



Florida Cooperative Extension Service

Laws Governing Use and Impact of Agricultural Chemicals: Registration, Labeling, and the Use of Pesticides¹

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THE FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT (FIFRA)

The Federal government first regulated pesticides when Congress passed the Insecticide Act of 1910.¹ This law was intended to protect farmers from adulterated or misbranded products. Congress broadened the federal government's control of pesticides by passing the original Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) of 1947.² FIFRA required the Department of Agriculture to register all pesticides prior to their introduction in interstate commerce.³ A 1964 amendment authorized the Secretary of Agriculture to refuse registration to pesticides that were unsafe or ineffective and to remove them from the market.⁴

In 1970, Congress transferred the administration of FIFRA to the newly created Environmental Protection Agency (EPA).⁵ This was the initiation of a shift in the focus of federal policy from the control of pesticides for reasonably safe use in agricultural production to control of pesticides for reduction of unreasonable risks to man and the environment. This

new policy focus was expanded by the passage of the Federal Environmental Pesticide Control Act of 1972 (FEPCA) which amended FIFRA by specifying methods and standards of control in greater detail.⁶ Subsequent amendments have clarified the duties and responsibilities of the EPA. In general, there has been a shift toward greater emphasis on minimizing risks associated with toxicity and environmental degradation, and away from pesticide efficacy issues.

Under FIFRA, no one may sell, distribute, or use a pesticide unless it is registered by the EPA.⁷ Registration includes approval by the EPA of the pesticide's label, which must give detailed instructions for its safe use.⁸ The EPA must classify each pesticide as either "general use", "restricted use", or both.⁹ "General use" pesticides may be applied by anyone, but "restricted use" pesticides may only be applied by certified applicators or persons working under the direct supervision of a certified applicator.¹⁰ Because there are only limited data for new chemicals, most pesticides are initially classified as restricted use. Applicators are certified by a state

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if the state operates a certification program approved by the EPA.¹¹

CERTIFICATION OF APPLICATORS

FIFRA distinguishes between commercial and private applicators.¹² Private applicators use or supervise the use of pesticides on property owned or leased by them or their employers for the purpose of producing an agricultural commodity. Commercial applicators include all other certified applicators. The EPA has established rules and procedures to be followed by the states for certifying both groups.¹³

Private applicators may be required by the states to demonstrate their competency to apply pesticides through a written or oral examination.¹⁴ This generally involves testing their ability to read and understand instructions printed on labels and their general comprehension of safety and environmental problems arising from pesticide use.¹⁵

Restrictions on commercial applicators are more stringent, requiring persons seeking certification to demonstrate competency by taking a written examination and, if required by state law, to attend certification programs and take performance tests.¹⁶ Topics covered by the examinations may include a person's ability to read and understand a pesticide label, knowledge of application equipment and techniques, knowledge of the health and environmental effects of pesticides, and basic knowledge of pesticide laws.¹⁷ For example, most state examinations cover: label and labeling comprehension, safety factors, environmental consequences, pest features, pesticide factors, equipment characteristics, application techniques, and law and regulations.¹⁸

The EPA regulations also divide commercial applicators into categories based on types and sites of pesticide use.¹⁹ For example, some categories are agriculture, forestry, ornamental and turf pest control, seed treatment, and aquatic weed control.²⁰ Persons seeking certification as commercial applicators must demonstrate knowledge of the use and handling of pesticides generally, and knowledge of the particular standards applicable to their respective area or areas.²¹ Federal regulations do not specify when certification must be renewed, however, state regulations do. For example, Florida regulations require renewal of commercial and private certification every four years through continuing education units or retaking the exam.²² In Georgia

the recertification interval is five years for commercial applicators²³ and varies for private applicators²⁴.

Special certification procedures for aerial applicators are required by the Federal Aviation Administration (FAA).²⁵ Persons conducting "agricultural aircraft operations"²⁶ apply for an agricultural aircraft operator certificate with the appropriate FAA district office.²⁷ Like FIFRA, the FAA regulations divide applicants into "private" and "commercial" operators.²⁸ Private operators may not engage in agricultural aviation activities for hire, operate over a congested area, or spray over property not owned or leased by the operator.²⁹ These limitations do not apply to commercial operators, however, commercial pesticide applicators operating over congested areas must comply with a detailed list of restrictions set forth in the regulations.³⁰ These restrictions include requirements that commercial operators obtain prior approval from the political subdivision(s) where the operation is to take place, file a flight plan with the FAA district office, and give notice to the public.³¹

Private operators must have at least a current United States private pilot license.³² Commercial operators must have a current commercial or airline transport pilot license.³³ Both private and commercial operators (or, in the case of commercial operators, the chief supervisor of aircraft operations) must demonstrate, "satisfactory knowledge and skill regarding agricultural aircraft operations."³⁴ This demonstration entails a "test of knowledge" of pesticide handling and application techniques and a "test of skill" involving a flight test.³⁵ An agricultural aircraft operator certificate is valid until it is surrendered, suspended, or revoked for a violation of the FAA regulations of FIFRA.³⁶

LABELING

Labeling is the basis for enforcement of FIFRA. For this reason alone, knowledge of FIFRA's labeling requirements is of primary importance to all pesticide users. FIFRA defines "label" as "the written, printed, or graphic matter on, or attached to, the pesticide or device or any of its containers or wrappers."³⁷ "Labeling" is defined as "all labels and all other written, printed, or graphic matter --

- (A) accompanying the pesticide or device at any time; or

- (B) to which reference is made on the label or in literature accompanying the pesticide or device."³⁸

FIFRA makes it unlawful to "use any pesticide in a manner inconsistent with its labeling."³⁹ Thus, the applicator of pesticides has a legal obligation to read and follow not only the label instructions attached to the product, but also all material to which the label refers.⁴⁰ Failure to do so is a violation of FIFRA. For example, in George's Pest Control Service v. EPA,⁴¹ a pest control company applied Diazinon, a registered pesticide, inconsistently with the labeling instructions. The instructions read:

LIMITED TO CRACK AND CREVICE TREATMENT ONLY. APPLY A SMALL AMOUNT DIRECTLY INTO CRACKS AND CREVICES. AVOID DEPOSITING THE PRODUCT ONTO EXPOSED SURFACES OR INTRODUCING INTO THE AIR. APPLICATION OF THIS PRODUCT IN FOOD HANDLING AREAS OF FOOD HANDLING ESTABLISHMENTS, OTHER THAN AS A CRACK AND CREVICE TREATMENT, IS NOT PERMITTED.

Contrary to these instructions, the court found that the company applied Diazinon in a room with freshly cut meat. The court also found that the company applied Diazinon to the exterior portions of a wall. Furthermore, there was evidence that Diazinon was introduced into the air because one person experienced a burning sensation in the eyes which is characteristic of Diazinon exposure. Therefore, the court upheld EPA's decision to assess a \$1,000 fine against the company for using a pesticide in a manner inconsistent with the pesticide's labelling.

In another instance, over 110 million boxes of General Mills cereal were tainted when pesticide applicator George Roggy used a pesticide in a manner that was inconsistent with the pesticide's labelling instructions.⁴² Roggy used chlorpyrifos, instead of chlorpyrifos-methyl on oats that were subsequently used to make cereal. Chlorpyrifos-methyl is a pesticide registered with the FDA to be used on oats. Chlorpyrifos is another pesticide that is more toxic and less expensive than chlorpyrifos-methyl, however, its labelling instructions do not provide for it to be used on oats. Therefore a court convicted and sentenced Roggy to five years in prison

for failure to comply with a pesticide's labelling instructions.⁴³

In 1993 the EPA revised its labeling policy, including the regulations on labeling requirements for pesticides and pesticide application devices.⁴⁴ The regulations now require, in addition to more specific application directions, more detailed explanations of product ingredients, product toxicity, first aid for over exposure, requirements for applicator protection equipment, statements detailing environmental and flammability hazards, and reentry restrictions.⁴⁵ The administrator of the EPA is authorized to require that manufacturers of pesticides provide, as part of the label information, the requirements and procedures for the transportation, storage and disposal of pesticides, pesticide containers, and pesticide wastes.⁴⁶

RECALL OF SUSPENDED PESTICIDES

The 1988 amendments to FIFRA require the recall of pesticides if their registration is suspended, or if the Administrator of the EPA makes an emergency finding that recall of a pesticide is necessary to protect health or the environment.⁴⁷ If a pesticide is recalled, the registrant must take reasonable steps to inform users of the recall and must provide storage facilities to persons in possession of the pesticide and, if requested, transportation of the pesticide.⁴⁸ Users of the recalled pesticide are entitled to an indemnity from the federal government (Administrator of the EPA) for the price of the pesticide.⁴⁹ An indemnity cannot be made unless there is a specific line item appropriation of funds made in advance⁵⁰ by Congress.⁵¹

ENFORCEMENT

FIFRA achieves the congressional objective of environmental protection in three ways. Section 136j of FIFRA explains what acts are unlawful violations of the statute. Section 136k of FIFRA provides "stop use" provisions, which do not penalize the user of the pesticide, but prevent further use. Finally, section 136l of FIFRA allows the Administrator to assess penalties against violators of FIFRA.⁵²

The distinction between private and commercial applicators is significant when penalties are at issue.

Private Applicators: Private applicators who use a pesticide unlawfully, such as "in a manner

inconsistent with its labeling⁵³ are subject to written warning or citation from the EPA.⁵⁴ Subsequent violations are punishable by a civil penalty of not more than \$1,000 for each offense.⁵⁵

Private applicators who apply pesticides for others (i.e., a trade of services), but who do not come within the definition of a commercial applicator, may be assessed a civil penalty of not more than \$500 for the first offense instead of a written warning or citation.⁵⁶ Subsequent violations are punishable by civil penalties of not more than \$1,000 for each offense.⁵⁷ Before any civil penalty is assessed, the person charged is given notice and an opportunity for a hearing.⁵⁸

In determining the amount of the penalty, the EPA considers the appropriateness of the penalty to:

- the gravity of the violation,
- the effect on the person's ability to continue in business, and
- the size of the business of the person charged.⁵⁹

If the agency finds that the violation occurred despite the exercise of due care or did not cause significant harm to the health or the environment, the EPA may issue a warning instead of assessing a penalty.⁶⁰

Under FIFRA, private applicators may be subject to civil penalties for violations committed by persons acting for or employed by them.⁶¹ This means that if a person acting for or employed by the farmer violated FIFRA, the farmer, as well as the offender, is subject to the penalty.

Private applicators are also subject to criminal penalties for knowingly violating any provisions of the statute.⁶² A knowing violation of the statute is a misdemeanor, punishable by a fine of not more than \$1,000, or imprisonment for not more than 30 days, or both.⁶³ Private applicators are also subject to criminal penalties for knowing violations committed by persons acting for or employed by them.⁶⁴

Commercial Applicators: A commercial applicator, wholesaler, dealer, retailer, or other distributor who uses, stores or disposes of a registered pesticide in violation of FIFRA⁶⁵ may be assessed a civil penalty of not more than \$5,000 for each offense.⁶⁶ A person charged with a violation must be given notice and an opportunity for a hearing

before assessment of the penalty.⁶⁷ In determining the amount of the penalty, the EPA will consider:

- the gravity of the violation,
- the effect on the person's ability to continue in business, and
- the appropriateness of the penalty to the size of the business of the person charged.⁶⁸

Upon conviction, any registrant, applicant for registration, or producer who knowingly violates a provision of FIFRA will be fined not more than \$50,000, or imprisoned for not more than one year, or both.⁶⁹ Upon conviction, any commercial applicator of a restricted use pesticide, or any other person who is not a registrant, applicant for a registration, or producer, but who distributes or sells pesticides and knowingly violates any provision of FIFRA will be fined not more than \$25,000, or imprisoned for one year, or both.⁷⁰ The acts or omissions of anyone acting for or employed by the applicator are attributed to the applicator.⁷¹

While several environmental laws contain provisions allowing a private right of action (citizen's suit), FIFRA does not. Therefore, suits by private citizens for improper pesticide application, storage, or disposal must be brought under common law theories of liability. Common law theories are discussed in the document "Common Law Standards of Conduct and Theories of Liability".

SPECIAL REGULATIONS FOR DISTRIBUTORS

Commercial pesticide distributors are required to maintain records of the delivery, movement, or holding of pesticides or pesticide devices.⁷² This includes storage and disposal of pesticides and containers. Upon request by the EPA or designated state officials these records must be produced for inspection.⁷³ Prior to inspection, officials must present to the distributor a written statement indicating the reasons for the inspection, and whether a violation of the law is suspected.⁷⁴ Commercial applicators who do not deliver pesticides independent of their application are not treated as distributors.⁷⁵

The EPA or designated state officials are also authorized to inspect any place where pesticides or devices are held for distribution or sale for the purpose of inspecting and obtaining samples of any containers or labels to be used for such pesticides or devices. Officials must present a written statement to

the applicator indicating the reasons for the inspection and whether a violation of the law is suspected. If there is reason to believe a violation of the law exists, officials may obtain from the appropriate court a warrant authorizing entry, inspection and reproduction of records, and seizure of any pesticide or device which is in violation of the statute.⁷⁶

PESTICIDE RESIDUES IN FOOD: THE FEDERAL FOOD, DRUG, AND COSMETIC ACT

Pesticide residues on agricultural commodities are regulated under both FIFRA and the Federal Food, Drug and Cosmetic Act (FFDCA).⁷⁷ FIFRA regulates residue by forbidding the use of a pesticide in a manner inconsistent with its label, and by denying registration to pesticides found to cause unreasonable adverse effects to man or the environment. The FFDCA prohibits the distribution of agricultural commodities that contain levels of pesticides that exceed federally determined maximum tolerance levels.⁷⁸ Both acts are interrelated. The EPA will not register a pesticide for use under FIFRA until maximum residue levels have been established under FFDCA.⁷⁹ Information on pesticide residue tolerances is utilized in deciding whether to register the pesticide and in composing the label.⁸⁰ Thus, the pesticide label's instructions, if followed carefully, will help ensure that maximum tolerance levels are not exceeded. Under FFDCA, an agricultural commodity containing pesticides is deemed unsafe unless a tolerance level for that pesticide has been set or unless a pesticide has been exempted from the tolerance level requirements.⁸¹ Furthermore, if a pesticide is used on a crop not listed on the label, the crop may be deemed unfit and destroyed by the government.

Section 408 of FFDCA sets forth standards for establishing maximum pesticide levels in raw agricultural commodities.⁸² The factors considered include:

- the necessity of the pesticide to the production of an adequate, wholesome, and economical food supply,
- adverse effects of the pesticide on consumers, and
- the opinion of the Secretary of Agriculture as to the usefulness of the pesticide.

Thus, this is a risk/benefit assessment.

If residues in excess of maximum tolerance levels are found on raw food products, those products are deemed "adulterated" and subject to seizure.⁸³ The producer or seller is subject to administrative penalties and their operations may be enjoined⁸⁴ - the producer or seller may be forbidden by a court from continuing its operations.

One portion of Section 409 of FFDCA, called the Delaney Clause, regulates food additives in processed foods.⁸⁵ In general, processed foods may contain pesticide levels no greater than the tolerance level allowable for the raw commodity from which the processed food is derived.⁸⁶ If the FDA finds that pesticide levels are concentrated during processing, resulting in greater levels of pesticide residues than the tolerance specified for the raw agricultural commodity, they will determine that a food additive is present.⁸⁷

The FFDCA requires the EPA to set more rigorous standards for determining pesticide tolerances in food additives than those standards applied for determining pesticide tolerances in raw agricultural commodities.⁸⁸ Under section 409 of FFDCA, a food additive may not be approved if it is found to be oncogenic (causes tumors in humans or animals).⁸⁹ Unlike section 408, which regulates raw commodities, section 409 does not allow for a risk/benefit analysis. Section 409 flatly bans any cancer-causing additive.⁹⁰ Thus, somewhat anomalously, the FFDCA might in certain situations allow cancer-causing residues in raw produce, but ban their presence in processed versions of the same commodity.⁹¹ In response to this problem the EPA adopted a "de minimis" standard. Under this standard the EPA allowed carcinogenic food additives to be contained in processed food if these additives posed only a minor risk of cancer. The de minimis standard was challenged, however, in 1992 by Les v. Reilly.⁹² In this case the court followed section 409's express prohibition of cancer inducing food additives. Therefore, the EPA has no authority to allow carcinogenic pesticide residues in processed foods even if the risk of cancer is minimal.

The inconsistency between section 408 and 409 is magnified by the fact that as medical and chemical knowledge expands, the FDA is discovering that a much wider range of chemicals is capable of causing cancer than had previously been thought. Thus, many newer chemicals or compounds, tested by more sophisticated methods and in light of new knowledge, may be banned from foods where residues of

established chemicals, equally harmful, are allowed. Since adherence to the strict standard of the Delaney Clause in establishing new tolerances could deny registration of potentially lower risk pesticides which would then be stopped from replacing older, potentially more hazardous, compounds, this result is called the Delaney Paradox.⁹³ The FDA is aware of this paradox, and may come forward with new standards for many widely used chemicals.

In order to ensure that pesticide levels do not exceed maximum tolerance levels for raw commodities, farmers must be certain that the amount of pesticides applied to a crop do not exceed the amount specified on the label, and that pesticides are applied at the proper time and under proper conditions. For the same reason, a pesticide should never be applied to a crop not specified on the label.

Whenever a crop is not specified on the label, no tolerance has been established for applying the pesticide on that particular crop.

FEDERAL MEAT AND POULTRY REGULATIONS

Pesticide residues in meat and poultry products are regulated by the United State Department of Agriculture (USDA) under the Federal Meat Inspection Act⁹⁴ and the Federal Poultry Products Inspection Act.⁹⁵ The USDA has the authority to inspect meat and poultry and seize and condemn products which it deems to be unwholesome, adulterated, or misbranded.⁹⁶ Meat and poultry are adulterated if they contain pesticide residue levels exceeding the tolerances for pesticides established by the EPA under the Food, Drug and Cosmetic Act.⁹⁷

PESTICIDE RECORD KEEPING REQUIREMENTS: FOOD, AGRICULTURE, CONSERVATION, AND TRADE ACT (FACT)

Regulations regarding pesticide record keeping are in the Food, Agriculture, Conservation, and Trade Act of 1990.⁹⁸ FACT requires that certified applicators of restricted use pesticides keep records of pesticide applications. Certified applicators are both commercial and private applicators. FACT further requires that certified applicators adhere to state record keeping requirements.⁹⁹ Therefore all certified applicators should check the record keeping requirements for their individual states. If there are no state record keeping regulations then certified applicators must follow FACT's requirements. Under FACT records must include:

1. the pesticide's product name,
2. amount of pesticide applied,
3. date that pesticide was applied,
4. location of pesticide application,
5. size of the treated area.¹⁰⁰

FACT requires that all pesticide records be kept for at least 2 years after each application. Also, all pesticide applications must be recorded within 14 days after the pesticide is applied.¹⁰¹

Certified applicators have no reporting requirements under FACT, however, if the Secretary of Agriculture or other comparable state agency requests pesticide records from a certified applicator, the applicator must promptly turn them over.¹⁰² FACT also allows licensed health care professionals to request pesticide information if the information is needed to treat a victim of pesticide exposure. Licensed health care professionals can release information found in pesticide records to federal and state agencies that deal with pesticide use.¹⁰³

Penalties for Violating FACT

If record keeping requirements are violated a certified applicator will be subject to a civil penalty of \$500 or less for the first offense, and at least \$1,000 for each subsequent offense. Civil penalties for subsequent offenses are less than \$1,000 if the certified applicator made a good faith effort to comply with the record keeping requirements.¹⁰⁴

TREATED SEED: THE FEDERAL SEED ACT AND THE FEDERAL FOOD, DRUG, AND COSMETIC ACT

The Federal Seed Act¹⁰⁵ governs interstate and foreign commerce in seeds for agricultural purposes. Through the broad definition given "interstate commerce" by both the Federal Seed Act itself,¹⁰⁶ as well as by the courts,¹⁰⁷ almost any commercial transaction can be construed as interstate, and thus subject to the requirements of the Federal Seed Act. For instance, in Wickard v. Filburn¹⁰⁸ the Supreme court concluded that a wheat farmer adversely affected interstate commerce although the farmer's activity was local in nature. At the time of this case congress implemented a program to establish the maximum amount of wheat that a farmer could produce. The purpose of this program was to drive wheat prices up on a national level by decreasing the amount of wheat supplied. The wheat farmer in this

instance exceeded the established limit, but applied the excess wheat to the farmer's personal use.

The court reasoned that this activity affected interstate commerce because if the extra wheat was never grown the farmer would have to purchase what the farmer needed in the open market. Thus, if a large number of farmers followed the same practice there would be no need for them to make wheat purchases and the price of wheat would decrease contrary to congressional intent. Therefore, the court ruled that "interstate commerce" was not limited to transactions conducted between the states, but also extended to intrastate activities that had an affect on interstate commerce.

The Act establishes requirements for recordkeeping¹⁰⁹ and for labeling¹¹⁰ of seed products with the intent of providing consumers with complete information on the kind, variety, quantity, treatment, and quality of the seeds, and of preventing the introduction of misbranded or adulterated seed into commerce.¹¹¹

The labeling and record-keeping provisions of the Act do not apply to carriers merely transporting seed and not engaged in seed processing or merchandising.¹¹² Nor do the provisions apply to seed produced by farmers and sold directly to consumers, provided the farmer is not selling seed produced by others.¹¹³ Seed intended for use as feed or in manufacturing are not subject to the labeling provisions of the Act when transported in channels usual for such seed.¹¹⁴ Such seed may, however, come under the regulation of the Federal Food, Drug and Cosmetic Act if it has been treated. The treatment of seed is discussed below.

Seed transported in bulk is excepted from the labeling requirements of the Federal Seed Act provided the information otherwise required on the label is provided in the invoice.¹¹⁵ If seed is transported in containers of 20,000 pounds or more, the individual containers need not contain the required information as long as such information is recorded in the invoice and each container is marked with a lot number.¹¹⁶

A violation of the Act or its regulations is punishable by a civil penalty of not less than \$25 but not more than \$500 for each violation.¹¹⁷ However, a person who violates the Act knowingly or through gross negligence is subject to a criminal penalty of

\$1,000 for the first offense, and fines of not more than \$2,000 for subsequent offenses.¹¹⁸

Labeling and Record-Keeping Requirements for Treated Seed

As defined by the Federal Seed Act, treated seed means seed given an application of a substance or subjected to a process designed to reduce, control, or repel disease organisms, insects, or other pests which attack seeds or seedlings.¹¹⁹ Any agricultural or vegetable seed used for seeding purposes that has been treated must be labeled, and the label must disclose all substances used in treating the seed and whether the substances are harmful to humans and animals. If they are potentially harmful, a warning statement is required.¹²⁰

The Federal Seed Act requires all persons transporting or delivering agricultural seeds to keep a complete record for three years.¹²¹ The record must include the origin, treatment, and records of laboratory tests for germination and purity of each seed lot.¹²² All persons transporting or delivering vegetable seeds must keep a complete record of treatment, germination, and variety.¹²³ USDA officials have the authority to inspect these records.¹²⁴ The complete record for a lot consisting of or containing treated seed must also include:

- records necessary to disclose the name of any substance or substances used in the treatment of the seed, including a copy of the label or invoice, and
- a representative sample of the treated seed.¹²⁵

Food and Drug Administration Regulation of Treated Seed

Despite the Federal Seed Act requirements for adequate labeling and record-keeping for treated seed, surplus stocks of treated seed have occasionally been mixed with untreated seed for use in human or animal food - often with disastrous results. Perhaps the best known case is First National Bank v. Nor-Am Agricultural Products, Inc.¹²⁶ In that case, a company gave a farmer, without charge, surplus seed that the company had treated with a highly toxic mercuric fungicide. The seed was fed to hogs, and mercury accumulated in the bodies of the animals. The hogs were slaughtered and eaten by family members resulting in serious injuries to four children. Although the tag and label indicated that the seed had been treated, the court held that the warning

statement did not reasonably communicate the extent or seriousness of the harm that could result from feeding the seed to livestock. The court also held that the means used to communicate the warning (the tag and the label) were inadequate.¹²⁷ The pesticide registrant, not the company that treated the seeds and gave them to the farmer, was held liable for the injuries.

In response to such accidents, the FDA issued regulations bringing certain foods under control of the Federal Food, Drug and Cosmetic Act. Regulations issued under this Act and under FIFRA specify tolerances for certain pesticide residues on food and agricultural commodities. Any food not meeting the pesticide tolerances or any other standards established by the FFDCA constitutes "adulterated food."¹²⁸ Interstate transportation of adulterated food is a violation of the FFDCA and may result in civil and criminal penalties, as well as seizure of the food through civil proceedings.

The FDA regulations addressing treated seed govern seed such as wheat, corn, oats, rye, barley, and sorghum that have been treated with any poisonous substance in excess of tolerances recognized by the FDA.¹²⁹ Treated seed must be conspicuously stained or colored. A suitable stain is one that is not easily removed and imparts a sufficient contrast of color so as to make treated seed readily distinguishable from untreated seed.¹³⁰

Any interstate transportation of treated seed not stained as required by the FDA regulations constitutes transportation of adulterated food, and subjects the person responsible to the penalties of the FFDCA. The regulations also note that treated seed packaged for household use requires additional labeling precautions as provided by the Hazardous Substances Act.¹³¹

PROTECTION OF WILDLIFE: THE ENDANGERED SPECIES ACT

Under the Federal Endangered Species Act,¹³² it is unlawful to "take" any animal listed as an Endangered Species by the United States Fish and Wildlife Service.¹³³ "Take" is broadly defined to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in such conduct."¹³⁴ "Harm" has been defined as an act which actually kills or injures wildlife.¹³⁵ Such acts may include significant habitat modification or degradation where the act actually kills or injures

wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.¹³⁶ Thus, when using agricultural chemicals or clearing or altering land, farmers should be alert that their actions might affect endangered species or their habitat. Pesticides might injure or kill endangered species if allowed to drift onto habitat, or pesticide and fertilizer runoff into streams, lakes, or wetlands might be found to significantly degrade endangered wildlife habitat.

Pesticide applicators should carefully read pesticide labeling for any reference to effects on endangered species habitat. They should also find out whether endangered species are present in the area to be treated or likely to be affected by treatment.¹³⁷ To assist farmers in avoiding harm to endangered species, application restrictions pertaining to the requirements of the Endangered Species Act now appear on certain pesticide labels.¹³⁸ The labeling must display precautionary statements and directions on how to obtain county bulletins. In addition, the EPA has the responsibility of developing and implementing an endangered species pesticide labeling program designed to conserve federally listed species and to minimize the impacts to persons who use pesticides. This program must include the development of species maps and pesticide use limitation bulletins to be distributed as an extension of pesticide labels.¹³⁹

Penalties under the Endangered Species Act are severe. Knowing violations of the Act are punishable by a civil fine of up to \$25,000 for each violation, and by criminal penalties of a fine up to \$50,000 or imprisonment for one year.¹⁴⁰ The Act also contains a citizen's suit provision, which means that private citizens may sue the Secretary of the Interior to compel enforcement actions against a violator or to enjoin any activity threatening an endangered species.¹⁴¹ For example, in Defenders of Wildlife v. EPA¹⁴², farmers used strychnine to kill field rodents that were damaging agricultural crops. However, at the same time, animals protected under ESA were also dying as a result of eating the strychnine. Defenders of Wildlife, a group of private citizens, brought a citizen's suit against the EPA for registering pesticides containing strychnine. The group claimed that by registering pesticides containing strychnine, the EPA was assisting in the deaths of protected species. The court ruled that by continuing to register pesticides that contained strychnine the EPA was unlawfully "taking" species that were protected under

ESA. Therefore the court enjoined the EPA from registering pesticides that contained strychnine.

CITIZENS SUITS¹⁴³

A citizens suit may be filed by any "person" against the EPA or other violator. "Person" includes individuals, groups, or states. The "person" who files the citizens suit must have standing. Standing entails a showing of "injury in fact" that is "fairly traceable" to the violator's action. "Injury in fact" means actual injury. For example, in Defenders of Wildlife v. EPA¹⁴⁴ the actual injury was the death of a protected species. Furthermore, the injury must be "fairly traceable" to the violator's action. In Defenders of Wildlife v. EPA¹⁴⁵ the citizens group could trace the EPA's conduct to the dying species by showing that strychnine would not have killed the species if the EPA disallowed its use.

In addition to standing the "person" who wants to file a citizens suit must provide notice to the EPA, state in which the violation occurs, and the proposed violator, before filing the suit. For example, under the ESA a "person" must give 60 days notice before filing a citizens suit.¹⁴⁶ If the EPA or state has already filed a criminal or civil action against the violator or files such an action during the notice period, a citizens suit can not be commenced.

INTEGRATED PEST MANAGEMENT

Integrated Pest Management (IPM), is:

a pest or disease population management system that uses all suitable techniques, such as biological and cultural controls as well as pesticides, in a total production system to anticipate and prevent pests and diseases from reaching economically damaging levels.¹⁴⁷

While there are several definitions of Integrated Pest Management, basically IPM combines various pest management techniques, such as, crop rotation, mechanical cultivation, timed crop planting and biological controls.¹⁴⁸ The biological pest management technique involves the use of predatory organisms, parasites, and pathogens. These organisms interfere with pest survival and reproduction. Predatory and parasitic organisms feed on the pests, while pathogenic organisms cause diseases that kill them.¹⁴⁹

In many instances, use of IPM techniques can result in an equally effective, less expensive (through reduced consumption of expensive chemicals) program of pest control than reliance on pesticides alone.¹⁵⁰ FIFRA requires that the Administrator of the EPA make IPM information available to those who request it through Cooperative State Extension Services and applicator certification programs.¹⁵¹ Many state extension services provide additional training and assistance in IPM techniques. Such services might include "scouting" fields for pest population levels and planning appropriate IPM programs. The use of IPM techniques, where practical, are recommended as a means of reducing pesticide use, and thus reducing the chance of accidents and lawsuits resulting from injury to health or the environment.

DEFINITIONS, ABBREVIATIONS AND ACRONYMS

Citation Definitions

Et seq.: and the following

Id.: the same; used to indicate a reference previously made.

Infra: within; used to indicate a reference made in a later part of the paper.

Supra: above; used to indicate a reference made in a previous part of the paper.

Definitions

Actual Damages -- The amount awarded to a plaintiff in compensation of the plaintiff's actual and real loss or injury.

Common Law -- It is a body of law that develops and derives through judicial decisions, as distinguished from legislative enactments.

Enjoin -- To require a person, by writ of injunction, to perform, or to abstain or desist from, some act.

Injunctions -- A court order prohibiting someone from doing some specified act or commanding someone to undo some wrong or injury.

Inherently dangerous -- Danger inhering in an instrumentality or condition itself at all times, so as to require special precautions to prevent injury; not danger arising from mere casual or collateral

negligence of others with respect to under particular circumstances.

Nominal Damages -- The trifling sum awarded to a plaintiff in an action, where there is no substantial loss or injury to be compensated, but still the law recognizes a technical invasion of his rights or a breach of the defendant's duty.

Punitive Damages -- Damages that are above and beyond that which would compensate the plaintiff for his loss. They are based on the public policy of punishing a defendant who acted willfully, maliciously, or fraudulently.

Statutory Law -- The body of law created by acts of the legislature in contrast to constitutional and common law.

Definitions are taken from *Black's Law Dictionary* 1990 edition.

Abbreviations

C.F.R.: Code of Federal Regulations

U.S.C.: United States Code

Acronym List

BMP - Best Management Practices
 CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
 CZMA - Coastal Zone Management Act
 DOT - Department of Transportation
 EPA - Environmental Protection Agency
 ESA - Endangered Species Act

1. Pub. L. No. 6-152, 36 Stat. 331 (1910).
2. 7 U.S.C. §135 - 135y as amended 7 U.S.C. §136 et seq.(1994).
3. 7 U.S.C. §136a (1994).
4. Id.
5. 7 U.S.C. §136(b) as amended 7 U.S.C. §136(a) to (c) (1994).
6. Federal Environmental Pesticide Control Act, Pub. L. No. 92-516, 86 Stat. 973 (1972).
7. 7 U.S.C. §136a(a) (1994).
8. 7 U.S.C. §136a(c)(1)(C) (1994).
9. 7 U.S.C. §136a(d) (1994).
10. 7 U.S.C. §136a(d)(1)(C)(i) (1994).

FAA - Federal Aviation Administration
 FACT - Food, Agriculture, Conservation, and Trade Act
 FDA - Food and Drug Administration
 FFDCA - Federal Food, Drug, and Cosmetic Act
 FIFRA - Federal Insecticide, Fungicide, and Rodenticide Act
 IPM - Integrated Pest Management
 MCL - Maximum Contaminant Level
 MCLG - Maximum Contaminant Level Goals
 NPDES - National Pollution Discharge Elimination System
 OSHA - Occupational Safety and Health Act
 PPE - Personal Protective Equipment
 RCRA - Resource Conservation and Recovery Act
 RCWP - Rural Clean Water Program
 REI - Restricted-Entry Interval
 SARA - Superfund Amendments and Reauthorization Act
 TPQ - Threshold Planning Quantity
 USDA - United States Department of Agriculture
 WPS - Worker Protection Standard

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11. 7 U.S.C. §136i(a)(2) (1994).
12. 7 U.S.C. §136(e)(2) [private]; (e)(3) [commercial] (1994).
13. 40 C.F.R. part 171 (1993).
14. Id. at §171.5(b) (1993).
15. 40 C.F.R. §171.5(a) (1993).
16. 40 C.F.R. §171.4(a) and (b) (1993).
17. 40 C.F.R. §171.4(b) (1993).
18. Fla. Admin. Code 5E-9.024 (1994). All individuals seeking a pesticide applicator license must demonstrate competency in the use of pesticides by successfully completing the appropriate pesticide applicator examination. The examination is administered by the University of Florida/IFAS as a written, closed-book examination. Fla. Admin. Code 5E-9.026(1) (1994). The appropriate exam is determined by the category of pesticide applicator according to Fla. Admin. Code 5E-9.022, and the certification standards for each category set forth in Fla. Admin. Code 5E-9.024. Also See Tex. Admin. Code tit. 4 s 7.12
19. 40 C.F.R. §171.4(c) (1993).
20. Id.
21. 40 C.F.R. §171.5(a) (1993).
22. Fla. Admin. Code 5E-9.029 (1994).
23. GA ST §2-7-99(b)(2) (1995)
24. Id. at §2-7-99(b)(1) (1995)
25. 14 C.F.R. part 137 et seq. (1993).
26. Id. at §137.3 (1993).
27. 14 C.F.R. §137.15 (1993).
28. 14 C.F.R. §137.19 (b) and (c) (1993).
29. 14 C.F.R. §137.35 (1993).
30. 14 C.F.R. §137.51 (1993).
31. 14 C.F.R. §137.51(b) (1993). Notice to the public must be given by "some effective means, such as daily newspapers, radio, television, or door-to-door notice." 14 C.F.R. §137.51(b)(2) (1993).
32. 14 C.F.R. §137.19(b) (1993).
33. 14 C.F.R. §137.19(c) (1993).
34. 14 C.F.R. §137.19(e) (1993).
35. Id.
36. 14 C.F.R. §137.21 (1993). If the holder of a certificate permits operations in violation of §91.19(a), by permitting the carriage of narcotics, marihuana, depressants, or stimulants, the certificate may be suspended or revoked. Id.
37. 7 U.S.C. §136(p) (1994).
38. 7 U.S.C. §136(p)(2) (1994).

39. 7 U.S.C. §136j(a)(2)(G) (1994).
40. See *United States v. Corbin Farm Service*, 444 F. Supp. 510, 516 (D.C. Cal. 1978), aff'd, 578 F.2d 259 (1978).
41. 572 F.2d 204 (1977)
42. "Feds: Tainted Cereal Safe", VEGETARIAN TIMES, August, 1995, at 19
43. US v. Roggy, No. 3-94-89 (D. Minn. Feb. 22, 1995). Note: Roggy's 5 year sentence also included 11 counts of mail fraud and 1 count of food adulteration.
44. 40 C.F.R. part 156 (1993). See also 49 Fed. Reg. 37,960 (initial proposal of the revised labeling policy, proposed Sept. 26, 1984). The EPA redesignated the labeling requirements as part 156 in May 1988. 53 Fed. Reg. 15,952 (1988). The labeling requirements were previously designated at 40 C.F.R. part 162 (1987).
45. 40 C.F.R. part 156 (1993). See also 40 C.F.R. §§156.200-156.212 (1993) (Worker Protection Standards).
46. 7 U.S.C. §136q(a) (1994).
47. 7 U.S.C. §136q(b) (1994).
48. 7 U.S.C. §136q(b)(4)(D) (1994).
49. 7 U.S.C. §136m (1994); see also 7 U.S.C. §136d(c) (1994).
50. 7 U.S.C. §136m(a)(4) (1994).
51. 7 U.S.C. §136m(a)(3) (1994).
52. 7 U.S.C. §136l (1994).
53. 7 U.S.C. §136j(a)(2)(G) (1994).
54. 7 U.S.C. §136l(a)(2) (1994).
55. Id.
56. Id.
57. Id.
58. 7 U.S.C. §136l(a)(3) (1994).
59. 7 U.S.C. §136l(a)(4) (1994).
60. Id.
61. 7 U.S.C. §136l(b)(4) (1994).
62. 7 U.S.C. §136l(b)(2) (1994).
63. Id.
64. 7 U.S.C. §136l(b)(4) (1994).
65. 7 U.S.C. §136j (1994).
66. 7 U.S.C. §136l(a)(1) (1994).
67. 7 U.S.C. §136l(a)(3) (1994).

68. 7 U.S.C. §136l(a)(4) (1994).
69. 7 U.S.C. §136l(b)(1) (1994).
70. 7 U.S.C. §136l(b)(2) (1994).
71. 7 U.S.C. §136l(b)(4) (1994).
72. 7 U.S.C. §136f (1994); 40 C.F.R. part 169 (1993).
73. 7 U.S.C. §136f(b) (1994).
74. 7 U.S.C. §136g(a)(2) (1994).
75. 7 U.S.C. §136(e)(1) (1994).
76. 7 U.S.C. §136g(a)-(b) (1994).
77. 21 U.S.C. §301 et seq. (1994).
78. Id. at §331(a) (1994).
79. 21 U.S.C. §346a(a)(1) (1994).
80. 21 U.S.C. §343 (1994).
81. 21 U.S.C. §346a(a) (1994).
82. 21 U.S.C. §346a (1994).
83. 21 U.S.C. §342 (1994).
84. 21 U.S.C. §§331-334 (1994).
85. 21 U.S.C. §348 (1994). "Processing" is described in the Act as including canning, cooking, freezing, dehydrating, or milling. 21 U.S.C. §342(a) (1994).
86. 21 U.S.C. §342(a) (1994).
87. See National Research Council, Regulating Pesticides in Food: The Delaney Paradox 28 (1987).
88. Id. at 25-27.
89. 21 U.S.C. §348(c)(3)(A) (1994).
90. Id.
91. See, National Research Council, supra note 82, at 23-44.
92. 968 F.2d 985 (1992)
93. Id. at 20.
94. 21 U.S.C. §601 et seq. (1994).
95. 21 U.S.C. §451 et seq. (1994).
96. 21 U.S.C. §603 [inspection of meat and meat food products], §612 [inspection of animals for export], §615 [inspection of carcasses intended for export], §620(f) [import inspection], §678 [seizure and condemnation of meat] (1994); 21 U.S.C. §451 [inspection and condemnation of poultry] (1994).

97. 21 U.S.C. §601(m) (1994) [meat]; 21 U.S.C. §453(g) (1994) [poultry]. See also 9 C.F.R. §301.2(c) (1993). The USDA's inspection regulations are published at 9 C.F.R. parts 300-390 (1993).
98. 7 U.S.C §136i-1 (1995)
99. Id. at §136i-1(a)
100. Id.
101. Id.
102. Id. at §136i-1(b)
103. Id. at §136i-1(c)
104. Id. at 136i-1(d)
105. 7 U.S.C. §1551 et seq. (1994).
106. Id. at §1561(a)(3)-(4) (1994). According to the statutory definition, seeds are in interstate commerce not only when they cross state lines but whenever they are introduced into the "current of commerce" usual for "the transportation and/or merchandising of seeds, whereby such seeds are sent from one state with the expectation that they will end up in another." This means that seeds may be considered to be in interstate commerce, even if they have never crossed state lines, if they are handled or transported in the manner usual for interstate transportation of seeds. If, for example, a seed producer sells a lot of seeds to a wholesaler in the same state and hires a commercial carrier to transport the seeds to a buyer by truck, the seeds have entered the interstate "current of commerce" where they are delivered to the carrier for transportation. Mere transportation on a public road may constitute interstate commerce.
107. See, e.g., Katzenbach v. McClung, 379 U.S. 294 (1964) (operating a restaurant near an interstate highway means food sold there is in interstate commerce).
108. 63 S.Ct. 82 (1942)
109. 7 U.S.C. §1572 (1994).
110. 7 U.S.C. §1571(a) (1994).
111. 7 U.S.C. §1562 (1994).
112. 7 U.S.C. §1573(a) (1994).
113. Id.
114. 7 U.S.C. §1573(b)(1) (1994).
115. 7 U.S.C. §1573(b)(2)(A) (1994).
116. 7 U.S.C. §1573(b)(2)(B) (1994).
117. 7 U.S.C. §1596(b) (1994).
118. 7 U.S.C. §1596(a) (1994).
119. 7 U.S.C. §1561(23) (1994).
120. 7 U.S.C. §1571(i) (1994).
121. 7 U.S.C. §1572 (1994).
122. Id.
123. Id.

124. Id.
125. 7 C.F.R. §201.7(a) (1993).
126. 537 P.2d 682 (N.M. Ct. App. 1975). See also New Mexico Mill and Elevator Co. v. Nor-Am Agricultural Products, Inc., cert. denied, 536 P.2d 1085 (N.M. 1975) (a case between the two defendants in First National Bank v. Nor-Am Agricultural Products, Inc., presumably about the division of liability in First National Bank v. Nor-Am Agricultural Products, Inc.).
127. 537 P.2d at 692.
128. 7 U.S.C. §342 (1994).
129. 40 C.F.R. part 180 (1993).
130. 21 C.F.R. §2.25(a) (1993).
131. 15 U.S.C. §1261 et seq. (1994).
132. 16 U.S.C. §1531 et seq. (1994).
133. Id. at §1538(a)(1)(B) (1994).
134. 16 U.S.C. §1532(19) (1994).
135. 50 C.F.R. ¶17.3(c) (1993).
136. Id.
137. 50 C.F.R. §§17.11-12 (1993).
138. 40 C.F.R. §§156.10(h)(2), 158.202(e) (1993).
139. 59 Fed. Reg. 21,060 (1994).
140. 16 U.S.C. §1540(a)(1) [civil violations]; (b)(1) [criminal violations] (1994).
141. 16 U.S.C. §1540(g) (1994).
142. 882 F.2d 1294 (1989)
143. Citizen's suits
144. 882 F.2d 1294 (1989)
145. Id.
146. 16 U.S.C. §1540(g) (1995)
147. 7 U.S.C. §5881(c) (1995)
148. 14 Va. Envtl. L.J. 189 (1994)
149. 8 Pace Envtl. L. Rev. 89 (1990)
150. See Dale R. Bottrell, Council on Environmental Quality, Integrated Pest Management, (1979).
151. 7 U.S.C. §136i(c) (1994).