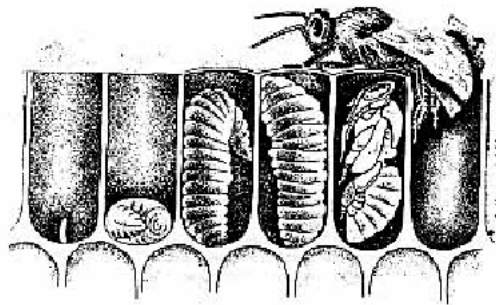


Honey Bee Poisoning

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As long as people have been confronting insect pests with toxic chemicals honey bees and other beneficial insects have suffered casualties the unintentional victims of pest control measures. Historically, it seems that as the science and art of beekeeping has developed improved cultural methods. The resultant increased honey production potential has been offset with increased losses caused by insecticide poisoning as the use of insecticides has increased and become more general. It now appears that insecticide poisoning has become the limiting factor of honey production in some areas.



In 1972 the federal government responded to beekeepers worsening injuries by initiating a Beekeeper Indemnity Payment Program, administered by the Agricultural Stabilization and Conservation Service (ASOS) under the U.S.D.A. Like all government efforts to administer first aid to a system founded on ecologically misconceived practices, the indemnity program is expensive. I was surprised to learn that the total for 1976's payments came to \$732,157.60 in Washington State. Last year, 29 Yakima County beekeepers received \$436,298.00 for bee colonies damaged or destroyed by insecticide poisoning. Beekeeping is a big business and an important one. The indemnity program has probably saved many commercial beekeepers from switching occupations due to losses.

In a sense, we have all benefited from the indemnity program since it has partially protected beekeepers from economic failure, allowing them to continue husbanding the honey bee, pollinating crops, and producing honey. But from another perspective, it can be said that the program has an overall injurious effect: by subsidizing a victim of pesticide spraying, its "bandaid" approach encourages unhealthy spraying practices. As long as the government reimburses beekeepers for poisoned colonies, the community pressure to reduce bee poisoning will be softened since no one will go completely broke and since pollination contracts will continue to be filled (if with difficulty). Without the indemnity program a more direct confrontation over bee poisoning would develop, rather like the lawsuit Pat and Dorothy Langan successfully brought against the spray applicator who contaminated their certified organic crop. Sometimes the most benevolent government programs serve to protect industrialized agriculture from its own excesses and retard the development of a more ecologically adapted approach.

The 1976 season was a bad one for beekeepers in the Northwest. This was reflected in an increase in the Bee indemnity claims received and honored by ASCS. It was a year of poor nectar

flow and a year of very severe poisoning. In a sense the two problems were related; the poor nectar flow in the spring weakened colonies and made them more susceptible to pesticides later on. But bee poisoning seems also to have been worsened by the increasing use of a particularly destructive insecticide material — Pencap M. Pencap M is a recent innovation marketed by the Penwalt Corporation & consists of methyl parathion encapsulated in a porous plastic sphere. The spray is actually a suspension of tiny plastic balls, about 50 microns in diameter, containing the actual insecticide. The intent of this novel formulation is to make the poison more persistent in the crop environment. more toxic to a wide range of pests for a longer time, while being safer for the humans involved in handling it. Methyl parathion alone is one of the more volatile and dangerous insecticides to handle, but in the “little tiny time pills” which release the volatile material slowly, over a long period of time. it is much safer for the applicator.

The problem for bees is that each capsule is just the size and shape of a pollen grain, and like pollen, they are gathered up in the field and carried to the hive by the field force of worker bees. In the hive the capsules release methyl parathion and the entire colony is exposed. It has long been known that —given equal conditions and chemical composition— an insecticide will generally be more toxic to bees when applied in a dust form than when applied as a spray. The bees are covered with specially adapted, forked hairs for collecting and distributing pollen, and dusts are picked up on the hairs. Under a microscope Pencap M capsules are nearly identical to many kinds of common pollen grains. In the beehive, there may even be considerable direct ingestion of entire capsules by brood and newly emerged workers. By disguising one of the most toxic synthetic insecticides as pollen, the chemical makers and users are playing a cruel trick on some of nature's most benign creatures.

I recently asked Dr. Carl Johansen at Washington State University about Pencap M's overall threat to bees and other beneficial insects. Dr. Johansen has gathered impressive evidence that bees are being hit very hard by the formulation. All types of pollinating bees are affected because their hairs are particularly well-adapted to pick up capsules. Dr. Johansen is urging growers to use other chemicals. especially in situations in which there is any chance of spray encountering flowers. In the Palouse region last season bees were killed by picking up Pencap from flowering herbs at the edges of pea fields which has been treated the pea leaf weevil. Normally bees would be little damaged by chemicals applied to peas because bees have no reason to venture into a field of peas. the flowers of which they do not visit. But Pencap M's long residual life and similarity to pollen resulted in massive bee poisoning from inadvertent spray at the field edges.

Pencap M has been approved for and used on many important Washington crops. It is certainly responsible, at least in part, for the increase in damage to bees last season. It was used on apples in the Okanogan area, and as a result, Okanogan County beekeepers filed indemnity claims for the first time. It was used against the pea leaf weevil and on rapeseed crops in the Palouse and bee damage there was again very severe. 1976 was also the first year in which claims were filed for Western Washington counties.

Beekeepers can partly defend themselves from bee poisoning by locating home base apiaries in remote areas. They can avoid deploying bees in fields or areas where the more toxic types of sprays are being used and at times when spray-time and blooming time coincide. But the long term health of the beekeeping business and our agricultural ecosystems in general will depend on the evolution of a safer and more hospitable strategy for food production. In the meanwhile, we can raise hell, try to educate ourselves and others, and pick up our claim forms at the county ASCS office.