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Unraveling A Mystery Beekeepers Collaborate To Study Colony Loss

BY RITA BRHEL P&D Correspondent

For many people, the extent that beekeeping affects their lives seems limited — a jar of honey, perhaps a candle or lip balm made out of beeswax. But the business of keep-ing honey bees has farther-reaching implications: Much of the fruit, nuts, spices, and vegetables grown not only in the United States but around the world rely on bee pollination. Without bees, or with a drastically shrunken population of bees, these food crops would not be able to keep up with consumption and food prices would soar.

In 2007, the media began describing a phenomenon where entire bee colonies were disappearing from their hives. Not unheard-of in apiculture, these hive abandonments took on the name Colony Collapse Disorder (CCD) because they had risen to epidemic proportions. At about the same time, although it didn't receive the same level of public attention as CCD, there began to be an increase in winter colony losses. Unlike CCD, winter losses results in dead bees, not disappear-ances. But, like CCD, although winter losses are normal in apiculture, the rate at which beekeepers began losing their bees was not: 33 percent of all U.S. bees having been

dying every winter since. "That is astronomical. Can you imagine if dairy producers or hog producers lost 33 percent of their operation every year?" said Dennis vanEngelsdorp, researcher and assistant professor in the University of Maryland's Entomology Department in College Park, Md. So far, beekeepers have been able to quickly recover from these losses by splitting larger colonies to repopulate the empty hives, but it's troubling no less.

That's one of the big reasons behind the formation of the Bee Informed Partnership (BIP), sponsored by the U.S Department of Agriculture and the National Institute of Food and Agriculture. Project director vanEngelsdorp said BIP was developed on three premises: The beekeeping industry is seeing unprecedented complex challenges such as high winter losses and CCD, and it's evident that some answers are out there because not all colonies are affected, but competition has taken cooperation out of the beekeeping industry. BIP is es-sentially a way to get beekeepers talking.

"The answers are out there," said Shane Gebauer with Brushy Mountain Bee Farm in Moravian, N.C. "The beekeepers have the answers. We just need to get into the heads of the people out there."

BIP's major effort is an annual beekeeping survey, which vanEn-



gelsdorp is certain holds the key to questions plaguing the industry. For example, during the 2010-2011 winter season, a quarter of the beekeepers surveyed lost 14 percent of their colonies, which is an acceptable loss rate. Another quarter lost 53 percent or more of their colonies. But what's the difference? Nobody can pinpoint it yet, but if the industry was able to reduce the loss rate of that top quarter of beekeepers those who lost at least 53 percent of their colonies last winter — this would translate to \$1.29 million worth.

HIGHLIGHTS OF THE 2011 SURVEY

BIP is for all types of beekeepers, from backyard producing honey for farmers markets to commercial trucking bees up and down the West Coast pollinating almond trees. The 2011 management survey asked beekeepers to reflect back on their 2010-2011 winter, from October to end of March. In all, 2,895 of people surveyed were considered "backyard beekeepers" with less than 50 colonies; 44 were "commercial" with 500 or more colonies; and 111 were "sideline" operations with 50 to 500 colonies.

'We realize beekeepers that have much larger colonies are going to have different management strategies than beekeepers who have fewer bees," said vanEngelsdorp, but those differences may give a clue as to what is working or not.

Regionally, beekeepers in the northern tier of the United States saw a 40-percent loss, whereas those in the southern states saw

only a 25-percent loss. The Northeast region of the United States saw particularly high loss rates. This in and of itself provides no definitive link, but beekeepers in the South tend to be of commercial size, and therefore more experienced.

An area of bee management of particular interest to vanEngelsdorp is the use of products to control Varroa mites, a parasite specific to honey bees: "We've been saying that Varroa mites are the number-one enemy for a very long time," he said. Yet, only 40 percent of beekeepers surveyed said they used a control product — meaning the majority of bee-keepers are ignoring the effects of a known honey bee killer. "That's a huge indicator," vanEngelsdorp said.

A second common bee pest, the small hive beetle, invades hives to feed on honey and pollen but can do considerable damage. Not surprisingly, the beekeepers surveyed who used traps for these beetles experienced fewer colony losses, especially in the northern states.

Another area with a significant impact seems to be winter feeding. Beekeepers who fed their bees in the winter fared better overall than those who didn't, but those who chose to feed frames of honey lost more colonies than those who fed other forms of carbohydrates. Again, vanEngelsdorp said that because the survey is not a controlled study, he cannot for sure say what winter-feeding method causes higher winter loss rates, but "certainly I would think twice before feeding frames of honey to

PHOTO: USDA my colonies," he said.

Surveyed beekeepers who stored equipment also lost significantly more colonies than those who didn't, as did beekeepers who bought packages of bees to populate their hives rather than split-ting or another method of increasing colonies. Colonies placed near corn or cranberries also saw higher colony losses than other crops.

2012 SURVEY

The 2012 management survey opened on March 30 and is gather-ing information from beekeepers from October 2011 through March 2012. Beekeepers responding to the survey are voluntary, anony-mous, and confidential. The survey is available at http://beeinformed.org. In future years, BIP plans to ex-

pand to include a quarterly survey on specific topics with a focus group of beekeepers as well as the annual management survey. The information is being entered into a database that also satellite and

weather data from Honey Bee Net, historic and diagnostic data from USDA APHIS, and individual beekeepers' data from Hive Tracks. The data can then be customized to a beekeeper's particular variables, such as location, specific management techniques, and disease trends to allow beekeepers to compare their operations with others without revealing their identity.

Other BIP goals are to pinpoint resistant bee stock and to look at the cost effectiveness of treating colonies with various products.

SDSU Extension **Scientists Share The Facts Behind** 'Pink Slime'

BROOKINGS — Suppertime at the Underwood's is loud and a little messy. That's because Keith and Julie's children are only 2 and 3-years-old. To cater to their toddler's taste buds; ground beef is often the meal's main ingredient.

"Our children like the texture of ground beef and will eat it so we cook with ground beef often." said Keith Underwood, 31, of the lasagna, tacos, burritos, or hamburgers, which are some of his family's favorites.

Although Underwood is certain finely textured lean beef trimmings is frequently mixed into the ground beef they consume, he's not worried about his or his family's health.

Even with all the attention this ingredient has received following the TV show "Jamie Oliver's Food Revolution," during which the show's host, chef, Jamie Oliver, attached the "pink slime" label to finely textured lean beef trimmings — Underwood is not concerned.

The reason he's confident? The SDSU Extension Meat Scientist has first-hand knowledge and has actually visited beef processing plants to watch the

product being processed. "This product is extremely safe, and healthy," he said of the lean ingredient often mixed with other beef trimmings to help processors achieve lean meat targets consumers want.

TEXTURED LEAN BEEF TRIMMINGS 101

Textured lean beef trimmings is lean meat that is difficult to extract from beef trimmings by hand, so meat processors utilize centrifuge technology to sepa-rate the meat from fat. Once it's separated, it becomes a 95 percent lean product. It is then frozen and treated with a small amount of food grade ammonia hydroxide — less than 0.01 — which is less than our body produces naturally each day.

"Our body produces ammo-

nia during the digestion and metabolism of proteins. From the information I have on the actual amounts used in processing tex-

tured lean beef trimmings — it's far less than what our body pro-duces in a day," Underwood said. Treating the meat with am-monia is a food safety measure.

It raises the pH of the meat to remove any harmful bacteria or pathogenic bacteria that may be present. Another product often used to change the pH of meat is citric acid.

Whether ammonia hydroxide or citric acid is used to change the pH, the food safety measure is safe and does not put consumers at risk, says Underwood.

"I'm not concerned about the safety or the wholesomeness of the product. Any product that has textured lean beef trimmings is a healthy, nutritious and safe source of beef," Underwood said. "In the meat industry, safety is our first concern. The products are highly regulated and all pro-cessing plants are inspected by the Food Safety Inspection Service."

Joan Hegerfeld-Baker, SDSU Extension Food Safety Specialist agrees with Underwood.

"Ammonia is common to all life forms and naturally occurs in the environment. Ammonia compounds are used in the cosmetics and the food and beverage industry and have been studied for years. The FDA recognizes these products as GRAS (Gener-ally Recognized as Safe)," Hegerfeld-Baker said. "Ammonia is formed in the human intestinal tract in quantities of about 4 grams per day.'

She adds that most ammonia is absorbed back into the body.

"Consider that one beef patty can contain approximately 40 mg of ammonia compounds some of which are naturally occurring. This is equivalent to 0.01 percent of what your body naturally produces," Hegerfeld-Baker said.

To learn more about textured lean beef trimmings and food safety tips visit iGrow.org.



Opinion **Early Spring Offers Opportunities, Risks In Row Crops**

BY RITA BRHEL

P&D Correspondent

That was one of the warmest Marchs on record. Fruit trees, spring bulbs, and lawns are well ahead of their normal spring schedule as are pastures and alfalfa, and most producers are having a difficult time holding back from planting their row crops. But should they? Is there any harm in planting too early?

Of course, it would be catastrophic for a freeze to come when corn and soybeans are germinating. And it would be disastrous to have a fields flattened by hail or flooded later this spring by what looks to be a very active weather pattern. But these dangers aren't limited to such unusually early springs as we're seeing this year. If producers were able to dodge these annual hazards of working in nature, and had planted early, they not only may be able to harvest ahead of the fall rush but may see a bumper crop on an already forecasted record year.



Still, there remain some special concerns. Weeds are already crowding fields, so it could be an interesting turn of events in trying to get crops to germinate when weeds have the competitive edge. Some producers are describing this young April as early June weather and believe that a dry soil profile could become an issue over the summer without some cooler spring days to trap the moisture. And while I

haven't heard much mention as of yet, I believe that grasshoppers and soybean aphids have the potential to become major pests this year. Of course, this depends on other factors, such as the weather for the rest of the growing season, but I squished my first mosquito in early March bugs will be out early and en masse this year.

Indirectly, a longer growing season means more inputs - more fuel, more herbicide, more pesticide. Markets are completely dependent on factors outside of producers' control, so if one guy's field is getting eaten up by grasshoppers, this may or may not translate to a higher per-bushel price, depending on how widespread the problem is. Therefore, producers may end up with a great growing season, and with comparable market prices to the last few years, but may not be ahead at all because they poured in so many more inputs to span the extended growing season.

Lots to think about ...

Our livestock farm is surrounded by crop land, owned by two different producers. One has disked and sprayed; the other hasn't done a thing. It'll be interesting to see if there are any differences between the two, and how each field will fare with all the gambles and guesses of this year's unique weather.

Fill the puzzle so that every row, every column, and every section contain the numbers 1-9 without repeating a number.







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Clinic Closed Easter Sunday, April 8th

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