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PEST CONTROL

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Shortly after the passage of the Federal Insecticide Act of 1910> mammal control specialists in the Bureau of Biological Survey began to consider a similar law to cover the chemicals with which they were concerned. Work on the project went slowly and spasmodically, but reached the point of having a Federal Rodenticide Act available for study and possible revision in 1928. At this time, the mammal control chemicals in use were limited to strychnine--alkaloid and sulphate-arsenic, barium carbonate, thallium sulphate, phosphorus, sodium and calcium cyanide, carbon disulphide, and red squill. Strychnine alkaloid was about the only predatory animal control agent, while the alkaloid and thallium sulphate dominated field rodent formulas, and calcium cyanide and carbon disulphide were the only burrow fumigants. That left strychnine sulphate, arsenic, barium carbonate, thallium sulphate, phosphorus, and red squill for rat and mouse control agents. This was not a long list, but it was long enough to have raised many problems.

In fact, the variation which had been encountered with different batches of red squill often was sufficient to result in most effective rat control with one lot and complete failure with another. Since in 1928 red squill was becoming the most popular rat control product for use by the public

the big variation was of vital importance. The proposed Rodenticide Act, however, failed to get serious consideration in 1928 and Federal control over any mammal agents was not seriously attempted again until late in the second World War. By 1946, we had lived through the rodent control problems of the early war years with their shortages of strychnine, thallium and red squill. We had discovered the mammal control values of sodium fluoroacetate (compound 1080), we had learned how to fortify red squill, and we had introduced zinc phosphide as a replacement for thallium in many of its uses.

These developments had emphasized that rodent control, at least, was becoming a more complicated procedure, so it was easy to insert rodenticides into the proposed revision of the Federal Insecticide Act. After the appropriate reviews had been completed and the necessary Congressional and Presidential action finished, we emerged with the Federal Insecticide, Fungicide, and Rodenticide Act of 1947 which brought rodenticides and rodent repellents under Federal law for the first time.

This was a big step in the right direction, but very shortly after its enforcement started, there was a sudden realization that the coverage of the law was too limited to give the public all the protection really needed. This was because the term "rodent" could not be interpreted to include moles, predatory animals or other mammal pests and certainly did not include pest birds, fish, or reptiles, and accordingly the Pesticides Regulation staff could do nothing about the labeling of dangerous products sold for the control of those non-rodent species of vertebrate pests.

Frankly, however, we had so much to do to keep up with our many problems in the area clearly within the law that we postponed any moves to expand coverage further until 1959. During that year, proposals were made that pesticides shipped in interstate commerce for the control of all mammal pests not already covered be added to an amendment to the Federal Insecticide, Fungicide, and Rodenticide Act which was being sponsored by the agricultural chemicals trade. This amendment was drawn up to bring nematocides, plant growth regulators, desiccants, and defoliants under the law. The proposal that we add certain other products to the amendment was opposed largely in the interest of keeping the new amendment non-controversial to insure its early passage. This argument was convincing and resulted in our dropping the plan to enlarge the law further through Congressional action.

So it was that on December 20, 1961, a "Notice of Proposal to Declare Certain Forms of Plant and Animal Life and Viruses to be Pests" was published in the Federal Register. This proposal was in accordance with authority granted to the Secretary of Agriculture in the basic law wherein he was empowered to declare as pests, forms of life not specifically named in the law. Specifically, this proposal included under the Federal Insecticide, Fungicide, and Rodenticide Act all pesticides shipped interstate for "preventing, destroying, repelling, or mitigating —

Mammals, including but not limited to dogs, cats, moles, bats,
wild carnivores, armadillos, and deer;

Birds, including but not limited to starlings, English sparrows,
crows, and blackbirds;

Fishes, including "but not limited to the jawless fishes such as the sea lamprey, the cartilaginous fishes such as the sharks, and the bony fishes such as the carp; Amphibians and reptiles, including but not limited to poisonous snakes;

Aquatic and terrestrial invertebrates, including but not limited to slugs, snails, and crayfish;

Roots or other plant parts growing where not wanted;

Viruses, other than those on or in living man or other animals."

When these new categories are examined carefully in relation to the fact that the proposal does not affect products already under the Federal Insecticide, Fungicide, and Rodenticide Act it is obvious that when this extension of scope becomes fully effective, there will no longer be any doubt in our coverage under the law of all vertebrate pest control agents.

Now this brings us to the question of what that means from the viewpoint of the man who needs to use a pesticide to solve a vertebrate pest problem. The Federal Insecticide, Fungicide, and Rodenticide Act is a labeling law which provides its protection to the public by insuring the labels will carry adequate directions for use and proper precautionary warnings on the labels of all pesticides which are moved in interstate commerce. An outstanding feature of the law is that it is a direct violation to ship a pesticide until it has been registered with the Secretary of Agriculture. The statute also gives authority to the Pesticides Regulation

Division to refuse registration until its scientists are satisfied that the labeling under consideration is "adequate when complied with" to safeguard the public.

This authority is quite broad, since, if in the opinion of the scientists on the staff of the Division no labeling could be prepared which would assure adequate protection, registration can be denied. Experience has shown that when our reasons are sound such decisions are sustained even though there is a provision for registration under protest to afford a bar to arbitrary or capricious actions. In the same way, if the product could be used safely only by experienced specialists, a permanent label statement stipulating that the material is for use by qualified pest control operators, Government officials, graduate veterinarians, or other specific trade groups may be required. A good example of this type of restrictive label is that registered for sodium fluoroacetate, wherein warnings that the material should be used by trained Government personnel and licensed commercial pest control operators only in accordance with limitations outlined in a Research Council Brochure and that the product should not be resold or given away are required.

In addition, the requirement that a product must carry effective directions for use helps the user of the pesticide. Proof that a given material will give the degree of pest control implied in its labeling, must always be submitted before a formulation is registered. In some cases that proof is extensive, as is shown in the case of warfarin and related anticoagulants. When warfarin was first offered for registration, for example, the laboratory studies were rather extensive, but

our rodent control people had serious doubts that the new rodent poison would work in the hands of the general public. The sponsors of the chemical were required to carry out a very large scale study before we had the proof needed to justify registration. There has been little question that the registered product would kill rats and mice effectively when used as directed, but we have never accepted claims that anticoagulant products would give 100% control forever, as certain enthusiastic sponsors of these unique poisons wished to claim.

Some of you may have noticed a modification within recent years of claims for many older economic poisons. It takes a little time to assemble the necessary facts to justify correcting certain long-standing beliefs. For example, we tested a very large number of strychnine formulations before we satisfied ourselves that strychnine was not a truly effective rat poison. Now most mouse seed formulas do not carry claims for rat control. This change came as a result of long official testing of such formulations, and from the inability of the manufacturers to prove our questions were groundless. All this means that the user of a pest control material should get his money's worth and will be safe in doing so when he follows the directions and cautions on the label.

This fact emphasizes the importance of accurate label review. Our specialists will go over the labeling submitted with an application for registration with almost a fanatical zeal. When the man with a background of experience and training in the practical use of a pesticide

finally agrees that the directions are as sound as they can be made, when the pharmacologist with extensive laboratory training in evaluating pesticide danger has accepted the precautionary statement, and when the chemists have checked fire hazard and ingredient statement features, then and only then do we feel that registration is justified.

If at any time during all this review, our people encounter a lack of enough evidence to make them sure that the label statements are valid, registration is delayed until the applicant can supply the answers to their questions.

You are all familiar with the many problems which can arise in vertebrate pest control, so you can appreciate those we face in judging the adequacy of labels. This brings me to one vital feature in law enforcement. No law is truly effective unless the people administering it are competent and conscientious—and, in our case at least, have a vast number of highly qualified friends.

The Pesticides Regulation Division is fortunate in having a hard core of dedicated scientists to fill its basic staff positions. These men are all career Government employees with many years of service. But, well trained as they are, they depend on associates in other agencies for a large part of their effectiveness. In the vertebrate pest control field, we go to research specialists in the Fish and Wildlife Service for assistance in resolving complex problems. In the pharmacological area, we get support from the Public Health Service and Food and Drug

Administration experts, in the entomological and related fields, we work with insect, weed, plant disease and other specialists in the Department of Agriculture and state experiment stations. In addition to these governmental cooperators, we have found that the regulated industry has many highly qualified experts on pest control chemicals and we work most cordially with many of them.

All this is possible because our aim is to be sure that pesticides are so labeled that when used as directed they will control the pest without danger to the user or the general public, which is an aim shared by all thinking people and cooperation to attain it need only be sought to be found.

As is well known, there are still many problems to be solved in working out fully satisfactory ways for controlling many of our vertebrate pests, but they are certainly capable of solution if we cooperate.

It is likely that some of our most perplexing questions are foreign to the thinking of vertebrate pest control specialists. The idea, for example, that a person must consider potential contamination of food or feed or the danger to beneficial forms of life, almost as much as the procedures which should be used to give effective pest control, is new and almost startling. The necessity for the sponsor of a pesticide to learn enough about both the value of the product and the hazards of its use is just now becoming recognized.

Regardless of the fact that these are new problems, they are very real ones. Their solution will lie definitely in team work. The research expert in pest control, whether he is an entomologist, a mammalogist, or a weed specialist, must join forces with the pharmacologist, the chemist, the wildlife biologist, and the attorney to determine effective, safe and legal means for using his new chemical tools. It is only when each of these various disciplines has mutual respect for the importance of the others that we can look forward confidently to an adequate supply of food and fibre for our country with its growing population.

One of the best ways to start on this cooperative program is to convince all users of pesticides to read and follow the label so that all the combined know-how of the research scientist, the industry which proposed the label, and the regulatory agency which scrutinized and accepted it, will guide every application.