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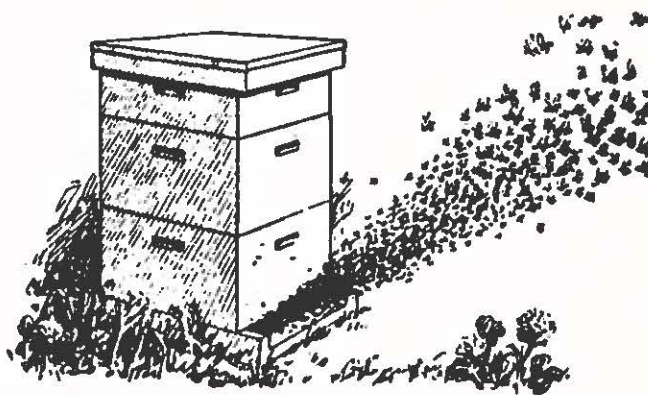


INSECT NOTES

BEEES, HONEY AND BOTULISM

Questions arise frequently about whether it is safe to feed honey to young children and infants. The reason for this concern is the association of honey with infant botulism, a disease condition first recognized in 1976. Infant botulism is a form of botulism that results when spores of the bacteria (*Clostridium botulinum*) germinate and multiply in the gut of an infant and produce the botulinal toxin, an extremely potent poison that produces a potentially fatal disease if untreated. The disease is different from the more common food-borne botulism that results from the consumption of improperly preserved food containing the toxin.

The bacteria which causes botulism is an extremely common soil inhabiting bacteria that is found worldwide. One researcher has even referred to the bacteria as being as "ubiquitous as dust". It is not surprising therefore that the spores are commonly found on almost all raw agricultural products, such as fruits and vegetables. Honey may also contain spores, and, in several cases, has been implicated as the possible source of spores leading to infant botulism. It is this association which has raised the concern over feeding honey to infants, and has produced the recommendation that honey not be fed to infants under 12 months of age. Older children and adults need not be concerned since the bacteria cannot grow in honey nor can they contract the disease from spores.



How common are *C. botulinum* spores in honey? Estimates range from less than 1% in a recent Canadian study to as high as 10%. Even so, honey exposure could account for only a minority of the infant botulism cases. (R.D. Fell)

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EPA REGULATORY PROCESS AND FURADAN® UPDATE

Many of you are already aware of the Environmental Protection Agency's (EPA) recommendation to ban all granular formulations of the insecticide Furadan® (carbofuran). For corn farmers, as well as others who might be concerned with how this recommendation affects them for the 1989 growing season, it is important to realize that this ban is only a recommendation at the present time and, as such, has no immediate impact on the sale and use of carbofuran products in Virginia.

In recent weeks, I have received several questions as to how EPA goes about cancelling a federally labelled pesticide. The purpose of this article is to provide a brief overview of the steps EPA follows during the cancellation procedure, including a summary of what I believe are the main findings of its Special Review committee which led to the decision to recommend banning granular carbofuran products.

The Special Review process is triggered when EPA obtains information on a particular pesticide that places its continued registration in doubt. This process attempts to determine if pesticide use results in unreasonable adverse effects to human health or the environment by assessing both risks and benefits of the pesticide. This can take anywhere from several months to one or more years. Upon completion of this task the Special Review committee must decide as to whether or not the evidence warrants cancellation of the particular pesticide. If the committee concludes that the evidence does indeed warrant cancellation, EPA must then make a public announcement of its intent to cancel. In the case of carbofuran this action took place on January 5, 1989. Following this public announcement, the EPA must publish in the Federal Register their notice of intent to cancel along with a technical support document on the findings of the Special Review committee. Such a document regarding carbofuran appeared in the Federal Register on January 25, 1989. A sixty-day "comment period" is initiated at this time, during which the product's manufacturer--in this case, FMC Corp.--is given the opportunity to respond to the evidence put forth by the EPA. The manufacturer can proceed in one of two ways: it may decide not to contest the findings which leaves the decision up to the EPA thus ensuring speedy cancellation, or it can contest the decision. In the case of the latter, the company must submit to the EPA findings which support its position. The company may also encourage farmers, extension agents, and others to send EPA written testimonials as to why the pesticide should not be cancelled. Often during this period the company will request a formal hearing. The comment period for carbofuran formally ended on March 27, 1989.

According to the Federal Register, EPA states that carbofuran poisoning of birds has resulted in over 40 separate, bird kill incidents that, in some cases, have involved over 2000 birds. The report went on to state that secondary poisonings have involved bald eagles and other birds of prey. These predatory birds "...are attracted to dead and dying smaller birds and small mammals affected by granular carbofuran."

From discussions I have had recently with various FMC spokespersons, the company plans to fight the proposed ban of granular carbofuran products. FMC contends that bird mortalities have resulted from using granular carbofuran in baits. This is not only a gross misuse of the product, but it is also an illegal practice. EPA has addressed this point, however, and concluded that nontarget bird mortality from the proper use of granular carbofuran may be a frequent and regular occurrence.

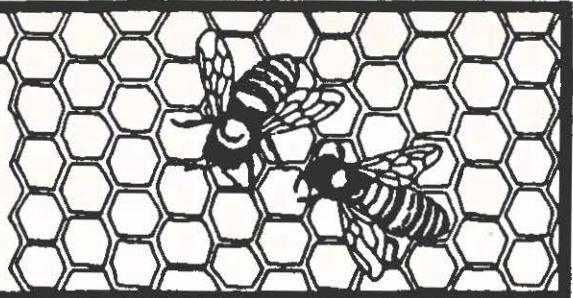
To me, the proposed ban on carbofuran raises a much more important question regarding the concern farmers have that other granular insecticides will also be subject to cancellation in the near future. This is not likely in my opinion. The EPA has compared the risks of carbofuran with its alternatives and has concluded "...that carbofuran generally poses a greater risk to birds than the alternatives." Remember that corn production in this country is a major agricultural commodity which does indeed benefit from the use of soil-applied granular insecticides. In making a regulatory decision on a given pesticide, EPA considers economic as well as environmental and human health safety factors. For these reasons, I believe it is important to reassure farmers that an EPA recommendation to cancel one insecticide does not mean that the other alternative insecticides will experience the same fate--true, they may come under review, but the process is in no way automatic.

What this means to growers is that carbofuran will be available for use throughout the 1989 growing season. However, the status of carbofuran after 1989 remains uncertain. (R. R. Youngman)



Beekeeping Information

R. D. Fell, Apiculturist



The Virginia Varroa Mite Survey

The discovery of the Varroa mite in 1987 generated concerns with beekeepers and bee researchers all over the country. This parasitic mite is a destructive pest of honey bees and presents a serious threat to the apiculture industry. It is an external parasite of both adult bees and developing brood and heavy infestations lead to decreased brood production, deformed bees and weakening of the colony. Continued infestation ultimately leads to death of the colony.

One of the major concerns with this parasite has been the difficulty of detection, particularly at low infestation levels. Since its first discovery the mite has been found in 19 states, including California, Florida, Georgia, Illinois, Indiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Nebraska, New York, North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Washington and Wisconsin. Much of this spread, if not all, has been through the interstate movement of bees. Migratory beekeeping and the shipment of packages have been implicated in the spread of these mites; the shipment of queens from breeders with infested colonies offers a third possible route for the spread *Varroa* mites.

The potential threat to the bee industry from the *Varroa* mite prompted the USDA Animal and Plant Health Inspection Service to develop regulatory policies for the inspection of honey bee colonies and for the movement and treatment of colonies infested with *Varroa*. The Virginia Department of Agriculture and Consumer Services has conducted a survey of honey bee colonies within the state to determine if the mite had been introduced. The survey was initiated in the late summer of 1988 and was conducted according to APHIS guidelines. The survey technique involves the use of Apistan strips, a strip of plastic impregnated with the pesticide fluvalinate. The pesticide kills mites and causes them to drop to the bottom of the hive where they collect on a special bottom board insert. The Apistan strips are placed in a hive and left for approximately 5 days, at which time the strips are removed and the insert inspected for the presence of mites. This method for mite detection is the most sensitive technique currently available, however, it is not infallible and very low levels of infestation may not be detected.

The Virginia survey involved the sampling of 631 colonies. The colonies selected for sampling came from 475 apiaries, located in 61 out of the 96 counties and independent cities found throughout the state. These apiaries contained a total of 6,281 colonies (the colonies sampled were randomly selected on the basis of one hive per beeyard with 20 or fewer hives, or 5% of the hives for beeyards with greater than 20 hives). After laboratory analysis, all samples were found to be negative. The survey will continue until June 30, 1989 with much of the effort directed at the larger commercial apiaries.

The problem of the *Varroa* mite is by no means at an end because infested colonies have not been found in Virginia. Many researchers, including USDA personnel, feel that the mite will eventually spread to all areas of the country. All beekeepers must, therefore, be aware of the existence of this mite and take efforts to insure that it is not accidentally introduced into the state through the purchase of packages or queens. We do not recommend the purchase of bees from states in which the mite has been found. Also, beekeepers must stay alert to the appearance of new apiaries, especially if the bees may have been brought from out of state. In such cases notify a state bee inspector.