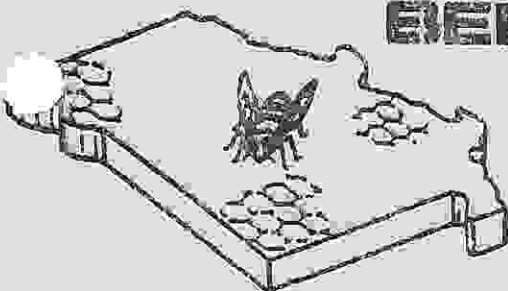


MISSOURI STATE BEEKEEPERS ASSOCIATION



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DECEMBER 1986

NUMBER 4

DEAR BEEKEEPERS,

HAPPY HOLIDAYS AND A BLESSED NEW YEAR!!!

The 1987 officers of the Missouri State Beekeepers Association are

President	Walter Bigelow	(Osceola)
1st Vice President	Dr. Flerney Jones	(Columbia)
2nd Vice President	Joseph Solt	(Bridgeton)
Secretary	Jim Thaxter	(Moberly)
Treasurer	Jim Hausam	(Lincoln)
Editor	Carol Boeckmann	(Kirkwood)
Liaison	Jay Tchtz	(Kirkwood)

Board Members --		
3-year term	Neal Bergman	(Kennett)
2-year term	George Vamarsdall	(Sibley)
1-year term	Clayton Johnson	(Columbia)
Member-at-large	Don Collop	(Mexico)

CONGRATULATIONS to the new and renewed officers!!!

Also thank you to Curt Dennis who served as 1986 President. Your work and time has surely made a difference!!

Thank you to Louis Smith who has served as 2nd Vice President for the past 3 years. It is not an easy task to get together a slate of nominees for each year's election. Thank you for all your work!!

And thank you to Truman Hardin who has ably filled the office of Treasurer since 1980. He has spent countless hours organizing the membership roster, keeping the finances up-to-date, getting the most interest for our money, and handling the slides, films and cookbooks. For a job extremely well-done, thank you!!!

Mr. John Hartman is now handling the slides and films. Any local association or individual wishing to use the sets should contact Mr. Hartman at Rt. 5, Frog Hollow Road, Jefferson City, Mo. 65101. His home phone number is (314) 636-6753.

MISSOURI STATE BEEKEEPERS ASSOCIATION

Executive Board Meeting

This is a report of the Executive Board Meeting held October 10, 1986, in Poplar Bluff. The meeting was opened at 7:00 p.m. by President Curt Dennis.

Ray Nabors introduced speaker Harry Williams who operates a bee disease diagnosis laboratory in Knoxville, Tennessee.

The minutes of the previous meeting were read and approved, as was the treasurer's report.

President Dennis suggested that association officers serve two-year terms with half of them being elected annually, to provide the board with more continuity.

Members made several suggestions for new officers to replace those needing to step down. The proposed slate is as follows: Walt Bigelow, President; Flernoy Jones, First Vice President; Joe Solt, Second Vice President; Jim Thaxter, Secretary; Jim Hausam, Treasurer; Carol Boeckmann, Editor; Jay Tohtz, Liaison; Board Members -- Neal Bergman, three-year term; George Vanarsdall, two-year term; Clayton Johnson, one-year term, Don Collop, member at large.

Truman Hardin suggested the purchase of more film and slide programs and that someone other than the treasurer should handle these.

The President gets requests for honey information and feels that a honey promotion committee is needed to provide this information. He also thanked the people who have been promoting honey at the AgriMissouri workshops.

Mark Russell, Missouri Department of Agriculture, spoke on the AgriMissouri workshops. They create awareness of Missouri products to Missouri consumers. Their proposed budget should be able to extend financial help to commodity organizations.

Jim Hausam reported for the State Fair committee. A profit of \$1064 was made at the 1986 fair. Joe Francka encouraged discussion to improve the number of honey entries in the fair as there was such a poor exhibit in 1986. He said the Missouri State Beekeepers Association could sponsor a central display in the Agriculture Building in 1987. Inter-association competition was discussed. A suggestion was made for each local association to do a program on entering honey for competition, and try to have one person from each local association transport all honey entries from that association. A raffle for prize-winning honey was discussed and referred to the State Fair committee of Jim Hausam, Joe Solt, Jim Thaxter, Truman Hardin, and Charles Wills.

The President commented on the continuing need for uniform guidelines around the state for processing honey. He recommended that members get a health department inspection before putting honey for sale on store shelves.

John Walther reported on a promotion brochure being put together by nutritionists with the Cooperative Extension Service. These should be ready in the near future and will be available to honey producers. John also offered to supply honey for the Governor's Conference on Agriculture.

The fall meeting for 1987 was set for Maryville, date and specific place to be arranged later.

Truman Hardin reported that 1500 more honey cook books have been ordered and that 236 were sold at the 1986 State Fair. Local associations and individuals need to keep up their payment on these books so the treasurer can keep his records in order and pay the bills.

The 1987 Spring Meeting was set to coincide with the spring break at UK-C.

George Vanarsdall reported on the Honey Promotion Board. It represents producers, packers, co-operatives, and importers. Morris Weaver of Texas was the nominee from our zone.

Neal Bergman suggested donating money to the American Honey Producers Association and the American Beekeeping Federation. After some discussion, a motion was made that MSBA contribute \$50 to each of these organizations. This was seconded and passed.

Louis Smith was nominated and approved as Beekeeper of the Year.

This concluded the Friday evening meeting which was the only gathering at which business was conducted for the 1986 fall meeting of the MSBA.

Respectfully submitted,



Jim Thaxter, Secretary

WANTED: PROPOLIS AND/OR HIVE SCRAPPINGS

PROPOLIS U.S.A., Route 8, Ogren Road, Hayward, WI. 54843

Is buying hive scrappings and/or washed propolis. Guaranteed \$2.00/# (plus we pay all freight charges) and \$4.00 to \$6.00/# for washed. Phone 715-634-4274.

MISSOURI STATE BEEKEEPER ASSOCIATION
Financial Report

BALANCE on Hand March 17th, 1986

\$7,259.55

INCOME

Dues - March 17th thro Oct. 1st 233 @ \$3	\$771.00
Ind. 18 @ 4	
Interest - Checking Acct	44.31
Farm and Home M.M.A.	272.25
Book Sale - Fair account	2.00
Cookbook sales 717	2,598.00
Profit - State Fair	1,064.47
Re-imbursment on Fair items including 236 Cookbooks	1,521.88
Transfer from M.M.A.	2,456.42

\$8,730.33

EXPENSES

State Meeting, Columbia	\$208.00
Newsletters	411.30
President	38.00
Treasurer	105.58
Slides and Film - mailing and mileage	107.27
Honey Promotion	72.25
Donation - American Honey Producers	20.00
American Beekeeping Federation	20.00
Cookbooks	5,417.11
Misc. expenses	52.31

\$15,989.88

-- 6,451.82
BALANCE --
Oct. 1st \$9,538.06

ASSETS

Checking account	\$2,468.10
Farm and Home M.M.A.	4,066.66
Inventory - Cookbooks on hand in cartons	2,313.36
Cookbooks on consignment ? ?	729.00 + or -

\$9,577.12

EXPENSES - for comparison	PROGRAMS	NEWS- LETTERS	PRESID.	TREAS.	SLIDES FILM	COOKBOOKS	MISC.	TOTALS
84-85 Oct-March	\$329.20	552.60		77.10	35.89		92.91	\$1087.70
1985 March - Oct.	380.17	581.41	44.00	124.98	336.51		103.50	1676.57
85-86 Oct - March	515.20	468.06	13.33	49.00	54.94	1128.37	250.84	2479.74
1986 March - Oct.	208.00	411.30	38.00	105.58	107.27	5417.11	164.56	6451.82

DUES paid by Associations - March 17th thro October 1st

Boone Regional 2 paid \$6.00 (18)	Mid-Missouri 4 paid \$12.00 (17)
Central Missouri (15)	Missouri Valley 11 paid 33.00
Dallas County 15 paid 45.00	Midwestern 30 paid 90.00 (54)
Eastern Missouri 102 paid 306.00	Ozarks 8 paid 24.00 (13)
Honey Producers 2 paid 6.00 (15)	Ozark Mountain (9)
Jefferson County 19 paid 57.00	Prairie Country (8)
Laclede County 19 paid 57.00 (9)	Southeast Missouri 16 pd 48.00 (13)
Lincoln County 1 paid 3.00 (5)	Two Rivers 4 paid 12.00 (13)
Individuals 18 paid 872.00	TOTAL \$771.00

1986 MISSOURI STATE FAIR HONEY BOOTH

Income:

Total Sales	\$6,120.25
Cost of Sales	<u>4,071.81</u>
Gross Profit	\$2,048.44

Expenses:

Booth Rent	\$350.00
Fair Passes	
(Gate & Auto)	84.00
Sales Tax	338.17
Sedalia Cold Storage	60.00
Meals	41.00
Lodging	100.00
Phone calls	<u>10.80</u>
Total Expenses	938.97

PROFIT

\$1,064.47

The following comparison of the profit over the past 9 years reveals that 1986 was one of the better years.

	1978	1979	1980	1981	1982	1983
PROFIT	1093.11	770.32	957.73	968.92	1509.95	852.44
	1984	1985	1986			
PROFIT	485.55	686.74	1064.47			

CONGRATULATIONS to the Fair Committee - Jim Hausam, Jim Thaxter, and Truman Hardin!! Your hard work and long hours paid off!

THNAK YOU to the following people who worked in the MSBA booth at the State Fair. Without you this would have been impossible!!

Joe Solt . . . Charles Wills . . . Clayton & Louise Johnson . . .
 V.O. Dodge . . . Yvonne Solt . . . Clarence Vogeler . . . Ralph,
 Sue and Kimberly Eads . . . Rich Walther . . . Russell Nelson . . .
 Walt Bigelow . . . Don Collop . . . David Huenfeldt . . . Vernon
 Reynolds . . . Albert Schwendemann . . . Goldie Reynolds . . .
 Jan Hesse . . . Oscar and Nelda Bubach . . . John Walther . . .
 Lloyd White

SPECIAL THANKS to Mr. George VanArsdall who provided the honey for the booth as usual and also loaned his chest freezer for the honey ice cream and a lighted display case for honey displayed at the back of the booth.

The following appeared in the Minnesota Beekeepers Fall 1986 newsletter. It concerns the Tracheal Mite Symposium that was held July 8 and 9.

The following papers were presented at that symposium:

"Observations of the Tracheal Mite in Illinois"
by Killion

"Tracheal Mite Project in La Bonge, Saskatchewan"
by Gruszka and Peer

"Tracheal Mite Project in New York"
by Otis, Grant, Randall and Bath

"Tracheal Mite, Nosema, and Wintered Honey Bee Colonies in Minnesota" by Hyser

"Research Related to the Honey Bee Tracheal Mite
In Southern Texas and Northern Mexico"
by Wilson, Cox and Waki

"Progress on New Detection Methods for Acarapis woodi"
by Ragsdale and Furgala

"ELISA Detection Method for Acarapis woodi"
by Pichter, Royce, Burgett and Krantz

"Research and Control Studies on the Tracheal Mite in
Florida" by Cromroy, Nickerson, Harris and Cutts

"Tracheal Mite Research in North Carolina"
by Mossadegh and Ambrose

"Acarapis woodi Research in Northeastern Mexico"
by Eischen and Dietz

The following are symposium statements of conclusions and recommendations which came from the above papers.

BIOLOGY

Conclusions:

- 1) The general biology of the honey bee tracheal mite under North American conditions is not well understood.

- 2) Natural dispersion (i.e. drifting of bees between apiaries) does not appear to be the principal means of transmission of the honey bee tracheal mite. Domestic management and movement of bees appears to be a much more important means of transmission. (see research by Gruszka and Peer, Hyser, Killion)
- 3) Levels of infestation and therefore the economic importance of the honey bee tracheal mite in North America appear to be greater than what would be predicted from published reports concerning this mite in other parts of the world.

Recommendations:

Research on the honey bee tracheal mite is urgently required to determine the factors in North America which affect fluctuations in the levels of infestation in colonies and in individual bees.

ECONOMIC IMPACT

Conclusions:

- 1) Low levels of colony infestation with honey bee tracheal mite probably cause no immediate economic damage.
- 2) High levels of colony infestation with honey bee tracheal mites can cause significant economic damage. The following examples are cited:
 - a) Decreased brood production
(Gruszka and Peer, Eischen and Dietz, Otis, et.al.)
 - b) Decreased honey production
(Eischen and Dietz)
 - c) Increased winter mortality of colonies
(Hyser, Rostadegh and Ambrose, Otis, et.al.)
 - d) Increased winter mortality of individual bees
(Eischen and Dietz)
 - e) Reduced spring build up of packages
(Gruszka and Peer)

It is noted that the Florida data (Gromroy, et.al) do not support this conclusion.

Recommendations:

Because of the observed negative economic impact of the honey bee tracheal mite it is recommended that appropriate action be taken to contain the spread of this honey bee parasite.

DETECTION

Conclusions:

- 1) Colonies infested with the honey bee tracheal mite show no overt symptoms.
- 2) Significant progress has been made in the development of more efficient detection methods based on serological and chemical detection techniques (see research by Fichter, et.al., Ragsdale and Furgala, and Otis et.al.). Such methods hold promise for subsequent improvement in sampling techniques.

Recommendations:

Further research is needed to continue the development of ELISA and other efficient detection methods and means should be found to make these techniques widely available.

CONTROL

Conclusions:

- 1) Preliminary research indicates promising possibilities for the development of chemical control products for use with honey bee colonies, queens in cages, and package bees. (See research by Cromroy, et.al., Eischen and Dietz, Wilson, et.al.)

Recommendations:

Given the conclusion that the honey bee tracheal mite can cause significant economic damage, research should be continued to provide for the development and registration of chemical control products that are proven to be safe, efficacious and cost effective.

Lastly, it is recommended that all funding agencies (private, state, provincial and federal) be encouraged to increase the resources available to support research in the biology, detection, prevention, and control of the honey bee tracheal mite.

* * * * *

The following is a summary of the Western Apicultural Society Conference 1986 held in Victoria, B.C. It was compiled by Mr. Jim Bach, Assistant Supervisor of the Kent Office of the Department of Agriculture for the State of Washington. It appeared in a recent issue of the Washington Beekeepers newsletter.

I. The Future of North American Beekeeping: A perspective by Dr. Basil Furgala, University of Minnesota. Based upon personal experiences and those of others, the philosophy of beekeeping and assumptions.

- A. Bad news: The African honey bee Apis mellifera scutellata (AHB) will have a significant impact on the bee industry in North America.
- (1) Mexican honey production will drop drastically because of beekeepers getting out of the business.
 - (2) A critical period will be seen in U.S. beekeeping. There will be concerns about imported honey and the polarization of apiarists on the issues of the AHB, tracheal and Varroa mites.
 - (3) Migratory beekeeping will change drastically in the U.S.
 - (a) North-South and back again will probably cease in response to public concerns.
 - (b) Queen and package bees may be produced in the north and shipped south to replenish AHB colonies and to better control mating systems. This is the reverse of what now happens.
 - (c) Public concerns about AHB colonies will be great.
 - (d) Insurance may be difficult to obtain.
 - (4) AHB will create a significant impact because not enough is known about honey bee genetics. "I do not see a break-through on the horizon."
 - (5) One to three million pounds reduction in honey production will occur.
 - (6) One-half million less two-pound packages of bees will be produced.

B. Good news:

- (1) The effect of AHB on Mexico will change the flow of world honey supplies.
- (2) U.S. honey may flow to Mexico in large amounts.
- (3) There will be significant benefits from the U.S. national honey promotion program now underway.
- (4) The U.S. honey consumption will go up while production will go down.

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August 29, 1986

- (5) Northern beekeepers will become more self-sufficient and produce queens and package bees to be sold in the south.
- (6) High-tech certification systems will be developed for state agencies.

SUMMARY: There will be a future of change and opportunity. Perhaps we should repeal the federal "Bee Act" to permit the introduction of new queen stocks from New Zealand and Australia.

Author's note: There are geneticists in the U.S. who feel we have ample supplies of genetic material presently in the U.S. We need to be concerned about the introduction of other pests and diseases and not repeat our historic mistakes, eg. AHB semen and tracheal mites.

II. Africanized Bees: Potential Impact on the U.S. by Dr. Orley, "Chip" Taylor, University of Kansas.

A. Experiences in other countries.

- (1) Wild populations build rapidly and spread rapidly.
- (2) Swarms move into all kinds of places: houses, kitchens, electrical panels, etc.
- (3) Lifelong beekeepers are intimidated by AHB.
- (4) Mortality is relatively small in humans but there has been a high loss of animal life.
- (5) The only real good way to verify AHB is small comb cell size.
- (6) Panama: In the three years since the arrival of AHB, 27,000 swarms have been depopulated.
- (7) French Guiana: 1,000 AHB swarms became 1,500 in sixteen months.
- (8) Swarms forage to fuel up so they can continue to move on - up to 100 miles (European bees move about three miles).

B. Present and future possibilities:

- (1) AHB is known to be 50 miles into Guatemala.
- (2) AHB is "probably" 100 miles north of known boundary.
- (3) "I wouldn't be surprised if Mexico already has the AHB".

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- (4) You have to kill 80% of AHB swarms, queens and colonies in order to reduce AHB population levels.
- (5) We must begin educating the public.
- (6) Much applied research needs to be done.
- (7) There is no reason to expect a reasonable AHB program in Mexico.
- (8) Honey production will drop to 30% of present Mexican levels starting two years from now (1986).

C. Certification programs-future possibilities.

- (1) Improved morphometric measuring procedures.
- (2) Enzymes and isozymes are showing considerable promise.
- (3) Cuticular hydrocarbon measurements with gas chromatography and mass spectrometry need more work.
- (4) Nitrocondrial DNA shows promise but need more work.
- (5) DNA sequencing technology needs to be applied to honey bees.
- (6) Audio systems of identifying queens and AHB colonies needs to be investigated.

SUMMARY: A lot of positive things and changes in the bee industry will come out of AHB experience.

III. Present and Future Trends in Pollination by Dr. Mike Burgett, Oregon State University.

A. AHB effects

- (1) Growers will not tolerate mean or AHB colonies.
- (2) Moving bees for pollination will only be done at night.
- (3) Colony density per set in the fields will be controlled.
- (4) Pallets may become obsolete because one colony will telegraph a disturbance to others.
- (5) Swarming and absconding problems will have to be controlled.

B. Bee colony management systems will need to change.

- (1) Costs will escalate rapidly.
- (2) Pollination fees will go up.
- (3) There may be shortages of colonies available for pollination.

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- IV. A panel discussion on beekeeping extension in the future:
Doug McCutcheon, B.C.; Eric Mussen, University of California;
Dan Mayer, WSU; Cynthia Scott, University of Guelph,
Saskatchewan. This discussion of what we should have learned
from our tracheal mite experience. Suggestions varied from
putting more money into research in Mexico, we should learn
to live with the mite, maybe we shouldn't have instituted
quarantines and we should fund more research in the United
States.
- V. Sex at 14 m.p.h.: Honey Bee Mating Biology by Dr. Orley
Taylor. This was a thorough discussion of the mating biology
of AHB and european bees (EB). Some new information came out
about recent discoveries in the habits of flying drones into
and within congregation areas. Suggestions were made on pos-
sible ways to cope with AHB in the United States to minimize
mating supremacy. There is some recent indication that it
may not take more than two generations to dilute some AHB
characteristics.
- VI. Bees do not live by Honey Alone - Dr. Basil Furgala. Re-
search was presented and interpreted which indicated the
effects resulting from the use of pollen traps on bee hives.
Briefly:
 - (1) Full-time trapping (frost to frost) resulted in signi-
ficant reductions in brood and adult bee production and
honey production. It also results in a higher moisture
content in the honey produced.
 - (2) Part-time pollen trapping (7 days on, 7 days off) re-
sulted in higher moisture content of the honey and de-
creased yields of honey.
 - (3) Relative and actual humidity were not monitored.
 - (4) Nosema levels were below detectable levels.

The following article appeared in a recent issue of the St. Louis Post-Dispatch. It was written by Boyce Rensberger of The Washington Post.

BIOLOGISTS FIGURE OUT BEE NAVIGATION

Two Swiss biologists say they have at last found the answer to the 40-year-old mystery of how bees navigate by the sun's position.

The mystery arose in the 1940s when the pioneering German scientist Karl von Frisch discovered that bees guide their flight from the hive to a distant source of nectar by following a path that diverges by a given angle from the sun's bearing. Von Frisch also found that bees learn the correct angle for a given nectar source when returning bees perform a "waggle dance". The orientation of the dancing bee gives the degree of divergence from the sun's bearing.

Surprisingly, von Frisch found, bees can still do all this on cloudy days, as long as they can see at least a patch of blue sky. He proved that bees rely on the pattern of polarized sunlight, an effect caused by the way sunlight scatters in the atmosphere. The direction of polarization is visible in the blue patch.

But — and this was the mystery — how do bees figure out from this where the sun is and then plot their compass heading? It seemed as if bees were somehow able to perform the calculations of celestial trigonometry or that their brains contain a celestial almanac of all possible directions of polarization.

The Swiss biologists, Samuel Rossel and Ruediger Wehner of the University of Zurich, have found a simpler explanation. Bees' eyes contain specialized light receptor cells that are most sensitive when the polarization is parallel to the axis of the receptor.

The receptors are positioned within the eyes at different angles but in a pattern that corresponds to the polarization pattern of sunlight. To find out where the cloud-hidden sun is, a bee simply flies in a circle until its polarization receptors detect their brightest light. When that happens, the bee is always heading directly away from the sun. It then simply has to make the required compass correction, learned from another bee's waggle dance, and head out.

Rossel and Wehner reported the details of their complex experiments in a recent issue of "Nature". Experiments involved steps such as putting tiny polarizing goggles over bees' eyes, presenting artificially polarized light to bees in closed chambers and recording their waggle dances and observing bees in the wild.

This last approach confirmed the prediction, based on the position of the receptor cells, that bees would make most of their navigational errors when the sun was overhead and be most accurate nearer dawn and dusk.

"Rossel and Wehner's hypothesis has all the hallmarks of being correct," wrote R.C. Hardie, a Cambridge University zoologist commenting in "Nature".

What Are All These Queens About?

By KATHY & RODGER HULTGREN 155 Lovell Rd. Hoboken, Mass. 01526

Spring for many beekeepers is a time to requeen. In looking through the beekeeping journals and magazines, advertisements can be seen for Italian, Caucasian, Carniolan, Buckfast, Mraz, Midnite, Starline and Kona queens. What should one choose? It is the intent of this article to synthesize the literature and examine each queen variety. With this as a guide, beekeepers will be able to make a more educated decision in their queen selection.

Italian

By far the Italian bee enjoys the most popularity in America. The Italian has changed through the years just as all bees do with time. Today's Italian queen varies in her amount of yellow coloring, some possess entire abdomens, some alternate with yellow and black bands while others have their golden abdomens displaying a black tip. Brood development starts in early spring which affords them a large populous that is maintained until fall. They are excellent housekeepers which aids in their control of wax moth and provides them with some resistance to diseases. Aside from being industrious, they are gentle in nature, have a reduced tendency to swarm and are able to adapt to climates with extreme temperatures. On the negative side, they are inclined to drift and have a high honey consumption which requires ample stores for overwintering.

Caucasian

Caucasians are considered the gentlest bee in the world. The abdominal bands of their queens have a wide range in color from yellow and black to grey. Their qualities are their wintering ability, a reduced swarming tendency, adequate hive defense, minimum drifting and the production of beautiful white cappings. The Caucasian colony's strength is slow in building and reaches its peak in mild summer. These bees have a inclination to utilize burr comb frequently. In the fall, the Caucasians build a wall of comb at the hive entrance. This entry is just wide enough for a single bee to pass.

Carniolan

Carniolans are the second most popular bee in America. Their color is consistent, having black bands with greyish rings. The impression of a silver grey appearance is given due to their short dense hair. Gentleness, excellence in breeding, reduced robbing tendencies and adaptability with respect to cold winters are their chief attributes. Brood rearing has been found directly related to the availability of pollen which can pose a problem. Carniolans are often employed in comb honey production for they utilize little propolis, are diligent workers and produce clean white cappings. It should be noted that these bees have a propensity to build numerous queen cells and will swarm in as well as out of season.

Buckfast

Brother Adam of Buckfast Abbey, England has had a primary goal to create a bee which would produce a maximum crop with a minimum effort and time on the part of the beekeeper. To achieve this end, he focused on industriousness, resistance to disease/good housekeeping tendencies, disinclination to swarm and fecundity as paramount qualities to be fostered. He evaluated the Italian bee of 1915 and the old native English bee and selected from amongst them the specific bees which best emulated his desired characteristics. The pure strain of each variety became the breeding stock for his crossbred Buckfast queen. In 1968, Weaver Apiaries in Navasota, Texas became and still is the sole licensed producer of Buckfast Queens in North America. In comparing prices for queens, one notes that the Buckfasts are higher. This is due to the fact that a royalty is still paid to Brother Adam upon each sale.

Buckfast queens vary in their color often times favoring the dark Italian bee. They are noted for being prolific, having an early spring brood buildup and produce industrious workers. The building of swarm cells as well as the use of propolis is minimal. Their other qualities are their gentle temperament

and the ability to adapt to various climates, especially those with damp cold winters. Sugden and Furgala's Minnesota study of commercial honeybee stocks found the rate of survival for Buckfast queens after two years to be at an 87% level.

Mraz

Charles Mraz of Middlebury, Vermont began his quest for a bee having the same ultimate goal of Brother Adam which is to have a bee that produces the most honey with minimal beekeeper involvement. The Vermont Italian bee of 1928 provided him with his basal characteristics for his future Mraz queens. Using a trial and error process, other Italians, Caucasians and Carniolans from various locales were tested for desirable qualities. When substantiated evidence was found for improvement, these strains and races were blended with the original Italian stock of 1928. This accounts for the variability in the Mraz queen's coloring which ranges from all black to leather shades.

At this time, twenty various apiary sites containing approximately 1,000 colonies provide a pool from which a yearly selection is made. The queens which best exhibit Mr. Mraz's goal have their queen cells raised, mated and shipped to the Southern breeders. These queens then undergo a second screening which determines the queens that will be utilized for breeding. Said process is conducted on an annual basis.

Mraz queens have an early spring buildup and a survival rate of 73% after two years as noted in Sugden and Furgala's study. Their offspring are found to be diligent honey gatherers with a tendency to swarm. Appropriate management procedures need to be employed to curb this instinct. Sugden and Furgala's study detected an aggressive temperament during a nectar flow which was not at a significant level but reached in their comparative study during 1979 and

Continued On Next Page

Continued from previous page

1980. One must comment that this conclusion while valid at the time of the study needs to be reassessed due to the procedural steps employed by Mraz in selecting his breeders. The breeders, as you recall, are selected annually and the present day stock may or not possess this particular trait.

Hybrid

Hybrids were the outcome of the scientific endeavors of the Apiculture Research Branch of the U.S. Department of Agriculture. These particular bees are the result of four way crosses. In order to produce breeding stock, two selected strains are artificially inseminated to produce the needed drones (males) and queens (females). The resultant sexes have their final cross made through the natural mating process. These hybrids possess a characteristic called hybrid vigor which manifests itself in the offspring being healthier and having more stamina than their parents. Purchased queens for requeening rather than natural replacements are needed when working with hybrids. The reason for this approach is that daughter queens lose their hybrid vigor and an aggressive bee evolves.

Starline

The main intent for developing this Italian hybrid was to provide a bee which was gentle in nature, resistant to diseases and able to produce a superior honey crop. In appearance, Starlines resemble their Italian inbred lines having yellow coloring with dark stripes. They have an early strong spring buildup which when coupled with an intense honey flow allows them to perform to their maximum potential.

Other attributable characteristics are their industriousness, calmness on the comb and a disinclination to swarm. Sugden and Furgala established an 80% survival rate for Starline queens after two years and rated Starlin, Buckfast and Mraz as superior honey producers.

Midnite

Midnites were originated for the beginner and the hobbyist beekeeper. They are the result of a four way cross of inbred Caucasian lines. These bees are dark and have a gray black ap-

pearance. Midnites are very gentle winter well and have a slow spring buildup. They are suited to an area whose honey flow is long in duration but not intense. Their major drawback is the moderate/excessive use of propolis. In summer, it is common to observe a curtain of propolis on the lower entrance. The two year comparative study of Sugden and Furgala observed a low productivity level in the Midnites. This might be indicative that Midnites are not suited for Minnesota and would perform favorably in the same study in a different locale. The survival rate of Midnite queens tied that of Buckfast at the 87% level in said study.

Kona

Gus and Elmarie Rouse own and manage the Kona Queen Company in Hawaii which was founded in 1976 with the assistance of the Power Apiaries and the Weaver Apiaries. The main focal point in their queen rearing program is to provide queens which have diligent workers that produce maximum honey crops. The Kona Queen Company is located on the Big Island of Hawaii and has the volcanic mountains to protect their mating yards from adverse weather conditions. In this locale one can find even a mild honey flow in mild winter. Being surrounded by 2,000 miles of water, in a mile-free environment with stringent import controls insures the protection of this isolated locale from tracheal mites, varroa mites and African bees. During the first five years of operation, the Kona Queen Company experienced some difficulty in their mating yards. Their queens were initially mating with the island's wild bees which were descendants of the German black bee. The crossbred queens which resulted were aggressive and of poor quality. Since this time, the drone program and mating yards have undergone new management procedures which have corrected and now safeguard against such future incidents. Kona queens are from Italian stock with their queen mothers coming from Power's apiary and from the Kona queens in Hawaii. Selection is based on the best honey producers from both apiaries. Further consideration is given for disease resistance, size of the queen and her offspring, the lightness of the queen's brood pattern and the colony's

temperament under varying weather conditions. Kona queens have a range in their band coloring from light to dark yellow. When stimulated they will expand their brood nest and will curtail their laying in the fall. This variety always stores honey in their brood nest which eliminates the need for feeding during periods of inclement weather with the climate conditions of Hawaii. These queens are available as early as mid-February and as late as mid-December.

Conclusion

This article has examined the positive and negative aspects of these queens but which one is rated the best, each beekeeper must decide. Each location varies in its weather conditions and honey flows; while each beekeeper varies in his management techniques and goals. In order to make an objective decision one needs to establish colonies headed by different queens and even queens from different breeders. The beekeeper then needs to conduct a comparison of these colonies over 2, 3 or 5 years on such factors as wintering ability, brood rearing characteristics, temperament, swarming tendencies, disease resistance, queen longevity, honey crops etc. If any of our readers have kept such records as described we would be interested in hearing from you and will report these findings in a future article.

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"To have bees in one's bonnet"

To be slightly daft or crazed. The original saying, which dates at least to the 16th century, was "to have a head full of bees" or "to have bees in the head or in the brain." That association of craziness with bees humming in the head undoubtedly antedates that period, for the expression is recorded by John Heywood, in 1546, in his "Dialogue conteining the number in effect of all the prouerbes in the Englishe tongue", though no earlier quotation has been found. According to Apperson, the poet, Robert Herrick was the person who introduced the bonnet into the expression. This was found in Herrick's "Mad Maid's Song", written in 1648: "Ah! woe is mee, woe, woe is mee, Alack and well-a-day! For pittie, sir, find out that bee, Which bore my love away. I'll seek him in your bonnet brave, I'll seek him in your eyes."

Taken from A Hog On Ice And Other Curious Expressions by Charles Earle Funk, Litt.D. (Harper & Row, Publishers, New York) 1948, pg. 114.

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