102 Stat. 2679 (1988) (codified as amended at 7 U.S.C. §§ 136-136y (1988)).

18. GAO, *supra* note 2, at 13.

general public, they have been dubbed "FIFRA Lite."¹⁹

This comment will address the background surrounding pesticide use and regulation. This comment will also examine the legislative history behind and major provisions of the Amendments (reregistration, fees, indemnification, storage and disposal, records and inspection, unlawful acts, and penalties). Additionally, this comment will critically analyze the Amendments and discuss their positive aspects (augmented budget, increased cancellations, and improved compliance) and the major proposals omitted from prior bills (groundwater protection, citizen suits, monitoring of exports and imports, uniform tolerances, inert ingredient testing, worker protection, and improved labelling) that would have further improved the law.

II. Background

A. Overview

1. *Development of Pesticide Use*

In the nineteenth century, man battled pests with a limited arsenal: scarecrows to frighten birds, traps for vertebrate and invertebrate pests, hoes and cultivators for weeds, and a few insecticides.²⁰ These insecticides were synthesized from minerals and plants.²¹ After arsenic was found to destroy the Colorado potato beetle, it was then used in the manufacture of Paris Green, the first arsenical.²² Sulfur was used for disease and insect control.²³ Oils and salt were subsequently used for weed control and copper and mercury were used for plant disease control.²⁴ Other insecticides included two plant extracts: rotenone, from the roots of a South American plant, and pyrethrum, from the flowers of an Asian

19. Sine, *supra* note 16.

20. F.L. McEWEN & G.R. STEPHENSON, *THE USE AND SIGNIFICANCE OF PESTICIDES IN THE ENVIRONMENT* 1 (1979) [hereinafter McEWEN].

21. *Id.* at 1-2.

22. *Id.* at 1.

23. *Id.* at 2.

24. *Id.*

chrysanthemum.²⁵

The Second World War marked the rise of the modern pest control market. Wartime research into pesticides was spurred on by the need to increase the food supply and prevent the spread of malaria and typhus to soldiers by disease-carrying pests.²⁶ Additionally, chemical warfare research resulted in the discovery of chemicals found to be lethal to insects.²⁷ Although the insecticidal properties of dichlorodiphenyltrichloroethane (DDT) were discovered in 1939,²⁸ the war effort was responsible for its widespread use and the development of many compounds that soon flooded the chemical market.²⁹

In the 1940s, pesticide use received widespread support.³⁰ Farmers enjoyed increased popularity and profits that resulted from an abundant, less expensive food supply made possible by pesticide use.³¹ In Congress, farm bloc members received wholehearted political support from fellow members and a public contented with the abundant food supply, yet ignorant of pesticides' potentially harmful effects.³² During the 1940s, the farm bloc seized power and increased its support of the United States Department of Agriculture (USDA) with new programs and increased budgetary support.³³ By 1950, as a result of the events in the 1940s, pesticide production had jumped to 300 million pounds annually from 100 million pounds annually in 1945.³⁴

In the 1960s, public enthusiasm for pesticide use dwindled following publication of Rachel Carson's *Silent Spring*³⁵ which focused public awareness on the environmental and

25. *Id.*

26. C.J. BOSSO, PESTICIDES AND POLITICS: THE LIFE CYCLE OF A PUBLIC ISSUE 30 (1987).

27. R. CARSON, SILENT SPRING 16 (1962).

28. *Id.* at 20.

29. Bosso, *supra* note 26.

30. *Id.* at 43.

31. *Id.*

32. *Id.*

33. *Id.*

34. *Id.* at 63.

35. CARSON, *supra* note 27.

public health problems posed by pesticides.³⁶ Carson presented a frightening picture of massive fish kills,³⁷ residue-saturated milk from cows grazing on treated pastures,³⁸ a poisoned wildlife population,³⁹ and a human population plagued by a host of new pesticide-induced diseases.⁴⁰

2. *How Pesticides Are Used*

Insects, plant diseases, and weeds cause annual crop value losses estimated at fifty billion dollars.⁴¹ Man uses a variety of pesticides to prevent these losses. Insecticides control insect damage and help to increase yield in crops destined for human⁴² and animal consumption.⁴³ Herbicides, toxic to plants, help to control weed growth in food crops and pastureland.⁴⁴ Fungicides protect plants from diseases caused by fungi, nematodes, viruses, and bacteria.⁴⁵ Rodenticides, although used in smaller amounts than other pesticides, are used to control rodents such as mice, rats, squirrels, gophers, skunks, rabbits, and groundhogs.⁴⁶ Avicides are used to control birds which destroy millions of dollars worth of cereal and

36. *Federal Insecticide, Fungicide, and Rodenticide Act: Hearings on S. 1516 Before the Senate Comm. on Agriculture, Nutrition and Forestry*, 100th Cong., 1st Sess., pt. II, at 139 (1987) (testimony of Ralph Nader) [hereinafter *Hearings II*].

37. CARSON, *supra* note 27, at 139.

38. *Id.* at 169.

39. *Id.* at 93.

40. *Id.* at 187-243.

41. Telephone interview with Dr. David Pimentel, Professor of Entomology and Agricultural Sciences, New York State College of Agriculture and Life Sciences (Oct. 11, 1989).

An estimated thirty-seven percent of all crops are lost to insects, diseases, and weeds. *Id.* Insects account for thirteen percent of these losses, while diseases and weeds each account for twelve percent. An additional one percent of crops are lost to birds and rodents. *Id.*

42. McEWEN, *supra* note 20, at 29-32.

43. *Id.* at 29. There were 260 million pounds of insecticides used in the United States in 1987. EPA, *supra* note 5, at Table 3.

44. McEWEN, *supra* note 20, at 33-37. There were 645 million pounds of herbicides used in the United States in 1987. EPA, *supra* note 5, at Table 3.

45. McEWEN, *supra* note 20, at 37-38. There were 122 million pounds of fungicides used in the United States in 1987. EPA, *supra* note 5, at Table 3.

46. McEWEN, *supra* note 20, at 216.

fruit crops annually.⁴⁷

3. *How Pesticides Enter the Environment*

Pesticides can contaminate the soil, water, air, and food chain. Pesticides enter these reservoirs directly through intentional applications in gardens, forests, farms, and homes.⁴⁸ Pesticides also enter the environment through unintentional means including: wind drift during application,⁴⁹ atmospheric fallout,⁵⁰ leaching,⁵¹ erosion,⁵² industrial effluent,⁵³ sewage,⁵⁴ spills,⁵⁵ and volatilization.⁵⁶ Aside from direct application and indirect contamination, pesticides can enter the food chain in other ways. Some pesticides can leach through the soil until they reach underground aquifers which supply drinking water in rural areas.⁵⁷ Certain pesticides can accumulate in animal fat,⁵⁸ thereby producing residues in animal food products such

47. *Id.* at 226-28.

48. *Id.* at 229-78.

49. *Id.* at 232, 350. Pesticides may be carried in small or large amounts to nontarget areas by the wind. Spraying results in drift of up to fifty percent or more of a pesticide. Soil injection or direct application of granular forms of pesticides result in virtually no drift. *Id.*

50. *Id.* at 234, 263. Snow, rain, and atmospheric dust have been shown to contain pesticides. While these sources contribute to soil and water contamination, they are not major contaminant reservoirs. *Id.*

51. *Id.* at 240. The greater the degree of water solubility of the pesticide, the more likely the pesticide will filter down through the soil from plants above or through the topsoil. *Id.*

52. *Id.* at 241, 263. Soil containing pesticides applied through direct or indirect application can be carried to streams and oceans through surface runoff or wind erosion. *Id.*

53. *Id.* at 264. Liquids discharged as waste from industries using pesticides in the production of their products can result in local water contamination. *Id.*

54. *Id.* at 265. Municipal sewage includes discharges from industries and homes. *Id.*

55. *Id.* Accidental spills can occur during industrial processing, storage, and transportation, and through applicators' direct spills into waterways. Other accidental releases result through flooding or fires in pesticide manufacturing and storage areas. *Id.*

56. *Id.* at 241, 351, 353, 355. A pesticide's chemical structure determines its tendency to evaporate from soil, water, and plants. The rate of volatilization depends on the soil surface treated, air movement, and temperature. *Id.*

57. *Hearings II, supra* note 36, at 88 (testimony of Janet S. Hathaway, Senior Project Attorney, National Resources Defense Council (NRDC)).

58. McEWEN, *supra* note 20, at 368.

as milk and milk products, meats, poultry, fish, and eggs.⁵⁹

B. *Developments in Pesticide Control Legislation*

While the use of pesticides has increased dramatically since the Second World War,⁶⁰ the laws which regulate them have not kept pace. An example of post-war legislation, FIFRA is basically a licensing statute⁶¹ requiring pesticide products to be registered⁶² with the EPA and properly labelled.⁶³ Among the registration data that pesticide producers must submit are: health and environmental effects information including hazards to fish and wildlife, potential for skin irritation, and potential for tumor formation, birth defects, or other health problems.⁶⁴ FIFRA authorizes the EPA to cancel a pesticide's registration if it poses an "unreasonable adverse effect on the environment."⁶⁵ The EPA may suspend a pesticide's registration if the pesticide poses an "imminent hazard."⁶⁶ Aside from FIFRA, the other key pesticide regulatory statute is the Federal Food, Drug and Cosmetic Act (FFDCA).⁶⁷ FFDCA requires the EPA to establish tolerance levels⁶⁸ for pesticide residues in food.⁶⁹ The EPA administers

59. *Id.* at 373. Food preparation techniques such as washing, blanching, trimming, and cooking can reduce pesticide residues in food crops. However, roasting, frying, and pressure cooking of meats, fish, and poultry have little effect on residue removal. *Id.* at 374-76.

60. GAO, *supra* note 2, at 10. See also note 5.

61. Aidala, Pesticide Issues: Reauthorization of P.L. 92-516, Congressional Research Service, May 25, 1988, at 3.

62. See *supra* note 8.

63. GAO, *supra* note 2, at 12.

64. *Id.* See *supra* note 8.

65. 7 U.S.C. § 136d(b).

66. 7 U.S.C. § 136d(c)(1).

67. 21 U.S.C. §§ 301-392 (1982 & Supp. IV 1986).

68. A "tolerance" is "a scientifically and legally established limit for the amount of chemical residue permitted to remain in or on a harvested food or feed crop as a result of application of a chemical for pest-control purposes." GAO, *supra* note 2, at 138. See 21 U.S.C. § 346 (1982).

A 1954 FFDCA amendment strengthened pesticide regulation by authorizing the FDA to set tolerance limits for pesticide residues on raw agricultural products under section 408. The FFDCA was amended in 1958 by section 409, the Delaney Clause, which prohibits carcinogenic residues in processed foods. Section 408 of the FFDCA allows for consideration of risks and benefits in establishing tolerances for raw foods.

FIFRA and the sections of the FFDCA which pertain to pesticide use and residues in foods.⁷⁰

The Federal Insecticide Act of 1910 (FIA),⁷¹ administered by the USDA, was the first federal pesticide regulatory statute.⁷² FIA prevented the manufacture, sale, or shipment of certain adulterated insecticides⁷³ in order "to protect farmers and consumers against fraudulent products."⁷⁴ In 1947, Congress repealed FIA and passed FIFRA,⁷⁵ which mandated the registration and labelling of "economic poisons"⁷⁶ with the Secretary of Agriculture, but there was still minimal regulatory control over use.⁷⁷ Congress amended FIFRA again, in 1959,⁷⁸ to require the registration of new types of pesticide products such as nematocides, plant regulators, defoliants, and desiccants.⁷⁹ The 1964 amendments authorized the Secretary of Agriculture to suspend or cancel a pesticide registration if the action were necessary to prevent an imminent

It does not prohibit the use of oncogenic pesticides. Section 409 forbids consideration of any benefits of pesticide use for processed foods. NATIONAL RESEARCH COUNCIL, *supra* note 10, at 1-3, 5.

On October 12, 1988, the EPA proposed a change in the double standard for processed versus raw foods. Under the new policy, the EPA would allow cancer-causing pesticides in processed and raw foods provided that the product poses a "negligible risk" (a one-in-a-million chance of causing cancer). Sine, *supra* note 16, at 16; N.Y. Times, Oct. 13, 1988, at 1, col. 3.

69. 21 U.S.C. § 346a(b) (1982).

70. See 7 U.S.C. § 136w; 21 U.S.C. § 346a (1982).

71. Federal Insecticide Act, ch. 191, 36 Stat. 331 (1910).

72. H.R. REP. No. 939, *supra* note 15, at 26.

73. Federal Insecticide Act, ch. 191, §§ 1, 2, 36 Stat. 331 (1910).

74. S. REP. No. 346, 100th Cong., 2d Sess. 4 (1988).

75. Federal Insecticide, Fungicide, and Rodenticide Act, ch. 125, § 3(a)(1), 61 Stat. 163, 172 (1947).

76. Federal Insecticide, Fungicide, and Rodenticide Act, ch. 125, § 2(a), 61 Stat. 163 (1947). An "economic poison" was "any substance or mixture . . . intended for preventing, destroying, repelling or mitigating any insects, rodents, fungi, weeds, and other forms of plant or animal life or viruses . . . which the Secretary shall declare to be a pest." *Id.*

77. See D. STEVER, LAW OF CHEMICAL REGULATION AND HAZARDOUS WASTE § 3.03(1)(a), at 3-15, 3-16 (1989).

78. Federal Insecticide, Fungicide, and Rodenticide Act, Pub. L. No. 86-139, §§ 2(A),(B), 73 Stat. 286 (1959).

79. Federal Insecticide, Fungicide, and Rodenticide Act, Pub. L. No. 86-139, § 2(A)(a), 73 Stat. 286 (1959).

health hazard.⁸⁰

In 1972, Congress enacted FIFRA amendments entitled the Federal Environmental Pesticide Control Act (FEPCA).⁸¹ These amendments reflected the transfer in FIFRA's administration from the USDA to the EPA.⁸² With these changes, FIFRA evolved from a statute focused chiefly on product performance and consumer protection to one which included public health and environmental concerns. The FEPCA amendments called for reregistration of previously registered pesticides, more scientific analysis in the registration process, and, for the first time, required that "[a registered pesticide] will perform its intended function without unreasonable adverse effects on the environment."⁸³ The 1978 amendments, the last major changes in FIFRA, sanctioned a chemical-by-chemical approach to replace product-by-product registration.⁸⁴ This streamlining approach allowed the EPA to focus its resources on six hundred active ingredients instead of over fifty thousand end use products.⁸⁵

C. *The Need for Reform*

Pesticide exposure poses many concerns. According to the Labor Department, farm workers and commercial pesticide applicators⁸⁶ face the highest rate of occupational injuries as a result of pesticide exposure.⁸⁷ Unregistered pesticides,⁸⁸ shipped to other countries and applied to food products, not

80. Federal Insecticide, Fungicide, and Rodenticide Act., Pub. L. No. 88-305, § 3, 78 Stat. 190, 192 (1964).

81. Federal Environmental Pesticide Control Act of 1972, Pub. L. No. 92-516, 86 Stat. 973 (1972).

82. GAO, *supra* note 2, at 11.

83. Federal Environmental Pesticide Control Act of 1972, Pub. L. No. 92-516, § 3(c)(5)(C), 86 Stat. 973, 980 (1972).

84. Federal Pesticide Act of 1978, Pub. L. No. 95-396, 92 Stat. 819 (1978).

85. GAO, *supra* note 2, at 13. End use products are active ingredients mixed with inert ingredients for sale at the retail level. *Id.* at 23. See 40 C.F.R. § 152.3(k) (1988).

86. A "commercial applicator" uses or supervises the use of restricted-use pesticides. 7 U.S.C. § 136(e)(3). See *supra* note 8.

87. *Hearings II*, *supra* note 36, at 293, 305 (testimony of Rick Hind, Environmental Lobbyist, U.S. Public Interest Research Group (USPIRG)).

88. See *supra* note 8.

only pose health risks when used abroad, but also when residue-carrying foods are imported into the United States.⁸⁹ The EPA has detected pesticide contamination in the groundwater of twenty-four states.⁹⁰ There is increasing public concern that pesticides may cause cancer, mutagenic, or teratogenic effects.⁹¹ However, short and long-term health risks related to pesticide residues in food are uncertain.⁹² This uncertainty exists because it is difficult to establish the risk posed by a pesticide versus another factor, especially when considering the cumulative effects of several pesticides.

The public's concern with pesticides is reflected in the Food Marketing Institute's (FMI) annual poll which listed "residues, such as pesticides and herbicides"⁹³ as the number one consumer concern of 1988. This concern results, in part, from the emergency suspension in 1983 of ethylene dibromide (EDB), a potent carcinogen, used for years on the nation's grain and citrus products.⁹⁴ Additionally, in 1985, news about the carcinogenicity of daminozide (and its byproduct, unsymmetrical dimethylhydrazine (UDMH)), a chemical used primarily to promote apple growth, sparked alarm over the potential health effects in infants and children who consume large quantities of apple juice and apple sauce.⁹⁵ Such crises

89. *Hearings II*, *supra* note 36, at 292, 300 (testimony of Rick Hind, USPIRG).

90. *Id.* at 88 (testimony of Janet S. Hathaway, NRDC). Rural areas derive over ninety-seven percent of drinking water from groundwater. Over fifty percent of Americans drink groundwater and use it for other essential purposes. Examples of the proliferation of pesticides in groundwater include: Long Island, New York, where aldicarb was found present in the drinking water of over three million people; Florida, where the nematocide ethylene dibromide was found in 828 wells; and, California, where the nematocide dibromochloropropane was found in over 2000 wells and over fifty pesticides were found in the groundwater of twenty-three counties. *Id.*

91. McEWEN, *supra* note 20, at 6. A mutagen is a substance or mixture of substances that induces genetic changes in subsequent generations. A teratogen is a substance or mixture of substances that produces or induces birth defects. GAO, *supra* note 2, at 137-38. See 40 C.F.R. §§ 158.202(e)(4),(5).

92. GAO, *supra* note 2, at 60.

93. Food Marketing Inst., Consumer Concerns Poll 45 (1988). The FMI is a trade association representing over 1600 food retailers and wholesalers. Telephone interview with Karen Brown, Vice President, Communications, FMI (Oct. 11, 1989).

94. *Hearings II*, *supra* note 36, at 62, 71-72 (testimony of Janet S. Hathaway, NRDC).

95. *Id.* at 73.

have lowered public confidence in the pesticide regulatory scheme.⁹⁶

III. The Federal Insecticide, Fungicide, and Rodenticide Act Amendments of 1988

A. *Legislative History*

From 1981 through 1983, Congressman George Brown, Jr. (D-CA), chairman of the House Agriculture Subcommittee on Department Operations, Research and Foreign Agriculture (DORFA), spearheaded annual efforts at FIFRA reform.⁹⁷ His efforts were not well received by Congress.⁹⁸ In 1984, the EDB crisis renewed attention to reform. In response to the crisis, consumers demanded improved regulation of pesticides, and states acted⁹⁹ by setting more stringent tolerance levels.¹⁰⁰

In 1985, the chemical and food industries and environmentalists seemed at loggerheads.¹⁰¹ Industry did not wish to see a more stringent FIFRA, but feared that, if a bill were not moved by DORFA, a committee less sympathetic to industry would take over.¹⁰² Industry also wished to halt state pesticide regulatory activities that had followed the EDB crisis.¹⁰³ Industry sought preemption of state authority to set more stringent tolerance levels, patent term restoration to compensate for marketing time lost while awaiting EPA registration ap-

96. Stiles, *Prospects for Policy Reform in FIFRA*, 43 FOOD DRUG COSMET. L.J. 427, 429 (1988).

97. *Id.* at 427. DORFA is the subcommittee with jurisdiction over FIFRA.

98. *Id.* H.R. 5203, 97th Cong., 1st Sess. (1982) passed the House but died in the Senate. Congress also failed to pass H.R. 3818, 98th Cong., 1st Sess. (1983).

99. *Hearings II*, *supra* note 36, at 364 (testimony of Michelle Meier, Counsel for Government Affairs, Consumers Union (CU) and Franci Livingston, Staff Attorney, Public Citizen's Congress Watch (PCCW)). California, Connecticut, Florida, Maine, Massachusetts, Michigan, New York, and Texas set zero tolerance limits (no detectable levels) of EDB in baby foods. *Id.* Lower limits were also established for grain products by some states. *Id.*

100. Stiles, *supra* note 96, at 428.

101. In late 1984, the environmentalists defeated H.R. 6034, 99th Cong., 2d Sess. (1984) which contained a patent-term restoration (PTR) provision. The law would have allowed compensation to industry for the time a product was under EPA review. *Id.* at 429, n.17.

102. Stiles, *supra* note 96, at 428.

103. *Id.* at 429.

proval, and liability exemption for certain end users.¹⁰⁴

The environmentalists knew they could not get a FIFRA which would include the stringent provisions they sought, such as: liability without exception for those who violate FIFRA, strict groundwater provisions, citizen suit provisions, and improved labelling to include health effects information.¹⁰⁵

Compromise legislation,¹⁰⁶ introduced in 1986, narrowly failed to become law at the end of the 99th Congress when decisions could not be reached on five major provisions: pre-emption of state authority to establish tolerances more stringent than federal levels, groundwater protection, liability exemptions, compensation for shared use of registration data for products with expired patents, and patent term extension to compensate for delays in the regulatory review process.¹⁰⁷ Two more bills,¹⁰⁸ introduced in 1987, were defeated in 1988 due to the continued deadlock between environmentalists,¹⁰⁹ the

104. H.R. REP. NO. 939, *supra* note 15, at 68-69.

105. *Id.* at 69.

106. H.R. 2482, 99th Cong., 1st Sess. (1984).

107. Aidala, *supra* note 61, at 1.

108. S. 1516, 100th Cong., 2d Sess. (1988) contained provisions concerning: reregistration fees, reduced indemnification payments, storage and disposal cost-sharing, groundwater protection, farmer liability exemption, controls on exports and imports, patent term restoration allowances, revocation of tolerances for cancelled or suspended pesticides, data coordination between the EPA and the states, certification and training requirements, and improved inert ingredient regulation. The House bill contained similar provisions. H.R. 2463, 100th Cong., 2d Sess. (1988).

109. At the S. 1516 hearings, an NRDC staff scientist argued for more stringent pesticide regulations. She testified that foods contain unsafe amounts of pesticide residues and cited a study which found that forty-four percent of seventy-one samples of domestic produce tested in San Francisco contained pesticide residues. *Federal Insecticide, Fungicide, and Rodenticide Act: Hearings on S. 1516 Before the Senate Comm. on Agriculture, Nutrition, and Forestry*, 100th Cong., 1st Sess., pt. I, at 176-79 (1987) [hereinafter *Hearings I*] (testimony of Laurie Mott, Senior Staff Scientist, NRDC). The National Audubon Society (NAS) advocated for public hearing rights and citizen suits under FIFRA, urged the cessation of indemnity payments by EPA, argued for requiring registrants to submit disposal plans at the time of cancellation, and supported regulation of pesticides contaminating groundwater. NAS also argued against waiving farmer liability for damages caused by pesticide use. *Hearings II*, *supra* note 36, at 92, 93, 98-110 (testimony of Maureen K. Hinkle, Director, Agricultural Policy, and Deborah Munt, Biotechnology Associate, NAS). Friends of the Earth (FOE) proposed three major changes in pesticide regulation: repeal of FIFRA,

chemical industry,¹¹⁰ and agricultural and food interest organizations.¹¹¹ To prevent another stalemate in the 100th Congress, the Committee on Agriculture abandoned controversial provisions and adopted a core bill which became law on October 25, 1988.¹¹²

B. *The Legislation*

The key provisions of the Amendments include an expedited reregistration process,¹¹³ imposition of fee schedules for registration¹¹⁴ and maintenance,¹¹⁵ partial repeal of indemnity

use of only those toxic pesticides proven "essential, safe and effective" and use of alternative pest management techniques. *Id.* at 313, 315 (testimony of David Baker, Political Director, FOE). The National Coalition Against the Misuse of Pesticides (NCAMP) proposed a model bill that would allow pesticide use only if there were risks shown in not using them, cease indemnification for manufacturers and users, and allow for citizen suits. *Id.* at 371, 375-76, 381-85 (testimony of Jay Feldman, National Coordinator, NCAMP).

110. The National Agricultural Chemicals Association (NACA) argued for: a less stringent groundwater provision, inclusion of tolerance uniformity and farmer liability provisions, reduced reregistration fees, and assured indemnification for agriculture. *Hearings II, supra* note 36, at 152-63, 169-72 (testimony of Jack D. Early, President, NACA). The Dow Chemical Company (DOW) supported the patent term restoration and data compensation provisions. *Id.* at 176 (testimony of John L. Hagaman, President, Global Agricultural Products, DOW). The Chemical Producers and Distributors Association (CPDA) opposed reregistration fees and argued that patent term restoration should include generic pesticide registration and testing prior to patent expiration. *Id.* at 177-78, 206-11 (testimony of Warren E. Stickle, Executive Director, CPDA); see S. REP. No. 346, *supra* note 74, at 16.

111. The American Farm Bureau Federation (AFBF) urged that S. 1516 include a liability exemption for farmers and uniform tolerance provisions. The AFBF opposed reregistration fees. *Hearings II, supra* note 36, at 391-92, 396-97 (testimony of Mark A. Maslyn, Assistant Director, National Affairs Division, AFBF). The United Fresh Fruit and Vegetable Association (UFFVA) urged a fee waiver for minor crop use, inclusion of a uniform tolerance provision, and deletion of the worker safety provision. *Id.* at 398-99, 402-03 (testimony of Claudia R. Fuquay, Director of Congressional Relations, UFFVA). The National Food Processors Association (NFPA) also urged waiver of reregistration fees for minor-use pesticides and inclusion of a uniform tolerance provision. *Id.* at 406-07, 410-13 (testimony of Lawrence T. Graham, Executive Vice President, NFPA).

112. 134 CONG. REC. H. 7821 (daily ed. Sept. 20, 1988) (statement of Rep. De La Garza). See *supra* note 16.

113. 7 U.S.C. § 136a-1.

114. 7 U.S.C. § 136a-1(i)(1-4).

115. 7 U.S.C. § 136a-1(i)(5).

payments,¹¹⁶ new cost requirements for storage and disposal,¹¹⁷ improved record and inspection procedures,¹¹⁸ expansion of the list of unlawful acts under the law, and increased criminal penalties.¹¹⁹

1. *Reregistration*

In order to reassess the health and safety of chemicals already registered, the Amendments focus on the reregistration¹²⁰ of approximately six hundred active ingredients registered before November 1, 1984.¹²¹ The Amendments call for a five-phase reregistration process.¹²² First, the EPA must list priority active ingredients, including those "used on or in food or feed that may result in postharvest residues"¹²³ or "may result in potential toxicological concern in potable groundwater . . ."¹²⁴ or which have "significant outstanding data requirements."¹²⁵ Second, registrants must notify the EPA whether they intend to seek reregistration or not.¹²⁶ Registrants must also supply any missing or inadequate data necessary to support reregistration.¹²⁷ Third, registrants must summarize previously submitted studies¹²⁸ and reformat data concerning "chronic dosing, oncogenicity, reproductive effects, mutagenicity, neurotoxicity, teratogenicity, or residue chemistry."¹²⁹ The EPA shall review data submitted¹³⁰ and publish

116. 7 U.S.C. § 136m(a)(4).

117. 7 U.S.C. § 136q(c).

118. 7 U.S.C. § 136f(a).

119. 7 U.S.C. § 136j(a).

120. 7 U.S.C. § 136a-1.

121. 7 U.S.C. § 136 b(a).

122. 7 U.S.C. § 136a-1(b).

123. 7 U.S.C. § 136a-1(c)(1)(A).

124. 7 U.S.C. § 136a-1(c)(1)(B).

125. 7 U.S.C. § 136a-1(c)(1)(C). "Outstanding data requirement" means: "[A] requirement for any study, information, or data that is necessary to make a determination under section 136a(c)(5) . . . and which . . . A) had not been submitted . . . or B) if submitted . . . the Administrator has determined must be resubmitted because it is not valid, complete or adequate . . ." 7 U.S.C. § 136(ff).

126. 7 U.S.C. § 136a-1(d)(2)(A).

127. 7 U.S.C. § 136(d)(3).

128. 7 U.S.C. § 136a-1(e)(1)(A),(B).

129. 7 U.S.C. § 136a-1(e)(1)(C).

outstanding data requirements for each active ingredient in the Federal Register.¹³¹ Registrants have forty-eight months to supply missing data.¹³² After reviewing data submitted,¹³³ the EPA will determine if the pesticide is eligible for reregistration within one year after the registrant submits all necessary data.¹³⁴

2. Fees

The Amendments include provisions to ensure funding of the reregistration program by registrants.¹³⁵ Registrants for food or feed-use active ingredients shall collectively pay initial reregistration fees of \$50,000¹³⁶ and final fees of \$100,000 to \$150,000.¹³⁷ Non food-use pesticide registrants will collectively pay \$50,000 to \$100,000 in reregistration fees.¹³⁸ The EPA may waive fees for pesticides reregistered for minor uses¹³⁹ and reduce fees for small business registrants.¹⁴⁰

The new fee structure also imposes annual maintenance fees¹⁴¹ on each of the estimated 50,000 pesticide products:¹⁴² \$425 per product up to fifty products per company¹⁴³ with a maximum fee of \$20,000 per company,¹⁴⁴ then \$100 per product for each product over fifty¹⁴⁵ with a maximum fee of \$35,000.¹⁴⁶ The EPA may cancel a registration if the registrant does not pay these fees.¹⁴⁷

130. 7 U.S.C. § 136a-1(f)(1)(A).

131. 7 U.S.C. § 136a-1(f)(1)(B).

132. 7 U.S.C. § 136a-1(f)(2)(B).

133. 7 U.S.C. § 136a-1(g)(1).

134. 7 U.S.C. § 136a-1(g)(2)(A).

135. 7 U.S.C. § 136a-1(i).

136. 7 U.S.C. § 136a-1(i)(1).

137. 7 U.S.C. § 136a-1(i)(2)(A),(B).

138. 7 U.S.C. § 136a-1(i)(3)(B).

139. 7 U.S.C. § 136a-1(i)(4)(A).

140. 7 U.S.C. § 136a-1(i)(4)(C)(i).

141. 7 U.S.C. § 136a-1(i)(5)(A).

142. *Supra* note 3.

143. 7 U.S.C. § 136a-1(i)(5)(A)(i).

144. 7 U.S.C. § 136a-1(i)(5)(C)(i).

145. 7 U.S.C. § 136a-1(i)(5)(A)(ii)(II).

146. 7 U.S.C. § 136a-1(i)(5)(C)(ii).

147. 7 U.S.C. § 136a-1(i)(5)(D).

3. *Indemnification*

The Amendments provide that the EPA will no longer indemnify manufacturers of pesticides removed from the market unless Congress specifically appropriates such indemnification funds.¹⁴⁸ However, registrants who knew that a pesticide did not meet registration requirements but continued to produce the pesticide will not be eligible for indemnification.¹⁴⁹ End users will still qualify for indemnification.¹⁵⁰ Distributors and dealers shall qualify for indemnification from registrants unless written notice is given at the time of sale that no reimbursement will be made.¹⁵¹ If the registrant or seller does not notify the distributor and cannot provide reimbursement due to bankruptcy, the dealer holding the cancelled products will be eligible for indemnification.¹⁵² The U.S. Judgment Fund will provide the payments.¹⁵³

4. *Storage and Disposal*

The Amendments mandate safe pesticide container design,¹⁵⁴ safe removal of pesticide residues from containers prior to disposal,¹⁵⁵ and notification of state and local officials if pesticides are stored locally.¹⁵⁶ The Amendments call for a new cost-sharing program between the EPA and registrants for the storage and disposal of cancelled or suspended pesticides.¹⁵⁷ Registrants must submit a storage and disposal plan to the EPA once a pesticide is suspended or cancelled.¹⁵⁸ The

148. 7 U.S.C. § 136m(a)(4).

149. 7 U.S.C. § 136m(a)(2)(A),(B).

150. 7 U.S.C. § 136m(b)(1)(C). "End users" own pesticides for the purpose of using them themselves rather than for distributing or selling. *Id.*

151. 7 U.S.C. § 136m(b)(2)(A).

152. 7 U.S.C. § 136m(b)(2)(B)(iv)(II).

153. 7 U.S.C. § 136m(b)(3). The U.S. Judgment Fund appropriates: "(a) Necessary amounts . . . to pay final judgments, awards, compromise settlements, and interest and costs specified in . . . judgments or otherwise authorized by law when - (1) payment is not otherwise provided for . . ." 31 U.S.C. § 1304 (1982).

154. 7 U.S.C. § 136q(e)(1)(A).

155. 7 U.S.C. § 136q(f)(1)(A).

156. 7 U.S.C. § 136d(g)(1).

157. 7 U.S.C. § 136q(c).

158. 7 U.S.C. § 136q(c)(1).

EPA will reimburse registrants for one hundred percent of their storage costs once the plan is submitted.¹⁵⁹ After the EPA approves the plan, the Agency will then share these costs equally with each complying registrant for one year.¹⁶⁰ Following that year, the EPA will not share any storage costs¹⁶¹ until the fifth year following approval. Then, the EPA will pay twenty-five percent of the costs until a disposal permit is issued.¹⁶²

5. *Records and Inspections*

The Amendments expand the EPA's role to require recordkeeping by pesticide "producers, registrants, and applicants for reregistration."¹⁶³ These records must contain information concerning operations and devices produced.¹⁶⁴ These records must also be available for inspection and copying.¹⁶⁵ The Amendments authorize the EPA to inspect holding areas for suspended or cancelled pesticides.¹⁶⁶

6. *Unlawful Acts and Penalties*

The Amendments add to the list of unlawful acts under FIFRA. The shipment or sale of cancelled or suspended pesticides is now unlawful.¹⁶⁷ Legal violations also include the falsification of any test-related information¹⁶⁸ or the submission of any false data to support registration.¹⁶⁹ The Amendments also expand criminal penalties under FIFRA. Parties who knowingly violate any part of the law can now be fined up to

159. 7 U.S.C. § 136q(c)(2)(B).

160. 7 U.S.C. § 136q(c)(2)(C).

161. 7 U.S.C. § 136q(c)(2)(D).

162. 7 U.S.C. § 136q(c)(2)(E).

163. 7 U.S.C. § 136f(a).

164. *Id.*

165. *Id.*

166. 7 U.S.C. § 136g(a). A holding area is a place "where pesticides are held for distribution or sale" or a place where registered or cancelled pesticides are stored. *Id.*

167. 7 U.S.C. § 136j(a)(1)(A).

168. 7 U.S.C. § 136j(a)(1)(Q).

169. 7 U.S.C. § 136j(a)(1)(R).

\$50,000¹⁷⁰ or imprisoned up to one year, or both.

IV. Analysis of the Act

A. *Positive Aspects*

The Amendments contain several key provisions which strengthen the EPA's authority to regulate pesticide use and increase the Agency's budget to pursue reregistration.

1. *Augmented Budget*

The Amendments provide the EPA with the fiscal resources to accomplish reregistration.¹⁷¹ The EPA estimates that the two-part reregistration fees will add, at most, seven million dollars annually to the EPA's resources from reregistration fees and fourteen million dollars annually from maintenance fees.¹⁷² Similarly, the disposal and storage cost-sharing plan will relieve the EPA of another fiscal burden.¹⁷³

2. *Increased Cancellations of Pesticide Registrations*

Reregistration and maintenance fees may serve as an economic disincentive for some producers to reregister pesticide products. Consequently, low-volume and minor-use products, produced by small and medium-sized businesses, may disappear from the market.¹⁷⁴ Additional testing requirements may also force low-volume producers to voluntarily withdraw from seeking reregistration.

The indemnification provisions eliminate automatic compensation to manufacturers for unused stock.¹⁷⁵ The recent cancellation of three pesticides under the former law will impose overwhelming indemnification costs on the EPA: an esti-

170. 7 U.S.C. § 136l(b)(1)(A). In the past, this violation incurred a \$25,000 fine or up to one year imprisonment, or both. 7 U.S.C.A. § 136l(b)(1) (1980).

171. See *supra* notes 135-46 and accompanying text.

172. H.R. REP. No. 939, *supra* note 15, at 77.

173. See *supra* notes 157-62 and accompanying text.

174. *Hearings II*, *supra* note 36, at 177-78, 206-07 (testimony of Warren E. Stickle, CPDA).

175. See *supra* note 148 and accompanying text.

mated thirty-two million dollars may be spent on EDB, nine million dollars may be spent on Silvex/ 2,4,5-T, and over one hundred fifty million dollars may be spent on dinoseb.¹⁷⁶ Elimination of these payments enables the EPA to use its limited budget more effectively to accomplish data review and reregistration. More importantly, however, these fees will dispel the EPA's incentive to keep dangerous pesticides on the market due to the prohibitive expenses associated with cancellation.

3. *Improved Compliance*

The EPA's increased authority to inspect storage and disposal facilities¹⁷⁷ and registrants' additional recordkeeping requirements¹⁷⁸ will help ensure registrants' compliance with FIFRA. Increased criminal penalties¹⁷⁹ will provide additional compliance incentives.

C. *Negative Aspects*

The Amendments abandon controversial provisions contained in previously proposed amendments that are critical components of a solid federal pesticide regulatory scheme. As the Amendments reauthorize FIFRA for another three years,¹⁸⁰ Congress will probably not undertake further reform for at least that much time.

1. *Reregistration*

The Amendments "provide for the accelerated reregistration of pesticides over approximately an eight-year period."¹⁸¹

176. H.R. REP. NO. 939, at 78. The EPA had spent approximately three million dollars on EDB disposal as of September 16, 1988. *Id.* The Agency may spend an additional twenty-nine million to complete the disposal process. The EPA has already spent five million dollars on Silvex/ 2,4,5-T disposal and may spend an additional four million dollars to complete the disposal. *Id.*

177. *See supra* note 166 and accompanying text.

178. *See supra* notes 163-65 and accompanying text.

179. *See supra* note 170 and accompanying text.

180. 7 U.S.C. § 136y.

181. H.R. REP. NO. 939, *supra* note 15, at 26.

The Amendments provide the EPA with the financial resources to accomplish this task and place the burden on industry.¹⁸² The Amendments also set time limits for the EPA to notify an applicant as to whether an application will be accepted.¹⁸³ However, these safeguards do not guarantee that the EPA will accomplish the reregistration of all six hundred ingredients within eight years. Furthermore, the EPA's savings are uncertain because end users, dealers, and distributors are still entitled to receive compensation for suspension and cancellation.¹⁸⁴

2. Groundwater Protection

The Amendments contain no provision to ensure that pesticides will not continue to contaminate the water supply. Groundwater contamination is a public health problem.¹⁸⁵ The EPA needs the authority to impose strict regulations where groundwater is already contaminated or in danger of being contaminated. At the very least, the EPA should cancel registration for pesticides that may potentially leach into groundwater.¹⁸⁶

3. Citizen Suits

FIFRA does not contain a citizen suit provision. Other major environmental statutes contain such provisions to enable private causes of action against violators.¹⁸⁷ These provi-

182. See *supra* notes 135-46 and accompanying text.

183. See *supra* note 134 and accompanying text.

184. See *supra* notes 150-53 and accompanying text.

185. See *supra* note 90.

186. Four issues have prevented passage of a groundwater provision. The first issue concerns what information should be conveyed to the EPA when a groundwater source is contaminated and who should then investigate. Aidala, *supra* note 61, at 9-10. The second issue concerns what levels of pesticide contamination the EPA should declare as actionable. *Id.* The third issue concerns under what circumstances the EPA should amend a pesticide's registration if the product is found to be a groundwater contaminant. *Id.* The fourth issue concerns what actions the EPA should take when pesticide residues in a groundwater drinking water source exceed action levels. *Id.*

187. For example: Federal Water Pollution Control Act, 33 U.S.C. § 1365 (1982 & Supp. V 1987) ; Solid Waste Disposal Act, 42 U.S.C. § 6972 (1982 & Supp. V 1987); Toxic Substances Control Act, 15 U.S.C. § 2619 (1982 & Supp. V 1987); Clean Air

sions also allow private citizens to bring actions against the appropriate government agency for failure to perform certain duties. A citizen suit provision would help to ensure better enforcement of FIFRA by the EPA¹⁸⁸ and to halt violations of the statute.

4. *Monitoring of Exports and Imports*

The Amendments did not curtail the freedom that American companies have to export dangerous pesticides overseas. There are two ways in which FIFRA will continue to allow this practice. First, pesticides produced solely for export need only comply with the preparation and packaging regulations established by the specific foreign country.¹⁸⁹ Second, unregistered pesticides, that cannot be sold in the United States, may be exported if the purchaser signs an agreement acknowledging that he understands that the product cannot be sold in the United States.¹⁹⁰

These provisions allow for health risks. These risks exist not only for those in foreign countries who consume foods treated with unregulated pesticides, but also for Americans who consume foods containing pesticide residues which are imported from the countries that use these exported products. The FDA does not adequately monitor imported foods to protect Americans against these risks.¹⁹¹ Requiring foreign purchasers to give informed consent does not safeguard the

Act, 42 U.S.C. § 7604 (1982 & Supp. V 1987); Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. § 9659 (1982 & Supp. V 1987).

188. At present, a private party can bring an action by filing suit under the Administrative Procedure Act, 5 U.S.C. § 706 (1988). The plaintiff must prove that the EPA's action is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 7 U.S.C. § 706(2)(A). The party must have standing and show that the injury was an interest designed to be protected by FIFRA. *Hearings II*, *supra* note 36, at 84 (testimony of Janet S. Hathaway, NRDC).

189. 7 U.S.C. § 136o(a)(1).

190. 7 U.S.C. § 136o(a)(2).

191. *Hearings II*, *supra* note 36, at 296 (testimony of Rick Hind, USPIRG). One GAO study estimated that FDA monitors "less than one percent of the one million food shipments that enter the U.S. every year." *Id.* at 300. Another GAO study found that FDA's testing procedures can detect only forty-one percent of pesticide residues contained in foods. *Id.* at 296.

American food supply. FIFRA should require a receiving country to demonstrate that its regulatory system is "equivalent or superior to the U.S. [system]." ¹⁹² In addition, FIFRA needs to include provisions to ensure more stringent monitoring of imports and to allow for seizure of contaminated shipments. ¹⁹³

5. *Uniform Tolerances*

States have the authority to set tolerances for pesticide residues in foods that are stricter than federal levels. ¹⁹⁴ States have acted cautiously in exercising this power. Massachusetts used this power when the State's Department of Public Health (DPH) adopted a standard for EDB where no federal standard existed ¹⁹⁵ and again when the DPH established tolerances stricter than federal levels for daminozide. ¹⁹⁶

Federal tolerance levels should preempt state levels. If more states exercised their tolerance-setting power under FIFRA, the results would be disastrous for maintaining a uniform, national food supply. Each of the fifty states could conceivably have different tolerance levels for each of the pesticide residues that could appear in foods. Multiple inconsistent state tolerance levels could disrupt interstate commerce. A producer could conceivably have to grow and ship foods to meet the tolerance specifications of fifty different states. Processing and shipping costs incurred would surely be passed on to the consumer. Some consumer and environmental organizations argue that a state should have the power to set a tolerance when a pesticide product poses an imminent health hazard. ¹⁹⁷ Such an effort should be coordinated by the EPA

192. *Id.* at 301.

193. *Id.*

194. 7 U.S.C. § 136u(a), (c)(3).

195. *American Grain Products Processing Inst. v. Department of Public Health*, 392 Mass. 309, 467 N.E.2d 455 (1984).

196. *Processed Apples Inst. v. Department of Public Health*, 402 Mass. 392, 522 N.E.2d 965 (1988).

197. *Hearings II*, *supra* note 36, at 297 (testimony of Rick Hind, USPIRG), 362-65 (testimony of Michelle Meier, CU and Franci Livingston, PCCW), 370, 377 (testimony of Jay Feldman, NCAMP).

and the FDA, the Agencies which have the expertise to make such determinations.

6. *Inert Ingredients*

FIFRA does not require pesticide manufacturers to submit health and safety data concerning inert ingredients.¹⁹⁸ Little is known about the health effects and the extent of use of many inerts, as the EPA has only recently begun to assess their risks.¹⁹⁹ FIFRA's confidentiality provision²⁰⁰ prevents the EPA from publicizing the kinds of inert ingredients used in pesticide products. This information is classified as a trade secret. If a registrant knew that another registrant were using the same inert ingredient, they would both be inclined to "pool . . . resources to meet data requirements."²⁰¹ The confidentiality provision should be relaxed as it hinders registrants, using the same inerts, from sharing knowledge and research costs.²⁰² The EPA should be permitted to disclose inert ingredients used by pesticide registrants to facilitate health and safety testing of these chemicals.²⁰³

7. *Worker Protection*

FIFRA does not protect farmers, pesticide applicators, and others, who must regularly handle or work with pesticides, from the health hazards associated with such use. FIFRA does not contain a right-to-know provision to require that employers keep records about hazardous substances used

198. *Hearings I*, *supra* note 109, at 185 (testimony of Lawrie Mott, NRDC). See *supra* note 4.

199. GAO, *supra* note 2, at 89. As a result of the EPA's initial review, the Agency classified the 1200 commonly used inerts and listed one hundred that present health risks. The EPA had previously exempted at least thirty of the listed inerts from tolerance levels. Carcinogens such as "benzene, epichlorohydrin, formaldehyde, methylene chloride, and vinyl chloride" are among the exempted inerts that may occur as pesticide residues in food. *Hearings I*, *supra* note 109, at 185-86 (testimony of Lawrie Mott, NRDC).

200. 7 U.S.C. § 136h(b).

201. GAO, *supra* note 2, at 88.

202. *Id.* at 88.

203. *Id.* at 89.

and inform workers about the hazardous substances to which they are exposed.²⁰⁴ Therefore, if a worker develops a pesticide-induced illness, such as cancer, it is very difficult to relate the illness to previous pesticide exposure.²⁰⁵ Furthermore, applicators are not required to post signs stating that a field has been sprayed.²⁰⁶ Consequently, farmworkers often enter a field before it is safe and, therefore, are exposed to high levels of pesticides.²⁰⁷

FIFRA should be amended to guarantee the safety of workers. The Occupational Safety and Health Act,²⁰⁸ which protects workers' health and safety, has been interpreted as inapplicable to farmworkers and applicators.²⁰⁹ FIFRA should set protective standards for workers and establish strict training requirements.²¹⁰ These standards should establish minimum protective clothing requirements, safe re-entry periods, and medical surveillance measures.²¹¹ Workers should be guaranteed whistleblower protection to safeguard them from retaliatory discharge if they inform officials about employers' FIFRA violations.²¹²

8. *Pesticide Alternatives*

FIFRA does not encourage instruction of certified applicators in integrated pest management (IPM) techniques or require the use of nonchemical methods of pest control. These

204. *Hearings II, supra* note 36, at 323-25, 327 (testimony of Shelley Davis, Staff Attorney, Migrant Legal Action Program, Inc. (MLAP)). See 29 U.S.C. §§ 657(c)(2),(3) (1982 & Supp. V 1987).

205. *Hearings II, supra* note 36, at 323-24 (testimony of Shelley Davis, MLAP). "Approximately 300,000 farmworkers are poisoned each year in our nation's fields due to exposure to pesticides." *Id.* at 324.

206. See 40 C.F.R. § 170.5 (1988).

207. *Hearings II, supra* note 36, at 121, 124 (testimony of Margaret Seminario, Associate Director, Department of Occupational Safety, Health and Social Security, American Federation of Labor and Congress of Industrial Organizations (AFL-CIO)).

208. Occupational Safety and Health Act, 29 U.S.C. §§ 651-678 (1982 & Supp. V 1987).

209. *Hearings II, supra* note 36, at 136 (statement of Margaret Seminario, AFL-CIO).

210. *Id.*

211. *Id.*

212. *Id.* at 127.

methods include the use of: natural enemies, crop rotation, disease-resistant crop varieties, and mechanical tillage.²¹³ FIFRA does, however, encourage research into alternative pesticide methods.²¹⁴ The costs and benefits of using alternative methods must be assessed in order to facilitate sound decision-making concerning pesticide use.²¹⁵

9. *Improved Labelling*

FIFRA does not require the availability of detailed information concerning potential long-term health effects for pesticide users.²¹⁶ Such information would not only provide notice to users of potential harmful effects but would also encourage more careful use of these products.

V. Conclusion

Since the Federal Insecticide, Fungicide, and Rodenticide Act Amendments of 1988 may have been the only bill that could pass through both houses of Congress in 1988, the law represents a good start toward reform of the federal pesticide regulatory system. However, given the length of time it took for Congress to finalize an agreement, it is doubtful that Congress will undertake additional reform in the near future. The EPA's increased financial resources, proffered by the Amendments, should assist the EPA in promoting optimal and timely review of scientific data. Imposing more stringent penalties on violators will help to ensure compliance with FIFRA by industry. However, due to the magnitude and complexity of reviewing scientific data, use of dangerous pesticides will

213. Pimentel, Krummel, Gallahan, Hough, Merrill, Schreiner, Vittum, Koziol, Back, Yen, & Fiance, *Benefits and Costs of Pesticide Use in U.S. Food Production*, BioSCIENCE 772, 781-82 (1978) [hereinafter Pimentel].

214. 7 U.S.C. § 136r(a).

215. Pimentel, *supra* note 213, at 782.

216. See 40 C.F.R. § 156.10 (1988). A pesticide label must include: the product name, the producer's or registrant's name, the net contents, the product registration number, the producing establishment's number, an ingredient statement, warnings or precautionary statements, directions for use, and a use classification. *Id.* at § 156.10(a). The required warnings and precautionary statements concern only short-term health hazards. *Id.* at § 156.10(h).

undoubtedly continue beyond the eight-year deadline. Also, the failure to add groundwater and citizen suit provisions, the failure to regulate inert ingredients, the failure to halt exports of dangerous pesticides overseas, and the failure to provide for worker protection suggest that pesticides will continue to degrade the environment and jeopardize the public health. FIFRA needs to include these additional provisions to ensure a solid federal regulatory framework. Future amendments must include provisions that will encourage industry to employ integrated pest management techniques. At the very least, pesticide users should have ready access to information concerning all potential harmful effects of these products.

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