

Fall 1998

production and attempt to halt the decline in the number of managed bee colonies in the U.S. by:

1. Helping to reduce the use of chemicals in beehives through development of disease and mite resistant bee stock.
2. Improving technology and/or pollination.
3. Improving efficient and safe handling of honey from the hive to drum through treatments for healthy managed bee colonies.
4. Facilitating development of an integrated pest management system in bee colonies.

The second highest priority area will be communicating basic knowledge on what constitutes a healthy environment for honey bee colonies. The board will strive to:

1. Help growers' needs for pollination services through pollination research.
2. Help to reduce honeybee mortality due to misapplication of insecticides.
3. Support growers' use of pest resistant varieties of plants.
4. Help increase grower's knowledge of integrated pest management and value of honeybees for pollination.
5. Increase beekeeper knowledge of an integrated approach to managing disease and pests in their bee colonies.

Sharon

Upcoming National Beekeeping Conventions

In January two important beekeeping organizations will be having their annual conventions. We encourage every beekeeper that possibly can to attend one of the conventions. Telephone numbers are located on the front page of this newsletter. Why should you go? There will be trade shows, educational workshops, special interest groups, social activities and just plain fun talking to other beekeepers from across the country. We have "newsletter reporters" attending each of the conventions and they will prepare a report for those unable to attend.

Missouri Extension Agents Award Luncheon

Art Gelder

October 26th I attended the University Extension Banquet, representing the MSBA at the Holiday Inn Executive Center in Columbia, MO. A cold sandwich and salad plate was served prior to a short program and the presentation of awards. After the banquet we were able to visit promotion booths set up by numerous companies and associations throughout the State. Ray Nabors also attended.

Fun Fact

Pam Brown

Do bees need salt in their diet? A short time after Ian started keeping bees, I (Pam) read a novel that took place during the depression (forgot the name of the book and the story line), but one fact stuck in my mind. (I often have odd facts stick in my mind.) The man in the story, just happened to keep a couple of beehives within walking distance behind his house, and they were mentioned once in a while. Well, the interesting fact, to me, was that when he took out a fresh pan of drinking water for his bees, he always added a little table salt, stating that bees needed salt. After reading this book, I always listened to beekeepers and read literature, looking for information about giving bees salt, and never did hear or read anything . . . until recently! According to Ormond and Harry Aebi in their book *The Art & Adventure of Beekeeping*, Rodale Press, 1975, page 99, bees indeed "need a little salt to keep them working at maximum efficiency. We first noticed their need for salt when we gave unrefined table salt to our sheep. We found our bees picking up salt crystals that the sheep licked off and dropped from their lips after a sheep had wondered away from our freshly filled salt feeder. That gave me the idea to take a salt shaker and give each hive a helping of salt every few weeks during the honey flow. One or two shakes on each landing board at midmorning is sufficient. If a bee takes wing for a load of nectar or pollen, it will suddenly stop when it comes to salt crystal, lick it, and then grasp the crystal and carry it into the hive. Soon other bees

come out on the landing board and gather up as many of the remaining salt crystals as they need." Have any one of you used salt? If so, let me know.

To Our Health

Research by Pam Brown

Hangover cures: After over-indulgence in alcohol during this holiday season, using the second half of this recipe is useful for reducing unwanted hangover systems. However, if you know in advance that there is a possibility you might drink too much, take the first part of the cure before leaving home for the best results

2 ½ tbsp. honey
½ cup milk
1 lemon, juice only



Mix 1 tbsp. honey with milk and drink this before any anticipated over-indulgence of alcohol to line the stomach. On returning home, mix the remainder of the honey with the lemon juice and ½ cup water to accelerate the liver's processing rate.

If you've had too many drinks during a night on the town, eat some honey on crackers or toast when you get home. It will help ward off a hangover's headache and queasy stomach, according to the National Headache Foundation. Honey is loaded with fructose, which helps metabolize alcohol in your bloodstream.

Cleansing Morning Tonic: There is no better way to start the day than with this refreshing tonic. The benefits are several: it cleans out the system; it is a mild laxative; it promotes a healthy, well functioning liver; and it is good for skin blemishes. For maximum benefit, take this tonic every morning before breakfast.

3 tsp. honey
½ lemon

Mix the honey and lemon juice with ½ cup of lukewarm water and drink.

MSAA Funds \$250,000 Bee Venom Therapy Study

Through a \$250,000 research grant, the Multiple Sclerosis Association of America is the first MS

organization in the country to release funds for human scientific study under FDA guidelines of honey bee *Apis mellifera* venom therapy as a treatment for multiple sclerosis. The Phase I study, being conducted at Georgetown University Medical Center in Washington, DC will examine the safety of honey bee venom extracts as a possible treatment for patients with chronic progressive MS.

Under the direction of Dr. Joseph A. Bellanti, principal investigator and Director of Georgetown Medical Center's Immunology Department, eight individuals with chronic progressive MS will receive two injections per week of honey bee venom extract for one year. Each study participant will undergo monthly evaluations primarily for safety and tolerance of the treatment, and secondarily to monitor the efficacy of the procedure.

Chronic progressive multiple sclerosis is a devastating form of the disease for which there are few treatment choices - some of which are experimental and pose serious health risk. In recent years, thousands of MS patients reported significant symptom relief through the alternative practice of bee venom therapy (BVT). Widely practiced in many eastern countries for centuries, BVT involves repeated stings from honey bees to various parts of the body. Although MS patients engaged in BVT receive 25 to 30 honey bee stings per session and average more than 30,000 yearly stings, there is no way to accurately gauge how much extract is delivered. The study will determine dose-response relationships by administration of known quantities of honey bee venom in calculated increasing doses.

Multiple sclerosis is a crippling disease of the central nervous system (CNS), affecting younger adults mostly between the ages of 20 to 40. During an MS attack, the immune system malfunctions and damages or destroys the protective layer of insulation (myelin) surrounding the nerves. The resulting damage causes nerve impulses to "short circuit" and messages between the brain cease to be transmitted via the nerves to muscles throughout the body. This results in symptoms of MS, which can range from visual problems to paralysis.

According to Dr. Bellanti, certain anti-inflammatory and immune system response properties contained in honey bee venom may serve to restore

to normal the immune system malfunction and reverse the destructive demyelination process. "There have been widespread anecdotal reports suggesting that bee venom may be an effective treatment for multiple sclerosis and certain forms of arthritis," said Dr. Bellanti. "However, it is imperative that honey bee venom therapy be evaluated in a scientific manner before legitimate and standardized therapeutic claims can be observed. We are extremely grateful to the MS Association for their funding support and applaud their active stance in seeking answers to this alternative therapy."

Although practiced by arthritis sufferers for the past 60 years, BVT has recently gained popularity among the MS patient community. According to MSAA President John Hodson, Sr., the Association felt the need to respond to this growing trend which has the potential to be very dangerous. "BVT entails a very real risk of dangerous allergic reactions as well as an emotional and monetary cost in raising false hopes. MSAA does not recommend or endorse the use of honeybee venom for the treatment of MS or other disorders. We are funding this study to determine if this approach has any neurological benefit. If the results prove positive, then additional clinical studies and possible treatment practices of MS can begin. If the results prove negative, then MSAA has helped to eliminate false hope. Anyone interested in BVT should consult their physician."

For more information, call MSAA at 1-800-LEARN MS (1-800-532-7667), or write to Multiple Sclerosis Association of America, 706 Haddonfield Road, Cherry Hill, NJ 08002.

Provided by the *American Bee Federation* and reprinted from *The Enn Cee Bee Buzz*, the newsletter of the North Carolina State Beekeepers Association and copied from *The Bee Line* Nov/Dec. 1998 the newsletter from the Oregon State Beekeepers Association

Special Note: Ray Nabors, PhD, has volunteered to be our Apitherapy Specialist for the State Association. Any questions or information regarding apitherapy should be directed to him. He will submit to the Newsletter any new or special items of interest regarding this subject for publication. Thanks Ray!

NEW from Mann Lake..

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Local Association Updates

Boone Regional
Art Gelder, Local President

This has been a good year for our local association, several firsts occurred and have received several new members.

As an association we assembled an educational display at the Boone County Fair for the first time. Some of our members even entered honey in the judging this year also, winning blue and red ribbons. This was the first year for many years, which our association entered into the State Fair competition. A few members entered in the individual classes also.

Due to the number of new beekeepers in our association we started beginners classes this year. I know I've found it very enjoyable helping new beekeepers get started.

As I said, '98 was a good year for us and we hope '99 will be just as good or better.

Art

Missouri Day Promotion

Art Gelder

On October 21st, a friend, Richard Toops of Columbia and I represented the MSBA in Jefferson City at the Walmart Supercenter for the Missouri Day promotion sponsored by AgriMissouri. With short notice I was able to set-up a poster display and have honey recipes and literature to hand out. Walmart had a person giving samples of bagels with honey on them to customers and we had honey candy to give away, which everyone enjoyed. The promotion ran from 10AM to 5PM and we spoke to a couple hundred people.

Art

News Releases

The American Beekeeping Federation, Inc. – 4-H Beekeeping Essay Contest, cash prizes to the 3 top winners. 1st Place - \$250, 2nd Place - \$100 and 3rd Place \$50. Each state will have individual winners. For announcement and rules contact the 4-H Missouri Contest Coordinator or check the website at <http://www.abfnet.org/essay/rules.html> <http://www.abfnet.org/essay/rules.html>

Tourism Research & Development Center, University of Missouri – Columbia - The Missouri legislature is interested in the feasibility of an Agricultural Learning Center and a Living History Farm. The Missouri Department of Agriculture formed a study committee and after careful consideration reported that a conceptual plan needed to be prepared. The MU Tourism Research & development Center is preparing the plan, which be being jointly funded by the Monsanto Company, and the Missouri Division of Tourism. As an agri-

culture producer organization our needs and interests are important and it is our desire to include our interests in the final concept. You are invited to share with them ideas for programs, location, development and management strategies plus specific objectives you would like to convey to the public about our organization. Send all suggestions and ideas to:

Glen Weaver
MU TRDC
105 N ABNR
Univ. of MO
Columbia, MO 65211
FAX 573884-7250

Department of Agriculture, State of Missouri – Agriculture Taster's Gallery - The AgriMissouri Program will be participating in two of the Missouri Restaurant Association's upcoming shows. 1999 Ozark Food and Equipment Show (January 24 & 25- Springfield) and 1999 Heart of America Hospitality Expo (March 14 & 15 – Kansas City). For information and application contact Rosalie Bealer, 573-751-6808.

4-H Outreach & Extension – Missouri Agribusiness Academy – an annual program sponsored by the Missouri Dept. of Agriculture to provide selected Missouri high school students a chance to explore the vast agribusiness resources of our state. Selected students must be high school sophomores and come from a Missouri farm family or be active members of a 4-H club or FFA Chapter. Applications must be postmarked no later than February 6, 1999. Call the Extension Center for details.

Agriculture Scholarship Program – the Dept. of Agriculture will be awarding 14 non-renewable \$550 scholarships for 1999 Missouri high school seniors to attend designated Missouri colleges and 8 non-renewable \$250 scholarships for 1999 Missouri seniors to attend designated Missouri junior colleges. Applicants must be from a rural background with income from the family farm. Scholarship applications must be postmarked by March 5, 1999. Contact the Extension Center.

Farm Bureau Offers Scholarships – St. Charles County Farm Bureau will be offering \$500 scholarships to high school seniors that are residents of St. Charles County and must be planning to enroll in courses of benefit to agriculture. Call 314-441-4655 or 314-427-5666. Deadline is April 1, 1999.

4-H Winner at the State Fair



Jessica Stuart, age 10, Perry, MO won 1st place in the the 13 & under Division of the Agri Missouri Foods Demonstration Contest.

This is Jessica's 2nd year to demonstrate in this division. After giving her 1997 demo, Gwendalyn Guthals, 1997 Honey Princess, encouraged her to try a honey demonstration and even gave her several ideas to use for her recipe. Jessica has been organizing and planning her "Honey of a Fruit Dessert" demo for about six months. She learned much information by searching the internet and finding the www.honey.com website.

Jessica is a member of the Mark Twain 4-H Club from Monroe County.

Legal Advice

A beekeeping attorney has advised us that reusing packaging, jars with caps with another company's name still on the jar/cap is trademark infringement. A damage claim lawsuit is unlikely, but you could find yourself "enjoined" and court costs taxed to you. We are talking three to five hundred dollars without going to trial. It is not worth it!

Tallest Hive

Sorry, we don't have a winner, because we didn't have any entries! If you had sent a picture of a hive with only one super, you could have won our valuable prize!!

1998 4-H Missouri Beekeeping Essay Contest Winner

Beekeeping is the cultivation of honeybees either as a hobby or as an agricultural business. Modern beekeeping is based on the ancient Greek technique of creating a so-called bee space. The hive made of a box containing a series of parallel wooden bars separated by a distance equal to that between honeycombs is a mass of hexagonal cells in the honey bee nest that contain brood and honey. A beehive based on the ancient principle was developed in the United States by Lorraine Lanstroth in 1851. The typical beehive today is made up of a bottom board and several boxes containing movable frames and a cover. Each frame is furnished with a beeswax foundation imprinted with the hexagonal shapes of cell bottoms. The bees use the beeswax foundation to build their honeycombs.

Honeybees are pollinators of some 90 crops. Fruit and seed growers contract with beekeepers to move honeybee colonies into the farms.

Bees need four basic materials: nectar, pollen, propolis and water. They make honey out of nectar. They make pollen into food for the young bees. They use propolis to seal and waterproof their hive. They dilute honey with water before eating it, and they use water in their hive to keep it cool.

Bees cannot make honey without nectar, a liquid sugary substance produced by flowers. It is the raw material of honey and the bees' main source of food.

Some spring honey plants are clovers, sweet clovers, other legumes, tulip trees, poplar trees, dandelions, maple trees, locust trees, willow trees, basswood trees, fruit trees, and berry plants.

In summer and fall, bees find nectar and pollen in soy beans, garden plants, various ornamentals, asters, golden rod, milkweed, morning glory, smart weed, sumac and sunflowers.

The honey bee colony is made up of three different types of bee: the worker, queen and the drone. These three carry on the functions of the colony and its usual working condition, a colony of bees contains a fertile queen, many thousands of workers,

according to the season of the year, and in the busy season from several hundred to a few thousand drones.

Most of the bees in the colony are workers. Worker bees live about six weeks.

They collect the food and water for the entire colony, do the housework and guard the hive against intruders. They also "air condition" the hive and maintain a constant hive temperature and humidity. Some are drones, whose only function is to mate with the queen. Usually there is only one queen bee in the colony; she lays the eggs that maintain or increase the population.

Keeping honeybees is a fascinating and profitable pastime that can be enjoyed in several ways. You may want to keep bees for the delicious fresh honey they produce, for the benefits of their valuable services as pollinators for your crops, or perhaps just for the fun of learning about one of nature's most interesting insects.

There are two large fruit growers in Andrew County. Hunt Orchard and Schweizer Orchard. Their orchards are very large and consists of both apple and peach trees, with a greater majority of

apple. Bees are extremely important part of the pollinating process at these orchards to insure good quality fruit. This enterprise has an impact on the agriculture productivity of the county. They employ many people in the spring and fall to help with production of fruit. Schweizer Orchards are a supplier to Gerber Baby Foods and have retail outlet stores in Amazonia and St. Joseph. Customers may also pick their own fruit at the St. Joseph Orchard. Hunt Orchard is located on buy interstate 29 and can be seen from the highway quite easily. Their homemade cider and fruit pies as well as their fruit make this a must stop for many highway travelers. Hunt Orchard grows a huge pumpkin patch to entice people to pick out their own pumpkins while visiting the store for fruit.

The American Royal in Kansas City recently had a very good display on bees and how they affect agriculture. A huge self-contained beehive drew much attention to the bee industry and honey in particular. Honey is a great substitute in baking. Bees are a great asset in any community in addition to orchards!

Travis Pflugradt
Savannah High School Freshman
4-H Beekeeping Project for 4 years
Savannah, MO

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877-220-1063

1998 Beekeeper of the Year

On October 11, at our annual Beekeeper of the Year Banquet, a long time beekeeper and former librarian for the State Association, John Hartman, Jefferson City, was honored as Beekeeper of the year. John

has always been very helpful and patient in answering questions to new beekeepers; he was a Dadant distributor for many years for beekeeping supplies. He was also a State Bee Inspector.

His other activities included being a Scoutmaster for Boy Scouts, going on many camping trips with the boss, even though he did not have a boy in scouts. Besides being Scoutmaster, he had done a lot of volunteer work with the scouts.

We received a letter from him dated October 16th. "This letter is to express my appreciation to the Missouri State beekeepers Association on being named Missouri Beekeeper of the year for 1998. Bees and beekeeping have been an important part of my life for many years. Sharing my experience with school children and beginning beekeepers, sharing the results of my harvest with family and friends and working with the association to advance our interests are some of the things, which have given me great satisfaction. Your recognition is indeed an honor. Thank you."

John J. Hartman

Thank You

Rose Terrill, thanks all of her beekeeping friends for the flowers, cards, prayers, etc. during her recent surgery.



Rose

Long Time Beekeepers Die

Russell Carr, Fenton, MO passed away on October 13, 1998.

Chester R. Crain 86, Pleasant Hill, MO died Friday, October 23, 1998 at Research Medical Center. The family suggests memorial contributions to the Pleasant Hill Presbyterian Church Youth Fund. Contributions can be sent through the Stanley & Son Funeral Home, 203 N. Armstrong, Pleasant Hill, MO.

Sales Tax Legislative Update

Effective 8/28/98, the following items are sales/use tax exempt.

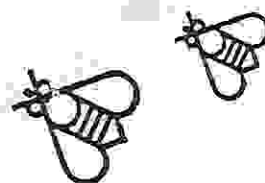
- All feed for livestock (bees)
- Clarifies the language for replacement for equipment
- Pesticides used in the production of livestock (bees)
- Lubricants used exclusively for farm machinery and equipment

Before taking these exemption, You should check with your tax professional.

Missouri Dept. of Revenue, Tax Administration Bureau
Salesuse@mail.state.mo.us

Missouri Beekeeper Gets a Web Site

As a new marketing tool, Sharon Gibbons now has a web page. You can find her www.travel-l-usa.com





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Colors for Queens

If you mark your queens, there is a universal color code that is used. There is a designated color for each year, so that when anyone looks into your hive, they will automatically know how old your queen is. The code is:

QUEENS	YEARS	EXAMPLES
Blue	0 & 5	2000, 2005, 2010
White	1 & 6	2001, 2006, 2011
Yellow	2 & 7	2002, 2007, 2012
Red	3 & 8	2003, 2008, 2013
Green	4 & 9	1999, 2004, 2009

Dues are Due

State dues are due the 1st of January, if your dues are not current, January's newsletter will be the last that you receive until dues are paid. We hope you understand. The work of the treasurer is much easier if everyone pays at the same time, instead of in dribbles and dabs.

Local Updates

We need to compile an updated list of all local associations, officers, address, phone numbers and e-mail addresses, along with information about the organization, so a new list can be prepared and published in the March Newsletter. Please send all information to the Secretary, Don Moore. Thank you for your cooperation.

Classified Ads

Any member may place a classified ad for \$7.50 per newsletter issue. Please send the ad in writing to the editor and the payment to the treasurer.

Bee Swarm, A Boy Becomes a Man

When my eight-year-old son burst in the house with Betsy running breathlessly behind him, I knew he had news of some importance. He had that look of grave excitement, so it was hard to tell if he brought good news or bad. "Mom, we found a swarm of bees out on the Christmas trees." My heart leaped, then fell.

Our circumstances were somewhat peculiar. I have been the primary beekeeper in the family for our first year of beekeeping because my husband's job in the military takes him away on business a lot. Over the winter, I made my son and husband bee suits, hoping to enlist some aid for the upcoming spring and summer season. I needed the help because my bee suit won't fit again until after the

end of May, when child number six is due to be born.

As usual, Rod, my husband, was gone on business. He's always gone when anything exciting happens! But he had asked me what I would do if the bees swarmed this week while he was away. I'm glad he did, or I might have panicked when Aaron brought his news.

We homeschool and had studied bees the previous year so Aaron was somewhat familiar with honeybees. I always assumed he would be hesitant around them though, due to a run-in with some yellow jackets he had a couple of years ago. But, when I told him he would have to hive the swarm, he was excited and enthusiastic!

We took the whole crew out to the Christmas trees to check out the swarm and its location. I prayed it would be an easy one, but never having worked with a swarm before, I didn't really know what I was asking!

When we arrived, there they were... a great pile of bees hanging onto three branches at the bottom of a young Christmas tree. It looked like a simple matter of cutting the limbs off and putting them into a hive body where they'd hopefully take up residence.

All the troops marched up to the house to get our equipment. I had enough hive parts for two more hives, so we quickly assembled all the needed boxes, stands and tools, parceling them out from the greatest to the least. Even Rachel, our two-year-old, insisted on being included, and carried two frames of drawn comb.

Swarming bees don't sting...

Aaron put on his bee suit and leather work gloves amid words of encouragement from his sisters and I. In all my previous reading, I recalled that swarming bees weren't supposed to sting. Boy, did I hope I remembered correctly! I assured Aaron they wouldn't sting him, but made all the girls stay a good 20 feet away.

I didn't think Aaron could handle cutting and holding a branch full of bees at the same time, so I told him to hold the branch while I came in from behind to cut it. With fear and trepidation, I gingerly cut about halfway through the branch. The weight of the bees pulled the branch down, jarring the swarm, and 1,000 bees took off into the air. I

dropped the clippers and beat a hasty retreat. My worst nightmare is getting bees stuck in my hair!

The swarm calmed down and taking a deep breath, I reached for the clippers that I dropped directly under that mass of bees! The next clip was successful, and Aaron ever so gently and slowly placed the branch full of bees into the empty hive body. Two more branches brought about 80% of the swarm into the hive body with the rest flying or crawling on the ground.

I marveled to see my young son so calm and fearless in a place where many an adult would tremble. He carefully assembled the rest of the hive, and fed them some syrup in an entrance feeder. He also put sugar and shortening on the inner cover to help get rid of varroa mites.

What an incredible experience for an eight-year-old. His confidence level rose about 10 times that day.

The next morning, Aaron informed me he dreamed we had another swarm. But his dream was off a little. In the next two days, he hived three more swarms. Looks like I'm out of a job as family beekeeper.

By Shelly Grady
Countryside & Small Stock Journal
Mar/Apr '98

E-Mail Messages

We have received the following e-mail messages from fellow beekeepers.

Microbiology

Having received an e-mail from fellow beekeeper Garth Cambray, Grahamstown, South Africa, we were reminded of things that we already knew, but it is good to keep being reminded. Just like food service/processing employees are constantly washing their hands, and health professionals wash their hands after touching each patient, we as beekeepers need to take similar precaution. Many illnesses and diseases are transferred from hive to hive by hands, unwashed tools and instruments.



After inspecting or working a hive that we even suspect might be unhealthy, we need to sanitize our tools, gloves, hands, etc., possibly even changing our bee suit, in order not to transfer microorganisms to other hives. We can accomplish this by carrying a disinfectant, such as bleach, and rinse our tools and gloves and carrying a hand sanitizer. Also carry an extra bee suit or wear disposable aprons over bee suits and then discard them after working a possibly unhealthy hive. This may sound extreme, however, "an ounce of prevention is worth a pound of cure."

Oil in Honey

Another e-mail from a beekeeper spoke of finding very, very fine droplets of oil that some regulatory inspection had found in someone's honey. The droplets of oil were so fine that they were likely to have come from an aerosol spray can or atomizer that might have been used to lubricate the extracting equipment. Another reminder, don't use regular motor oil on your equipment, but use a special commercial food grade lubricant.

Antibiotics in Animal Food

A message from P.O. Gustafsson, a beeman from Sweden, is reporting that Europe is now turning away from the use of any antibiotics in animal food, due to the antibiotics that we consume through food are getting less effective to cure diseases in man, and researchers working in that field are starting to ring the alarm bell. It may become law, eventually. If so, the same discussion will probably be discussed on our side of the pond. This could limit our use of preventative medications. Gustafsson's attitude is that "When we get more of those strains of bacteria resistant to antibiotics, we will be in far more trouble than a few dead bee hives."

African Bees

Sharon Gibbons just got back from speaking at the Utah Beekeepers Meeting. Dr. Erickson was the speaker. Seems the African Bee is getting to be a problem in Arizona; and has crossed the mountain

range in Northern AZ; and is now in every county of AZ. He feels that it will move all the way up to Salt Lake City.

More From Arizona

John Edwards from the Tuscon Bee Lab reports that Tuscon now has upwards of 6,000 swarms being removed by commercial outfits yearly, and even now (Mid November), one removal expert told him they are getting 60 calls per day. The migratory phase seems to kick in about October, and is still little understood (or investigated).

Christmas Snack Recipe

From Judy in Kentucky, here's a recipe for a snack mix. For Christmas giving you can place some in a square of colored plastic wrap and tie with a ribbon.

1 ½ boxes Bugles

1 cup pecan pieces

1 cup walnut pieces

Mix together in large bowl.

In large saucepan, on medium high heat, melt

½ cup butter

1 cup brown sugar

½ cup light corn syrup

½ cup honey

¼ tsp. salt

Stir and boil for 5 minutes. Lower heat and simmer for 5 minutes more, stirring often. Remove from heat. Add

¼ tsp baking soda

½ tsp vanilla

Stir. Pour over the bugle/nut mixture and mix well.

Spread out on a large non-stick cookie sheet till cool. Bake at 275 degrees F. for 15 minutes. Stir til all mix is coated. Bake 15 minutes more. Remove from oven. Stir. Pour mixture out onto wax paper and separate into chunks with two forks. Cool. Store in an airtight container.

(If the honey is going to scorch, it will be during the baking. Watch closely. 10 minutes each turn may be enough. Just want to melt the coating so you can mix it well)

Prince Charles "Dabbles" With Bees

Sharon Gibbons sent the following message, that she read in the November 8th edition of the St. Louis Post Dispatch. "As an early birthday gift, Slovenia gave Britain's visiting Prince Charles a hive full of bees. Well, yes, Charles dabbles in beekeeping. But only the hive will be allowed back into Britain. The bees must stay behind, victims of British customs laws."

Beeswax

Andy Nachbaur states that most beeswax refiners have their own commercial and secret process for bleaching wax. The safest and the one that preserves the natural quality of the beeswax is sun bleaching.

The 2nd most used process at least in use at one time was bleaching using acid and filtering using carbon or DE. Have not bothered keeping up with all this because the price of farm beeswax does not provide for further processing and there is good reason for this as value of bees wax to the buyer depends on his own use and most will not buy wax that has been altered by chemical treatments. Clean dark beeswax has the same value as light wax but does not always bring the same price but mostly close to it depending on the needs of the end user and volume of the wax.

Much of the color in farm beeswax if from processing without adequate water to wash the honey residue from the wax that burns and discolors the wax. Beeswax should be as free of honey as it can be before melting in clean soft water. Water should be changed if discolored by honey remaining in the wax.

Mixing 2:1 Syrup

Lloyd Spear, owner of Ross Rounds shares his technique for mixing a 60 lb. Pail of 2:1 syrup.

I bought a dry wall mixer at Home Depot, \$12. This is about 40" long, with a paddle wheel at the bottom and fits into a 1/2" drill. I put two 25 pound bags of sugar in the pail, fill with warm/hot water until I can see the water cover the sugar, put in the mixer and "hold on".

I also use the dry wall mixer and a 60 pound pail to make Crisco/Terra/Sugar patties. I melt the Crisco first by putting the 5 pound can in the oven. The dry wall mixer can handle the heavy job, and the Crisco quickly re-solidifies and makes great patties at a fraction of the cost of buying them prepared.

European Complains

Editors Note: I already had the newsletter finished when I received this e-mail from a beekeeper in Europe, Christopher Slade, he didn't state the country of residence. But, I had to include the message, and then repagenate the entire newsletter. If you have high blood pressure, you might not want to read it.

Please explain to somebody not from the USA what the USDA honey loan program is. Is it in effect a Government subsidy to US beekeepers? You already have it cushy, getting sugar at world prices instead of paying inflated European Community prices as we have to. Perhaps we should complain of unfair competition. How much honey does the US import from Europe? The trouble with governments is that they invariably interfere in the way I don't want them to and don't interfere in the way I do want them to.

Honey Loan Slated for Reinstatement

The House-Senate conference committee working on the Agricultural Appropriations Bill for the fiscal year to begin on 10/1/98 has included a provision to reinstate the honey loan program. The new program is said to provide for 1-year recourse (no forfeitures) loan-only program. Details are not available at this time.

The conference committee was still working on the bill on 9/30/98. Once the committee's work is complete, the House and Senate must vote on the bill and the President must sign it for it to become law.

Since the bill includes funding for the FDA, abortion opponents have included in the bill anti-abortion language. The President has said he would veto the bill if the provision remains.

Once the bill becomes law, regulations must be adopted by USDA before loans will be available. Local offices of the Farm Service Agency will have information when everything is finalized. When it is available, we will publish additional information and post it on the ABF website <WWW.ABFNET.ORG .

American Beekeeping Federation

Races of Bees

Since this is the time of the year to start planning your bee ordering/purchasing for 1999, here are facts on the different races of bees.

BUCKFAST

Origin: Brother Adam at the Buckfast Abby in England
Cross of many races

Strong Points:

Good honey producer
Low incidence of chalkbrood due to good housecleaning techniques

Reports of disease resistance

Produces little propolis/brace comb

Do well in cold/wet spring

Low amount of brood during fall (uses less honey stores during winter)

Brood rearing ceases during late fall

Build-up rapidly once started

Weak Points:

Slow to build-up in spring

Less honey or pollen (depending on your area) due to erratic spring conditions (weather)

STARLINE

Origin: Not a true race (several Italian stocks combined)

Strong points:

Gentle temperament

Early and fast build-up

High brood production (lots of bees and honey)

Weak points:

Cold and wet springs will reduce the nectar flow (pollen also) and you must feed these bees.

CAUCASIAN

Origin: Caucasus and Little Caucasus mountains near the Black Sea and parts of Azerbaydzhan

Strong points:

Gentle

Calm temperament

Reduced tendency to swarm (this is because these bees slowly build-up in the early spring which reduces the amount of bees on the comb)

Able to seek forage due to their ability to fly in unfavorable weather conditions (cool and wet)

Weak points:

Wet cappings

Susceptible to Nosema

Use large amounts of propolis

CARNIOLAN

Origin: North and South of the Karawanken mountains (Austria and Yugoslavia)

Strong points:

Small clusters during the winter months

During the spring, they build-up quite rapidly

Calm and gentle

Very little robbing

Production of propolis and bur comb

Weak points:

Unknown at this time.

ITALIAN

Origin: Apennine Peninsula located in Italy

Strong points:

Do not forage long distances

Produce a lot of bees during brood rearing (lots of honey)

Weak points:

Because they do not forage for long distances, robbing will occur.

These bees are colored focused and might lead to drifting in your bee yard.

Feeding might be required due to their brood rearing late in the winter.

MIDNITE

Midnite is a hybrid derived from Caucasian sources. The bees of a Midnite queen are dark color and extremely gentle. In fact, this hybrid was developed expressly for the hobby beekeeper. However, the honey producing capabilities of this hybrid are so improved that many commercial producers are now discovering and using it. In honey production

capacity, it is now rivaling the Starline, while still retaining its gentle nature. In belief, dark bees are more resistant to mites.

www.cybertours.com

Does Free Trade Mean Fair Trade?

It is time to negotiate a level playing field for domestic honey producers through trade agreements and legislative measures.

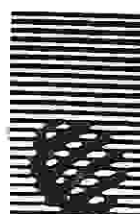
The domestic bulk honey market has weakened in the last six months, and honey imports are coming in at prices domestic producers cannot profitably meet. The flood of honey entering the U.S. market should raise concerns about our free and fair trade policies. In trade, there will always be negotiation and pos-turing. There never have been, and never will be, trading policies that are both free and fair. For in-stance, U.S. beekeepers are required to pay their employees a minimum wage while many of their market com-petitors pay their workers less than \$3 per day. U.S. honey producers, who are subject to Food and Drug Administration and Environmental Protection Agency regulations, compete with producers whose product is not subject to the same quality control measures. U.S. consumers who often buy honey produced outside the United States do not benefit from the FDA and EPA quality control requirements.



I do not advocate lowering our standards to meet the competition. However, I can easily justify an import duty for countries with low quality control and/or human rights standards that give them a competitive edge in the market. Imported honey could be assessed a fee to pay for testing to assure that it meets the same quality control standards enforced on domestic producers. Currently, these regulations add to the operating costs of domestic producers and provide minimal benefit to consumers, who often assume that the products they're buying have met federal requirements. It is time to negotiate a level playing field for domestic honey producers. This can only be accomplished through trade agreements and legislative measures. Few

things in life are truly free or fair. You have to fight for your place at the table or go to bed hungry.

Dr. Marion Ellis
Bee Tiding, February '98
Univ. of Nebraska



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The Model Bee Yard

Somewhere the perfect bee yard exists, probably. It has all of the attributes below. Most are the result of a beekeeper's style that fits both location and management. Bee yards should be easy to get to, right-up-next-to-the-hives easy, all year long. Or, at least whenever you need to get there. Newly plowed fields, sudden fences, rising creeks, too muddy roads, locked gates and the like should be anticipated, and avoided.

The most accessible location is worthless without something for the bees to forage on - and there should be enough of it to produce surplus honey for every colony in the apiary. Field crops, hay crops, tree bloom, weed species, horticultural or oil crops all can work. But there needs to be large areas of them, blooming all season to fill the bin. Water is required all season long, too. A lake, stream or pond is best. Swimming pools, cattle troughs or leaky faucets are not good.

A windbreak, especially during the colder months is recommended. A tree line, fence or hill works best. These can serve as shade producers during the warmer months and non-observation screens from the public all year long. Air drainage is important. Cold air 'drains' downhill, so colonies at the bottom of a hill get 'dumped' on in cold weather. Hill tops, too, suffer winds and wind chill problems. Avoid both. Exposure seems important to some. Colonies receiving early day sun start earlier than those in the shade (at least with some races of bees). Southwest is the most common, and probably works best. Protection from all manner of beasts should be provided. Bear (electric fencing), skunks and possum fencing, barriers cattle and horses (regular fences, though stout), and prying eyes (screening, hedges) all work. For large outyards, an out-building works as a storage shed, work area, extracting room (well, sometimes) and lunchroom when needed.

Most of all, a beeyard should be a pleasant place to visit. Scenic, quiet, distant (no matter how close to whatever) and, most importantly - NOT a challenge to use.

University of Florida Extension Office
USA Today, June 1992

Honey Bees Are Quick Learners

Honeybees can learn to discriminate between smells in order to avoid punishment, according to Ohio State University entomologist Brian Smith. While people have come to accept that warm-blooded creatures readily can adapt their behavior to suit a situation, there still is a popular belief that cold-blooded insects merely are genetically programmed robots, unaffected by life experience. This is not true, says Smith. Honeybees are highly developed

learners.

In his laboratory, Smith tried to approximate the real trial-and-error process a novice honeybee experiences as it learns which flowers to visit. Since these insects rely heavily on their sense of smell, the entomologist used two natural floral scents to train them. "In a natural situation, the bees have to learn to respond to an odor that is associated with good nectar, but avoid an odor that is associated with a really bitter—or even toxic—nectar." The researcher found he could train bees to suppress the impulse to feed if they smelled an odor associated with an unpleasant stimulus. The insects learned to distinguish between citral, the scent of orange blossoms, and hexanal, an odor like freshly mowed grass.

As his methodology, Smith caught several bees as they exited their hives. Then he cooled them (to slow their metabolism and make them sluggish) and strapped each into a miniature harness, leaving only the head and antennae protruding. Once they were harnessed, he placed them in a wind tunnel and monitored their behavior during a series of trials. During each trial, Smith released a puff of odor into the tunnel, touched a drop of sugar water to the taste sensors on the bee's antennae, and then presented the food within its reach. Typically, the insect would extend its mouth parts and take a lick of the sugar water.

When he used the citral scent, Smith let the bee dine with impunity. When he used the hexanal scent, however, the researcher employed an electrified feeding needle, which gave it an unpleasant shock. Before training began, neither scent elicited a feeding response in the honey bees. Yet, after a few trials, when the insects sensed an odor, most extended their mouth parts regardless of whether sugar water was presented. Then, later, the bees learned to distinguish between the two odors.

USA Today, June 1992



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Computer Programs Helps the Bee Business Buzzing Along

Beekeepers can turn to their PCs to manage the business more profitably. BK-ECONOMICS ("BK" stands for beekeeping), a free computer program available from Agricultural Research Service scientists, includes a spreadsheet to track loans and equipment, labor, vehicle, and insurance expenditures. Plus, it has a database component to help beekeepers market honey. The database holds 49 years of state-by-state honey values and average production from individual bee colonies. This can help beginners determine how much honey—and money—they can expect. For example, beekeepers in Georgia can expect an average of 50 pounds per year per colony; in California, 90 pounds. A colony is two or more typical white boxes or hives, each containing nine frames of honeycomb. The program also helps beekeepers locate apiculture specialists, calculate loan terms, and simulate business expansion. This can help beginning apiarists decide whether to buy or lease new equipment or to make do until later. BK-ECONOMICS runs on IBM-compatible and Macintosh computers and is available through the researchers on 3-1/2-inch floppy disks.

Gloria DeGrandi-Hoffman, USDAARS Carl Hayden Bee Research Laboratory, Tucson, Arizona; phone (520) 670-6481, e-mail mail to: gdhoff@aol.com or ehj@ccit.arizona.edu

A Beekeeper's Musings

Should a homesteader bother keeping bees? As a beekeeper myself, I can think of several quite compelling reasons to keep bees and use honey. The alleged health advantages of using "natural" sugars such as honey and maple sugar instead of refined white sugar are often cited as good reasons to do so. As I understand that debate the advantages remain to be scientifically demonstrated in spite of vigorous claims to the contrary. The evidence suggests that the body pretty much utilizes all sugars alike, and the additional minerals present in

the natural sweeteners are available in such small amounts that one would have to eat large (and unhealthful) quantities of them in order to obtain dietary significant amounts of these minerals. In addition, honey and maple sugar/syrup cost much more than refined sugar, and honey is certainly less convenient to use than white sugar. Given these questionable advantages, why would we seriously contemplate substituting honey for sugar and keeping bees?



I suspect that people are attracted to the homesteading lifestyle for a variety of reasons. For some of us, it's the independence of living off the land or growing our own food. For others, it's a form of commentary about what we might not like in today's world. And for still others, it emerges out of respect for the Earth and the view that we need to reduce our impact on our own environment. Beekeeping and substituting honey for sugar are very Earth-friendly steps. Many choices we make involve weighing relative costs and benefits; a desire to live in an Earth-friendly way means that to some extent our choices will be guided by an assessment of relative risk, by which I mean determining which of our available options promises the lowest cost or greatest good. We may ask: "What courses carry the lowest environmental impact? Is there a desirable course of action that is actually good for the environment?" Beekeeping and using the resulting hive products (especially honey) fit very nicely into a low-impact homesteading lifestyle.

Why is that? First, because when honeybees utilize plant nectar to produce honey they are creating a usable product from an otherwise unused by-product of plant biology. (Other sources of sweetness, such as decaying fruit, may occasionally be used.) Nectar lures insect pollinators such as honey bees to the floral organs and thus promotes pollination and reproduction of the individual plants, which occurs as an accidental consequence of the insect's quest for the nectar. Without honeybees to collect, store, and convert that carbohydrate to a form we humans (and some animals) can utilize, it would be unavailable and unharvested. Every time we pause to admire a field of wildflowers we might want to re-

member that it represents a vast, largely uncaptured reservoir of carbohydrate that only the honey bee, given current technology and economics, can bring to our table. Second, for every quantity of sugar that is replaced by honey in our diet, environmentally unfriendly farming practices are reduced.

How is the production of white sugar environmentally harmful? Commercial sugar is produced from beets or cane, both of which require intensive farming management. Practices vary, of course, depending on climate and soil, but habitat must be converted, pesticides used, fertilizer applied, energy expended in processing, and soil erosion is encouraged. It is, in other words, far from an environmentally benign process.

In contrast, the harvest of nectar by bees from a field of wildflowers or agricultural crops grown primarily for another purpose, such as alfalfa and cotton, is not only without impact but may actually have benefits such as promoting fertilization and therefore propagation of the species or increasing yield, as in the case of fruit crops like apples or almonds. In fact, the decline of feral (wild) honey-bee populations across much of the U.S. because of the spread of two parasitic mites over the last 15 years may result in a decrease in yield of certain crops dependent on insect pollinators.

Thus, a homesteader's decision to keep and manage a hive or two of bees may have beneficial impacts far beyond the immediate gain of hive products for the table.

The objections to beekeeping

What is the downside of beekeeping? If these potential gains are so convincing, why aren't more people doing it?

Some vegetarians object to the taking of honey from a hive because they see it as another form of humans adversely manipulating animals for their own gain. They cast it, therefore, as a moral issue. Others are opposed to it because they regard it inherently as an animal product.

To the latter objection first, honey is enzymatically altered plant nectar, as stated earlier, and except for

the addition of the enzymes and reduction of water, it is in fact a plant product.

To the objection that beekeeping is animal cruelty, I counter that the detractors have bad information. Their charge is that the beekeeper kills the hive in order to obtain the honey. The truth is that only at the far northern end of the beekeeping range, mostly in central Canada or Alaska, where bees need very large honey stores to survive the long, cold winters, has this practice been followed. It arose because of economics—surplus honey yields were too small to generate an adequate return, and starting fresh with new bees purchased in the spring generated more profit. Even here this practice is being abandoned in favor of overwintering the hives more securely so as to keep them warmer and thus reduce their need for very large overwintering reserves. In all other areas of commercial beekeeping in the U.S. and Canada, the beekeeper recognizes that killing bees is counterproductive to obtaining a honey harvest and does all that can be done to protect them and promote their well-being.

In this sense, the beekeeper, whether a hobbyist or commercial operator, functions like a sharecropper with the bees, leaving them all they need for overwintering and taking only what is judged to be the surplus. Cruelty to bees does not enter the picture.

Finally, others charge that a large-scale shift in public attitudes toward honey and other natural alternatives would leave the conventional sugar producers economically devastated. No doubt the market would have to make an adjustment. But farmers who produce cane or beets most likely could find other uses for their land, some of which may even be more Earth-friendly.

At the same time, for the sugar that we now import (or would import if domestic sugar support prices were readjusted), greater reliance on domestic rather than foreign sources of sweet at the national level might help our current unfavorable balance of payments, which feeds the growing national debt. Every little bit would help.

Should you as a homesteader bother keeping bees? It is extra work, the expenses are front-end (getting started, rather than continuing), and the results are often unpredictable (surprising, we like to say).

But most probably what you will end up with will be a very satisfying hobby that may provide as much honey as a family of four can use in a year even with just one hive. You will have a product that was produced locally, perhaps even from plants growing on your own land, from a mix of nectar sources unique to your site, not quite like the flavor and color of honey produced anywhere else. You will end up with a surprisingly versatile and often delicious product that with a little imagination can be used in most applications for which you now use white sugar.

And you can do so knowing that you have contributed to a very Earth-friendly enterprise.

By Jay R. Harmon
5900 Shaftsbury Road
Williamston, MI 48895

Countryside & Small Stock Journal, Nov/Dec 1995

Fluvalinate-resistant Varroa in Minnesota

Recently Minnesota State Apiarist, Blane White, reported that fluvalinate-resistant Varroa mites have been discovered in Minnesota. Blane relates the story as follows: "One of my inspectors had found an outfit where the beekeeper had inserted new Apistan strips three weeks before inspection. All the colonies had very high varroa levels with ether roll tests showing 20-25 mites per test. Varroa were observed on adult bees and running on the combs and the brood was heavily damaged by the mites. Last week a crew from the USDA Weslaco Bee Lab confirmed fluvalinate resistance in the varroa from these colonies. The bee outfit is migratory (winters in California) and the beekeeper coordinates pollination work for several other Minnesota commercial beekeepers. So the potential exposure is upwards of 15,000 colonies. At present it appears that most of the other beekeepers have not been hit as hard and Apistan appears to be working in most yards, but some have mites that are not being controlled by Apistan.

This is the first confirmed fluvalinate resistance in Minnesota at this time does not appear to be linked to Florida. This does suggest that resistance is developing in several places simply due to the

length of time we have been using fluvalinate with no alternative treatment."

The Buzz, November, 1998
Iowa Honey Producers Association Newsletter

Recovering Bees From Trees – A Safe Method

I want to address this article to beginning beekeepers as well as hobby beekeepers. It was in the fall of 1938, when I was 16 years old, my father had found a large hollow tree in the woods. It had a very large swarm of bees in it. My father was not a beekeeper, but if you found a bee tree, you found a treasure. Then you made plans to recover the sweet gold. We gathered our axes, crosscut



saws and lanterns and went into the woods shortly after dark. The first thing was to build a bon fire and start cutting the tree. As the tree was felled the hollow tree split wide open and bees began to fill the air. The idea was to have the bees fly to the light of the fire to be burned as they fell into the fire. We did not have any protection and received many stings. We were rewarded with two wash tubs full of honey!

The reason for my writing this article is to tell you every thing we did was the wrong approach. After 50 years of beekeeping I have learned that I could recover the bees and the honey without destroying the tree or the bees. I learned the recovery principal at one of the NE KS beekeepers meeting many years ago. The principle is to trap the bees out of the tree or building where they are.

The first thing you must make sure of is that the bees have only one entrance. The trap is made of a cone-shaped screen approximately 2 feet long with the small end of the cone with a hole only ½ inch in diameter and the large end fastened to the entrance. This allows the bees to exit the hive. As the bees return from the field with their load of nectar and pollen they don't do back to the little hole because that is not the entrance to them and they find themselves trapped out.

Before you set your trap you must have a hive body set as near to your entrance as possible. Ideally you should have a queen and some brood in the hive body. As the bees that find themselves trapped out of their original hive they will enter your new hive body and will be accepted as they enter with a load of nectar. After a period of time the original hive (in your tree or building) becomes weakened with only the queen and some attendants left in the hive. At this point in time your new hive has become very strong. Be sure there is not a nectar flow going on and remove your cone shaped trap. The bees from your newly established colony will enter the older weakened hive and rob all of the honey out and take it to their new location. You now have a strong colony at very little cost to you.

What prompted me to write this article is, I am, in the process of removing bees from a tree using this principle. I used a little different approach because I did not have a queen available. I put a frame of brood in expecting the bees to raise a queen. This failed. I tried it a second time and this failed again. I was about to give up, when I was at my work I observed a very small swarm of bees land on a low bush. It was so small I knew it was of no value, then the idea hit me! I then proceeded to recover this small swarm on a shallow frame. I took it to my queenless colony on the side of the tree to introduce them.

The procedure I used was to spray all the bees in the colony and the new queen with Glade evergreen. This causes such a drastic change in the odor of the colony that by the time they recover from this odor change they all smell the same. I have looked in the colony and have found that they have accepted the new queen and she has a new egg laying pattern that looks beautiful. I have not removed my screen trap yet, because the nectar flow is still on and they are not robbing yet.

I am sure other beekeepers have had interesting experiences. I have heard you can learn by experience but it can be more profitable to you, if you can learn from other people's experiences!

Henry Brame
The Bee Buzzer, Oct. '98
NE KS Beekeepers Association

Natural Born Killers

Scientists hope to take the sting out of those dreaded killer bees.

A team of researchers has isolated a gene responsible for the aggressive behavior of Africanized honey bees, which have terrorized people and animals in their slow migration into the southern United States.

Scientists located DNA markers on the chromosomes of the mean bees and compared the genes with those of nonaggressive species. Their research may lead to the origins of a trait that could help "predict the probability of queens having the African version of stinging genes so it will be easier for breeders to avoid using them" says Robert E. Page, an entomologist at the University of California at Davis.

Borrowing techniques from crop genetics, the team ultimately hopes to turn killers into kinder, gentler insects. Bees are essential to honey production, and a third of the food grown in the United States comes from plants pollinated by honeybees. The U.S. Department of Agriculture in 1993 committed nearly \$1.8 million to Africanized bee research, and the current study was funded by the National Institutes of Health.

Killer bees are known to swarm in larger numbers than typical honey bees, releasing a pheromone odor that stimulates the rest of the colony. The odor comes from the stinger itself, which dislodges from the insect's abdomen upon stinging.

Swarms of killer bees are 20 times more likely to sting than normal honey bees and leave eight times as many stingers in a victim in the first 30 seconds, researchers say.

The first fatality attributed to killer bees in this country happened in July 1993, when 82 year old Lino Lopes was stung at his ranch near Rio Grande city, TX. In October of that year, a swarm of 30,000 killer bees terrorized a neighborhood in Peoria, AZ, for nine hours, with three people injured from stings and three dogs killed. Authorities in Mexico, where killer bees concentrate have reported roughly 20 deaths a year since 1986, mostly in areas with poor medical care.

Killer bees were imported to Brazil from Africa more than 40 years ago. The idea was to crossbreed African and South American species to produce a gentle bee with high honey production. African bee colonies can produce five times the honey as their South American cousins. As a result, Brazil rose from 27th to 4th in the world's honey production, according to the U.S. Department of Agriculture.

However, a Brazilian scientist accidentally released some of the captive insects from Africa. The mean bees soon mated with indigenous colonies and their aggressive behavior spread.

They moved into Central America and were documented in Mexico in 1988. Within three years, scientists think, most wild bees in Mexico contained DNA from the African species, and killers were found in California, Texas, New Mexico and Arizona.

Bee stings aren't so much "aggressive" behavior as defensive, says Greg Hunt, an entomologist at Purdue University in Indiana. "Different insects use various methods to protect themselves from predators. Bee stings are a response to predation by mammals — bee venom is specialized for causing pain."

The Tampa (FL) Tribune, May 11, 1998

Toxicity of Insecticides and Miticides to Honey Bees

(From BeeAware Expert System - Appendix II)

(length of residual toxic effects in hours or days)

DO NOT APPLY ON BLOOMING CROPS OR WEEDS

Accothion (fenitrothion) 1-5 days
Actellic (pirimiphosmethyl) > 8 hours
Advantage (carbosulfan) > 3 days
Agrothion (fenitrothion) 1-5 days
aldrin (Aldersan, Aldrex, Astex, HHDN, naldrin, Octalene) > 1 day
Amaze (isofenphos) > 1 day
Ambush (permethrin) 1-2 days *
Ammo (cypermethrin) (more than 0.025 lb/acre) > 3 days
Anthio (formothion)
Asana 1 day *
Avermectin (more than 0.025 lb/acre) 1-3 days
Azodrin (monocrotophos) > 1 day**
Banol (carbanolate)
Baygon (propoxur) 1 day
Baytex (fenthion) 2-3 days
Baythion (phoxim) > 1 day
Baythroid (cyfluthrin) > 1 day
Belmark (fenvalerate) (>0.09

lb/acre)
Bidrin (dicrotophos) 1.5 days
Bladafum (sulfotep)
Bolstar (sulprofos) > 1 day
Bomyl 2 days
Bracklene (dicapthion)
Bromex D, WP (naled) > 1 day
Brigade (bifenthrin) > 1 day

calcium arsenate > 1 day
Capture (bifenthrin) > 1 day
Carbicron (dicrotophos) 1.5 days
chlorthion
Cidial (phenthoate) > 1 day
Ciodrin (crotoxyphos)
Colep
Curater F (carbofuran) 7-14 days
Cyflee (famphur)
Cygon (dimethoate) 3 days
Cymbush (cypermethrin) (0.02
Cynem (thionazin)

Dasanit (fensulfothion) 1 day
DDVP (dichlorvos) > 1 day
Decis (deltamethrin)
diazinon (Diazitol, Basudin) 2 days
Dibrom D or WP (naled) > 1 day
Dicofen (fenitrothion) 1-5 days
dieltron (Dilstan, HEOD) 2 days
Dithiofos (sulfotep)

DNBP (dinoseb) (Basanite, DN-239, DNIBF, DNOSBP, DNSBP, Iyosit) 1 day
DNC or DNOC (dinitrocresol) (>0.4% dilution) > 1 day
Draza (methiocarb) > 3 days
DTMC (aminocarb) > 3 days
Dursban (chlorpyrifos) 4-6 days

Ekalux (quinalphos)
Ekamet (etrimphos) > 2 days
Elgetol (dinitrocresol) (1.5 qt/100 gal or more) > 1 day
Elsan (phenthoate) > 1 day
EPN 1 day
Ethyl Guthion (azinphosethyl)
Ethyl-methyl Guthion

Famophos (famphur)
Fenstan (fenitrothion) 1-5 days
Ficam (bendiocarb) > 1 day
flucythrinate
Folimat (omethoate) > 1 day
Folithion (fenitrothion) 1-5 days
Furadan F (carbofuran) 7-14 days

Gamma-Col (gamma-HCH)
Gammalin (gamma-HCH)
Gammexane (gamma-HCH)
Gardona

(tetrachlorvinphos)(higher rates)
 Garrathion D (carbophenothion) > 1 day
 Gusathion (azinphos-methyl) 2.5 days
 Guthion (azinphos-methyl) 2.5 days

Hamidop (methamidophos) 1 day
 **

HCH (gamma-HCH)
 heptachlor (Velsicol) > 1 day
 heptenophos
 Hostathion (triazophos)

Imidan (phosmet) 1-4 days

Karate (cyhalothrin) > 1 day
 Kilval (vamidothion)
 Knox Out (encapsulated diazinon) > 2 days
 Kotol (gamma-BHC)

Lannate D (methomyl) > 1 day
 lead arsenate > 1 day
 Lebaycid (fenthion) 2-3 days
 lindane > 2 days
 Lorsban (chlorpyrifos) 4-6 days
 malathion D > 1 day
 malathion ULV (8 fl oz/acre or more) 5.5 days (Cythion, Maldison, mercaptothion)
 Matacil (aminocarb) (1 lb/acre or more) > 3 days
 Mesuroil (methiocarb) > 3 days
 methyl parathion
 (Metacide, metaphos, Wofatox) 2 days
 Methyl Trithion (methyl-carbophenothion)
 Monitor (methamidophos) 1 day**
 Murvin 'fifty' (carbaryl) > 3 days

Nemacur P (fenamiphos) > 1 day
 Nemaphos (thionazin)
 Nexagon (bromophos-ethyl) > 1 day
 Nogos (dichlorvos) > 1 day
 Nudrin D (methomyl) > 1 day
 Nuvacron (monocrotophos) > 1 day**
 Nuvan (dichlorvos) > 1 day

Orthene (acephate) > 3 days

Pact (thiantrile) > 1 day
 Paphion (phenthoate) > 1 day
 paraoxon
 parathion
 (Folidol, Fosfex, Thiophos) 1 day
 Pennicap-M (methyl parathion) 5-8 days**
 phosphamidon (Dicron 54 SC, Dimecron, Lirothion) 1-2 days
 Pirimicid (pirimiphos-ethyl) > 1 day
 Pounce (permethrin) 1-2 days*
 Prolate (phosmet) 1-4 days
 Pydrin (fenvalerate) (more than 0.1 lb/acre) 1 day*
 Pyramat

Rebelate (dimethoate) 3 days
 resmethrin
 Ripcord (cypermethrin) (>0.02 lb/acre)
 Rogor (dimethoate) 3 days

Sevin WP (carbaryl) 3-7 days
 Sevin-4-oil (carbaryl) (more than 0.5 lb/acre) > 3 days
 Sevin XLR (carbaryl) (more than 1.5 lb/acre) > 1 day
 Sinox (dinitrocresol) 1 day
 Sinox General (dinoseb) > 1 day
 Soprocide (gamma-BHC)
 Standak (aldicarb sulfone) 1 day
 Stirofos (tetrachlorvinphos) (higher rates)
 Strykol (gamma-BHC)
 Sumithion (fenitrothion) 1-5 days
 Supersevtos (dinoseb) 1 day
 Supracide (methidathion) 1-3 days
 Swat (bomyl) 2 days

Tamaron (methamidophos) 1 day
 **
 Telodrin (isobenzan)
 Temik G (aldicarb) (apply at least 4 weeks before bloom)
 Terracur (fensulfothion) 1 day
 Tiguvon (fenthion) 2-3 days
 TRI-ME (methyl-carbophenothion)
 Trithion D (carbophenothion) > 1 day

Ultracide (methidathion) 1-3 days
 Unden (propoxur) 1 day

Vapona (dichlorvos) > 1 day

Vigon F (dinoseb) 1 day
 Volaton (phoxim) > 1 day

Warbex (famphur)

Yaltos F (carbofuran) 7-14 days

Zectran (mexacarbate) 1-2 days
 Zinophos (thionazin)

* Safened by repellency under arid conditions.

** Can cause serious problem if allowed to drift into vegetable or legume seed crops.

APPLY ONLY DURING LATE EVENING

Avermectin (0.025 lb/acre or less) 8 hours

Belmark (fenvalerate) (< 0.1 lb/acre) 6 hours
 Bromex EC (naled) 16 hours

Dibrom EC (naled) 16 hours
 Dursban ULV (chlorpyrifos) (0.05 lb/acre or less) < 2 hours

Ekatin (thiometon)

malathion EC 2-6 hours

Phosdrin (mevinphos) < 5 hours
 Pydrin (fenvalerate) (< 0.1 lb/acre) 6 hours

Savit (carbaryl) (1.5 lb/acre or less) 8 hours+
 Sevin XLR (carbaryl) (1.5 lb/acre or less) (not > 1:19 dilution) 8 hours+

Thimet EC (phorate) 5 hours
 Thiodan (endosulfan) (more than 0.5 lb/acre) 8 hours
 Tiovel (endosulfan) (more than 0.5 lb/acre) 8 hours

Vydate (oxamyl) (1 lb/acre or more) 8 hours

+These materials are more hazardous to bees in a moist

climate
and under slow-drying conditions

**APPLY ONLY DURING
LATE EVENING, NIGHT,
OR EARLY MORNING.**

Abar (leptophos) < 3 hours
Abate (temephos) 3 hours
Acres (dinobuton) < 2 hours
Acricid (binapacryl)
Afugan (pyrazophos)
Ammo (0.025 lb/acre or less) < 2 hours
Aphox (pirimicarb) < 2 hours
Aramite D
Aspon (propyl thiopyrophosphate) < 2 hours
Asuntol (coumaphos)

Baygon ULV (propoxur) (0.07 lb/acre or less) < 2 hours
Baytex ULV (fenthion) (0.1 lb/acre or less) 2 hours
Biothion (temephos) < 2 hours
Birlane (chlorfenvinphos)
Bladan (TEPP) < 5 hours

Carzol (formetanate) 2 hours
chlordan (octachlor, Octa-Klor, Sydane 25) < 2 hours
Citram (Tetram)
Co-Ral (coumaphos)
Croneton (ethiofencarb) < 4 hours
Curacron (profenofos) < 6 hours
Cymbush (cypermethrin) (< 0.02 lb/acre) < 2 hours

DDT (Deestan, Didi-Col, Didimac, Vitanol) < 4 hours
DDVP MA (dichlorvos)
Delnav (dioxathion) < 2 hours
Derris D (rotenone) < 2 hours
Dessin (dinobuton)
dieldrin G (HEOD) < 2 hours
Dilan
Dimetilane (dimetilan)
Dipterex (trichlorfon) 3-6 hours
Di-Syston EC (disulfoton) 7 hours
DNOC (dinitrocresol) (< 0.4% dilution)
Dyfonate (fonofos) 3 hours
Dylox (trichlorfon) 3-6 hours

Elgetol (dinitrocresol) (1.5 pt/100 gal or less) 2 hours

endrin (nendrin) 2 hours
Eradex (thioquinox)
ethion (diethion, Nialate, Sintox) 3 hours

Fernos (pirimicarb) < 2 hours
Gardona (tetrachlorvinphos) (lower rate) < 2 hours
Garathion
Granulox EC (disulfoton) < 2 hours

heptachlor G (Velsicol) < 2 hours

isodrin
isolan (prinin)
isopropyl-parathion < 2 hours

Korlan (ronnel) 1 day
Kroneton

Labaycid G or MA (fenthion)
Lannate LS (methomyl) 2 hours+
Larvin (thiodicarb) < 2 hours
Lorsban MA, ULV (chlorpyrifos) (0.045 lb/acre)

malathion ULV (3 fl oz/acre or less) 3 hours
Malonoben
Matacil ULV (aminocarb) (2.4 oz/acre or less) < 2 hours
menazon < 2 hours
Metasystox (demeton-S-methyl)
Metasystox-R
(oxydemetonmethyl) < 2 hours
methoxychlor (DMDT, Marlate) 2 hours
MNFA (Nissol)
Mobilawn (dichlorfenthion) 2 hours
Morocide (binapacryl) < 2 hours

Nankor (fenchlorphos)
NDP (propyl thiopyrophosphate)
Neguvon (trichlorfon) 3-6 hours
Nemacide (dichlorfenthion) 2 hours
Niagra 9044 (binapacryl) < 2 hours
Nissol
Nogos MA (dichlorvos)
Nudrin LS (methomyl) 2 hours+
Nuvan MA (dichlorvos)

oil sprays (superior type) < 3 hours

Parsolin EC (disulfoton) 7 hours
Perthane (ethylan) 2 hours
phostex < 2 hours
Phosvel (leptophos) < 3 hours
Pirimor (pirimicarb) < 2 hours
Proxol (trichlorfon) 3-6 hours

Rabon (tetrachlorvinphos)
Rhothane (TDE) 2 hours
Ripcord (cypermethrin) (< 0.02 lb/acre) < 2 hours

Sapecron (chlorfenvinphos) < 2 hours
Saphi-Col, Sayfos (menazon) < 2 hours
Sevin-4-oil (carbaryl) (0.5 lb/acre or less) 2 hours
Shirlan (sabadilla)
Solvigran, Solvirex EC (disulfoton) 7 hours
Supona (chlorfenvinphos) < 2 hours
Syfos (menazon) < 2 hours
Systox (demeton) < 2 hours

TEPP < 5 hours
Thanite (isobornyl thiocyanate) < 3 hours
Thimet G (phorate) < 2 hours
Thiocron (amidithion)
Thiodan (endosulfan) (0.5 lb/acre or less) 2-3 hours
Tiguvon G, MA (fenthion)
Tiovel (endosulfan) (0.5 lb/acre or less) 2-3 hours
Torak (dalifor) < 2 hours
toxaphene (polychlorcamphene, Strobane) 2-4 hours
Tranid
Trigard (cyromazine) < 2 hours
Trithion (carbophenothion) 2-5 hours
Trolene (fenchlorphos)
Tugon (trichlorfon) 3-6 hours

Uden (propoxur) MA

Vapona ULV (dichlorvos) (0.1 lb/acre or less) < 2 hours
Vydate (oxamyl) (0.5 lb/acre or less) 3 hours

Wotexit (trichlorfon) 3-6 hours

Zolone (phosalone) 2 hours

+These materials are more hazardous to bees in a moist climate and under slow drying conditions.

CAN BE APPLIED AT ANY TIME WITH REASONABLE SAFETY TO BEES

Acaraben (chlorobenzilate)
Acaralate (chloropropylate)
Acarol (bromopropylate)
Akar (chlorobenzilate)
Akaritox (tetradifon)
allethrin
Altozar (hydroprene)
Ambush (permethrin)
Apollo (clofentezene)
azocyclotin

BAAM (amitraz)
Bacillus thuringiensis
(Bactospeine, Bactur, Bakthane,
Bug Time, Cekubacilina,
Certan, Dipel, Sok-Bt)
Baygon G (propoxur)
chlorobenzilate
chloropropylate
Chlorparacide (chlorbenside)
Comite (propargite)
CPAS (chlorfensulphide)
CPBS (fenson)
CPCBS (chlorfenson)
Crotthane (dinocap)
Curater G (carbofuran)
Cryolite (fluoride)

Dasanit G (fensulfothion)
Dikar
Dimilin (diflubenzuron)

Dimite (chlorfenethol)
Di-Syston G (disulfoton)
Dithane (mancozeb, maneb, zineb)
DMC (chlorfenethol)
DN-III or DNOCHP (dinex)

fenoxycarb
fluvalinate (Mavrick)
Folbex (chlorobenzilate)
Fundal (chlordimeform)
Furadan G (carbofuran)

Galecron (chlordimeform)
Genite 923 or Genitol 923
Granulox (disulfoton) G

Heliothis polyhedrosis virus
(Elcar)

Karathane (dinocap)
Kelthane (dicofol)
Kepone (chlordecone)
Kroyocide (cryolite)

Largon (diflubenzuron)
Lethane 384 (butoxy
thiocyanodiethyl ether)
lime sulfur
Lovozaal (fenazaflor)

malathion G (Cythion, maldison,
mercaptothion)
Mavrick (fluvalinate)
Micasin (chlorfensulphide)
Milbex (chlorfensulphide-
chlorfenethol)
Mirex G Mitac (amitraz)
Mitox (chlorbenside)
Morestan (oxythioquinox)

Neoron (bromopropylate)
Neotran (oxythane)

nicotine sulfate

Ofatanol (isofenphos)
Omite (propargite)
Ovex, Ovotran (chlorfenson)

Parsolin G (disulfoton)
PCPBS (fenson)
Pentac (dienochlor)
Plictran (cyhexatin)
Pounce (permethrin)
pyrethrum

Qikron (chlorfenethol)

Rospin (chloropropylate)
rotenone EC (Derris)
Ryanodine (ryania)

Savey (hexythiazox)
schradan (OMPA, Pestox III,
System)
Sevin bait G (carbaryl)
Sevin G (carbaryl)
sodium fluosilicate baits
Solvigran or Solvirex G
(disulfoton)
Spur (fluvalinate)
Sulphenone
sulfur

Tedion (tetradifon)
Terracur G (fensulfothion)
thiocyclam

Unden G (propoxur)

Vendex (fenbutatin-oxide)

Yaltox G (carbofuran)