



PHOTOS ROGER WILLIAMS

Rene Curtis Pratt next to bee hives behind the Harold P. Curtis Honey Company on the south bank of the Caloosahatchee River, in LaBelle.

## BEES

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invisible game: crop pollination. When beekeepers suffer, farmers suffer, and so will American eaters, who will increasingly rely on foreign food supplies.

"We've lost or sold over half of our hives — we've gone from about 3,000 to 1,000-plus or so," the 49-year-old beekeeper says quietly, cataloguing the outcome for operations run both by Rene and her uncle, Elliot Curtis, who still maintains significant numbers of hives.

While she watches, honeybees appear suddenly like swarming blips on an antique radar, thousands of them zipping in from out of the near blue sky on an invisible highway, right past her head. The incomers, saddle-bagged with pollen, land on the wood frame surrounding the entrance, then file dutifully by departing bees to enter the hive.

Around the active hive, unfortunately, many other hives appear to be as lively as mausoleums, stacked and empty, their silence a grave counterpoint to the vibrant, air-thrumming hum of working bees.

In recent years, American honeybees have been killed off in large numbers by a variety of maladies: by mites, beetles and other predatory insects (ants, for example); and by starvation. And their owners have faced a rising tide of contemporary demands, as well — demands on bee space by development, for example, or the unavoidable freight of large insurance premiums if they place their hives in farmers' fields to pollinate crops near farm workers.

"When we were younger you could take a hive and go back to it every couple of months, and it would be fine, it would be alive," recalls Joyce Walker, who produces honey with her husband, Allen "Buddy" Walker. The family operates Walker Farms Honey in North Fort Myers.

"Now you have to stay on it, basically because there are so many more pests," she adds. "If we used to have one little old problem, we thought, 'Oh, this is just terrible.' Now we wish we could have it that way, again."

But the hat ringer — the behemoth problem faced by the industry — is something called CCD, or Colony Collapse Disorder.

First identified by American officials only about 11 months ago, when bees started vanishing forever from their colonies, it had no known cause or reason until last week.

Then researchers from Columbia University and elsewhere pinpointed something they call the Israeli Acute Paralysis Virus, which seems to be present, along with other problems such as varroa mites, when colonies suddenly



vanish or die off. (Ironically, the virus comes from Australia, whose bees were imported here in recent years to strengthen American bee colonies, ending a 1922 ban on any imported bees, officials say. Australian bees are not affected by the virus; Israeli researchers first defined it in 2004, lending the virus its name.)

The news arrived in the world of beekeepers and agricultural officials like an injection, making them at once almost manically hopeful and extraordinarily cautious. Universally, they point out that CCD works in union with other problems.

"I've been living this since last October — we've been struggling for a year to come up with something or a combination of things we could put our hands on, and forward that information to beekeepers," says Jerry Hayes, chief of the apiary division of the Florida Department of Agriculture.

CCD took away 70 to 80 percent of the colonies of some beekeepers, but didn't heavily damage others, which led Hayes and his colleagues to a logical conclusion.

"It's not regional," he explains. "The damage occurs by keeper, and which were full-time or migratory (keepers who move their bees around the country to pollinate crops, a lucrative business); by what their management practices were; by what crops their bees pollinated (and thus what insecticides they might have encountered); and by how far they were trucked."

Trucking bees, in particular, now lies at the heart of the business of beekeeping in America — not honey production in the style of Rene Curtis Pratt or the Walkers, who no longer pollinate on a large or extra-local scale. While the old art of beekeeping rapidly vanishes as a livelihood, the business of "fee-producing pollination, or providing bees to growers, has taken its place," says Hayes. "And that's not beekeeping."

Beginning at the end of this month, he notes, hundreds of thousands of bee colonies will arrive in Southwest Florida by truck, where they winter — you'll see the hives stacked in fields or lots, especially off country roads, all over Collier, Lee and Charlotte counties.

State Inspector Fred Howard, who works out of LaBelle and first began

### Bee facts

>>**Pollination:** Agriculture depends greatly on the honeybee for pollination. Honeybees account for 80 percent of all insect pollination. Without such pollination, we would see a significant decrease in the yield of fruits and vegetables.

>>**Pollen:** Bees collect 66 pounds of pollen per year, per hive. Pollen is the male germ cells produced by all flowering plants for fertilization and plant embryo formation. The honeybee uses pollen as a food. Pollen is one of the richest and purest natural foods.

>>**Honey:** Honey is used by the bees for food all year round. There are many types, colors and flavors of honey, depending upon its nectar source. The bees make honey from the nectar they collect from flowering trees and plants. Honey is an easily digestible, pure food. Honey is hydroscopic and has antibacterial qualities. Eating local honey can fend off allergies.

>>**Beeswax:** Secreted from glands, beeswax is used by the honeybee to build honeycomb. It is used by humans in drugs, cosmetics, artists' materials, furniture polish and candles.

>>**Propolis:** Collected by honeybees from trees, the sticky resin is mixed with wax to make a sticky glue. The bees use this to seal cracks and repair their hive. It is used by humans as a health aid, and as the basis for fine wood varnishes.

>>**Royal Jelly:** The powerful, milky substance that turns an ordinary bee into a Queen Bee. It is made of digested pollen and honey or nectar mixed with a chemical secreted from a gland in a nursing bee's head. It commands premium prices rivaling imported caviar, and is used by some as a dietary supplement and fertility stimulant.

>>**Bee Venom:** The "ouch" part of the honeybee. Although sharp pain and some swelling and itching are natural reactions to a honeybee sting, a small percentage of individuals are highly allergic to bee venom.



Also of interest:

■ **Honeybees are not native to the USA.** They are European in origin, and were brought to North America by the early settlers.

■ **Honeybees are not aggressive by nature,** and will not sting unless protecting their hive from an intruder or are unduly provoked.



■ **Honeybees represent a highly organized society,** with various bees having very specific roles during their lifetime: e.g., nurses, guards, grocers, housekeepers, construction workers, royal attendants, undertakers, foragers, etc.

■ **The queen bee can live for several years.** Worker bees live for 6 weeks during the busy summer, and for 4-9 months during the winter months.

■ **The practice of honey collection and beekeeping dates back to the stone age,** as evidenced by cave paintings.

■ **The honeybee hive is perennial.** Although quite inactive during the winter, the honeybee survives the winter months by clustering for warmth. By self-regulating the internal temperature of the cluster, the bees maintain 93 degrees Fahrenheit in the center of the winter cluster (regardless of the outside temperature).

Honeybee hierarchy:

>>**Queen Bee:** There is only one queen per hive. The queen is the only bee with fully developed ovaries and can live for 3-5 years. The queen mates only once with several male (drone) bees, and will remain fertile for life. She lays up to 2000 eggs per day. Fertilized eggs become female (worker bees) and unfertilized eggs become male (drone bees). When she dies or becomes unproductive, the other bees will "make" a new queen by selecting a young larva and feeding it a diet of "royal jelly".

>>**Worker Bee:** All worker bees are female, but they are not able to reproduce. Worker bees live for 4-9 months during the winter season, but only 6 weeks during the busy summer months (they literally work themselves to death). Nearly all of the bees in a hive are worker bees. The worker bees sequentially take on a series of specific chores during their lifetime: housekeeper; nursemaid; construction worker; grocer; undertaker; guard; and finally, after 21 days they become a forager collecting pollen and nectar. The worker bee has a barbed stinger that results in her death following stinging.

>>**Drone Bee:** These male bees are kept on standby during the summer for mating with a virgin queen. Because the drone has a barbed sex organ, mating is followed by death of the drone. There are only 300-3,000 drones in a hive. The drone does not have a stinger. Because they are of no use in the winter, drones are expelled from the hive in the autumn.

Source: Backyard Beekeepers Association

keeping bees with Elliot Curtis in high school, is gearing up for that immigration.

"I've got six counties, and I'm just going to try to be there when the bees start coming back," he says — be there to look for mites or viruses or Africanized bees or any other problems they might bring with them, which is the job of inspectors.

"These migratory beekeepers are pretty good-sized, between 1,000 and 5,000 or 10,000 hives, and most beekeepers do pollinations and try to run, nowadays." (They truck their bees from one region to another where farmers need their services.)

"We've even started shipping bees to California in the last couple of years," Howard said.

The migratory beekeepers come here mostly because it's warm, says Hayes — and if they've lost bees to CCD, they can take a surviving hive, divide it, and make a new one in the Florida sunshine.

Then in late fall and early winter, as December moves into January, the bees and their keepers will begin agonizing treks to and from California, where the multi-billion-dollar almond industry relies completely on bees. From there they'll make their way across the country, ending the summer in Maine, New York and points south, where apples, blueberries, and a host of other crops require pollination by bee.

Citrus in Florida, in particular, requires millions of healthy bees.

The trucking alone can devastate

bee colonies, but it's a combination of things that ultimately does them in, says Hayes.

"I can feed you Hershey bars, keep you up all night, spray you with insecticide, and then put you on a plane to Katmandu, and I guarantee you, you're going to get sick, too."

If reduced honey production emerged from all of this as the only problem, that would be one thing; but the problem is much bigger than that.

"Understand how important honeybees are to agriculture, and you'll understand the dilemma," says Hayes. "Honeybees produce honey, but that's a by-product of pollination, taking pollen from one flower to another. Without fertilizer the plant is under no obligation to make a fruit or a vegetable: Watermelons, squash, lychees, longans, avocados. And think of all the stuff they pollinate for free — for wildlife to eat, and for us to enjoy."

Without honeybees, Hayes concludes, we'd lose about 33 percent of the food we eat each day, and as the 21st century evolves, that could make us a predominantly food-importing nation, no longer a self-sufficient, food-exporting nation.

"Food doesn't come from Publix," Hayes points out. "It comes from real activities by real people. Some people say we're going to be getting about 40 percent of our vegetables from China in the next few decades — so, if we don't care about that, or where our food comes from, then all of this makes no difference." ■