Missouri State Beekeepers Association January 1999

President's Column

As I write this, the ground is covered with snow and ice, but the bees are cozy warm in there hives, with plenty of stores (hopefully) and we are spending the evenings making new equipment or repairing the old. During this time we should also be planning our beekeeping year. Are you going to expand and start new colonies, do you need to order queens, packages or nucs? If so, you need to be placing your order. New beekeepers should be reading books and attending a Beginning Beekeepers Class.

MSBA will be getting ready for the year, also. Now is the time for all members to plan on giving the association a little of their time. (Remember, a volunteer association is only as strong and good as its volunteer workers.) Probably our biggest project this year will be the makeover of the fair booth on the fair grounds. Much help will be needed in this project.

Please read the Honey Analog article in this newsletter, if "imitation" honey gets a foot in door, it will present a problem for all U.S. honey producers. I cannot agree with adulterating a natural food product such as honey with an artificially produced product. Read the article and discuss it with other beekeepers and lit our Honey Hoard representatives, Sharon & Glenn know how you feel about it.

Our March meeting is all set; Larry and his committee are doing a fine job, considering the Moberly Community College canceled our reservation earlier this month and Larry had to scramble to find us another meeting place. Let's all work to have a record turnout, to hear our speakers, (as you noticed we will be having two programs going on at the same time, so we will have something for everyone) and support the vendors.

Jan

Honey of a Verse

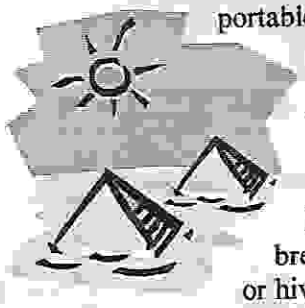
She found me roots of relish sweet,
And honey wild, and manna dew,
And sure in language strange she said-
"I love thee true."

IV. LA BELLE DAME SANA MERCI
John Keats. 1884

A Bit of History

Pam Brown, Editor

Before people learned how to keep bees in artficial hives, honey was collected from the wild, often destroying the bees and their nests in the process. The honeybee's natural habitat of a hollow tree was sometimes moved to a settlement by sawing it into a portable size and setting it up as an early version of a domestic beehive. Even then, the bees were generally sacrificed for the honey. The early Egyptians learned how to breed bees in artificial nests or hives made from interwoven twigs and reeds and baked mud. These were shaped like long cylinders and stacked together horizontally with the gaps between them filled with clay. Both the Greeks and Romans used cylindrical hives, made not only from clay, but also of many different materials such as woven wattle, dung, cork bark, wood or logs. Horizontal hives are still used in



many less developed areas of the world today, such as parts of Africa and South America.

NOTE: Those of you that viewed Ray Nabor's slides from his trip to Egypt, saw an example of the cylindrical hives.

For Your Funny Bone

Riddles

Q: Why do bees hum?
A: Because they don't know the words.

Q: When do bees fly with their legs crossed?
A: When they can't find the BP station.

Q: What did the queen bee and the drone do before they flew away from the hive?
A: They hired a bee bee sitter.

Q: What goes "Zzub, zzub?"
A: A bee flying backwards.

Q: What grade did the students get on their pollination experiment?
A: They all got B's.

Q: What does a bee use to brush her hair?
A: She uses a honeycomb.

Director's Digest

Sharon Waddell, West Plains, MO, Directorship Expires 1999

What does a new director write when asked to do a column?? Do you write about yourself? Do you write about what beekeepers should be doing during winter months? Should you try and write something profound? Do you follow along the lines of what other directors did when writing this column? The only problem is that this is a new feature of the Missouri State Beekeepers Bulletin. What a quandary.

So, I suppose I will start by telling you something about myself. I have been involved in most facets of beekeeping starting out as a beekeeper's wife. We bought our first two hives twenty years ago from a local beekeeper who worked with us the first two years. Rather quickly we found out there wasn't a local source for supplies. Consequently, two short years after becoming a "beekeeper", I started selling bee supplies to local beekeepers from our garage, a facet I'm still involved in. Not too long after that I found myself promoted to head beekeeper with twenty-seven hives to manage. I quickly learned that all I had read in books or by watching others work bees didn't approximate the real thing. In 1989, beekeeping became a real challenge when the Varroa Mites were found locally. Because of contacts with the State Department of Agr., I became involved with a survey mapping the spread of the Varroa Mite locally and the distribution of what was then Section 18 pesticide strips (Apistan® had not yet been approved for treatment of mites). This led to becom-ing a state bee inspector, a position I still hold, though currently I have not been active in performing. Also, with the advent of the Varroa Mite, I became instrumental in reestablishing our local club and have served as president and vice president. I am also a member of the North Central Arkansas Beekeepers Association, Mt. Home, Arkansas.

My prime focus in beekeeping the last few years has been working with new beekeepers. As the "old timers" and/or "behaviors" refused to invest in keeping their hives alive by treating with Apistan® and as the feral bees died out, the shortage of bees and their value became obvious to many in this area. As a result, there has been a resurgence in beginning

which have extensive cane crushing capacities of over 25,000 metric tons/day spread over five locations in India, Vietnam & Nepal.

The group company Dhampur Invertos Ltd is involved in making specialty sugars - both liquid & crystal form & Honey-analogs. We have been supplying processors all over the world especially Russia, Middle East and Canada for blending with natural honey. The characteristic of the honey-analog is that it is enzymatically processed in our automatic plant enroute the same way as bees process it naturally. After extensive Research & Development, we could develop a product which has same physical and chemical composition and properties as natural honey. This was primarily done to meet the growing demand for honey and to make its processing more cost effective. Our honey-analog passes all chemical tests for natural honey and generally processors blend it with natural honey in the ration of 1:1. We have a huge plant in India with a capacity of 13,300 T.P.Y. so we can easily cater to bulk orders.

We understand that you are processing honey in a big way. Should you be interested in our product, we would be only too glad to be of service to you. For any techno queries, you may contact us at the following numbers. Phone, fax and e-mail numbers were listed.

E-Mail Messages

Note: These e-mail messages do not necessarily represent the opinions of the editor or the MSBA. but have been received by me and are published for your information, laugh, or to just "raise your blood pressure".

Yard Rent

One quick comment on yard rental. I refuse to negotiate to place my bees on someones land. I have a number of out yards. I always give the landowner a "gift" of honey each year. The amount usually depends on the yield for the year, but I decide how much. The minute the landowner thinks I "owe" him honey, the bees are gone. The landowner is getting the benefit of pollination. I don't ask for 10 % of the pumpkin yield increase due to the bees. Each year I have to turn away people who want bees on their property and are even willing to pay for them. Unless there is something very special about the site I wouldn't pay to put bees there. I understand I only have between 40 and 50 colonies, and a large operation would view this different, but for the small operator there are enough landowners out there who know the value of bees. You shouldn't pay for the use of their land. Just for the record, I usually give the landowner between 5 and 10 lbs, and all sites have 10 colonies or less. I do give them the honey that was produced on their land. They are always excited about that. There really are people out there who value us for what we and our bees do.

Ron Bogansky
Milk & Honey Farm
Kutztown, PA USA

Mites

Recently attended a seminar by Dr. Gary Needham from Ohio State. He is an acarologist - i.e. works on mites/ticks and things with eight legs that damage other things (whose names I cannot remember).

It was a very interesting talk and I strongly recommend bee groups to get him to talk about their work.

He mentioned their work on Crisco patties. Apparently it was found that a female tracheal mite crawls out of the bee when it senses things are getting a bit over crowded. It then lands on a protrusion on the bee and waves it's legs around sensing anything else it touches. It can detect the wax and fat composition of a bees exterior.

From work that was done here at Rhodes it has been shown that a young bee has a very different waxy structure to an old bee. I gather that Gary and friends detected that bees that are on old ones don't pass the grade as good hosts because they don't have the right wax structure.

Nevertheless, if one gives the bees Crisco, they smear it all over themselves, and begin to smell like 'old bees' to the mites. As a result, any mite that comes out of a bee sits and waves it's feet

around until it dies from loss of energy and starvation - none of the host bees smell young enough as a result of interference by Crisco in changing the wax and fat layer!! Quite neat.

Garth Cambray
South Africa

Counterfeit Honey

I attended the SIAL food show in Paris last month as a participant in the National Honey Board booth. The experience was enlightening. This show is billed as the worlds largest food show. I made contact with at least 40 other honey peddlers from all over the world. I also heard about the huge problem of counterfeit honey and the inability to detect the counterfeit honey. I previously did not know this was such a huge problem. When I returned home I got a first hand experience with the problem. I went to the all American Kentucky Fried Chicken shop and ordered a biscuit with honey. I was given a package of something called "Honey Sauce" the ingredient statement included High Fructose Corn Syrup, Sugar, Corn Syrup, and Malt flavoring and coloring.

I pass this information along as a wake up call as to another huge problem plaguing beekeepers in America today.

Bee Alert

<BEENEWS> 1/15 Yesterday the US Food & Drug Agency (FDA) issued an IMPORT ALERT on Imported HONEY. REASON FOR ALERT: During the past several years there have been detentions of imported honey due to adulteration with corn or cane sugars. Details on labs, costs, and contacts included.

IMPORT ALERTS require no special action they just are a way of alerting FDA inspectors of a possible problem or concern, kind of a "bee on the lookout" for adulterated honey.

Andy Nachbaur
California

Recipe

Pecan Biscuits with Honey-Orange Glaze, makes about 16 Biscuits

Glaze Ingredients:
3 Tbs. frozen Orange Juice Concentrate, thawed
2 Tbs. Honey
Biscuit Ingredients:
3 cups All-purpose Flour
3 ½tsp. Baking Powder
2 tsp. Orange Peel, grated
¾ tsp. Baking Soda
¾ tsp. Salt
¼ tsp. ground Ginger
¾ cup unsalted Butter, chilled and cut into 1/2-inch pieces
¾ cup Pecans, finely chopped, divided
1 cup Plain Non-fat Yogurt
3 Tbs. Honey

To prepare the glaze, mix orange juice and honey in a small saucepan over medium-high heat and bring to the boil. Reduce heat and simmer until slightly thickened, about 3 minutes. Set aside while you prepare the biscuits.

With a rack positioned in the center, pre-heat the oven to 425-F degrees. In a large mixing bowl, combine flour, baking powder, orange peel, baking soda, salt, and ginger. Add chilled butter pieces and rub in with freshly cleaned fingertips until the mixture resembles coarse meal. Mix in ½ cup of the chopped pecans.

Whisk yogurt and honey in a small bowl to blend, and add the yogurt mixture into the dry ingredients. Stir with a fork until a moist dough forms.

Turn out the dough onto a lightly floured surface and knead gently just until smooth, about 8 to 10 turns.

Roll out the dough into a 10" diameter round, about ¾ inch thick. Using a 2½ inch round biscuit or cookie cutter, cut out biscuits. Gather scraps and roll out the dough to the same ¾-inch thickness. Cut additional biscuits.

As you cut them, transfer biscuits to a large, ungreased baking sheet. Brush tops of biscuits twice

with the reserved glaze, and sprinkle each with a bit of the remaining $\frac{1}{4}$ cup of chopped pecans.

Bake until they are puffed and golden brown, and a tester inserted into center comes out clean, about 18 minutes. Serve warm.

Your biscuits may be prepared up to 3 days in advance of your meal. Let stand at room temperature, covered. Rewarm in 325-F degree oven for about 5 minutes prior to serving.

Kitchen Staff Tip: The perfect spread for your Pecan Biscuits is a little Cranberry Orange Butter. To prepare, finely chop $\frac{1}{2}$ cup cranberries in a food processor. Add $\frac{1}{2}$ cup softened butter or margarine, $\frac{1}{3}$ cup confectioners' sugar, and $\frac{1}{4}$ teaspoon grated orange rind, and process until the mixture is blended. Place in a small bowl or spoon into a piece of plastic wrap and roll into an 8-inch log. Refrigerate at least an hour until firm, and serve with your meal.

Happy Cooking from
The Cook & Kitchen Staff at Recipe-a-Day!
Submitted by Maynard Grannemann
Missouri Valley Beekeepers

ABF

I returned last night from ABF, but most people are still there as the banquet is tonight. About 600 attended the conference, and I would say the focus was on the hive beetles and how disastrous they are proving to be. An expert on pheromones has been hired already to find an attractant for a trap. I believe he is working out of Gainesville. Thousands and thousands of hives in Florida have already been destroyed. There was a valiant attempt to try and find something that the beetles liked better than bees, wax and honey. They found they had a predilection for cantaloupes, but when the cantaloupes were put in yards where there were still plenty of active hives - the beetles ignored the cantaloupes. As for the potential northern range of the beetles which I am sure all you non-Floridians are interested in, no one can even hazard a guess. They froze larvae at 5 below zero for 10 days and it came out crawling! The news on the Varroa which seemed lost in the hive beetle storm is fairly good. The Russian queens are proving to be quite resistance and will be released to field conditions with 3 beekeepers this summer. Parent stock if all goes well be released to breeders next spring. Coumaphos emergency approval has gone through but only on a non-food basis, which means that no residues will be allowed in wax and honey. The first time any are found, it will be pulled. The whole emphasis of the researchers seems to have dramatically shifted away from chemicals and none of them seem to be too happy with coumaphos. They are emphasizing IPM methods - now - combined with formic acid and essential oils. I also heard second hand, from Nasr of Guelph, what I had heard rumors of before - that the Argentineans got results of 85% varroa kill with formic gel with one treatment and 95% with two treatments. That was good to hear, but, all in all, the bad news of the beetle far outweighed the good news.

Regards Bob Stevens

Pollination

As you recall at the October State Meeting Dr. Nabors presented the problem that Missouri does not have enough pollinators. In light of this fact, I am starting a new column regarding pollination, not only for our information, but so that we can share this problem with the general public.

Pollination Handbook on the Web

Dr. S.E. McGregor's book "Insect Pollination of Cultivated Crop Plants" which is out of print is now available on the Web courtesy of *Bee Culture* magazine at the following address:
http://www.airoot.com/beeculture/book/index.html

The site is organized by groups of plants so it is easy to find the pollination information that you need about 160 different agricultural crops. Some drawings are included, but I do not believe that any photos are used in this format. A bonus is that it loads on your computer quickly. I have tried some websites that take what seems like forever to load.

This book is the most complete pollination guide that I know of for the use of beekeepers and growers

alike. A few years ago cases and cases of these books were thrown away by USDA.

Bob Cox, Iowa State Apiarist
Copied from the December '98 *The Buzz*

Good/Poor Pollination, as Shown by Counting the Seeds in Apples

Each seed that does not get pollinated limits the development of the apple in size, shape and sugar content. Oftentimes the difference between fancy fruit apples which bring top dollar, and the cheap bag apples is three or four seeds.

To check seeds, slice each apple crossways. There are five seed pockets, with two possible seeds in each, making ten possible. Count only fully developed seeds. Do not count obviously withered, or poorly developed seeds. The more seeds (up to ten) means a better pollinated apple.

Seed counts are an important management tool for apple growers to evaluate success of pollination. Some apple varieties are difficult to pollinate. Red Delicious is famous for being hard to pollinate, but seed counts on Empire suggest that this apple's sizing problems may well be due to need for more effective pollination, like it's Delicious parent. Each block and variety should be evaluated by seed counts made at harvest time, with records kept and compared to placement, quantity of hives, hive strength, etc, to aid in decisions for the following season's pollination management.

It suprises me how many growers do not know this simple and basic tool for pollination evaluation. We may also perpetuate false ideas by referring to apples as being "set," when we really should talk about seeds being set. - *As if one bee could visit a blossom and "set" a quality apple!* It requires careful attention to both pollinizers and pollinators, with *multiple* visits by the bee in each blossom, to make the apples that make the money.

Dave & Janice Green

The Inside Story of Feeding Sugar to Bees

The practice of feeding sugar (either dry or as a syrup) is becoming more and more popular with beekeepers. This trend partially rejects the increasing price paid for honey, also the need for extra winter stores due to the paucity of late autumn and early spring nectar sources.

Many beekeepers pour the sugar into the hive, close the lid, then hope for the best. Sometimes when they come back the bees have converted all the sugar into ripened stores. In other hives, maybe an adjacent one, the sugar (either dry or in a syrup) is still in the feeders and could be in various stages of fermentation. It is a strange fact that two hives can appear equal in bee strength, brood and stores, yet one will readily store sugar while the other will not, especially if dry sugar is fed. I wonder if anyone has noticed any correlation between the productivity of a hive and the rate at which it stores sugar? In other words does a hive that produced a good crop of honey, relative to others in the apiary, also store sugar more readily?

What does the bee do with the sugar?
Bees must invert or "digest" the sucrose molecules, before they can assimilate them, as well as reduce the water content. In the ease of dry sugar the bees add a great deal of water to the crystal, more in fact than to concentrated sugar syrups or honey. This will mean the bees have to make extra foraging flights to collect water. Food containing more than 50 per cent or more sugar is diluted first before being ripened. The enzymes (particularly invertase) which are necessary for reducing the sucrose molecules are produced in the hypopharyngeal glands of the adult bees. These are the same glands that first produce royal jelly for feeding larvae and the queen, and are most active in bees aged 5-13 days. From 17 days. onwards during the summer, the glands rapidly shrink in size, and cease producing royal jelly, but the amount and activity of the enzymes secreted is increased. Enzyme production, naturally enough, reaches a peak after three weeks when the worker bees begin foraging. In the winter time bees of all ages have large glands rich in invertase.

Effect of disease on the hypopharyngeal glands
Nosema disease is known to affect the glands of bees and reduce the amount of royal jelly produced. Nosema also affects the levels of protein and amino acids in the blood but it doesn't influence the levels of blood sugar at all.

The effect of enzyme production on honey yields
Some recent research work carried out in Russia suggests that the honey production of a hive could be related to the efficiency of enzyme production by the bees and that this efficiency varied, from hive to hive. Naturally the strongest hives, with bees producing most inverting enzymes also produced the most honey.

Storage of sugars in the body
Bees have the ability to store surplus protein in their fat bodies and also in their blood. However, they do not have any storage organs as such, for sugars. Rather the sugars remain free in the blood and the levels are not regulated as in mammals, but fluctuate markedly according to the diet and activity of the bee. Thus, when a bee first emerges or when it is resting on the comb it has very little sugar in its blood. However, when it is out foraging, blood-sugar levels become very high.

Physiological demands on the bees
Converting sugar into honey and storing it is a very exhausting process, in terms of energy used by the bees. The bees must first produce the enzymes, and secrete them, they must suck up the syrup and invert it, they need to keep the hive temperature high to evaporate excess moisture from the syrup, as well as secrete and manipulate the wax to store the honey in. Let's look at some of the processes involved and see how we can help the bees to be more efficient. In all these considerations timing is reasonably important.

(a) Inverting the sugar
We want to get the sugar inverted and ripened while the maximum number of older bees with active glands are in the hive. These bees are mostly expendable and will not survive long into the winter anyway. Ideally we want a balance between having enough older bees but not too many to consume excess food.

(b) Heating the hive
Bees generate a lot of heat from the sugars they eat. It has been calculated that 60-70% is used to heat the bees, 20% is used to evaporate water, and 10% is used to heat the air, so a significant amount is used solely to evaporate water. And as warm air is able to hold much more moisture than cold air it is to our ad-vantage to feed the sugar before the weather gets excessively cold and damp. The warmer the ambient or surrounding air the less energy the bees need to consume solely to keep themselves warm and evaporate moisture.

(c) Eliminating the water
The energy required for ripening large quantities' of nectar is appreciable; for instance it has been calculated that the elimination of each pound of surplus water involved the wastage of 4-5 ounces of sugar. This is about 25%. Further the actual consumption of honey also releases water as the "water of combustion" plus the 17-18% water naturally in honey, and this too demands energy to get rid of it. This extra water may be as great as one-half to two-thirds of a pound for every pound of honey consumed. Some of this water is lost by evaporation but the great majority is stored temporarily in the rectum then disposed of during cleansing flights. Again the bees should have ample opportunity for flying during the period in which they are ripening sugar stores.

(d) Wax production
One researcher found that one pound of wax can be built into 35000 cells which would hold 22 pound of honey. Other workers have found that it takes somewhere between 6-10 pounds of honey to make one pound of wax. So a significant amount of our original sugar stores are also going to be used up in producing the wax as well as maintaining a high cluster temperature needed to manipulate the wax scales into comb.

(e) Case study
Let's take an example and see just how much of our original sugar we can expect to be converted into sealed stores. Let's feed 4 gallons of 2:1 or 62% white sugar syrup. This will contain 32 pounds of sugar at the rate of 16 pound to the gallon and should weigh in the vicinity of 52 pounds assuming our ripened stores will contain 18% moisture we have to lose 20% water or about 10.4 pounds of water. Now this represents an elimination cost of nearly 3 pounds of sugar, if 4-5 ounces of sugar, are lost per pound of excess water. This sugar itself when consumed by the bees will also release excess water of combustion that will require energy to eliminate. However, that is getting a bit complicated. Now the bees are going to use something like 5-9

pounds of honey at sugar to build enough wax to hold the syrup, although this figure could fluctuate depending on how drawn out the combs were. But from our original 52 pounds of syrup we have lost or used up 10.5 pounds of water, and say 11 pounds of sugar to eliminate the water and produce the wax. This leaves us with about 30.5 pounds of ripened stores. As a rough role of thumb in estimating stores produced from syrup. The final weight of ripened stores in the comb is slightly less than the weight of dry sugar in the original syrup - in our case we could expect about 30 pounds of ripened stores from 32 pounds of sugar.

Recommendations

Don't leave your sugar feeding until too late in the autumn. Feed while: There are plenty of older expendable bees with active glands still present. It is not too cold to secrete wax. It is not too cold or damp for the efficient evaporation of moisture out of the hive. There are still some natural honey stores in the hive. And remember-**"BEES DO NOT FREEZE TO DEATH - THEY STARVE TO DEATH".**

Published in the New Zealand Beekeeper, May 1974, pages 41-43. The author is Murray Reid, who was then Apicultural Advisory Officer, Christchurch

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Getting Started In Beekeeping

Cooperative Extension University of Massachusetts

Getting Started

Honeybees are truly wondrous creatures, and keeping them can be a thoroughly rewarding and enjoyable hobby. Getting started though is not always easy. The path may be simple and straightforward, or it may be strewn with difficulties. To ease your way and to make your introduction to the world of the honey bee as Menjoyable as possible, consider doing the following:

- Find an experienced, successful beekeeper that is willing to help you. Look over his

or her shoulder whenever possible, and ask lots of questions. Recognize, however, that years of experience do not guarantee a beekeeper's competence or success. It may actually be one year of experience many times over. Select your mentor with care.

- There are a number of good books available about beekeeping. Read two or three of the more recent ones. Acquire one or two of the better ones for your own library. Read them and reread them. In selecting your books, realize that beekeeping is generally the same world-wide. There are some national and regional differences, however, in both equipment and methodology. Beginners will do well to stay with books written for their own area. A New Englander, for instance, might not be best served by a book written in California or England.

- Start with new equipment of standard design and dimensions. Used equipment or homemade equipment both have the potential to bring problems that the novice may not be equipped to recognize or handle. Do not experiment the first year. Learn and use basic methods. Then you'll have a basis for comparison if you choose to experiment in future years.

- Do not buy a so-called beginner's outfit until you know the use for each piece of equipment and are sure that you want it. You may find that you are better off making your own selection. A suggested list of equipment follows this section.

- Start with a package of bees rather than with a nucleus hive (a nuc) or an established hive. Once past the initial awe and apprehension, the novice can easily handle and install a package. By its nature a properly bred package is non-aggressive. It is a unit that a beginner can handle and relate to immediately. You will grow in confidence and competence as the colony grows in size.

- Start early enough in the season, but not too early. Late April through early May is appropriate for most of New England, and packages are readily available during this period. Recognize that you may not get a surplus of honey the first year, especially from package bees. The first year is a learning time for the beekeeper and a building time for the bees.

- Join your local beekeepers' association. These groups welcome and encourage beginners. You will find kindred souls there. Beekeeping is much more difficult to learn in isolation, and beekeeper associations are a prime source of information about books and other publications, classes and workshops, and beekeeping events in the area. Many associations hold annual bee schools for beginners. You can usually get information on your local association from the county extension office.

- Subscribe to a beekeeping magazine. They are full of valuable information for beginners.

Basic Equipment

A look through any beekeeping catalog will show an array of equipment and supplies that can be overwhelming to a potential beekeeper. However, the amount of equipment that is actually required during the first year is relatively small. Experience will guide you in subsequent years. In New England most beekeepers use two full-depth hive bodies as their basic unit, with supers (superstructure) added and removed as appropriate during the active season. The following list includes everything needed to maintain one colony for the entire first season.

Complete Two-story Hive

Bottom board with entrance reducer.
Hive bodies (2), full depth, $9\frac{1}{2}$"
Frames (20), full depth, $9\frac{1}{8}$", with wedge top bar and two piece or split bottom bar.
Foundation (20), full depth, 8", wire reinforced.
Support pins (4 per frame) or frame wire and eyelets.

Inner cover, ventilated.
Outer cover, telescoping.

Honey Supers

Super, shallow, 5 1 l/16" or mid-depth.
Frames, (10), shallow, $5\frac{3}{8}$" or mid-depth, $6\frac{1}{4}$"
Foundation, wired, shallow, $4\frac{3}{4}$" or mid-depth, $5\frac{5}{8}$".
Support pins (4 per frame), or frame wire and eyelets.
In the long run you will want at least two or more
Veil and helmet
Feeder (top feeder recommended).

Optional Equipment

Gloves.
Coveralls.
Queen excluder

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Three Types of Varroa

Researchers at the USDA/ARS bee lab in Baton Rouge joined forces with Australian researchers to try to determine if differences noted in pathogenicity of Varria mites in South America, verses those in the U.S., might be related to geographic regions of the mites. Varroa originated is Asia, but like honeybees, there could be various "races" or "subspecies." Analysis of Varroa from various countries revealed that at east three genotypes exists. For the purposes of the report, they are called the Russian, Japanese and Papua New Guinea types. In Brazil, where Varroa seem to cause little or not problems in the colonies, the mites are the Japanese type. In the U.S. and Europe, where Varroa causes significant damage or death to colonies, the Russian type is found. Currently, the Papua type has been found only in New Guinea.

This information has a bearing on Varroa mite resistance breeding programs. Obviously, the mites involved in the programs should be the same mites that are causing the problems. Also, bees that seem to tolerate one type of mite may not be able to tolerate a type that happens to be more pathogenic to them.
A brief report on the study can be found in the Journal of Apicultral Research 37(1):49-51, 1998. The article is "Congruence of RAPD and mitochondria DNA makers in assessing Varroa jacobsoni genotypes," by L. Guzman, T. Rindere, J. Stelzer and D. Anderson.

Originally from ***Apis***,
Florida's beekeeping newsletter and copied from
The Buzz
the Iowa honey producers newsletter

Honey of an Ingredient

Types of Honey

There are two types of honey: comb honey and extracted honey. Comb honey is presented in its original comb or portions thereof. Extracted honey is honey which is removed from the comb and presented in several forms as defined in the USDA Standards for Grades: 1) liquid, 2) crystallized or granulated, or 3) partially crystallized.

Designation of Honey Sources

The source of honey determines many of honey's attributes such as aroma, flavor, color and composition. The following are some honey sources:

Floral – Indicates the primary flowers from which bees gathered nectar to produce the honey.

Non Floral – Indicates sources other than flowers such as extra floral nectaries and honeydew.

Seasonal – Natural mixtures, which

occur in the hive, may be indicated by season, e.g., "spring," "summer," "autumn" honey.

Geographic Origin – The name of an area of production (state, region) may be included, provided the honey has been produced entirely within that area. Blends containing honey of foreign origin must be labeled to indicate their origin(s), in accordance with the Code of Federal Regulations (CFR).

Forms of Honey

Honey is available in many forms. Here are some forms can come in.

Blended Honey – A Homogeneous mixture of two or more honeys differing in floral source, color, flavor, density, or geographic origin.

Crème Honey – Honey physically processed by controlled crystallization to a smooth spreadable consistancy. Also called "creamed," "spun," "whipped," "churned," or "honey fondant."

Crystallized Honey – honey is which part of the natural gluscose content has spontaneously crystallized from solution as the monotydrate. Also caked "granulated honey."

Filtered Honey - honey processed by filtration to remove extraneous solids and pollen grains.

Organic Honey - Honey produced, processed, and packaged in accordance with State and Federal regulations on honey and organic products certified by the State Department of Agriculture, and/or an independent organic farming certification organization.

Pasteurized Honey - Honey which has been heated under time and temperature conditions that destroy spoilage organisms.

Strained Honey - Honey which has been passed through a mesh material to remove particulate material (pieces of wax, propolis, other defects) without removing pollen.

Honey Products

These products do not meet the compositional criteria for honey.

Deionized Honey – A honey product (manufacturing ingredient) which has been processed to remove selected ions.

Deproteinized Honey - A honey product (manufacturing ingredient) which has been removed by appropriate processing.

Dry Honey – Honey from which substantially all of the moisture has been removed, without the use of drying adjuncts and which can be returned to its original state by the addition of water.

Dried/Powdered Honey - A dehydrated honey product (manufacturing ingredient) in which edible drying aids and processing adjuncts have been included to facilitate processing and improve product stability. Dried honey may be reduced to a powder.

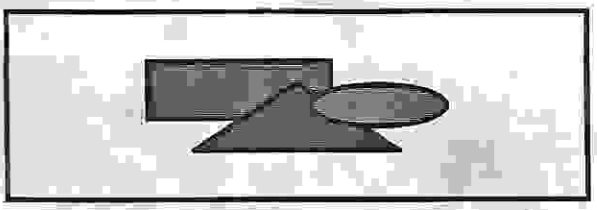
Honey Extract – A natural flavoring product derived entirely from honey by appropriate processes.

Honey Spread - A variety of edible, extremely viscous honey products made from honey or crème honey and sometimes blended with ingredients including fruits, nuts, flavors, spices or margarine but excluding refined sweeteners.

Ultrafiltered Honey - A honey product (manufacturing ingredient) from which all materials not passing a specified membrane pore size less than 0.1 micron under pressure have been removed. Material removed includes most proteins, enzymes and polypeptides. Evaporation required in the processing may also remove some volatile flavor and aroma constituents.

A Bee & Beekeeping Glossary – Stretched to Fit the Alphabet

Write out the alphabet and try to see if you can list a bee or beekeeping term for each letter. If you run into trouble, below is a list of words.



ABC DEF GHI JKL MNO PQR S TU VWX YZ

A

Abscond - When bees leave a hive, usually occurs in spring when populations have increased. The queen and a group of workers will leave, sending scouts ahead to locate a new nest area.

Apiary - A place where bees are kept.

B

Bee Space - The preferred distance between frames in a hive. Approximately 3/8ths of an inch. If frames are too far apart, bees will build burr comb between the frames.

Brood - The offspring of a queen which include all the larvae and developing bees of different ages.

Burr Comb - Comb built at odd angles or affixed to sides or the top of a hive box.

C

Caucasian - A strain of honeybee.

Comb - Wax built into hexagonal cells used for rearing brood, and storage of pollen, nectar and honey.

D

Drone - A male bee. Drones are required for a single mating with the queen. They are allowed in hives but usually thrown out in the fall.

E

Extractor - Used to separate honey from comb. Commonly a centrifuge which holds frames upright; the honey is "spun" out and the comb reused.

F

Foul Brood - A severe bacterial disease of honeybees which is transmitted by spores which can remain dormant on beekeeping equipment.

G

Guard Bees - Hive bees around the age of three weeks become guards and watch the hive entrance only letting in bees that are part of the colony.

Galardia - Scientific name for Indian Blanket, a source of pollen and nectar for bees .

H

Hexagonal - Six-sided, the shape of cells in honeycomb.

Hive - A Langstroth or "Top-Bar" box in which bees establish a colony.

Honeyflow - The peak of honey production, dependant on weather and food availability.

I

Instar - The developmental stages of a bee larva.

Italian Bee - A strain of gentle honeybees.

J

Japanese Honeybees - This strain of honeybee defends a hive against wasps by forming a ball around the invader and raising the internal temperature of the ball to a level that is lethal to the wasp.

K

Killer-bee - The inaccurate name associated with Africanized Honeybees.

L

Langstroth - The movable frame hive box developed by Lorenzo Langstroth, born in Philadelphia in 1810. Langstroth also discovered "bee-space".

Larvae - Baby bees; the developmental stages of a bee from egg to pupae (cocoon).

M

Moisture Level - A major difference between nectar (20% to 40% water) and honey (less than 18% water).

N

Nectar - Sugar solution provided by plants and collected by bees.

Nosema Disease - A honeybee disease caused by a protozoan.

Nurse Bee - A bee at the life stage where she feeds and cares for developing bee larvae.

O

Observation Hive - An upright glass covered hive usually composed of three frames.

P

Pollen - The male reproductive cells of a plant, which provide proteins and nutrients for bees.

Propolis - A sticky plant compound collected by bees and used as a sealant in the hive.

Q

Queen Bee - The mother of all bees in a colony.

Queen Substance - A pheromone (chemical scent) secreted by the queen which is responsible for the social cohesion of a hive. The removal of the queen and her scent is detected by hive residents within 30 minutes.

Queen Right - A colony with a healthy queen in residence. Lack of a queen will cause workers to rear a new queen from a larva of three days old or less.

R

Re-Queen - The practice of replacing the queen in a beehive every year.

Robber Bees - Bees which sneak into weak or dying hives to steal honey or wax

Royal Jelly - A rich nutritive substance fed to the Queen or to a bee less than three days old which will result in it developing into a queen, if the queen has been lost from a colony.

S

Solitary Bees - Bees which do not live in groups. There are 200 species of bee in Central Texas and most are solitary bees.

Sting - An inevitable consequence of beekeeping.

Super - A segment of a Langstroth Hive, a box.

T

Tracheal Mite - A mite which causes weakness or death in infected honeybees.

U

Uncapping - The removal of the wax cover of honey cells prior to extraction.

V

Varroa Mite - An external mite which causes weakness or death in infected bees.

W

Worker - Most of the bees in a hive, they're all females except for drones.

Wax - Produced by wax glands on the "belly" of a bee and used to construct the combs of a beehive.

Wax Moth - A horrible pest of weak hives or stored hive boxes. Very destructive.

X

Xylem - Water conducting vessels of plants, needed for plants to produce nectar for bees.

Y

Yellow-Jacket - A "wanna-bee", this yellow and black stinging insect is sometimes mistaken for a honeybee.

Z

Zea mays - The scientific name for corn, a plant which does not require bee pollination.

Compiled by Carol K. Malcolm February 1997