The Bee Line

The Newsletter of the Oregon State Beekeepers Association

Volume 20, Number 3 April 1995

PRESIDENTS MESSAGE

by George Hansen

I'm writing this while waiting out a rain storm in a California almond orchard. A lot of OSBA planning has been going on in spite of the busy season of pollination. We are well on our way to a Field Day during the last part of May at the OSU Bee Lab. The summer picnic will be on the Coast outside of Coos Bay. Marge Ehry is back from the Federation meeting and will have lots of great ideas for our participation in the 1996 American Beekeeping Federation meeting in Portland. Ron Bennett is settling in as the Bee Line editor.

I have made contact with several of the locals and have set dates to visit their regular meetings. It is my goal to visit all the locals at least once this year. I will be in contact with all of you, or you might call and set something up if you have a specific time or topic.

I appreciate the calls that some of you have made to keep in touch, and to give input for the good of the order. I want the OSBA to be visible and responsive. Any input about the newsletter should be made directly to Ron Bennett. He will be especially thankful for articles you might have gleaned from different sources. If we're doing something wrong, or not doing something that we ought to be, be nice, but please speak up.

Most commercial beekeepers are probably slogging their way through a very wet and early spring season. Many have reported bees wintering well, but there are lots that observed dramatic dwindle in January and February. I'm always curious to see how these losses will show up in Dr. Burgett's survey. If even half of what I have heard about colony losses is true, there should be some dramatic figures. But I have long suspected that beekeepers that have had serious losses don't report the true impact, for whatever reason.

The general consensus seems to be that the dwindle is due to tracheal mites. There are a lot of theories, but very few have bothered to have their bees tested before and after various treatment schedule to see what is really happening. The Bee Lab at OSU can help us with testing. I for one have decided to do periodic testing during the year to track tracheal mite counts and to use a much earlier treatment. Doesn't it seem to you that October is too late to get around to doing something about *acarapis*?

This current rainstorm is over, and although there is water standing everywhere, this is the best chance I'm going to get to make some nucs. Last night's wind blew orchard trees down everywhere. Some almond orchards look like they were bulldozed. There will be al lot of almond firewood for sale this Fall, and with the generally poor pollinating weather, there is already talk of the price of nuts going up. An early season means a longer frost period to get through. And the rains have nut growers worried about rot. Crop insurance is fairly common, so farmers I talk to are pretty philosophical about it all. Everybody likes to make big crops, but it looks like they will have to wait a year for the next bonanza.

Here's hoping *El Niño* doesn't wash out our whole season.

From the Editor's Desk

Here comes the second issue of the Bee Line from my keyboard. Seems that the only major mistakes (that anyone caught at any rate) I made were not putting the cost of membership on the membership order form (all you good members already knew it was $15), and not using Dr. Mike's direct telephone number in the Resource Guide.

Seems like some of you had such a good time finding these errors that I think I'll make a few more in each issue to give you something to hunt down! Maybe I'll put George's cellular phone number in his ad or, better yet, randomly change people's phone number in the Resource Guide. Seriously, I welcome your input and if I make an error or omission, PLEASE let me know. I have thick skin (covering my thick body), so don't be shy about calling me to task.

While I'm on the subject of holding people responsible, I would like to ask you to consider the accuracy of all that you read about beekeeping here in this newsletter and in other journals on beekeeping. The old line goes "Q. How can you tell when a

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OSBA members	$ 2.00
Non-members	3.00

(Cont. from Page 1)

beekeeper is lying? A. When his lips move." This is not to mean that beekeepers are any more prone to "lying" than any other profession, but that there is a lot of misinformation and contradicting information published and available on beekeeping. The more you read and talk with beekeepers, the more contradictory information you will gather.

As I mentioned last time, I am only a hobbyist beekeeper and have only been keeping bees for 4 years. Although I am well read and have absorbed a lot of information on bees and beekeeping, I am by no means an expert. So, with that in mind, I have asked none other than Oliver Petty to serve as our "Expert Answerman". If you have questions related to beekeeping and bees, write, e-mail, or call me and I'll have Oliver's answer for you in the next issue of the *Bee Line*.

We have an interesting article in this issue on communication in the hive. Having a background in professional audio and acoustics, I have speculated after listening to the different sounds emitting from the hive and listening to "old beekeeper's tales" of truck noises calming bees, whether bees could "hear". It seemed reasonable to me to question the bee's ability to "see" the dance of a returning scout bee in a pitch black hive. I was left a little curious about sound communication in the hive. I had asked several "experts" if bees could hear and most responded that bees are deaf. Just goes to show you that you can't believe all the "experts" (or didn't ask the right ones).

If they do communicate acoustically, we could have at our disposal a whole new range of tools to manipulate our bees. Look for more on this in upcoming issues.

Yours truly, Ron Bennett

The Brass Girl with Razor Wings did the Hokey Pokey and We All Flew Out

A summary of recent research on the communication dances of honeybees

by Judy Bennett

As beekeepers, we often like to think that we are in tune with our bees, that we are keen observers of bee behavior — and good at manipulating that behavior to the benefit of both man and bee. We are all somewhat mystified at the actions of our "girls" when we sit and watch an observation hive for a period of time; yet we know from experience that hives will react in predictable ways under certain conditions. We know that if we move a hive away when the workers are out, we'll end up with a mass of "lost" bees at the end of the day. We know it doesn't take anytime at all for a newly flowered bush to be covered with busy bees, and we know that the sounds and smells of a hive can communicate a lot to us as beekeepers. But do we know how bees communicate with each other?

There is another class of beekeeper, unconcerned about honey flow and pollination contracts, that is obsessed with that question — the bee behavior entomologist. There is a long tradition of scientific observation of bee behavior. Aristotle noted that bees successfully recruit their hive-mates to work a good food source; Pliny is reported to have had an observation hive with a window made from transparent horn through which he monitored "dancing" bees. But it wasn't until the early 20th century when Karl von Frisch of the University of Munich in Germany began his study of bee communication that the real significance of those bee dances Pliny observed began to be revealed.

In the 1920s, von Frisch published his findings interpreting the symbolism of the dances and documenting predictable dance patterns. He and his researchers found that a bee returning from foraging with news of "good pickin's" followed a recognizable pattern; walking across the vertical sheets of comb tracing out a figure eight and pausing in each loop to shake her body from side to side. Her "recruits" follow attentively and then fly out towards the target. If they like what they find, each of the them dances on their return to the nest, recruiting more and more bees to the food.

It wasn't until 1943 that von Frisch discovered that the direction the bee faced during the waggling run of her dance pointed toward the food source in relation to the sun. If she waggled straight up (12 o'dock), the food could be found in the direction of the sun; if she waggled along at a 10 o'dock angle, the food lay on an axis 60 degrees to the left of the sun, and so on. He also noticed that the speed in which the dancer completed her figure eight circuit corresponded to the distance between the hive and the nectar source - the faster the pace the closer the food. These observations proved so precise that von Frisch and his team could watch a dance, stopwatch in hand, decipher the meaning and locate the supply of food!

But several questions remained unanswered. Did this "dance" phenomenon truly function as a language? In a dark hive, how did the bees "see" the dance? How much was coincidence, and how much could really be interpreted as significant communication?

Twenty years after von Frisch published his findings, two researchers, Adrian Wenner at the University of Michigan and Harald Esch at the University of Munich, independently discovered that dancing bees make sounds (undetectable to the human ear without extreme amplification) during their waggling dance. They both thought that these sounds might help the dancer to attract an audience in the dark hive. This challenged the commonly held belief that bees could not hear airborne sounds, but it was generally acknowledged that many insects were very sensitive to vibration. Perhaps the bees were feeling the vibration of the dance through the comb under their feet.

Wolfgang Kirchner from the University of Wurzburg in Germany and Axel Michelsen of Odense University in Denmark finally answered part of the vibration question. Their experiments aimed a laser beam at the comb and monitored minute changes in the light reflected from the comb, enabling them to document vibrations without having to actually touch the comb. They found that the dancing bee does not rattle the comb, but sometimes the atten-

dant bees emit a short squeak by pressing their thoraxes against the comb which signals the dancer to stop and disgorge small tastes of the food so that her audience knows the smell and taste of the food as well as the direction and distance.

Great as these discoveries were, they still did not answer the questions whether or not honeybees actually hear the sounds a forager makes during her waggling run across the comb. Kirschner and Michelsen proceeded to discover that the forager made the dance sounds by beating her wings while the attendants were very close to her. Some insects do not respond to sound pressures as human ears do, but instead react to the oscillation of nearby air molecules. This meant that further study was needed to gauge both the pressure changes and the air-particle movements near the dancer. They found that the pressure changes when the dancer beats her wings were very small, but the air movements were significant within a few millimeters. They concluded that if the dancing forager transmits sound signals through the air, and the attendants communicate with her by vibrating the comb, they do not drown each other out.

Experiments proceeded to test these hypothesis of bee communication. Kirschner and Kathrin Sommer in Germany changed the dance sounds by dipping the dancers wings slightly. Shorter wings have a smaller vibrating surface and produce sound with a higher pitch and smaller amplitude. The bees with dipped wings continued to forage and dance normally, but they could not communicate to their sisters in the hive. (A mutant strain of bees with congenitally short wings cannot communicate to recruit at all.) Sommer studied a mixed hive with both normal and mutant "diminutive wings" and found that short-wing bees can be recruited as well as normal bees, but they cannot communicate to recruit either normal or mutant workers.

In another series of experiments, Kirschner and Michelsen used a robotic bee that could not only make the correct movements, but make the correct sounds as well. (Other experimenters had used mechanical bees without the sounds and failed to communicate.) Their computer controlled model bee was fashioned from brass and coated with a thin layer of beeswax. Wings were cut from a razor blade and rigged so that an operating mechanism could vibrate them on command by a wire connecting them to an electromagnet. The model rotated by means of a thin rod attached to the back, and was controlled by a step motor to steer the rotations during the figure-eight dance and make the model waggle from side to side. A thin plastic tube ending near the models "head" delivered food samples from a syringe controlled by another step motor, and everything was tied into a desktop computer which controlled all the motors and directed the dance.

The model was scented and its sample of sugar water was given a faint floral fragrance, then bait that gave off trace amounts of the same odor were placed in the field. At each bait location, an observer recorded the approach of searching bees. The results showed repeatedly that the mechanical dancing bee could recruit live bees, accurately directing them to the exact location of the bait. Additional experiments were designed to determine the importance of various aspects of the dance. The findings showed that all of the elements; dance, sound (wing vibration), and the food sample were necessary of for complete transfer of information and successful recruitment of live bees.

Kirchner and Michelsen's model bee showed that von Frisch was correct about the function of the bee dance in communicating in the hive. Their results would seem to refute some persistent arguments against von Frisch by researchers who have believed that the recruits depend solely on odors to find feeding sights - the dance coordinates representing correlations only and not accurate signals. The tests with the model bee made it possible to determine which components of the dance language represent what kinds of instructions. Did this answer the questions of the dance of the bees once and for all?

Lots of experiments have been done to try to confuse bees. Von Frisch found that by laying a hive on its

side the dancer could not use gravity to orient the direction of her waggling run and the attendant bees could not interpret her actions correctly. James Gould of Princeton took a shot at disproving the hypothesis that bees rely solely (or even primarily) on odor to find a food source. By placing a bright light in the hive which the dance followers mistook for the sun, the bees would misinterpret the dance. Misdirected bees would search the field using the misaligned dance information and ignore other cues such as odor.

This dance language is clearly a complicated and highly developed form of communication. The honeybee's closest relatives in the insect world - bumblebees and stingless bees do not seem to share this symbolic language. Bumblebees to not recruit others to a food source, and while many species of stingless bees do recruit, their system of recruitment seems to be very different.

Of the four species of honeybees so far studied, all speak some variant of the dance language, with similar distance and direction codes, but only three of the four species of honeybees produce sounds as they dance. The bee that is silent, the dwarf bee - *A. florea* dances in the open and during the day. Of the sound producing bees, two nest in lightless enclosed areas (our Western bee - *A. mellifera*, the Asian Bee - *A. cerana*), and one, although nesting in the open, dances only at night (the Giant bee - *A. dorsata*). It seems that the dwarf bee is the most primitive of the honeybees, so it is logical that the complicated acoustical communication system evolved from the visual display when other conditions made them develop habits that cut them off from light.

The bee behavior entomologists can finally listen to the bee's language and even communicate in that language a little, but new questions arise. The extent of the sounds the bees may use is unknown, as is their ability to distinguish sounds of different pitch. Scientists will continue to observe and listen, and hope to understand more of their conversation.

How does this help you as beekeepers? Maybe it doesn't, but it may help us all appreciate the complexities of our bees. And maybe it makes you wonder about the beekeepers who claim to sing to their bees to keep them calm.

Reference: The Sensory Basis Of The Honeybee's Dance Language, Wolfgang H. Kirchner and William F. Towne. *Scientific American*, June 1994, Volume 270, Number 6.

A Hive Top Feeder You Can Build

by Chuck Howe,
editor, Connecticut Honey Bee.

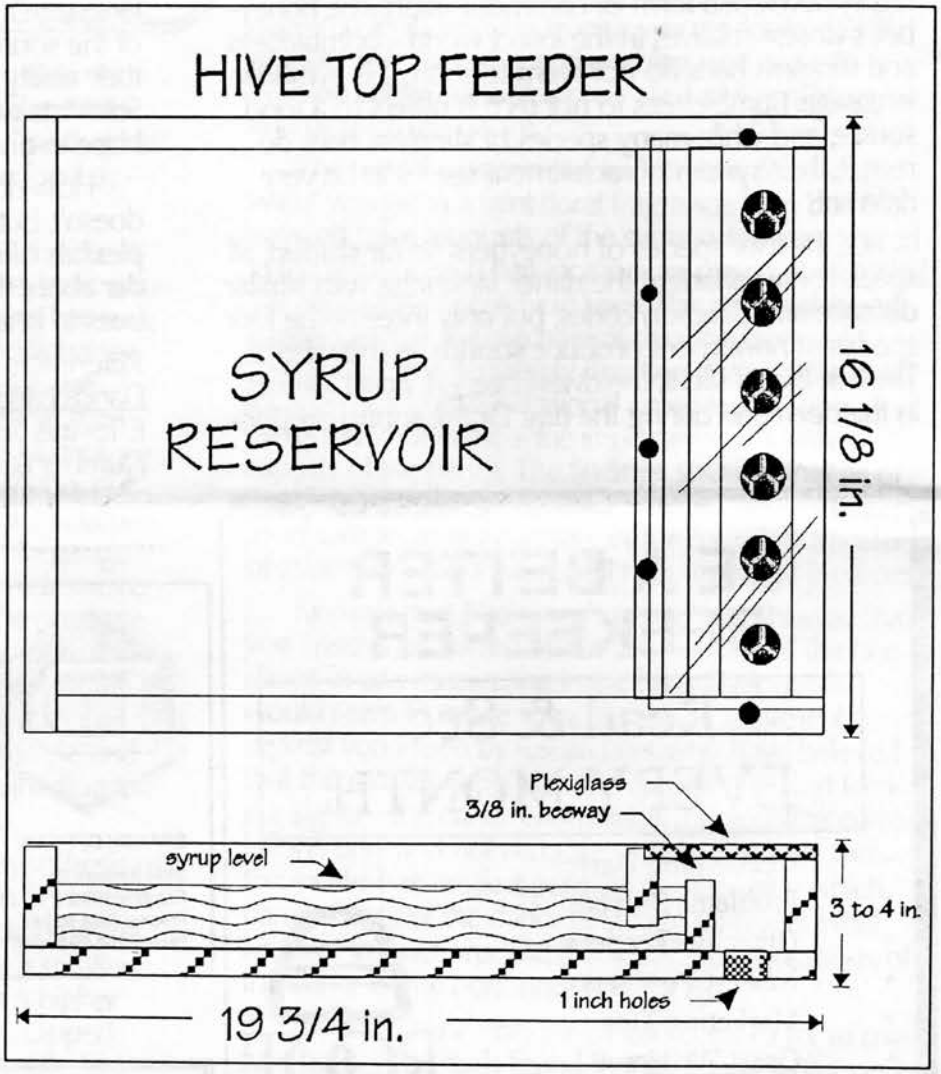
To the right is a drawing of a hive top feeder which I am currently using, and like the best of all the feeders I have used. It is reasonably easy to construct and doesn't require any exotic materials. I thank Ansis Bergs for the inspiration to develop the improvements on some old designs and his skill in making prototypes for trials.

MATERIALS -

Marine or exterior plywood 5/8 in. or 3/4 in.
1 in. by 3 in. board
Nails or screws
Glue
Plexiglass

The bottom of the drawing is a cross section, as if the feeder were cut in half the long way. The top part of the drawing is a view from the top, as if you were looking down on the feeder.

The base of the feeder is cut from a sheet of plywood, all of the rest of the wood pieces are constructed from a 1 X 3 board. All of the wood pieces are glued together as they are nailed, or screwed, to assist in sealing the unit from leaks. The 1 inch holes by which the bees access the sugar syrup should be left for last to help locate them properly. Also the size of the holes may be decreased if there isn't sufficient room for a 1 in. hole.



The plexiglass cover is not mandatory for the feeder to function however, there a few advantages if it is installed. One, as long as the feeder is not empty it can be refilled without the bees flying out at you, or into the cold. Two, you can see the level of the syrup rising in the feeding area and can stop filling before an overflow occurs. Three, the bees are kept warmer in the feeding area, than if it was open to the inner cover or telescoping cover, therefore, the bees will take more feed in the cold weather. A few thumb tacks hold the plexiglass plate down. Also of note, the bees seem to have no difficulty in walking across it to the other side of the feeding area to get a drink.

Reports from the Almond Groves

by Ron Bennett

Well, you have to take the good with the bad. Several commercial beekeepers reported that this year's trip to California for the almond bloom was a mixed bag. The session started two weeks earlier than normal, and the bees were not at their maximum strength. Even with efforts to start the hive growth early, the hives were primarily brood and the bees were at their lowest just as the almonds were getting under way.

In most years, the almond bloom starts on February 20th, but this year it was 2-3 weeks early. This put a lot of pressure on beekeepers to have their hives at strength before they moved out to California.

Some beekeepers felt that our winter, although milder than normal in general did not give the bees any flight time in winter. We did not have as many really cold days, but the almost constant 45°F daytime temperatures were hard on the colonies. Several keepers reported that their hives had a lot of staining on the fronts of the hive, but little sign of Nosema. This might indicate that the bees would hold themselves through the cold days until they had no choice but to fly and relive themselves of very liquid feces.

The trip down to California went well, but for the first 2 weeks, the weather was poor, rain and cold for most of the period. Then, even though the weather reports indicated good weather, the days were foggy and the bees were only getting a few hours of flight time in.

From there, as you all well know, the weather got much worse. This was a major problem for beekeepers trying to service or get their hives out of the groves in the mud and wet. (This is again a reminder to me why I'm not a commercial beekeeper - those guys sure earn their money.)

There were reports of up to 85,000 trees in 10,000 acres of almond trees blown down this year. This may seem to be a huge number except when you consider that the almond grower expect to loose a percentage of the total acres each years to windfalls.

This report makes it sound at first reading like the pollination run was not very good, but all the hives returning were very strong. Beekeepers reported that the hives were full of pollen but light on sugar, indicating that the pollination was good for the growers. This is especially good news considering the weather conditions this year.

The hives are coming back full of pollen and bees, and the early almond bloom helped bees get ahead of schedule. This all bodes well for the cherries and fruits in the Valley and the Hood River pollination cycle. We have strong hives and with the exception of tired beekeepers from dealing with mud, the Spring pollination business is going as well as can be expected with weather being what it is.

BEEKEEPING FIELD DAY

The RUHL BEE SUPPLY, in conjunction with the Portland Beekeepers Association, the Willamette Valley Beekeepers Association, the O.S.B.A, and others is presenting a unique learning experience in beekeeping. One classic problem with bee schools is the lack of hands-on experience. This Beekeeping Field Day gives new and experienced beekeepers a chance to learn from more experienced beekeepers exactly how to keep and manage their bees.

Space is limited and by pre-registration ONLY. Be sure to send in your registration early and mark your calendars.

WHEN: Sat., April 22, from 9:30 am. to 3:00 P.M.

WHERE: Foothills Honey, 30576 Oswalt Road Colton, Oregon (directions, below)

LIMIT: 100 people (Registration by mail. First come, first served)

COST: Free (donation asked for coffee)

WHAT TO BRING: 1. Your lunch. 2. A folding chair, if you want to sit. 3. Full protective gear (overalls, gloves, hat, veil). 4. Your honey and toothpicks, if you want to exhibit it on the "honey tasting" table (label the source, your name and region).

PROGRAM

9:30 - 10:15 a.m. Sign up for workshops on a 'first come, first serve' basis, enjoy coffee and doughnuts, and good conversation with friends from around the state.

10:30 - Noon Minimum of three 20-30 minute workshops (see below).

or

General group activities (tour of the honey house, equipment displays, hands-on practice finding the queen, smoker race and frame building contests).

Noon - 12:45 P.M. Lunch on your own, on site if you wish.

12:45 - 2:30 P.M. Repeat of morning workshops (see below)

or

General group activities (as above)

WORKSHOP 1: Good hive management "working quietly and keeping the bees gentle". (Torey Johnson and Don Eadon)

WORKSHOP 2: Finding and painting the queen, dividing your colony, etc. (Bill Ruhl, Christian De Haze and Chet Hattan)

WORKSHOP 3: Swarm control and Super management. (Dave Gage and Don King)

Tour of extracting room: Shirley Layton

Equipment Display: Lu Alexander

Videotaping: Paul Petty

Registration: Dick Mixer and Charlie Snyder

Directions: Colton is on Highway 211 which runs from Interstate 5 through Molalla to Estacada. The Estacada end of 211 intersects Hwy 224 at the end of town. Stay on Hwy 211 until you reach Colton; Oswalt Road is west of town, on the left.

Coming from Salem, turn east on Hwy 211 at Woodburn, go through Molalla and continue east to Colton. Oswalt Road is west of town, on your right.

To reach Hwy 211 from Oregon City, take Hwy 213 (the Molalla Hwy next to Clackamas Community College) and go south, passing the town of Mulino, to Union Mills Road. Turn left (east) to Hwy 211. Turn left on Hwy 211 and go east to Colton. Oswalt Road is on your right, west of town.

REGISTRATION

(REGISTRATION DEADLINE IS APRIL 8TH)

Mail your request to:

Portland Beekeepers Assn., 17197 S. Hattan Road, Oregon City, OR 97045

Give your name, address and phone number.

For more information or questions, call Rosemary at 631-7313 or Torey at 256-4231.

Apistan Studies

submitted by Joann Olstrom from Eric Munsen, U.C. Davis

Jim Bach, State Apiarist in Washington, ran the following tests on the longevity of Apistan® hive strips.

"Recently I had some Apistan® strips tested by the state chemical laboratory to determine the amount of fluvalinate present on the surface of the strips pre and post use. I supplied the lab with three samples. Number one consisted of ten new strips from a package which was opened last fall. Samples two and three each consisted of ten strips which had been used in treating colonies for 45 days. Strips in sample two were only slightly travel stained by bees. Strips in sample three were slightly more heavily travel stained showing minimal propolis and wax particles. There was only a slight visual difference in the appearance of the strips between samples two and three.

The lab used alcohol swabs to remove available fluvalinate from the surface of the strips, then tested the swabs to determine the amount of fluvalinate retrieved. Sample one (new strips) indicated 809µg (micro grams). Sample two shows 201µg (24.8% of new). Sample three showed 142µg (17.6% of new).

These results may explain the observed reduced effectiveness of Varroa treatments reported by various beekeepers when Apistan strips are reused to treat colonies."

Odd Beekeeping Facts

The *British Beekeeping Journal* of 16 Jan 1902 informs us of one English beekeeper who used his bees to convey messages. He took the bees a long way from their hives and gummed to their wings tiny micro-photographed letters and then set them loose, whereupon they returned directly to their hives, so demonstrating that bees could be used in this way. the idea seems to have been taken up by the Japanese during the Second World War., when bees were employed to carry microscopic documents across enemy lines.

Recipe of the Month

Honey Sesame Dressing

A honey filled quickbread.

A recipe from our friends at the Honey Board, as published in *Sweetened with Honey The Natural Way*.

½	cup	vegetable oil
½	cup	rice vinegar
¼	cup	honey
3	Tbls	toasted sesame seeds
1	Tbls	grated fresh ginger root
1	small	clove garlic, minced
3/4	tsp	sesame oil
1/8	tsp	crushed dried red pepper

Whisk together oil, vinegar and honey in small bowl. Add sesame seeds, ginger root, garlic, sesame oil, red pepper and salt to taste; mix thoroughly. Dressing may be stored in refrigerator, thghtly covered, for up to 1 week.
Makes 1-1/3 cups.

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REGIONAL BRANCH ASSOCIATIONS

Coos County
Meets 7:30 p.m. third Friday (except December)
Coquille Annex, Coquille

President: Gordon W. Starr, 396-4537
Vice president: Steve McGuire, 396-3318
Secretary-treasurer: Pete DeMain, 396-3454

Klamath County
Meeting dates and sites vary.
Call officers:

President: Ken Crow, 882-1893
Vice president: Chet Hamaker, 882-2404

Lane County
Meets 7:30 p.m. second Tues;
Public Employees Credit Union,
1155 Chambers St., Eugene

President: Lee Zigler, 688-5675
Vice president: Dan Miller, 747-7044
Treasurer: Jim Sheridan, 344-1354

Newsletter Ed.: Robin Gage, 746-0808

Portland Area
Meets 7 p.m. second Thurs
Clear Creek Mutual Telephone Co.
18238 S. Fischer Mill Road, Oregon City

Info: Rosemary Marshall, 631-7313

Southern Oregon
Meets 7:30 p.m first Mon.;
Bee Complex, 565 Industrial Circle, White City

President: Stan Kee, 664-3238
Vice pres.: John Campbell, 664-4867
Secretary: Lynne Behrend, 666-3426

Tillamook County
Meets 7 p.m. first Thursday;
Fish & Wildlife Bldg.,
4909 Third St., Tillamook

President: Bob Allen, 322-3819
Vice pres.: Fritz Hoffman, 842-6856
Sec.-treas.: Gregg Cline, 842-6323

Tualatin Valley
Meets 7:30 p.m. second Wed.
PGE Building,
Old Scholls Ferry Road & Murray, Beaverton

President: Chuck Sowers, 636-3127
Vice pres.: Jim Marshall, 642-3319
Secretary: Michael Lau, 591-8864
Treas.: PattiJo Campbell, 690-9341

Willamette Valley
Meets 7:30 p.m fourth Mon.;
Room I02, Building 40,
Chemeketa Community College, Salem

President: Walt Nichol, 585-5705
Vice pres.: Laurence Bower, 743-2398
Secretary: Ron Bennett, 838-2328
Treasurer: Fritz Skirvin, 581-9372

Electronic Resources

As we stumble into the 21st Century, beekeeping is starting to change along with the rest of society. One of the biggest changes in our lives is the information superhighway. In reality, it already exists, in the form of electronic bulletin boards (BBS) and the Internet. Those of you who are already cyberpunks and have computers with modems have probably explored some of the possibilities that are available to you.

One asset that is available and of immediate interest to all beekeepers is a BBS called Wildbees. The number for this board is 209-826-8107 and the settings are 8N1, and it supports 14.4. If you have a computer with a modem, but are not already comfortable with its operation, or the above number make no sense to you, give Ron Bennett a call and he will try to talk you through the basics of modem operation. It's much easier than it seems.

Here follows a very small taste (2%) of just a few of the files of interest to beekeepers available on Wildbees BBS as of February 1995 for downloading. This list is for file area #2, and there are two beekeeping areas and a half a dozen on other topics. Have fun.

File Area # 2 - BEEKEEPERS Interests

ABUPDATE.APR	2k Latest news from Houston, Texas on Africanized bee advance.
ABUZZ.ZIP	2k latest Houston Post article on preparation for Afro. arrival
AFRO-BEE.ZIP	4k newspaper text articles on African bee advance in Texas
AFRICANA.ZIP	7k Bibliography on African Americans in Agriculture. USDA bbs.
AFRO-BEE	1k Info Afro-Bees.
AFRO.ORD	1k THE WORKABLE AFRICANIZED BEE order blank for video.
AGDEMO.ZIP	83k DEMO for Agricultural Cost Accounting program.. big $$$—.
AMBEE.FED	1k Join the American Bee Federation. Mail Form.
APHEALTH.ZIP	3k Apiary Health Plan adopted by American and Calif. Bee Assoc.
ASTRO1.ZIP	62k Good Astrology prog. for moons, sunsets, etc.
AT93-01.ZIP	20k BIBLO. ON NORTH AMERICAN FREE-TRADE AGREEMENT.
BBBSALL.ZIP	11k FILE LIST FROM BEES BBS HOLLAND.
BBITTEN.ZIP	3k Some xpperiences with bee stings.
BEE-AGE.ZIP	11k TIF image w/ true/false questions, art by S.C. Peterson
BEE-BOAT.ZIP	12k TIF image with text
BEE-BSKT.ZIP	11k TIF image with text
BEE-EYES.ZIP	9k TIF image with text
BEE-SPID.ZIP	10k TIF image with text
BEE-SPIT.ZIP	13k TIF image with text
BEE-STOP.ZIP	13k TIF image with text
BEE-WASP.ZIP	15k TIF image with text
BEE.GIF	13k A wild bee Giff, art not photo. [320x200x256]
BEECOUNT.ZIP	16k TIF image with text
BEEEATFL.ZIP	15k TIF image with text
BEEFLWER.ZIP	20k TIF image with text
BEEGIF.ZIP	15k GIF Nice color drawing of a wild bee. From Hugo in Holland.
BEEHEART.ZIP	13k TIF image with text

And the list would go on for six more pages of really small type . . .

NOTICE: Look at your address label. If the membership date code (after your name) is highlighted, your dues are now due or past due. Please remit them as soon as possible to insure that you continue to receive your newsletter.

Membership and Publications

Membership in the Oregon State Beekeepers Association is open to anyone who has an interest in bees and beekeeping. You do not need to own bees or reside in Oregon to join the OSBA. OSBA Membership is $15 per person and includes a vote in all OSBA elections, discounts on other bee-related publications, 10 issues of *The Bee Line*, and more. And, if you are already a member of a local group, your group will receive $1.00 from your OSBA dues. Foreign membership is $23.

Name _____

Address _____

City _____ State _____ Zip _____

Phone _____ Local Group _____

Start your savings now! Get a 25% discount on the following subscriptions though the OSBA.

American Bee Journal	☐	1 yr. $12.70	☐	2 yrs. $23.55
Gleanings in Bee Culture	☐	1 yr. $12.25	☐	2 yrs. $22.50
The Speedy Bee	☐	1 yr. $13.25	☐	2 yrs. $25.25

Make checks payable to OSBA and send check and this form to:
Phyllis Shoemake, 1874 Winchester NW, Salem, OR 97304

CLASSIFIED ADS

FOR SALE: I'm standardizing equipment and have hundreds of deep supers and hive bodies plus feeders and bottom racks and pollen traps to sell off. Please do your part to help clean out my barn.

Bill Rufener, Banks, 324-2571

FOR SALE: Supers with 10 frame 7-5/8 = 50, 6-5/8 =144, 5-11/16 = 49. Foundation 5-5/8 = 75Lb, 4-3/4 = 12½ Lb, Frame wire 10 Lb, Insides feeders (plastic - new) 9-1/8 = 25, 5 gal pail with lids new 15, 53 4-1/8x4-1/8x1-13/4 new clear cut comb boxes, Fumidil-B Nosema-x 9 grams (1). All stored inside. $1,600.00 or offer.

Eugene O Challis,
830 8th St, Umatilla, 97882
922-4430

FOR SALE: Bee boom for 12' bed $800.00 obo

Dave Kerr,
8545 Perrydale Rd., Amity 97101

Bees for Sale: 20 hives with bees (full double deeps) with new queens - $55 each. Western supers with drawn comb $10 each.

Herman Sundermeier
45749 SW Etter Road, Gaston, OR 97119
357-3463

For Sale: 174 6-5/8x16¼ supers with frames (drawn comb).

Vince Vazza
Herminston, OR
567-3209

FOR SALE: 120 frame SS Cowan Extractor, Cowan SS Uncapper, Cowan SS Wax Spinner, 80 gallon SS Dadant Sump, 283 gallon SS bulk Dadant Tank, 145 Gallon SS Dadant Bulk Tank, 20 ft. SS Conveyer with capping hopper, 1-man system - 200+ supers per day. A-1 condition.

Chuck Lilley - 640-5757 or,
BEE'S KNEES - 227-6142
Portland 97201

WAX WANTED: Top Dollar for non-contaminated cappings wax. Please no rendered comb.

Chuck Lilley - 640-5756
Portland 97201

Beekeeping Hobby For Sale: 12 dbl deep colonies w/Apistan strips last fall, 9 deep boxes w/9 frames & comb, 40 shallow supers w/9frames & comb, 4 Ross Rnd. supers w/all supplies, 10 queen excluders, extra tops and bottoms, Maxant 6-12 frame Radial extractor w/ stand (like new), uncapping tub/drainer w/cover, 15-1 gal. barrel top feeders, electric uncapping knife, 10-5 gal. buckets w/lids, 3-6 gal. buckets w/honey gate & lids, smoker, hive tools, other misc. equipment and supplies. Will not sell separately. $1,200.

Randy Stewart,
The Dalles, 296-9614

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