



OCTOBER 2013

NEWSLETTER OF THE ALAMANCE COUNTY BEEKEEPERS

Alamance County Beekeepers

This month's meeting... Our Thursday, October 17th meeting at the Alamance County Extension building will begin at 6:00 pm with a cover dish meal. At 7:00 pm, Michael Simone-Finstrom, USDA Postdoctoral Research Fellow, Apiculture Program, Department of Entomology, NC State University will discuss "Resin Collection: Propolis' uses in the hive."

WHIDBEY ISLAND, Wash.—Sue Cobey sums up the local dating scene in a single word: brutal.

The entomologist is speaking of honeybees, bee mating being her specialty, and she knows the dauntingly steep odds drones, the males, face in fulfilling their urge to spawn.

"There can be something like 25,000 drones out there waiting for virgin queens to fly by," says the 59-year-old scientist, known to local bee folk as "The Queen of Queen Bees" and "The Bee Whisperer."

Her life's work has been to improve the success rate—and thereby the viability—of North America's fragile honeybee stock. She brings queens and drones together where romance has the best chance: under a microscope.

In a laboratory behind her husband's tool room, she knocks a queen out with a blast of carbon dioxide, then works the sedated patient into a plastic tube. She injects the queen with a syringe bearing germplasm, or sperm, that comes from donor drones raised from colonies Ms. Cobey has nurtured for many years.

As the sedative wears off, the woozy queen returns to her hive—bearing millions of bee sperm.

It is the antithesis of how bees behave in the wild: an in-flight orgy involving drones from hundreds of hives chasing a single female. Queens mate just once in their lifetimes—with perhaps two dozen drones in flight—usually within a week of their births.

"It's pretty amazing," Ms. Cobey says. "It happens so fast."

Ms. Cobey makes sure queens she raises mate only with drones from good families—bees she herself has selected from a gene pool harvested in Europe.

A species from Slovenia, the Carniolan, provides one strain of bee beaus. Then there are the Caucasians, black bees from the mountains of the country of Georgia. Both types thrive in Washington state's cool climate.

She also raises Italians—bees known as good brooders—busy procreators that "brood up" colonies.

One morning recently, Ms. Cobey raced her pickup to a pasture north of Oak Harbor, Wash., where she keeps one of several closely monitored Carniolan colonies. The file cabinet-size hives buzzed with late-summer activity. At the foot of each box lay dozens of evicted drones—whose usefulness to the colony disappears as autumn arrives.

"Here's a beauty," said the scientist, deftly plucking a buzzing drone from the breeze and grasping its tiny thorax between her fingers. Instantly a long tube—the "endophallus"—shoots from its abdomen. On its tip sits the genetic material baby bees come from.

"He's like a horny teenager: all eyes and endophallus!" giggled Skye-Laurel Riggs, a local beekeeper who helps Ms. Cobey with her hives.

Ms. Riggs was here to make a withdrawal from Ms. Cobey's "bee bank"—a box the size of a briefcase stuffed with queen bees she keeps behind the cab of her truck. Inside, 18 wire-mesh chambers hold queens and their female attendants. Each queen has a colored nametag about the size of a pin head and has some crushed candy to snack on.

Ms. Cobey keeps a film archive of her bees in action. "I'm the Queen of Bee Porn," she says with a laugh.

It isn't entirely a joke. On Valentine's Day this year, Professor Cobey faced eager beekeepers drawn to her program entitled "The Benefits of Being Promiscuous." It was her third visit in as many years before The Skagit Valley Beekeepers Association, held at a farm supply warehouse in Burlington, Wash.

"People came from hundreds of miles to see Sue," recalled Bill Marcus, a beekeeper and the president of the group. "She's a very special lady."

What they got was plenty of bee activity. Besides close-up photographs of drones inseminating a queen, the audience got shots of something few had ever seen: the V-shaped comet of drones chasing a virgin queen across the sky.

They also got plenty of breeding tips, and updates on new bee strains that may strengthen the U.S. honeybee gene pool.

U.S. bees are in trouble, scientists agree, because of the dwindling diversity of breeding queens. Ms. Cobey lists among the factors: environmental degradation, parasites, poor nutrition and pesticides. Millions of bees born each year descend from a relative handful of queens, by some estimates as few as 500 breeding mothers. Lack of diversity leads to reduced fitness, Ms. Cobey says.

Bees are crucial in pollination for U.S. agribusiness. Practically all of North America's fruits, nuts and vegetables depend on commercial bee pollination services at the start of their production cycles. "Otherwise we'd be eating only grains," the scientist said.

Yet introducing new stock has lagged because U.S. law restricts importation of live insects. Ms. Cobey's response to the live-bug ban was to seek imported insect semen instead. After decades battling the U.S. Department of Agriculture, she and some colleagues at Washington State University succeeded in 2008 in obtaining from Aphis, the USDA's Animal and Plant Health Inspection Service, permission to import from Europe.

Five years later, the university is ready to take the next step.

"Technically, we call it our 'honeybee germplasm repository,'" says Steve Sheppard, chair of WSU's Department of Entomology. "But you could say we've chartered the world's first bee sperm bank."

About the size of a top-loading washing machine, the bank will contain chambers of liquid nitrogen, inside of which are capillary tubes brimming with bees' deposits. It takes about 20 bees to fill each tube, Prof. Sheppard says.

Coaxing insects into donating semen is the professors' job. It happens at night after a long day of collecting live drones. Once the germplasm is in capillary tubes it can keep for two weeks before freezing.

"It's pretty labor intensive," says Mr. Sheppard. "We'll do hundreds at a sitting."

Undergraduates typically ask if bees need arousal, say, from females. No, the bee professors say.

"No girls, no 'Playbee' Magazine. All they need is a little gentle pressure on the abdomen," Mr. Sheppard says.

Excerpts from Farm-to-Table "Thank You" Letters Sent by Andrews Elementary School

Thanks for letting us see the cows and the chicks. I enjoyed everything, especially the cows because I have never seen real life cows. I really wish to have a farm. I enjoyed the tool presentation about the old farming tools. My favorite presentation was the fruits and vegetables, but the corn presentation was amazing. The machine that you put the corn in and it took all the grains off was awesome! Well, I hope I can return someday.
Alexander

Dear Cedarock Park, Thank you for letting us go there on a field trip. I have never been there. Thank you also for putting up the stations. My favorite part was the beekeeping station. I did not know that male bees were called drones and didn't sting. I also enjoyed the dairy station. I have never seen cows that close.
Kenneth

Thank you for setting up all of the presentations. My favorite part was the chickens... Now I am going to talk about the cows. They have four stomachs. A meat cow has muscle so we can get meat to eat. We get more milk from a dairy cow than a meat cow.
Jacob