GLEANINGS IN BEE CULTURE
JUN '90

BEE SPICE

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The seasons force a regimen, but not completely.

•Research Review ..... *Roger Morse* **334**
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•Moving Insurance **350**
Some ideas on moving bees when you have only a few colonies and are using small trucks. Accidents happen even with these vehicles. Avoid them by using these tricks.

•Be Prepared ..... *Kim Flottum* **368**
A bee spill in any location can be a disaster. Evacuations, accidents, injuries, law suits ... but with a master plan on how to deal with a spill in place, much of these problems can be avoided. Here's a start.

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COVER ... *A bee spill can be a disaster, or an opportunity to show your community how well organized your industry is.*

photo courstesy of R. M. Hendrickson, Jr.

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(ISSN 0017-114X) Vol. 118, No. 6
117 Years Continuous Publication by the Same Organization

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- **PESTICIDES, PEOPLE and HONEY BEES** *Pamela Moore* **336**
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- **REDUCING PESTICIDE LOSSES**.....*LaMar Bryan* **343**
  The Bryant Honey Company in Wyoming has to deal with pesticide sprays as a routine part of doing business. Here's how they manage to cope with this perennial problem, using several techniques.

- **PERFECT CIRCLE: MAKING ROUND COMB HONEY**.....*Buzz Phillips* **360**
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- **NETTLES AND STINGS**.....*Gwen Eisenmann* **366**
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- **BEE SPILL!** .....*Caron, Schaefer, Smith* **345**
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- **KERR'S POLLINATION** .....*Marshall Dunham* **354**
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INNER·COVER

NOT BLACK AND WHITE

Bee spills and pesticides. Only Killer bees invoke more emotion in most of us. Dewy Caron and his crew tell a bee spill story that turned out well, but could have been far, far worse. And, as with many incidents of this nature, the folks involved sort of made it up as they went along. These were all skilled beekeepers, too. Professionals for the most part, and they had help from the truck's owner and employees. That's not always the case.

We've added a few tips on how to reduce the likelihood of a spill when you're carrying just a few colonies, but the precautions needed for a large shipment are too numerous to detail in this article.

However, on page 368 we've outlined many of the factors needed to consider when putting together a bee spill action plan in your area.

We strongly urge you to begin an action plan now. One minor accident could become a major disaster. And these almost always turn into media events — yet another splash of negative attention for an industry already under siege.

The other topic we examine this month — pesticides — is not a black and white issue, either. But most of that's in the article. I want to address a different, but related side here.

Since I've been involved in this industry I've studied the literature in detail, looking for ideas and methods to protect bees from pesticides. I was even involved in a large study a few years back that tried to answer the problem. There were no answers.

For the most part, work that has been done has been to determine how toxic agricultural chemicals are. We know, to five decimal places, how many bees will die when exposed to a spray of everything from water to DDT.

But with the thousands and thousands of colonies killed since the invention of the first pesticide, you'd think somebody would have looked at this problem in some depth. That somebody — whether USDA ARS, Extension, or University researchers — has not done so. And as an industry who pays taxes, we should be asking why. We know how many hairs are on the eye of a bee, but, until the beekeepers who had to solve this problem or go out of business did so, we were at the mercy to anyone with the money to buy poison and the equipment to apply it.

I know there are only so many people looking at the problems of beekeeping, but it is time practical research in this area is considered. Without a beekeeping industry there will be little reason to do honey bee research, and if the problems of pesticides aren't solved, there won't be an industry. Mites and diseases are certainly a problem, but so are bees dead from poison.

Kim Flottum

Reader Assistance

To subscribe, simply fill in the form below and enjoy the exciting features awaiting you this year — Insurance Regulations, Smoker How-To, Requeening Tips, Inspections, Feeding, Pesticide Protection, and Wintering. It's all here — every month!

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NEXT MONTH

Most of us are up to our elbows in one thing or another next month. July is always busy, busy, busy. In fact, if you think about it, most July's last just over 20 minutes, or so it seems.

So, for those interested in getting your honey off, we've got a great inside look at how one commercial operator does this job. We look at how the Kerr's get ready for pollination this time and next month we wind up their season with pulling and extracting. Lots of photos and up-close and personal quotes and how-to's. Don't miss this one.

July is also the time many beekeepers start gearing up for those fall fairs and an integral part of these events is the observation hive. Next month we have two views and advice articles on this crowd-pleasing display device.

Bears are increasingly becoming a problem for bees and beekeepers because of tight hunting controls and reduced foraging area. Here's one story you won't want to miss by Larry Goltz, former *Bee Culture* editor.

For those who are gardening this month instead of tending bees, we've got a great piece on improving your soil using, of all things, slumgum, the residue from wax rendering — if you can get it, here's how to use it.

And, once you've got good soil, our regular plant person has another Beauty & the Bees, and there's a short piece from our range plant correspondent.

But there's more — an interview with Ormand Aebi, our regular columnists, the Mailbox and all the rest — right here in July. ☐

MAILBOX

■ Liability Laws

I recently met with a group of regional beekeepers for an informal strategy session on politics, regulation, and bee laws. Invariably the conversation strayed to the subject of liability of both individual beekeepers and beekeeping organizations. It is apparent that beekeepers are becoming increasingly aware of their potential liability for keeping and moving bees, selling honey and even for membership in activist organizations.

I have searched the legal literature for case law dealing with beekeeper negligence for personal injuries, but have found no "modern" decisions on the subject. This dearth of reported cases does not mean that beekeepers haven't been or aren't being sued for bee stings. It simply means that negligence suits against beekeepers are either (1) settled before trial, (2) not appealed to higher level courts where decisions are reported, or (3) beekeepers are successfully defending themselves against negligence claims.

Honey bees have traditionally been classified as "ferae naturae", i.e., of a wild nature or disposition, by our judicial system. Thus, honey bees have enjoyed a quasi-protected status under the law. Owners and keepers of bees have not faced the personal liability imposed upon owners of domestic animals such as dogs, cattle and horses. Nor have beekeepers been burdened with the strict liability levied upon keepers of animals deemed to be wild beasts and thus inherently dangerous, such as apes, lions, poisonous snakes, etc.

The unique niche which honey bees have filled heretofore is due in large part to the rural/agricultural heritage of our nation. However, the honey bees' protected status is now threatened by both the introduction of more aggressive strains of bees and by modern liability trends. Courts in our industrialized, urbanized metropolitan centers will turn a deaf ear to the beekeeper who locates his bees in close proximity to residential areas.

The imposition of liability, indeed strict liability, upon beekeepers will be a logical response to the perceived threat which Africanized bees represent to an ill informed public. After all, if the "intrepid" beekeeper is afraid to work his bees without a veil, heavy coveralls, thick leather gauntlets, etc., why shouldn't the beekeeper be liable for injuries suffered by his neighbors as a result of bee stings and allergic reactions thereto.

Because of my involvement in beekeeping I will continue to monitor the developing case law on beekeeper liability. I also intend to follow trends in zoning and land use regulation to determine how governmental agencies react on a local level to the arrival of aggressive strains of honey bees. Towards this end I would appreciate hearing from anyone who knows of lawsuits against beekeepers or restrictive zoning regulations affecting the keeping of bees.

Michael D. Mitchell
Adler Pollock & Sheehan Inc.
2300 Hospital Trust Tower
Providence, RI 02903

■ A Job Well Done...

My compliments to you on the "Who's Who" section in the April issue, *Gleanings in Bee Culture*, 1990.

I appreciate the amount of effort, time and coordination activities that you had to place in that project to make the list so comprehensive. As an Extension Specialist in Beekeeping, I have found the list to be very useful in many areas and have referred to it several times already. I do hope that the list can be maintained and will be published in future years in its same thorough format.

Again, my compliments to you on a job that is needed in the beekeeping industry that you have done very well.

James E. Tew, Ph.D.
Associate Professor
State Specialist, Apiculture
The Ohio State University

■ Ozone Layer?

I understand that many industries place food products in sealed containers (hot room shipping container) and fumigate them with Ozone. Ozone is apparently 2,300 times more powerful than chlorine. Ozone will only surface kill any bacteria, germs, etc. and no doubt American foul brood spores.

I maintain that if a room is filled with dry supers of comb and sealed, then ozone is circulated around the stack for a few hours, a lot of diseases of bees would be reduced. The number of viruses, spore, bacteria, wax moth, etc. would be greatly reduced in number, hence a lot less chance of infection to bees.

The Victorian Dept. of Ag. has done some small tests but because it is not a 100% kill, the process is not recommended.

In my opinion, if there was an 80% disease reduction it must help the gen-

Continued on page 329

eral industry. Ozone is a surface kill — it will not penetrate under scale.

Geoff A. Hammond
Australia

MAILBOX

■ Selling Honey

I started with one colony for my garden, then I had two, three, and now 12! Please tell me where I can sell my honey. I sell a few gallons to my friends, but I have too much to sell locally. Please have a few articles in *Bee Culture* on how hobby beekeepers can sell our honey.

Editors Note: The golden rule in sales is getting out in the world, knocking on doors and selling. Later this summer we have several features on how to do this efficiently and, we think, profitably. But there is absolutely no alternative honey won't walk out of your basement. YOU must help it along. Stay tuned.

■ More on Bleaching

I was glad to see Rich Fleming's letter in the April Mailbox on better bleaching.

I, too, tried to contact the Norac Chemical Company in California. I finally got through to this company using Directory Assistance. I was told they no longer handled Hydrogen Peroxide in the 30 and 50% solutions but was given the names of two other companies one of which was DuPont. Since they have a toll-free number, I gave them a call. They remarked the H_2O_2 of this strength could be dangerous and explosive and advised me not to try to use this chemical. A few weeks later I decided to try to purchase either the 30% or 50% solution of H_2O_2 anyway. I told DuPont I had a stainless steel container heated by electricity and could use this in the garage or outside in case of an accident. I also told them I had read the article on bleaching beeswax in *Gleanings in Bee Culture*. They had also heard of this article and I don't think they were very happy about it. The only way a person could probably purchase H_2O_2 is to build or have a special place with a special shower with a large shower head to douse oneself with water in case of an accident. Even then I doubt if they would sell any because of the liability risk involved.

In closing, I would like to say that what sounded like a good idea in theory cannot be put into practice.

Kleber J. Minich
Natrona Hts., PA

■ Pesticides and Gardens

I may be expressing either curiosity or suggestion. A voluntary survey in Bee Culture for input on what future articles could be published using questions such as

1. Hobbyist 1 to 50 hives; 50 to 100 hives or 100 to 500 hives.
2. Pollination use — Honey Production or both
3. How introduced to beekeeping
4. Problems occurred?

For example, I'm a back yard gardener (1/4 acre) and got introduced to beekeeping by a Boy Scout leader. I use the bees to pollinate my cucumbers, squash, spices and other vegetables and honey as an extra delight. I see very little on use of insecticide to use or avoid when working both garden and bee hive arrangements. I personally avoid the use of insecticides.

Maybe you could touch on this subject in one of your articles.

George J. Masciarelli, Sr.
Nashua, NH

Editors Note: Certainly a good question. See the April issue and this issue for some of the information you need. However, both the state and federal governments publish a wealth of information on pesticides, gardens and bees. Check out your local extension office or library. You won't be disappointed.

■ Seeds Sought and Found

I am responding to two letters in the Mailbox section of the April issue of *Bee Culture*, under the topic heading "Seed Search"

There is a service which will locate seeds for a small fee. Contact: Abdal Singh, c/o Rare Seed Locators, 2140 Shattuck Ave., Drawer 2479, Berkeley, CA 94704.

They will locate any seed for $2 per species. If the seed is held by some organization which will not deal with private parties, they will obtain the seed for you for $5 per species. There is no charge for species which cannot be located. If you have questions concerning the service, please include a SASE for the reply. Good luck.

Douglas Wiggins, Jr.
Portland, OR

■ Exceptional Extraction

The first time I was shown Perma-Comb and told that extracting without uncapping was possible, it became an obsession with me to build such a machine. Perma-Comb Systems did not have such a machine, but did know the parameters of what it would take to make a successful one. What was needed was comb capable of withstanding the forces needed to extract, be reusable, and acceptable to the bees. Perma-Comb meets all of these requirements.

Attempts to convert current extractors failed because they are not built to reach the speeds required.

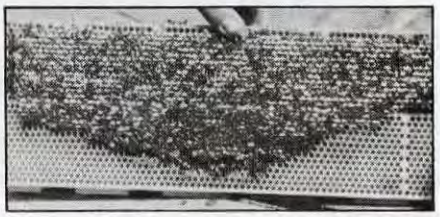
Currently, a stainless steel four super unit has been completed and is being tested. It will extract in less than 2 minutes depending upon the HP of the motor. These combs are not uncapped nor removed from the super. There are nine combs per super, and the entire super and combs are placed in the extractor. Either 2 or 4 supers may be placed in the extractor. Another extractor will hold 10 combs. With these units field extraction is now a reality.

The photos (on page 330) show a before and after extraction using Perma-Comb and the new extractor. They were placed in the extractor without uncapping. The extraction was complete in 15 seconds. The turn around time of this unit is 2 minutes or less depending on the operator (one man, not several on all units).

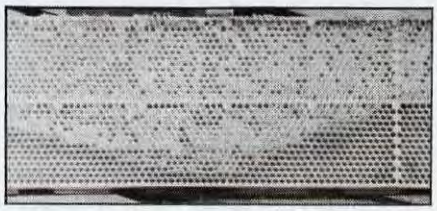
We have extracted in 40-50° weather (even sugared honey). Even flush, uncapped cells opened up, and the bees go right to work on combs with the caps still on. Combs come out so dry that there is only a very slight tackiness. No honey left on the comb and more cells per comb account for at least 25% more honey production, and some beekeepers have reported an increase of 50%!

Continued on Page 330

MAILBOX



BEFORE



AFTER

Some highlights of this extraction process are (1) unloading and uncapping steps all eliminated; (2) less machinery; (3) no reloading frames and (4) less wax in the honey.

Extracting in the field (1) reduced loading and unloading of supers; (2) reduced travel and (3) reduced labor.

This chart will show you what can ideally be done:

Time	Size Extracted 10 Frame	Size Extracted 4 Box
5 min.	20=2 boxes 100 lbs.	72=8 boxes 360 lbs.
1 hour	240=26.66 bx 1,200 lbs.	864=96 bx 4,320 lbs.
8 hrs.	1,920=213.33 9,600 lbs.	6,912=768 34,560 lbs.

Reduced time in the honey house means reduced costs and better management. This system has worked for us.

Jim Waters
J & M American Honey & Mfg.
A Division of J & M American Honey
P. O. Box 182
Hemet, CA 92343

■ Meeting Debate II

I was very interested in the debate about the various beekeeper organizations, especially the letter from Boyd Murdock of Heber Springs, AR. A while

MAILBOX

back I was the recipient of notice after notice from one of these groups to renew my membership. I had taken the attitude that I would renew when I got ready but then they sent me a request for a contribution of cash. I thought this was a little high handed since I did not belong to the organization any longer.

I wrote them a letter and expressed some opinions very much like those expressed by Mr. Murdock. In reply they printed *an answer* in the next issue of their newsletter (which they still send me). The really asinine factor was that they *did not print a copy of my letter*. Just the answer. No one was able to know what I had written. I thought this was pretty petty. It's also pretty unlikely that I will renew my membership, ever.

I really did like Mr. Murdock's idea of just minding his own business and letting the big organizations do their own thing — whatever that may be.

B. A. Burns
Houston, TX

■ Canola Update

I was pleased to see the article on Canola in the April issue of *Bee Culture*. Pamela Moore did an excellent job giving us background information of this plant and the potential benefit to farmers and beekeepers. Now that our attention has been directed to Canola, I feel that it will be appropriate to discuss its role in the Farm Program.

Since we have a number of industry folk who have a get-the-government-out-of-our-business attitude, I will state that my attitude of government involvement is a lesser-of-two-bad-choices. Let's face it, opting for government involvement is the beekeeper's choice, that is, if he is in business to make a profit.

If Canola receives any serious attention by the American farmer, it must become a part of our Government Farm Program. Congressman Tim Johnson of SD stressed this point in the March 22, 1990 issue of the *Congressional Record*. Mr. Johnson introduced the "Oilseeds Equity Loan of 1990 or OELA. Mr. Johnson explained: "... will provide producers of sunflowers, rapeseed (including Canola), safflowerseed, and flaxseed, with an adequate level of income support ..." "... absence of income protection has made the U.S. oilseed sector vulnerable to the rapid growth in oilseed production and subsidized exports by our major foreign competitors."

I was surprised to learn that sunflower acreages in this country had declined during the last 10 years by 70% and this caused 50% of the crushing facilities to disappear. The remaining plants are operating at between 50% and 62%. As you can easily recall, sunflowers have been an important source of honey in the Dakotas.

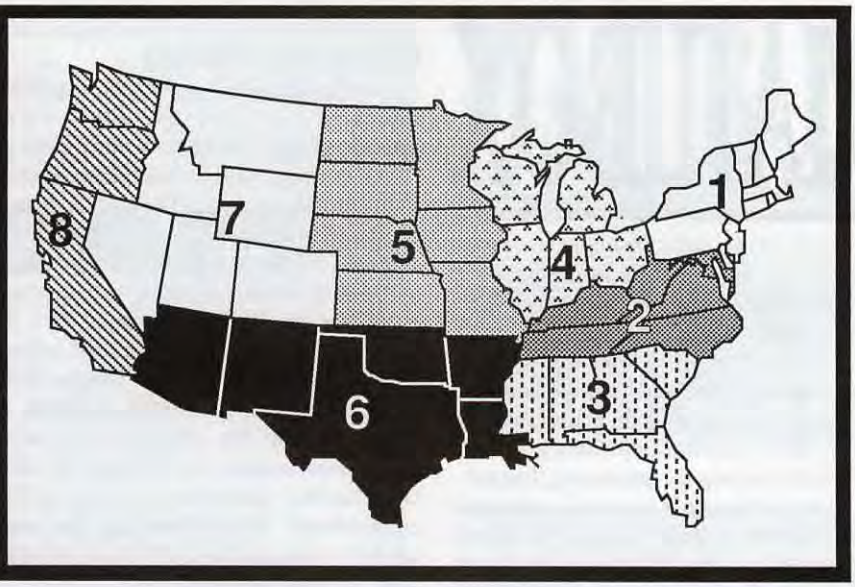
Beekeepers should give Congressman Johnson some encouragement. We sorely need some new sources of nectar. If beekeepers want to discuss the matter of government involvement, I will be happy to respond.

Glenn Gibson
Minco, OK

JUNE
Honey Report

June 1, 1990

REPORT FEATURES SUMMARY: R=Range of all prices; A=Average prices across all regions; LM=Last month's average; and LY=Prices one year ago.



	Reporting Regions								Summary		History	
	1	2	3	4	5	6	7	8	R	A	LM	LY
Extracted honey sold bulk to Packers orProcessors												
Wholesale Extracted												
60 # Wh.	40.00	43.05	43.00	44.00	49.44	39.17	41.00	39.85	31.00-45.00	42.16	41.41	38.19
60 # Am.	39.00	39.70	41.00	40.00	41.14	36.00	38.00	33.00	27.00-45.00	37.77	35.42	35.27
55 gal. Wh.	.48	.60	.59	.45	.65	.53	.60	.57	.42-.65	.55	.55	.55
55 gal. Am.	.47	.50	.51	.41	.42	.47	.55	.51	.40-.55	.49	.49	.48
Case lots — Wholesale												
1 # 24's	28.43	28.88	39.60	20.25	30.42	24.00	30.00	30.24	20.40-39.60	28.61	28.73	26.06
2 # 12's	26.77	26.50	37.20	24.67	29.70	28.18	31.00	27.90	20.40-37.20	27.69	27.21	25.56
5 # 6's	31.30	28.80	29.00	27.03	31.50	29.31	25.30	26.80	24.60-34.00	28.46	27.60	25.31
Retail Honey Prices												
1/2 #	.95	1.10	1.17	1.20	1.13	1.14	1.05	1.00	.89-1.39	1.06	1.02	1.00
12 oz. Plas.	1.50	1.34	1.55	1.31	1.49	1.43	1.33	1.22	1.19-1.70	1.42	1.45	1.34
1 #	1.73	1.67	1.87	1.58	1.69	1.50	1.53	1.55	1.34-2.00	1.64	1.66	1.73
2 #	2.83	3.40	3.40	3.28	3.29	2.50	2.69	2.73	2.25-3.80	3.04	3.16	2.94
2-1/2 #	3.10	3.62	3.75	3.13	3.23	3.20	3.83	3.25	2.60-3.85	3.48	3.63	3.87
3 #	4.12	4.21	5.25	3.49	4.14	4.00	3.65	3.88	3.25-5.12	4.18	3.96	3.81
4 #	4.68	5.00	5.30	4.51	4.60	4.61	4.50	4.65	3.75-5.60	4.83	4.91	5.14
5 #	6.75	6.00	6.50	6.01	6.99	5.25	5.29	5.55	5.25-7.50	6.19	6.27	5.98
1 # Cr.	2.25	1.00	1.68	1.39	1.17	1.41	1.77	1.73	1.00-2.50	1.73	1.72	1.59
1 # Cb.	2.42	1.75	2.25	3.00	1.89	2.00	2.59	3.63	1.25-5.00	2.18	2.30	2.45
Round Plas.	2.20	2.25	2.25	2.00	1.99	2.15	1.99	1.75	1.75-2.30	2.07	2.07	2.12
Wax (Light)	1.75	1.10	1.10	1.10	1.00	.90	.99	1.25	.90-3.00	1.30	1.09	.99
Wax (Dark)	1.33	1.00	.85	1.00	.90	.85	.85	1.00	.85-2.00	1.06	.95	.89
Poll./Col.	30.00	16.67	20.00	30.00	30.00	25.00	23.00	24.00	16.67-35.00	24.95	25.70	24.36

MARKET SHARE

What does it cost to store honey? At about $40.00 per 60# pail, you can earn about $2.80 per year interest on that $40.00 were you to invest it in a 7.0% C.D. Maybe taking a bit of a cut now is okay, considering. It's a gamble, though, because interest may go up or down and honey prices may also go up or down — choose one.

Region 1

Sales remain seasonably steady, but prices are beginning to show their warm weather drop. Erratic spring weather coupled with spotty mite infestations have made things difficult for most New Englanders. Some colony shortages for pollination showing up but local bees seem to be filling in where migratory are short. Good prices this year.

Region 2

Sales steady to increasing a bit, but prices beginning to move down. Shortages still hindering some but only steady sales have not increased demand. Erratic weather, mites and pesticides have caused all sorts of problems but only in some areas. Others doing well with early flows.

Region 3

Sales steady to slow but prices still going up due mostly to low supply. Wet, wet, wet weather has dampened a strong start. Many colonies lost or significantly damaged by incredible flooding. It could be a disastrous year in the wettest areas.

Region 4

Sales steady to slowing a bit. Prices not moving much, but show a slight downward trend. Northern areas generally hard hit with tracheal mites. 40-90% losses reported in some areas. Others, who have stayed clean, report that a late spring has slowed things but catch-up weather has helped.

Region 5

Sales actually pretty good with prices rising well in nearly every area for all size containers. Wet, cold spring, mixed with windy hot spring weather has made build-up difficult but not impossible. Needed rain has helped most areas but more needed to build up sub-soil moisture.

Region 6

Sales steady, especially in bakery grades but prices dropping as weather warms. Lots of rain in some areas has been a mixed blessing. Needed water, but always at the wrong time. Mites a problem but seem to be decreasing.

Region 7

Sales steady along with prices. Moisture is the key in this region. With some good rains it will be a good year, if not ....

Region 8

Sales steady to improving while prices are steady. Early warm weather in southern area made some bloom come early helping build-up. Almond bloom worked very well and most made some honey. Other crops doing well so far. Dry conditions prevail though and without rain it will be a long summer.

RESEARCH REVIEW

DR. ROGER A. MORSE

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"More on Alarm Pheromone; Label Changes?"

Social Control

The problems we are having with chalkbrood, mites and Africanized bees in the U.S. today are causing fully half of our bee researchers, extentionists and lecturers to reroute their work in these directions. This is necessary but unfortunate because there is still some fascinating basic research on social order in honey bees being done. And we are still a long way from understanding how social order in honey bees works.

A new paper from England on alarm pheromones prompts me to review it and some of the other long-range research that is in progress and needs to be done. The principal alarm odor in honey bees, isopentyl acetate, was identified in 1962. The sex attractant had been identified only a year earlier, and for a short while in the 1960's we thought that a full understanding of the chemical substances (pheromones) that were used in honey bee communication was soon to be achieved. We had visions of being in full control of a bee hive and manipulating the bees through the use of synthetic materials.

The situation is fare more complex than we then thought. For example, twenty-four chemicals have been identified from a worker bee's sting apparatus. In recent tests, these, and one from the mandibular glands, were tested at colony entrances and at experimental food sources. In each test, 33 to 66% prompted a response in all tests. The chemicals that make up the alarm pheromone are volatile and do not persist. This is in keeping with their function: to alarm the colony rapidly in the event of danger but not to keep it in a state of alarm past the time when it is necessary. Tests of this nature are complicated by the fact that alarmed bees may in turn release more alarm odor. In any event, despite the difficulties encountered in conducting the tests, it was shown that at least some of the components of the alarm odor have specific functions; these may or may not be part of the alarm strategy. Some of the components only attract alerted bees. Others may repel them.

Some people study pheromones for the simple reason that they want to better understand social order in bees. However, there are also possible applications to beekeeping needs, for example, a system to calm aggressive bees. I wrote recently that it had been discovered by Dr. J. B. Free, one of the authors cited below, that if alarm odor was constantly released in a hive the bees were less aggressive.

The alarm system in honey bees is obviously a complex subject. The paper cited below gives further information but we are a long way from fully understanding how the system works. Those interested may care to obtain Dr. Free's book, which reviews the whole pheromone situation more fully.

References

Free, J. B., A. W. Ferguson and J. R. Simpkins. *Honey bee responses to chemical components from the worker sting apparatus and mandibular glands in field tests.* Journal of Apicultural Research 28:7-21. 1989.

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Food Labeling Reform Plans

The U. S. Secretary of Health and Human Services announced recently that changes in food labels, which have not bee significantly revised in the past 17 years, may soon be considered. The honey industry may be caught by the fact that we do not have an active honey chemist in the USDA or state college system to help with testimony before the committees that work on this project. In fact, I've seen almost no papers on honey chemistry, physics or new products recently.

The secretary stated in a recent news release that, "consumers need to be linguists, scientists and mind readers to understand the many labels they encounter. Vital information is missing. And frankly, some unfounded health claims are being made in the marketplace. It is a real mess."

One item from the news release asks "if all of the various sugars in a product should be labeled together?" That could pose some problems for those who use honey along with other sweeteners. No doubt it will be several years before any new rules will be put into effect but this is a matter about which we should all be thinking. The above quotes are taken from a Food and Drug Administration Press Release dated 3/7/90. □

PESTICIDES, PEOPLE, AND HONEY BEES

PAMELA MOORE

The total cost of producing food for the table, or the clothes we wear isn't always included in the final price paid for these goods. A more exacting price is felt by beekeepers across the country — from California to Maine — when they collect piles of dead bees after pollinating cotton, blueberries, soybeans, citrus, nut trees and other crops. This occurs, of course, when bees and pesticides run head to head.

Honey bees and farmers share a unique relationship because they both use nature to produce their crops. Farmers need bees to increase fruit set, and thus yield, while beekeepers need farmers and their crops for pollination fees and, sometimes, honey. But what should be a perfect relationship often leads to anger, disagreement and even law suits.

This anger, and the inevitable beekeeper-to-beekeeper complaints has led nowhere, according to Dee Lusby, president of the Arizona Beekeepers Association, who advocates personal commitment in the direction of positive action.

"Why don't they (beekeepers who've experienced pesticide kills) speak up when it happens?" she asks, adding that complaints to another beekeeper won't accomplish what complaining to the right governmental agency might.

Another problem that Lusby has with this specialized form of law enforcement is the definition of bees in agriculture.

"They are currently under the jurisdiction of pest control in Arizona. They need to be redefined in agricultural language, not as a *product* of agriculture, but rather under animal husbandry, so they may be better protected," she said.

According to the newsletter she edits, a big share of our diet is directly or indirectly benefited by honey bee pollination, and she wants this commodity better protected, and the protection to come from within the industry. "Other groups have strong leadership, but the bee industry doesn't. We need to bring new people into the industry — we all have something to learn," she added.

Bringing in new people — new vocal people — is a phrase echoed by Jack Thomas, of Mann Lake Supply, a bee supply firm in Hackensack, Minnesota. He says that "... beekeepers aren't vocal people. We're basically a quiet

group who mind our own business and don't complain much."

But Thomas has been complaining. When 50,000 hives were destroyed in Minnesota last summer during Federal grasshopper control sprays, he filed a complaint, citing the 'illegal application of an insecticide', including the time of day it was used and non-target areas the spray covered.

Because of his testimony concerning this particular bee kill, Minnesota has drafted and passed through the House a bee indemnity bill. "It's currently in the Senate and has been sent to committee for some revisions,"said Thomas. He quickly outlined the bill —

Section one discusses compensation for damage caused by grasshopper control measures. The *Commissioner of Agriculture shall compensate an owner of honey bee colonies damaged or destroyed by grasshopper control measures in a designated grasshopper control zone.* Appropriate forms must be used, available from a variety of sources.

Subdivision three deals with compensation amounts. *The owner of damaged or destroyed colonies is entitled to fair market value for reduced honey production (or replacing the colony) caused by chemical control measures.* These costs are reduced by any insurance payments made to the owner.

The grasshopper section of the bill instructs the Commissioner to ... *develop the program to economically and efficiently control grasshoppers and to minimize adverse environmental impact.*

Any town located within a grasshopper control zone then appoints an advisory committee of three members who are residents of the township. Other requirements state that ... the *advisory committee must include at least one owner of land enrolled in the conservation reserve program (if any), and one dairy farmer (if any).* What isn't included is a beekeeper. This would be a powerful way for beekeepers to have a voice in the types of pesticides used for control. Getting involved before-the-fact could prevent losses due to decisions made by people who don't know about bees.

Another safeguard built into the Minnesota bill deals with exemptions from control. *The Commissioner ... may exempt a parcel of land felt to be of particular scientific or natural significance or is particularly sensitive to the use of insecticides or other control methods being used. This* section may provide a number of ways for beekeepers to safeguard bees, or it may force them to place hives only in areas that have a 'natural significance'

The Commissioner is also asked to recommend pesticides ... *that minimize the adverse impact on bees ... control grasshoppers. ... and minimize environmental impacts. This* may sound benevolent, but unless someone is concerned about bees, it probably won't do a lot for beekeepers. Extension also must instruct and inform, and it would do a world of good for beekeepers to be a part of these meetings.

On the other side of the coin, *beekeepers must notify the Commissioner as to number and location of hives by May 1 each year, and renotify if they move those hives.* Extension must then map these areas and furnish it to all applicators and the town clerk of each township. The next step involves the applicator ....*who must provide written or oral notice to all colony owners within two miles of an application site not more than seven days nor less than 24 hours before a pesticide application occurs.* The applicator must not apply pesticides on blooming crops ....*within two miles of honey bee colonies.*

"The philosophy of compromise and education between growers and beekeepers is the method of choice by most bee specialists."

To date, the amount to be appropriated from the general fund to cover damages has not been set.

Thomas knows the chemicals that are being used and what they can do to a colony, but feels that all the laws are in place. With the new law he may have some power, "....but beekeepers will need to test it, and all states don't have such protection. The law is on your side and you have a tremendous amount of leverage."

Dee Lusby has been fighting to get that leverage increased in Arizona, where pesticide spraying is done primarily on cotton and citrus. A five phase plan was begun two years ago to run through 1997. The public has a right to flag (indicate a possible prob-

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THE BIG GET BIGGER!

Mergers and acquisitions marked the pesticide manufacturing industry during the 1980's and is continuing in the 1990's.

Research and development programs for new pesticides are expensive and continue to escalate. The growing load of health and safety regulations adds to the cost. Thus, industry analysts felt that companies with less than about $500 million in sales would not be able to develop new products and be competitive.

In a nutshell, here are some of the major realignments that have taken place over the past 10 years.

- Rhone-Poulenc acquired both Union Carbide and Mobil's ag business.
- Du Pont purchased Shell Chemical's ag interests.
- ICI Americas acquired Stauffer's ag business.
- Kocide was purchased by Griffin Corporation.
- Velsicol sold its ag business to Sandoz who may consolidate with Shering Ag (which owns Nor-Am Chemical).
- PPG Industries sold its ag interests to Chevron.
- Valent Corp. was formed as a joint venture between Chevron and Sumitomo Chemical.
- Dow and Elanco have joined their plant science business in a partnership called Dow Elanco and Co.
- Pennwalt became Atochem North America on January 1, 1990, due to a merger with Elf Aquitaine.
- Mycogen announced that it had acquired the commercial and agricultural products division of Safer, Inc. in early January of this year, and now the entire company is for sale.

From Am. Fruit Growers

PEOPLE...Cont. from Page 337

lem) a pesticide, she says, but most people don't know the loopholes available. "The USDA does a pretty good job of checking things out, but the EPA tends to look the other way," Lusby adds.

She is also concerned because California permits the use of malathion on citrus to control the Med fly. Other western states are using it for grasshopper and aphid control, too. Although California's "Big Green" effort (EPA Act of 1990) was created to reduce pesticide use, when farmers decided it might mean as much as a 40% crop reduction, they drafted their own initiative.

Lusby also mentioned what can happen to beekeepers who complain too much about pesticides. She tells of an incident where a beekeeper had colonies destroyed by a racing pickup — allegedly owned by those complained about.

Threats are a great way to keep beekeepers under control, and has been used as blackmail by some crop owners. In Maine, a popular state with migratory beekeepers because of the wild blueberry crop, Tony Jadczak, Maine's State Apiarist, reports a few incidents with bees and pesticides. "Of course, if the beekeepers complain too much, the growers won't rent bees from that person next time," he said. This has not been a real problem in Maine though.

However, the methods of pest control are changing. Growers used to burn the organic pad (blueberry plants) to destroy resident pests during the off season, but now they mow the plants every other year and allow the material to stay on the ground. But a recent span worm outbreak has caused the growers to start using chemicals. Jadczak described the burning method as primitive, but that thinking may be changing. He is hoping that a compromise will be worked out where the growers will burn one year and use a very selective bio-control, like Javilin® the other four years. This is a form of Bt a naturally occurring control used against a variety of insects. Jadczk said that 50,000 acres were treated with it and it appears to be a successful pesticide to use. It is not harmful to humans or beneficial insects. "Velpar (a nonselective, highly toxic pesticide) was used for a time, and it knocks out everything but the blueberries," said Jadczak.

"We (government officials) work with both growers and beekeepers. The two groups depend on each other and they're both getting a fair shake," he added. Over 30,000 migratory colonies move to Maine for blueberry pollination, where they are also invited to field demonstrations to learn how blueberries are grown and protected.

UNDER REVIEW

EPA has announced its 1990 schedule for reviewing pesticides and issuing reregistration standards.

There will be new registration standards for the following pesticides: methidathion (Supracide), chlorothalonil (Bravo), butylate (Genate Plus, Rhino), and chlorpyrifos (Dursban). The EPA has previously issued draft notices and completed public comment periods for these chemicals. Finalized registration standards are expected this year.

EPA will also target a group of chemicals for which data gaps exist. For these chemicals, draft notices will be released, public comment periods schedules, and hearing held to determine if new registration standards should be issued.

The chemicals being examined due to data gaps include: fosetyl-Al (Aliette), **amitraz (Mitac, Ovasyn)**, copper ammonium carbonate (Copper-Count-N), copper carbonate (Nutra-Spray), copper hydroxide (Champ, Blue Shield, Kocide and others), copper oxychloride, copper sulfate, Heliothis NPV, potassium bromide, sodium and calcium hypochlorites, and sulfur.

From Ag. Chem.

Jadzcak's philosophy of compromise and education between growers and the beekeepers is the method of choice of a number of bee specialists.

Clarence Collison, Chairman of the Entomology Dept. at Mississippi State (and former *Bee Culture* columnist), reports that he has not heard of many serious bee problems with pesticides. The principle crops sprayed in his state are cotton and soybeans. He says that most bees are kept outside crop areas.

He suggests that if a problem arises, the beekeeper ".... either find an alternate location or close the hives some way for a bit during a pesticide application (see Protection). Communication is the key though. The farmer and the beekeeper must talk to each other, and work together," he said.

Jim Dunkley, Administrative Coordinator of Nursery and Apiary programs for the Louisiana Department of Agriculture and Forestry, said sprays are used primarily on soybeans, cotton and sugar cane in his state. He has had two reports in the past year of bee kills from pesticides. "Beekeepers put up with an occasional kill. They learn to live with it. Residential sprayings are probably worse," he adds. He also stressed the importance of collecting dead bees in good condition for testing. A sample of the honey should also be taken. Dunkley suggests beekeepers know the applicator and inform him where the bees are located. But once again, it's the beekeeper who is asked to open the channels of communication to protect bees.

Dale Pollet, Ag Extension specialist in Entomology at LSU said that before beekeepers and applicators began talking to each other there had been problems. "Now there is good cooperation," he said. "The operators learned when to apply and the beekeepers put their hives where they wouldn't be sprayed. Just a phone call often solves problems. Both growers and beekeepers should just settle down and talk to one another. One may be doing something that has an effect on someone else's livelihood," he said.

Eric Erickson, USDA ARS, and Research Leader at the Tucson, Arizona, Bee Lab says that pesticides are used primarily on cotton and citrus in his area. "Most growers do scouting in an Integrated Pest Management Program. After all other means are used, then selective use of pesticides is advised. Farmers and beekeepers need to negotiate to protect bees. The farmers can use pesticides and protect bees at the same time if they time their applications. The needs of bees and the needs of crops have to be considered — and both require care," he said.

Although it may seem that many farmers are on the chemical treadmill

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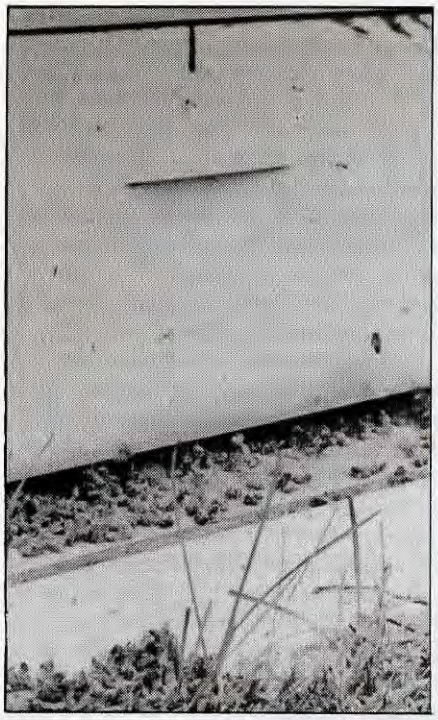


Dead bees on the doorstep and piles on the ground out front is a definite sign of a pesticide encounter — one that honey bees seldom win.

due to higher demands for production, increased chemical use may not only be contributing to environmental pollution and bee kills, but may also be killing their soil. Farmers are becoming increasingly aware of what chemicals are doing to their land, even though many chemical companies say the land is fairly forgiving. The forgiveness may be coming to and end though, and the results are showing up in ground water pollution, pest immunity and Site Assessment, and entirely new industry. Site Assessment has come about because of a need to investigate industrial properties that may have experienced previous chemical storage on the land, and is now being done on farmland too. Liability for cleanup is not being assumed by new owners without as least some idea of what they must deal with beforehand.

Because the public is voicing this concern, some in the ag chem industry are labeling those cautious of chemicals as *bio-irrationals*. Be ready to wear this label if you start complaining about bee kills due to pesticides.

Things are looking up in some quarters though, as the California Department of Food and Agriculture, among others, has addressed the use of pesticides. Growers must keep records of all pesticides, and sales of all pesticides labeled *possible or probably* human carcinogens will be monitored. This will hit pesticide producers in the pocketbook because they will be taxed 0.9¢ per $1.00 on all pesticide sales to fund increased monitoring costs of both raw and processed foods. Of course these costs will eventually be passed along to the consumer who buys the food from the farmer who pays the producer who pays the tax. There is no free lunch.

But even the most radical bio-irrational must be aware that farmers are probably choosing the most economical way to deal with pests. Farmers have a limited amount of time and resources to produce the greatest amount of food or fiber. USDA Extension, in its guide for private and commercial applicators,

Even when not blooming, cotton is attractive to honey bees because of its many extra floral nectaroies. And Lygus bugs, a damaging pest, are almost as common as honey bees on cotton.

lists the following methods of controlling pests —

- **Host resistance** – growing plants immune to pests
  Biological control – using pest predators, parasites and pathogens
- **Cultural control** – crop rotation, trap crops, planting and harvest date manipulation
- **Mechanical control** – screens, barriers and traps
- **Sanitation** – cultivation, plowing and removing crop residues

And finally —

- **Chemical control** – pesticides and repellants.

But even armed with information on the extent farmers can go to reduce pesticide use, sympathy for a farmer soon stops after a colony dies and all that's left is anger — and dead bees.

If a bee kill occurs, Jack Thomas insists you become visible by contacting a local governmental agency and tell them about it. Find the applicator, get name, address and Federal Aviation Agency number if an aerial sprayer, and find out if it was a farmer or governmental agency that ordered the spray. And finally, contact local media about what has happened. Tell them about *illegal* pesticide spraying and how many bees were killed. This can be very effective, especially if you have previously developed a good, working relationship with them.

Thomas also cautions that when collecting evidence regarding an illegal spray, or when seeking compensation for loss of bees and honey crop – do it correctly. He suggests the following for proper collection —

- collect dead bees on the day of the kill if possible
- have at least two witnesses, one of which should be a law officer or notary public
- Seal and stamp the container
- Freeze the bees
- If an aerial application was made, check FAA regulations on proper application, and your recourse.

Thomas sums up, "To stop the illegal spraying of pesticides and bee kills, you must take action. The process always starts with you."

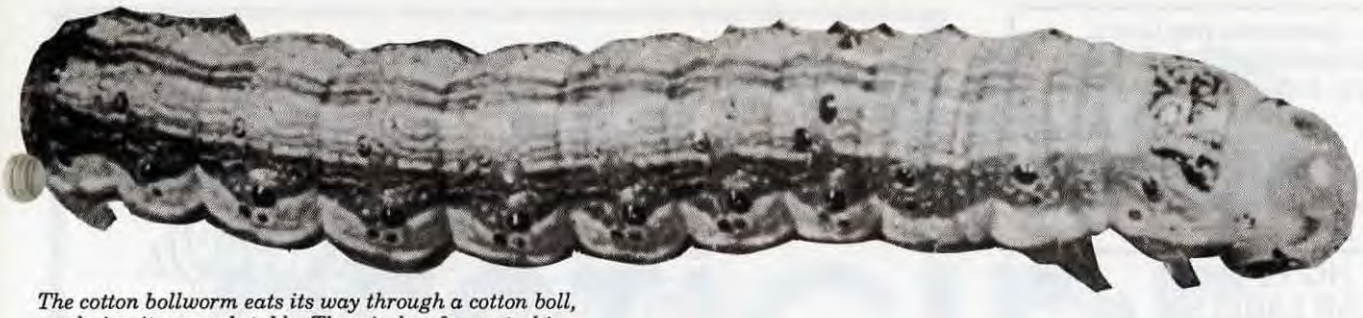
Farmers need bees just as much as bees need them. Make this point to the farmer and have him tell you what kinds of problems he faces. Tell him what you face. TALK. THEN TALK SOME MORE.

The ultimate responsibility for

COTTON NUMBERS

In 1988, U. S. farmers planted 10.6 million acres of upland cotton, yielding 616 lbs./acre at 63.74¢/lb. This amounts to $5.027 billion.

The U. S. produces about 20% of the world's cotton, and exports just about half of what it produces. □



The cotton bollworm eats its way through a cotton boll, rendering it unmarketable. The window for control is small, and growers use considerable sprays to stop them.

protecting your bees lies with you though. It is easy to ask the farming community to put more work into their fields by not using chemicals, but it is difficult to make the same sort of effort to learn how to protect your bees, and how to better use the systems in place for recourse when something happens. In Thomas' words "The process starts with you."

PROTECTION

Beekeepers can protect their colonies when a spray is imminent and the crop to be sprayed is the one their bees are currently visiting.

Safest and most expensive — move colonies at least three miles from the spray site. Return one to ten days later, depending on the spray and the crop (Expensive).

Restrict flight just before, during and for a short time after a spray. Techniques not recommemded covering colonies with burlap and wetting; covering with nylon mesh; or covering with parachute material (High labor).

However, there is a techinque that works well for commercial, sideline or hobby operations. It's inexpensive, requires minimum labor, and is alsmost 100% foolproof.

Two requirements for protection — bees need to stay out of treated fields for about a half day; second, during confinement, colonies require considerable ventilation to stay cool.

Moving screens on top and screens in the front entrances give good ventilation, but are expensive and labor intensive.

But, by offsetting the top super(s) two to four inches and covering the exposed area with screen, bees can maintain proper ventilation, when confined, for nearly an entire day.

When a spray is near simply insert a screened entrance guard into each colony. One beekeeper extimated he could close down a 40 colony yard in 10 minutes.

Developed in the dry Dakota's, beekeepers there can leave these top screens on for long periods of time. Areas with greater amounts of summer rain may have to adjust somewhat.

Features entrance screens can be applied any time of the day, not just early A.M. Returning foragers will cluster outside the two screened entrances trying to get in to dump their loads and will not forage until they do so.

Cost per colony — reported to be less than ONE DOLLAR! Minimal labor, too.

Though not perfect, varitations of this method have been successful in areas other than the Dakotas, and should be considered by any beekeeper threatened by a spray. □

TRUE STORY

A true story about the interrelation of ecological systems.

This parable is a good example of how problems arise in the world. The story is told by ecologist C. S. Holling about the Dyak aborigines of Borneo, the world's third largest island, located in the South China Sea.

Some years ago the Dyaks were plagued with malaria and the World Health Organization (WHO) decided to do something about the problem. With the conventional wisdom of the day, it decided to spray copious amounts of DDT as the most effective way of killing the little beasties. The mosquito population declined almost immediately and the incidence of malaria went down.

Unfortunately, the roofs of people's houses started collapsing. The DDT killed not only the mosquito but also a parasitic wasp that ate thatch-eating caterpillars. Without the wasps, the caterpillars proliferated and ate the roofs.

Then the WHO found another problem. The DDT-poisoned insects were eaten by little lizards which were eaten by local cats. As the DDT built up the cats all died, the rat population flourished and there was an outbreak of the plague.

The WHO had to parachute live cats into Borneo to eat the rats and control the outbreak of the plague which it had caused.

REDUCING PESTICIDE LOSSES

LA MAR BRYAN

Coping successfully with pesticides can be done, but it means more work.

Pesticides pose a greater hazard to beekeepers in Wyoming than many other states because of a lack of regulations and a vast amount of public rangeland that annually gets sprayed for grasshoppers. As a result, Bryant Honey, Inc. has utilized a variety of methods to help protect their bees from pesticides.

Establishing communications with local farmers, ranchers and pilots involved in pesticide spraying is the first step. Don Bryant says he started a telephone "hotline" to encourage people to give him advance warning.

Once Bryant knows a field will be sprayed within two miles of a bee yard, he will either plug the hives for a few hours or move the entire yard to a new location depending on the residual life of the pesticide being applied.

After experimenting with a variety of plugging methods, the Bryant family settled on placing screens over the holes in the bee hives early in the morning on the day when the pesticide will be applied. The window screens, which are cut out in one to one and a half-inch strips, are more convenient to use than toilet paper and burlap, Bryant says. The company also rejected watering or icing hives to keep the bees inside.

The first step in plugging the hives is to stick the screens. These are pre-cut and ready to use. They are pushed in with a hive tool. Returning foragers stay until they can get in and unload.

"You can pull the screens quickly if you think they're (the bees) getting hot," he says. "And when you pull them, it still messes them (the bees) up so that they stay around the yard for a few hours."

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PESTICIDE...Cont. From Page 343

The Bryants also sometimes plug all of the holes except the bottom one in a hive. "Bees will go out and try to get back in but it takes a while for them to figure out they can get in only from the bottom holes and it keeps them in the yard for a while," Bryant says.

When plugging beehives for protection from short-life pesticide residuals, it is critical not to allow the bees to overheat. Once temperatures climb above 60 to 65°, the hives must be unplugged or the bees will begin to suffocate, according to Bryant.

Pesticides with residuals that last more than a few hours generally require moving the entire bee yard or risking heavy losses. Some beekeepers say moving a yard also results in losses, but the Bryants attempt to make process as smooth as possible for the bees.

Bryant says his company smokes the bee hives heavily just before dark and then loads them onto a truck for relocation. Once in the new location, the hives are spread well apart from one another, with the fronts facing in different directions and angles. This helps the bees reorient themselves to the location of their hive in a new area.

"If you put the hives all in a line right next to each other, the bees are going to fly out and, because they're in a new area, they go into a different hive," Bryant says. "Some will be accepted in new hives under those circumstances and others will be killed. Some say that's why moving isn't worth it, but we don't lose bees because of that."

When moving the hives back to the original yard, Bryant faces the structures all in a southerly direction, but turns them in various degrees of crookedness. Then the next time he visits the yard, the hives are straightened back into an orderly line. □

A screen 'plug' is used on this upper entrance. It allows some ventilation, but bees still can't get in. They are easy to install and remove.

BEE SPILL!

"Big bee spill at the interstate truck stop." Those words woke each of us early on the morning of June 3. We knew we were in for some sort of adventure with that telephone call it was indeed a big bee spill.

Many migratory beekeepers pass through Maryland/Delaware on I-95 en route to East Coast honey locations or pollination rental sites. We knew it probably was only a matter of time before an accident would occur. Both Maryland and Delaware state regulatory people had dealt with smaller bee spills in the past. But this was the big one — 400 colonies and it was in front of the fuel island at a major I-95 truck stop in Elkton, Maryland.

We were fortunate in many ways (if the word fortunate can be used when talking about 400 bee colonies spilled off a trailer truck). It was Saturday and that is a slow day for the truck stop which is within 3 hours of many large and small cities of the Mid-Atlantic area. Truckers stop there to time their entry at their destinations at opportune unloading or traffic condition times. We were also lucky that the custom bee net still held most of the load and in fact most of the colonies were still intact but lying on their side. We discovered the equipment was 8-frame, not 10-frame hives, but that the top boxes were heavy with blueberry honey. Finally, we had a plan and would call upon several beekeepers/regulatory people to help clean up the spill.

It was a big spill! A contract trucker was transporting just over 400 bee colonies belonging to Horace Bell — an 18,000+ colony operator from Hammonton, NJ and was taking them to South Florida. In New Jersey, the bees had pollinated blueberry and also secured a honey crop. The colonies were on pallet bottom boards, four to a pallet with California tops.

Each of us arrived to survey the accident scene not quite believing the mess. The accident occurred as the truck driver was backing up to return to the truck stop scales after adjusting his rear axles. He jackknifed the trailer as he was backing up causing the load to topple. The flatbed was twisted 90° at the back while still attached at the cab. Most of the two-box colonies were intact either completely on their sides at the

DEWEY M. CARON
PAUL SCHAEFER
& I. BARTON SMITH

Fortunately, most of the equipment stayed under the net but those are all bees on top and hanging onto the sides.

back wheels of the trailer or at a 45° angle close to the hitch. Many covers were off since the bees had been thoroughly inspected before leaving New Jersey. Gratefully a heavy fabric moving screen still covered the whole load being ripped in only a couple of places as well as being pulled away from the bottom of the load.

The hives looked salvageable. Since there was little damage and they still were screened, we had the Singerly Fire Company of Elkton put a fine water spray on the bees. We noted New Jersey inspection stickers certifying a recent inspection. We later learned that the bees had been thoroughly inspected in NJ for brood diseases and mites and these colonies were completely free of such problems.

The truck stop owner wanted the bees gone as it was far from business as usual! They closed one portion of the fuel island and rerouted the big rigs away from the spill area. We waited for insurance carriers to make up their minds and finally got the word to do what had to be done, including destroying the entire load if necessary. After debate, we decided to salvage the load. We would continue the fire hose on the bees all day and wait until evening to start the transfer. We assembled our team.

The easiest to reach equipment was moved immediately, but the bees were everywhere — absolutely everywhere!

Bob Mitchell, the state apiary Inspector of Delaware, was called for advice — the bees were in Maryland but within 1/10th of a mile of the Delaware line. He would join us. A large 200+ colony beekeeper in the area, Brad Geesman would come after working a construction job all day. William Schaefer would join his father and help. Delaware Entomology graduate student's Hua Peng and Samuel Cordova were willing volunteers. We considered other students but decided not to ask others as multiple stings would likely result and we wanted individuals who were accustomed to stings.

Shirley Painter, assistant Maryland apiary inspector joined the work team and Maryland regional part-time apiary inspectors, Jerry Fischer and Ernie Miner plus Maryland Dept. of Agriculture entomologist Bob Tatman would help. Horace Bell employee Gary Kelso, who had come down from New Jersey after being informed of the spill, was on hand with a bobcat to load pallets onto the replacement trailer. He had loaded the trailer the night before in New Jersey and, although working with only a couple of hours of sleep, provided valuable experience and was an expert bobcat operator. His help was essential for our task.

Our group, described by one as 'strong of back and weak of mind' was ready by 6 p.m. We turned off the fire hose, pulled back the screen and started the hive transfer as daylight was fading. Six hours and 100+ stings each later we transferred the last hive onto the replacement flatbed truck. It was a long, long night.

Each hive body had to be individually moved from it's accident position and the colonies reestablished on the pallets. We could not keep the colonies intact — they were too heavy with honey and it was awkward to lift the 2 hive bodies together from their spilled position. Nearly every colony had to be pried apart as top boxes were well filled with honey and had a solid burr comb and propolis seal.

Spirits were high and the declining

daylight helped us initially. At dark we set up portable lights and were 1/3rd through our task when we hit the most aggressive colonies of the night. Everyone got bees inside their veil and bee suits despite duct tape and special equipment. We decided to take a break and wet the bees down again with the fire hose before resuming.

The hives at the front of the load were the most jumbled and broken. Here the truck body was still at a steep angle. The bees continued to be aggressive through the night and it was necessary to stop several times to wet the bees down before proceeding. There was a collective sigh of relief when the last hive body was removed. One glutton for punishment was heard to say, "What, no more to do? What a pity."

As we assembled the hives, Gary Kelso used the bobcat to reload the repalleted bees onto the replacement trailer. We cleaned up the drowned and crushed bees when the job was completed. We lost less than a pallet of broken, damaged equipment. The bonfire of busted equipment, the twisted trailer truck, a dozen tired but happy white-suited beekeepers, the bobcat reloading bees 3 high on the replacement trailer and the arching water line from the fire hose made for an eerie sight. We should have charged admission to the "show" throughout the night we were quite a spectacle.

The reassembled colonies needed attention when they reached their destination in Florida. We had

Continued on Next Page

Sticking your head behind that net was an experience not soon forgotten. Smoke, water and good gear helped, but didn't stop the stings.

As the night wore on the organization got better but the beekeepers slowed down.

certainly killed some queens and reassembled some units with 2 queens and others with none. We drowned a lot of bees and many foragers were left behind. But nearly all the equipment was intact, the colonies would become queenright and regain lost foragers and the truck stop could return to normal operations.

As for us, please, next time, don't call us — we did it once but aren't ready to repeat it again. The Elkton '89 bee spill is history. It is now a story only to be enjoyed in its retelling. It was indeed a long night!! □

MOVING INSURANCE

(Above) Provide adequate ventilation. Moving screens on top and screening in the entrance are recommended.

(Right) Banding will hold colonies securely and are cheap insurance against accidents.

You don't need a semi full of bees to cause a serious problem with a spill. A minor fender bender on the edge of town or a spectacular eight vehicle pile-up on the freeway can be equally dangerous if only two or three colonies are involved.

When moving bees even short distances, follow these simple rules to avoid problems.

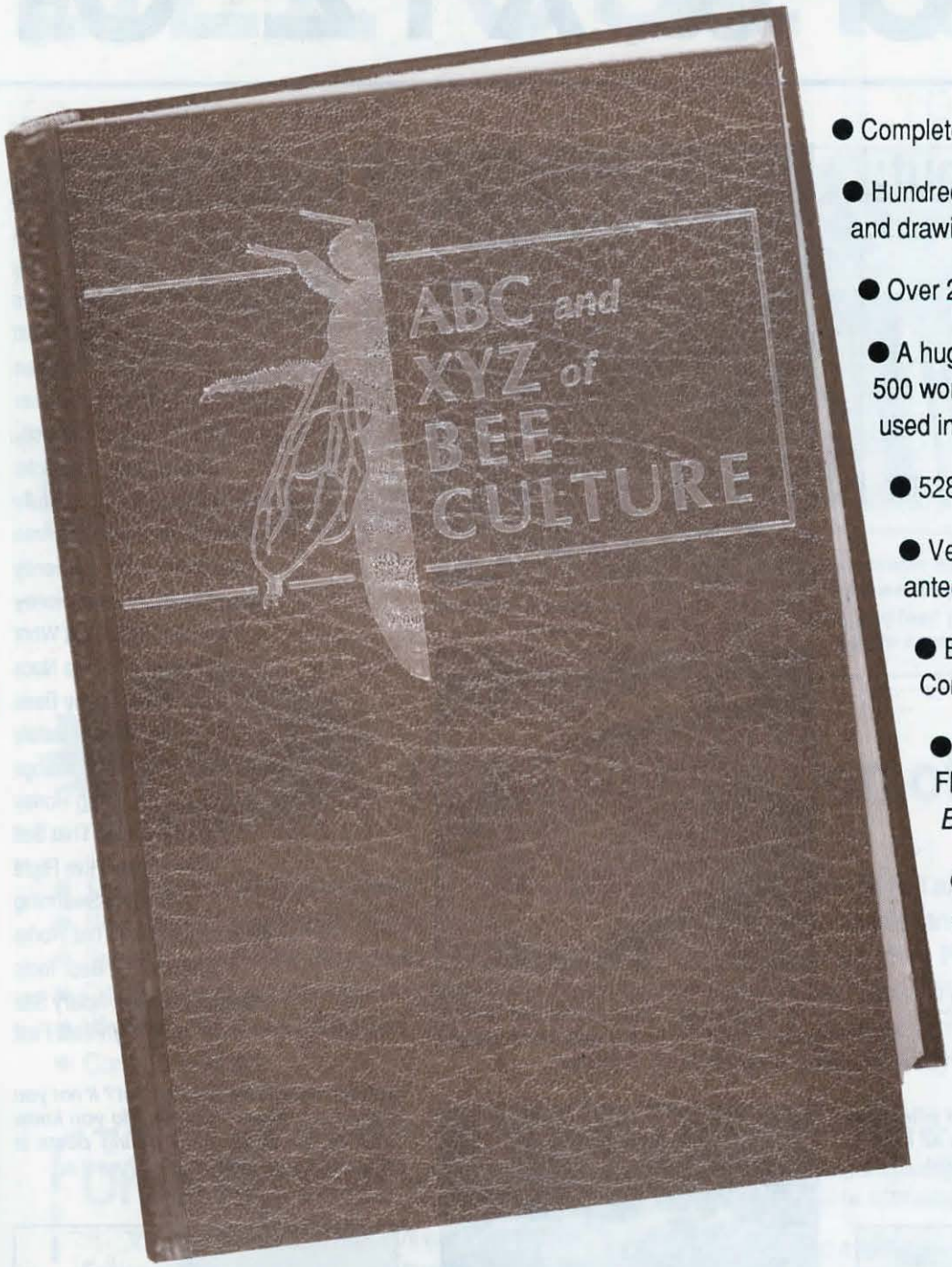
- Secure top, supers and bottom board to each other. Although hive staples work, we recommend strapping, tieing or banding the entire unit together. Staples may not hold if a colony is violently wrenched. Bands — steel, fabric or plastic — will keep it together, especially if it tips over.
- Cover all cracks, holes and upper entrances. Seal cracks between supers to keep them from sliding apart. Duct tape is superb for this.
- Provide adequate ventilation on top and at the main entrance. If you're delayed in traffic your bees won't overheat.
- Secure your colonies to the bed of your truck with tie-downs, rope or bands. This avoids sliding during panic stops or jump starts.
- Never, ever, assume the propolis seal will hold colonies together.

Good neighbor beekeeping extends past your property line or apiary site. Public relations never stop! □

(Left) Tape holes and cracks shut to keep bees in during travel and stop supers from sliding apart.

(Below) Secure colonies to truck during travel with rope or tie-downs.

The 40th Edition of ABC & XYZ



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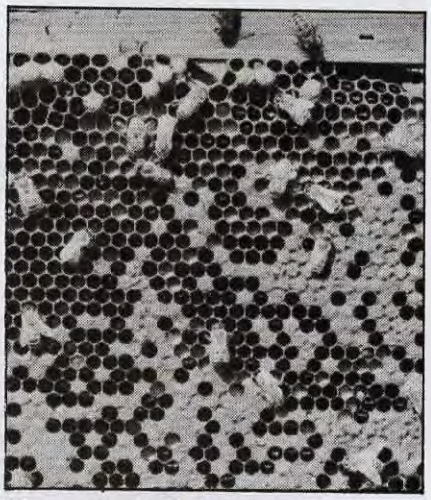
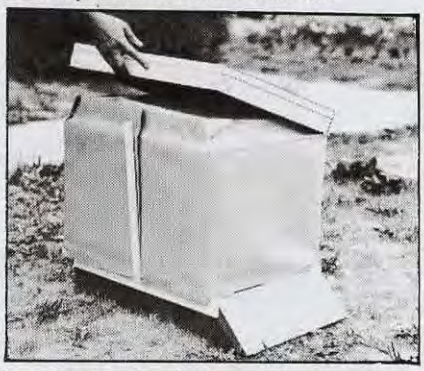


What's wrong with this Queen? Find out in the chapter on 'Brood Patterns'.



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Use Pollen Traps Efficiently
Make Great Creamed Honey
Set Bait Hives That Work
Make And Use Nucs
Feed Honey Bees
Handle Bees Safely
Remove Bees From Buildings
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Make Candles That Sell
Use A Scale Hive Right
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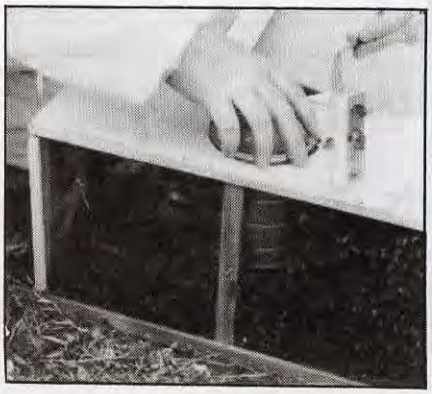
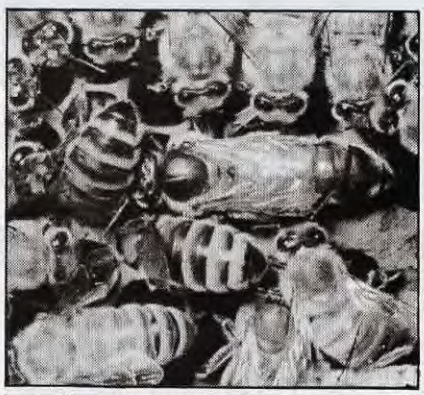
Make Equipment That Works
Choose The Best Tools
Select The Best Apiary Site
Identify Pests Fast

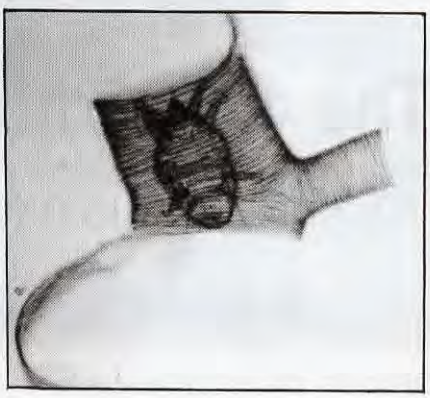
Package installation is a snap when you know the right tricks. They're all here in the 'Installing Packages' section.



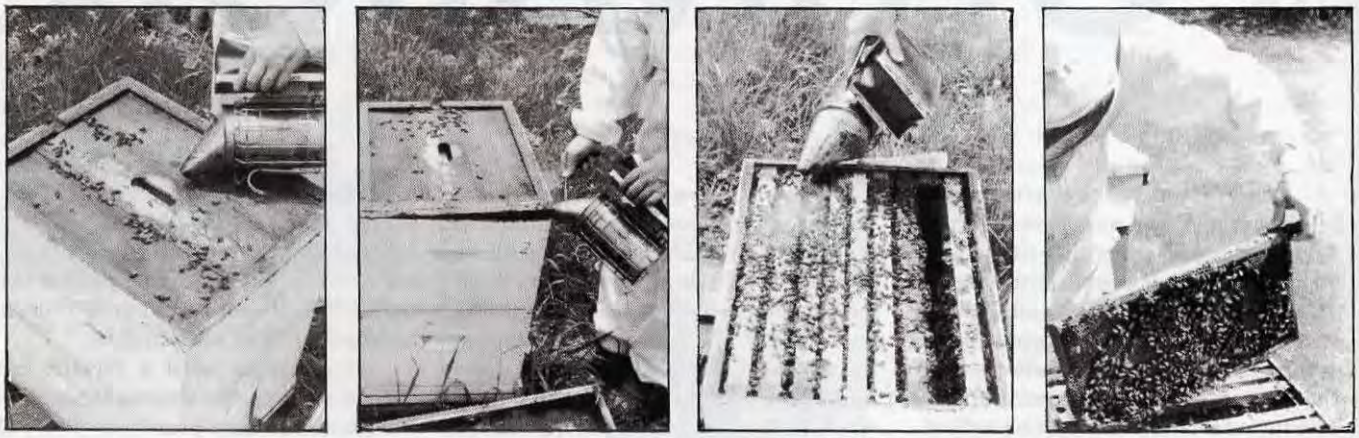


Installing Queens? Raising Queens? Losing queens? Everything you'll ever need to know about every aspect of this most important hive inhabitant can be found in the huge chapter on 'Queens'.

Do you recognize this varmint? If not you should and even if you do, do you know what to do about it? Treating pests is important, and ABC & XYZ has it all.



BEE CULTURE



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KERR'S POLLINATION

MARSHALL DUNHAM

After fifteen years of commercial beekeeping, Dave and Rose Kerr of Amity, Oregon are still enthusiastic about the bee business. In their family operation, Kerr's Honey and Pollination, honey sales are only a part of the enterprise. Like many beekeepers in the western states, the majority of their income is derived from pollination rentals.

Dave and Rose manage about 1500 colonies of bees, with part-time help from their two sons, Mark and Scott. Dave considers the optimum level for a one-man commercial outfit to be around 800 colonies. Labor is by far the biggest expense for an operation, and 800 is about the most a healthy, hard-working, highly motivated man can manage without hiring help.

"To stay in business," Dave figures, "you have got to make a minimum of $100 on each colony, every year. Around here, that means you have to get at least four pollination fees and a honey crop. That means you have to move every colony ten times a year."

In order to move 1500 colonies ten times a year, Dave uses two trucks and two forklifts. A three-ton International S Series with a 220 horsepower diesel engine and a 28 foot semi-trailer combination hauls 400 colonies and is the backbone of the operation. A one-ton Ford diesel with a stainless steel flatbed can haul 72 colonies and is used when visiting apiaries, pulling honey, making honey deliveries, and hauling the feeding tank.

The outdoor forklift is a balloon tired, custom made rig which Dave built out of a 1971 Chevrolet 4 x 4, doing most of the work himself, in his garage, in one winter. It can be towed behind either of the trucks. The indoor forklift is an electric model, used to move pallets and drums in the warehouse.

To move bees with a forklift, four standard ten frame hives are placed on pallets, with the pallet serving as the bottom board. Dave uses "side loading" pallets because he can haul 12 more colonies per truckload than with "front loading" pallets. Six rows of pallets, three wide, make 72 colonies per layer, and they can be stacked three layers high. The woodenware is secured to the pallet with metal bands and are cinched down and clamped tight, making a secure package. The pallets feature 3/4" entrances and two 3/8" drain holes at the back of each hive.

Any farmer with a forklift can unload and reload a shipment of palletized bees. The Kerr's contract allows $1 off the rental fee of each colony if the farmer distributes and collects the bees. Having the truck unloaded makes the hauling job easier and eliminates the need to bring the forklift along.

A Pollinator's Year

The Kerr's beekeeping year begins with an inspection of the colonies in mid-January. This is not the best time to be opening hives, but the bees must be checked before they can be moved to the almond orchards of Northern California, about 800 miles south of the overwintering yards in the Willamette Valley.

Dave and Rose haul some of their

Continued on Next Page

Kerr's balloon-tired forklift moves colonies with ease in almost any terrain.

Side-loading pallets increase hauling efficiency and make unloading possible for anyone with a forklift.

When reversing, the first step is to smoke over the bars (square smoker made in Mexico).

bees and hire out trucking the rest so all the colonies will arrive in the orchards at the time of bloom. "Going into California is like going into another country," Dave says. "You can count on a half hour of paperwork at the border, and every health certificate and moving permit has to be just right or you don't get in."

Depending on the weather, the bees will pollinate in the almond orchards for three to four weeks. Most years, there is fair weather and a good bloom and the bee populations build up fast on the almond pollen and nectar. (There are also years when it rains all the time, the levees break, the orchards flood, and the hives float down the river.)

Most almond growers use two or three colonies per acre. Pollination fees for almonds hovered around $20 for several years but have been increasing recently. The average fee in Northern California was around $30 in 1989, but was slightly lower in the southern almond growing region. This year prices were higher much higher in some places because bees were in short supply.

When the bees are moved back to Oregon near the end of March, they must be fed because the populations are booming and there is nothing blooming. Reversing begins after the first feeding.

When the spring bloom finally comes to Oregon, most of the Kerr's bees are moved to Hood River to pollinate pears, while others will go to the cherry orchards and early blueberries in the Salem area. The bees will set two to three weeks in these crops.

As the bees come out of the pears and cherries, they go into the crimson clover and berry fields. Kerrs pollinate red raspberries, blackcap raspberries, Marionberries, and boysenberries. Fees for these berries are fairly low because small crops of particularly fine honey can usually be made. Raspberry honey is a fine, light, delicately flavored table-grade honey that often sells for over a dollar pound wholesale. Unfortunately, the yields are usually small.

Crack the two supers.

At this time of the year, other pollinators in Oregon are moving into cranberry bogs, holly fields, and other specialty crops. Although cranberries pay high fees, Dave considers the stresses on the bees to be too great to justify the move.

During the bloom (after May 1) in the Willamette Valley, Dave and Rose are also busy making divides. Each year, they "break down" the weakest one-third of their colonies and start as many new colonies.

Meanwhile, as the bees come out of the berry fields, they are moved to vegetable seed farms to pollinate radishes, turnips, kale, and Chinese cabbages. They also pollinate alyssum, chrysanthemum, foxglove, and many others for flower-seed growers.

In late May and early June, the Willamette Valley clover seed fields begin to bloom. Kerrs pollinate crimson, red, white, and arrowleaf clover. White clover doesn't produce honey crops in this area, so seed growers pay about $25 a colony to rent bees. Red clover makes some honey and growers pay a rental of between $14 and $18 a colony. Crimson clover and vetch seed growers pay nothing for pollination because these crops usually produce a good honey yield. Growers of vetch and crimson clover may have to pay for bees in the future because beekeeping expenses are going up much faster than the price of honey.

The Kerrs could go to the vegetable seed fields of Eastern Oregon for another pollination set, but they have found that the pollination fees, as high as $30 per colony, do not compensate for the loss of their bees. Spray applicators in eastern Oregon are not as conscientious about notifying beekeepers as applicators in western Oregon. Bees coming out of the eastern Oregon seed fields have been found to be too weak to make good spring pollinating colonies in California.

The pollination cycle ends in mid-August, after white and arrowleaf clover have set seed.

Management Techniques

There is no single right or wrong way to keep bees; there is only what people find works best for them. The practices described here are ones that Dave and Rose have found to work for them, in their particular situation.

Remove the deep, then the shallow on the bottom. Pallets are then cleaned.

Place the deep on the bottom.

Put on an excluder.

Place shallow on top.

Feeding

To maintain large populations of bees, supplemental feeding is required. Kerrs buy Type 42 or 55 High Fructose Corn Syrup in the spring, starting the season with about 40,000 pounds in their warehouse tank. A heater in the tank keeps the syrup at 80-90°F for easy pumping.

At feeding time, a 400 gallon steel tank with a five HP Briggs and Stratton engine, pump, and hose, is forklifted onto the one-ton truck. An electric pump in the warehouse transfers the syrup to the truck tank. At the apiary, the syrup is pumped through a long hose into division board feeders which are present year round inside the brood chambers. Before reversing, when the brood chamber is on top, feeding is a one-person job. After reversing, feeding becomes a two-person job because the super has to be lifted out of the way.

Dave and Rose always modify their plastic feeders by putting strips of hardware cloth, wire mesh or pieces of used bee netting into each feeder, then nailing through a small block of wood to keep it in place. This gives the bees something to climb out on so they don't drown in the syrup.

Dave does not use top feeders because bees take too long to empty them. He believes top feeders "train" the bees to wait for feed. The division board feeder in the brood chamber, filled with 90° syrup, can be emptied in six hours, freeing the foragers to get out pollen collecting.

Reversing

The bees are overwintered and go to the almonds in a deep brood chamber placed over a 6-5/8" western honey super. When the bees return from California, the positions of the two boxes are reversed. During reversing, every colony in the outfit is taken completely apart. In the process, colonies are checked again for strength, queenright, disease and stores.

Dave's method of reversing begins with popping the lid with the hive tool and raising it enough for a few puffs of smoke to be blown in underneath. The lid is then lifted off and set on the ground to the side of the front of the hive. The top of the lid is placed on the ground so that the edges of the flat-topped migratory style cover are pointing upward.

The hive tool is wedged between the two boxes and pried upward. The loosened box is lifted slightly. If resistance is felt, the hive tool must be inserted in the opening at the front of the box. Prying down on the lower frames breaks burr comb and allows the top box to be lifted off. The deep is set carefully on the lid, turned at a slight angle, so most of the bees are over the lid, and only four points are in contact. The queen is usually in the deep and often runs away from the light. Keeping most of the bees over the lid helps prevent loss of the queen.

There is a 15-20% chance that the queen will be in the western (lower) super, so care must be taken when handling it, too. The super is set on its end on top of the nearest colony so that no bees are crushed.

After both boxes are removed, the bottom board is scraped and the drain holes at the rear are cleaned. The deep is then set on the pallet clips and jiggled into alignment. If there is burr comb on the top bars, it is scraped off so the queen excluder will sit flat.

Dave and Rose have found that excluders must be installed early, before the queen extends her laying pattern into both boxes. If the excluder is put in too late, it changes the queen's brood pattern and stimulates swarm-

"To stay in business you have got to make a minimum of $100.00 per colony — every year! That means you must have four pollination fees AND a honey crop."

Evenly space frames.

Replace cover—job done. Kerr's do this same procedure to every one of their 1500 colonies each spring.

A routine sample is collected for later study — tracheal mites are a headache for nearly everyone who pollinates.

ing. If the excluder is placed above two boxes, when the honey flow starts, the incoming nectar will change the brood pattern, which also stimulates swarming. Dave discovered early in his career that he couldn't run bees economically without excluders. For him, the excluder is a tool that saves labor in finding queens, keeps brood out of the honey, and helps maintain uniform colonies.

After the excluder is in place, the western is put on and a frame straightener is used to align the frames. The lid is replaced and marked and the entrance reducer is shifted down to the new entrance.

Four days after reversing, each colony is checked for eggs in the super. Between 15 and 20% will have the queen above the excluder. When eggs are found, the queen is hunted, caught, and gently placed in the bottom box.

"If I were starting over, knowing what I know now," Dave reflects, "I'd use a single jumbo 16-1/4" by 16-1/4" super for a brood chamber because the square frame makes for a rounder brood pattern and eliminates the need for reversing two smaller hive bodies."

Divides and Nucs

Dave and Rose buy about 600 queens a year from various sources to make up 500 divides and 100 one-frame nucs each spring. They never introduce a new queen to an old colony in the traditional "re-queening" manner. Under the best circumstances, only 80% acceptance is possible that way. Dave and Rose get about 98% acceptance by making divides and nucs.

In making divides, pallets of single deeps are set up in the warehouse with each containing a feeder, three frames of drawn comb, three frames of foundation, and three frames of feed honey and pollen. The new boxes are taken to the apiary where the crew goes through the hives, inspecting and equalizing. Weak colonies are "broken down" and the populations are spread around three or four different new boxes. A frame of fresh capped brood from a strong colony is swapped for a frame of foundation. A total of about three pounds of bees, from three or four different colonies, is shaken onto the brood frame. The queen cage is placed, entrance upward, between frames, next to the brood. Ideally, a blob of honey will spurt out of ruptured comb and cover the candy in the un-corked hole as the frames are squeezed together. When all of the bees are among strangers, disoriented, confused, and shaken up, they will seldom reject a new queen.

The divides are put on permanent locations in the foothills of the Coast Range at the edge of the Willamette Valley for the remainder of the year. They are excellent pollinating units the following spring.

To cover attrition later in the season, Dave and Rose make up about 100 one-frame nucs. When they find a queenless colony or a drone layer, they "requeen with a nuc" When a queen is introduced with her brood and a few thousand of her own daughters, she is nearly always accepted.

> "I discovered early on that I can't run my bees economically WITHOUT using a queen excluder. It saves labor, keeps brood out of the honey, and helps maintain uniform colonies."

Equalizing and Uniformity

Between every set, the bees are inspected and equalized. Surplus bees from strong colonies are shaken into colonies which are not so strong. This helps prevent swarming and makes the colonies better pollinating units. The goal is to prepare uniformly strong colonies with no "dinks" or "duds" anywhere in the operation.

Continued on Next Page

A set-up yard, belying the amount of work it takes to make it look this peaceful.

Uniformity is vital in all aspects of a large commercial bee business. The same size woodenware must be used throughout the operation or it will not be possible to load trucks evenly. Every feeder, queen excluder, entrance reducer, and lid must fit every colony on the outfit. Once a method has been developed, all hives should be treated the same way.

Contracts

Dave and Rose only pollinate on contract because a written agreement is the best way to insure that both parties understand the terms of the transaction. Contracts are also vital planning tools. Rose sends out contracts in December and by the end of January, all of the bees are booked for the year ahead. Without contracts, they could never plan the complex movements of so many colonies over so large an area.

Kerr's contracts specify the size of the colonies and that the bees will be inspected within three days of delivery and that payment is then due and payable. Farmers like to see what they are getting, but are afraid of getting stung. Dave urges the farmer to drive out in a vehicle with the windows rolled up and watch while he opens hives. Most repeat farmers skip inspection and pay on delivery. The "due and payable" clause was added because of a lawyer who was a part-time farmer. "This lawyer was the worst customer we ever had," explains Rose. "He'd wait till his crop was sold to pay for pollination. So we put in the contract that payment was due after inspection. That way, if they don't pay, the bees can be moved out before the pollination is done. The vast majority of farmers always pay on time with no problems, but that lawyer was something else!"

Their contracts also specify that the beekeeper will be notified if certain sprays are to be used, and that a moving fee will be paid if the bees have to be moved for any reason.

> "A written (pollination) contract is the best way to insure that both parties understand the terms of the transaction and they are VITAL for our planning — and budgeting."

Contracts are also vital for securing bank loans for new equipment or operating capital. "Say 'bees' to a banker, and all he can think of is honey, but show him a stack of pollination contracts and he'll understand your business," Dave explains.

Responsibility

Providing pollination service is a heavy responsibility. The farmer's livelihood depends on the quality of pollination his crops receive. The beekeeper who performs pollination services must consistently provide strong colonies of bees and they must be delivered and removed on time.

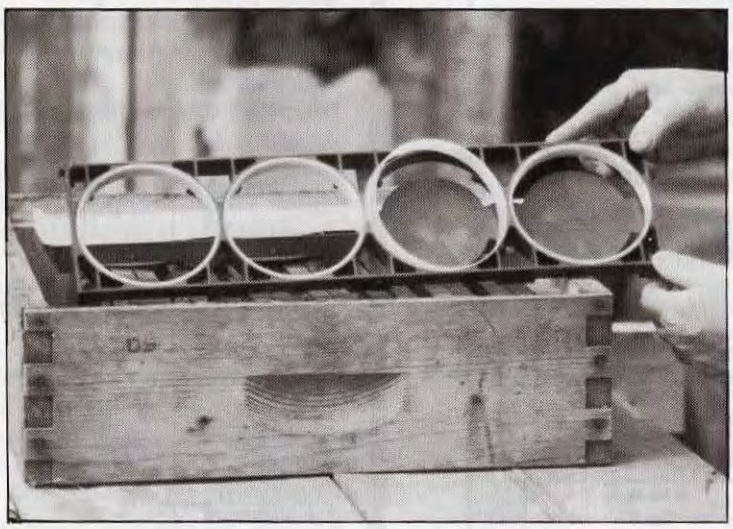
Years ago, Dave and Rose bought newspaper ads but found they got very little business that way. Since then, they have found that doing a good job is the best advertising. Providing strong colonies on time, year after year, leads to word-of-mouth advertising that keeps their business going strong. □

PERFECT CIRCLE

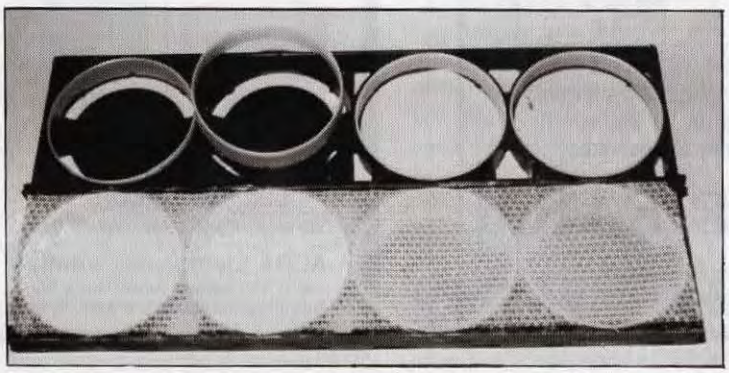
MAKING ROUND COMB HONEY

BUZZ PHILLIPS

CONSTRUCTION ...

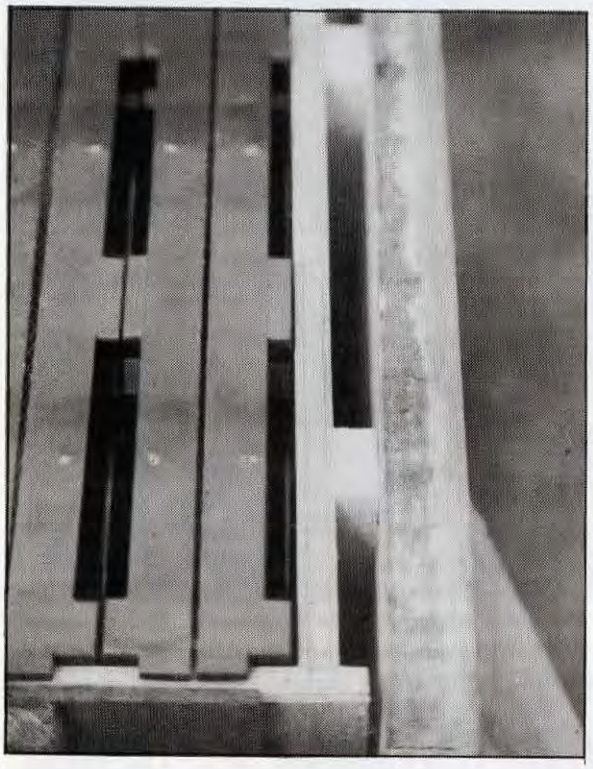


First, insert the white plastic rings in each half of the brown plastic frame. They snap in.

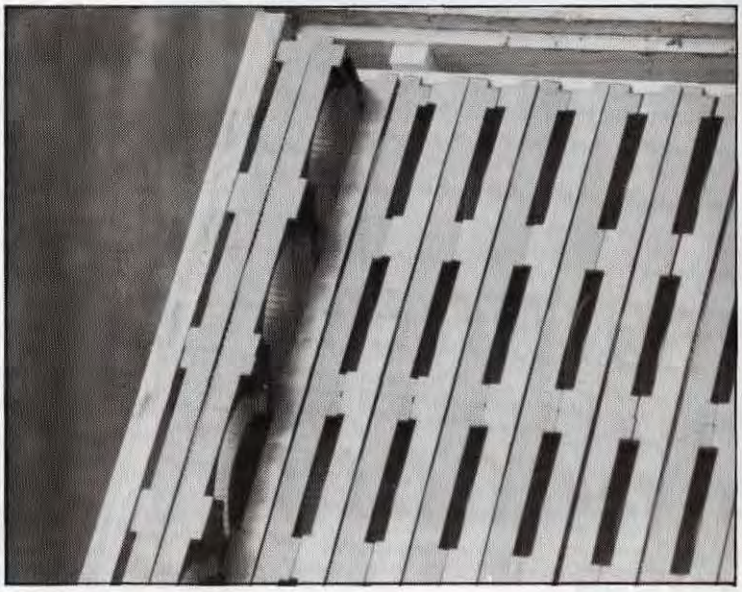


Lay the foundation over one side and snap the other frame half over it. Note that frame halves are reversed.

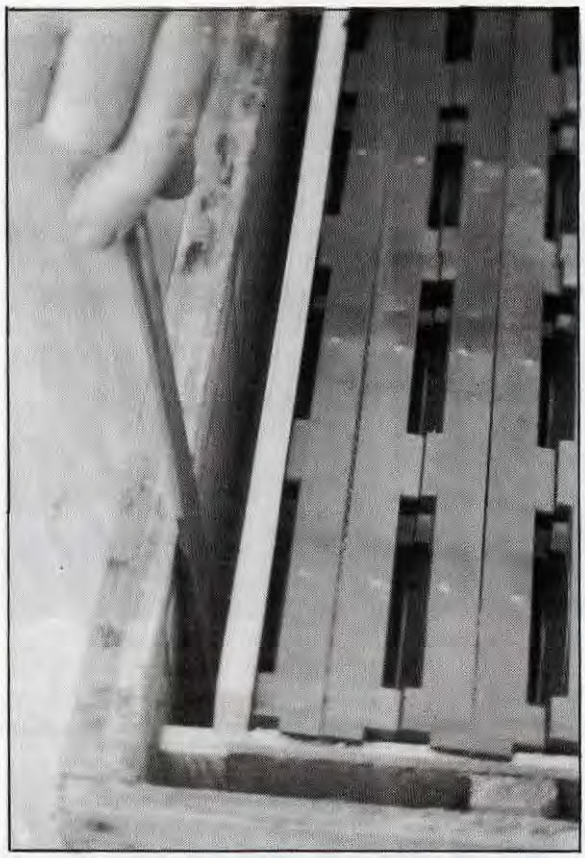
When fastened, place frames in super.



The blocked follower boards. These are permanently attached on three sides. The bee space between the super's wall and the board encourages the bees to fill all end sections.

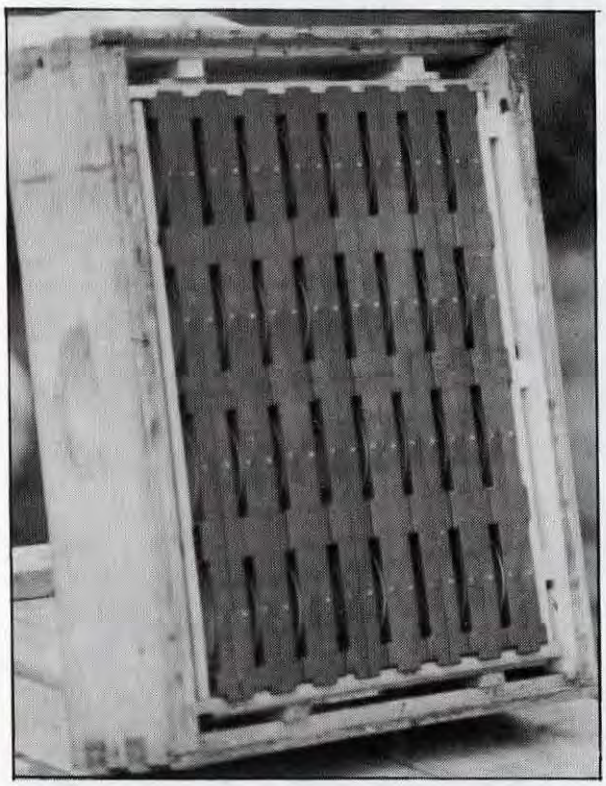


The last frame will fit loosely in the super because the last follower board has not yet been installed.



Place the remaining board in position. Then, using a hive tool or other pry tool, push the frames together, making room ...

... to insert the included springs. These provide the needed tension to hold the frames in place and also make the remaining space available for bee movement.



A finished super with bee space between every frame and around all edges.

Round section equipment makes comb honey production easy and profitable for the beekeeper. It requires about one fourth of the labor of former methods, and produces a finished product that is attractively packaged and durable enough to withstand handling. Any beekeeper with moderate skills and a good nectar supply can produce round sections.

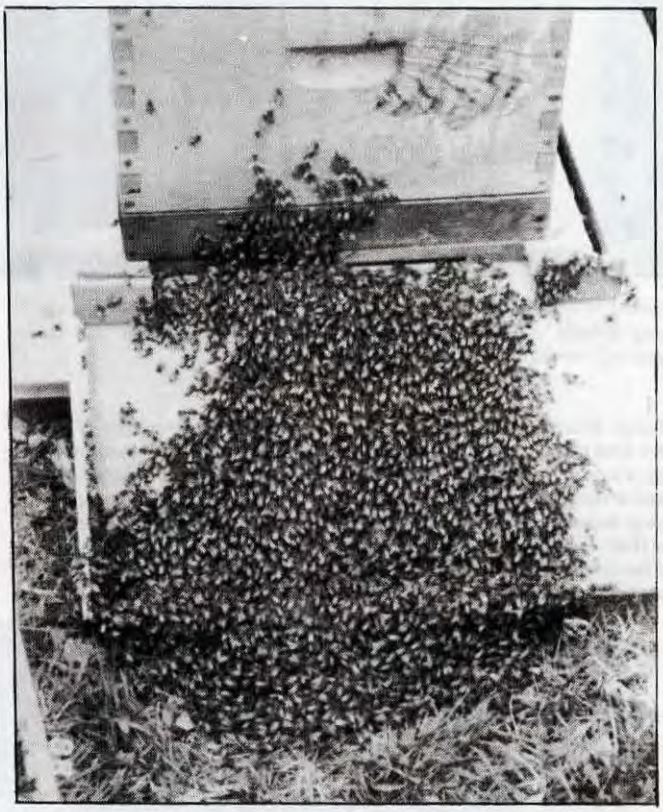
The equipment consists of molded brown plastic frames into which are inserted white plastic section rings and a sheet of beeswax starter foundation. The frame is made in halves so that insertion of the rings is easy. These frames are filled with rings and foundation, placed in a wood super, and are then ready to be filled with honey by the bees.

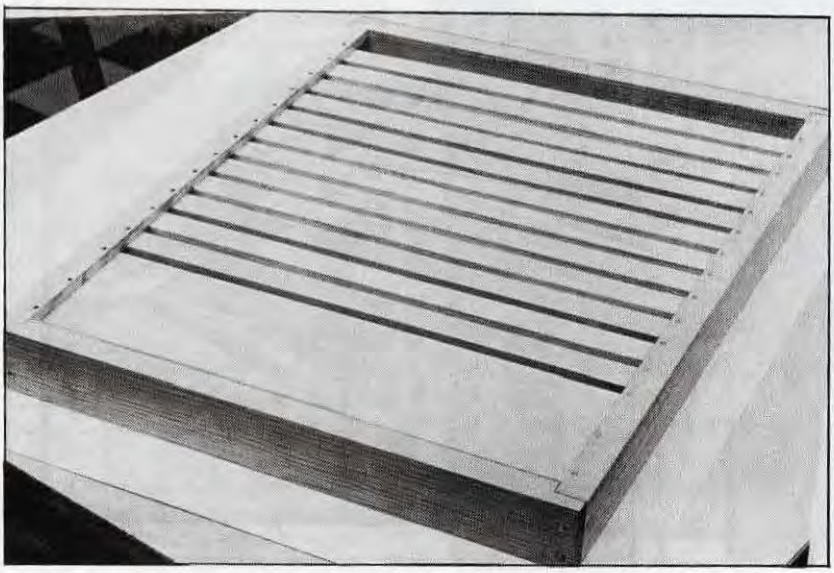
The wood super itself is an important part of the system. It's height is exactly four and one-half inches, and it is fitted inside with end and side follower boards that are blocked out a bee space away from the super walls, following the principle of the old Kruse or Killion supers. This arrangement is important because it encourages the bees to fill and finish the outside combs, greatly reducing the possibility of cull sections.

... MANAGEMENT ...

After the bees have finished the sections, the supers are taken off, and the frames removed and separated into halves. The sections, now contained completely within the white plastic rings, are taken from the frames, excess foundation removed with a small knife, plastic covers fitted on top and bottom, and finished with a wrap-around label.

Generally, one additional step is necessary to protect the finished product from wax moth damage: The covered sections are placed in plastic bags, sealed tightly and placed in a freezer for at least 24 hours. After freezing, the sections *are allowed to warm to room temperature before opening the bag* in order to avoid condensation on the sections. Sections may be left frozen indefinitely without crystallization until removed for consumption or sale. □

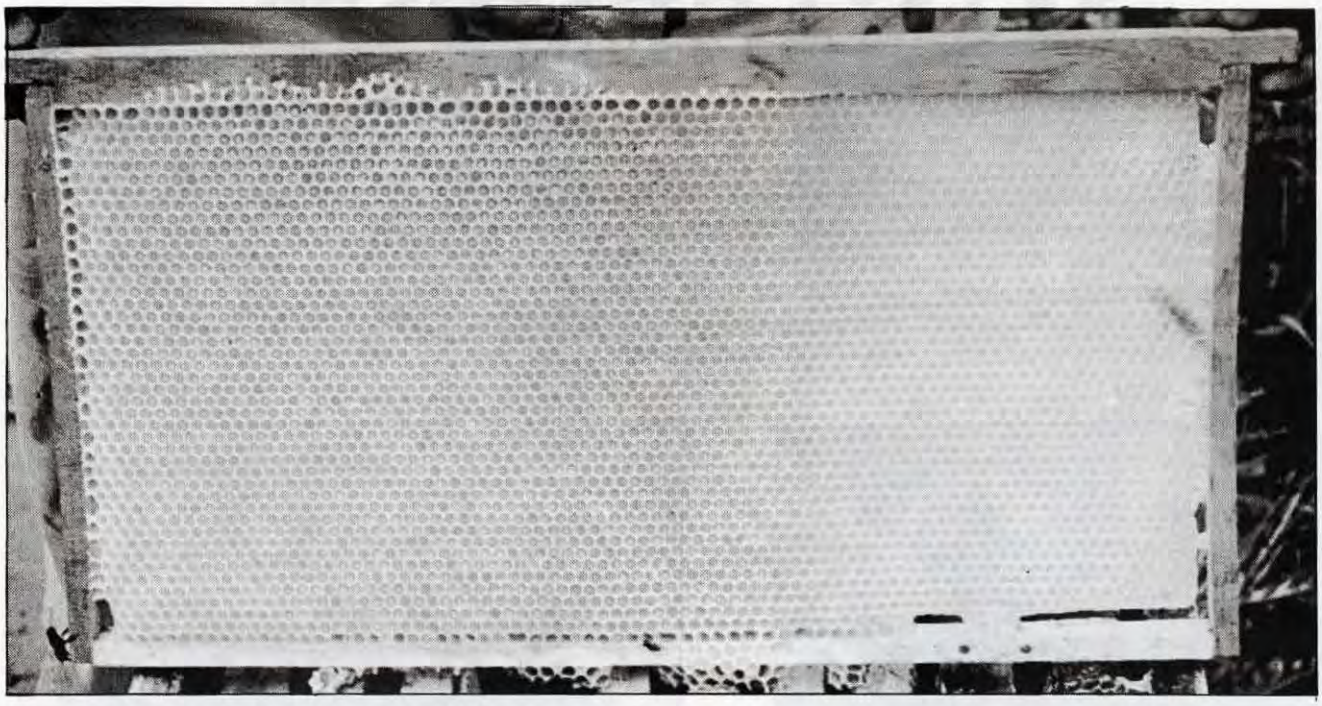




(Above Left) Colony management for comb honey production is a bit different than for extracted honey. The cardinal rule is that you need an intense honey flow. Long, drawn out flows, while good for general production, do not make good comb honey. One technique often used is to place a large (2-4 lb.) swarm in a single deep with only foundation.

(Above) After the swarm has set up housekeeping...

(Left)... some beekeepers add a slatted rack to provide increased ventilation and make better use of the brood rearing area.

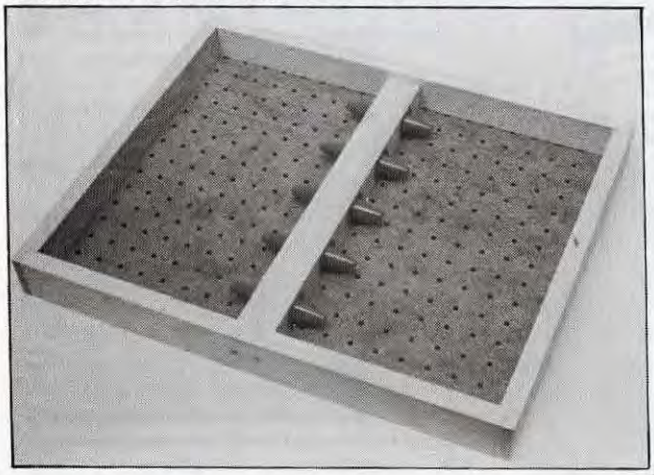


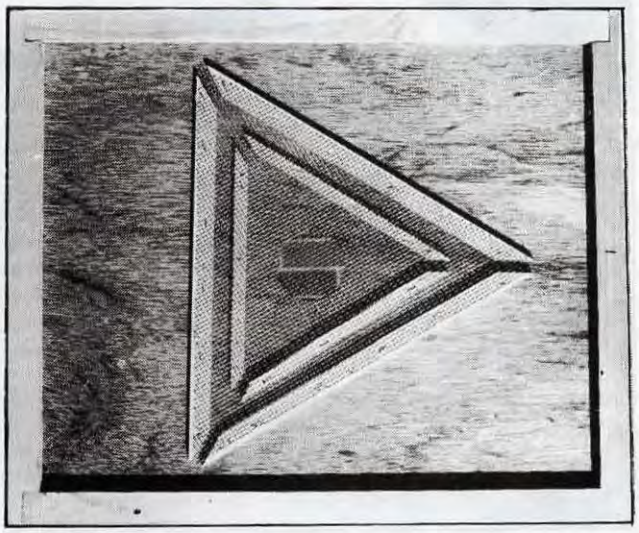
(Above) When the combs begin to whiten and there is new comb being drawn out on the tops and edges of frames, you can be relatively certain a strong flow is going on.

(Right) When the flow starts, place a queen excluder on top of the deep and add one or two (or more) comb honey supers. If the flow is heavy and strong, you may be able to remove the bottom super in a week or less. Sometimes you can reverse the bottom and second comb honey supers letting the bees start a new one and finish the few in the first. However, it is better to have a few culls than to let the super sit too long, as travel stain and other problems can arise, spoiling the sections.

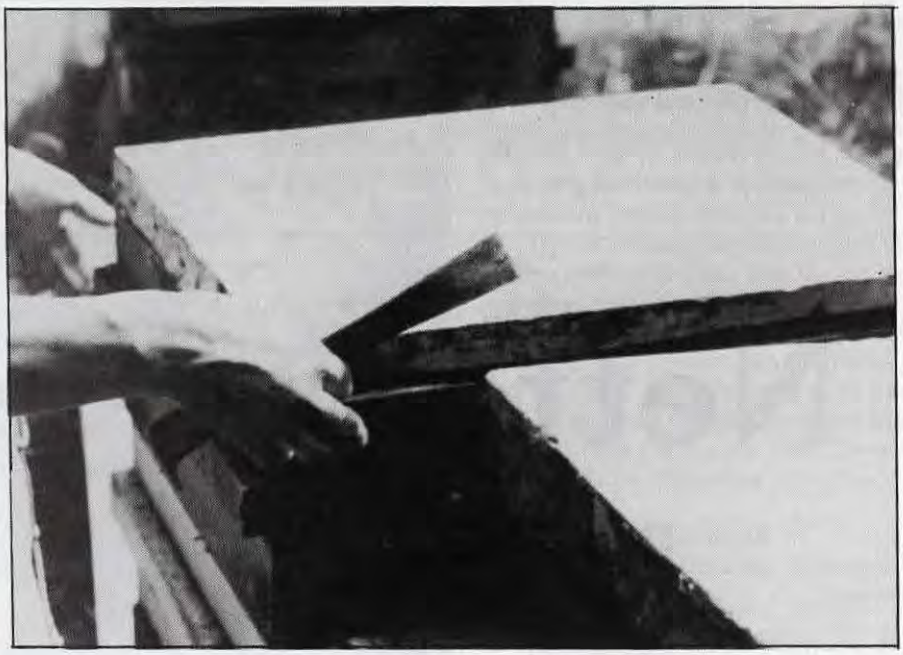
... HARVEST

(Below) To harvest, most beekeepers use any type of the many escape boards on the market. This necessitates two trips to the colony but excludes the use of blowers, fumes or brushes.



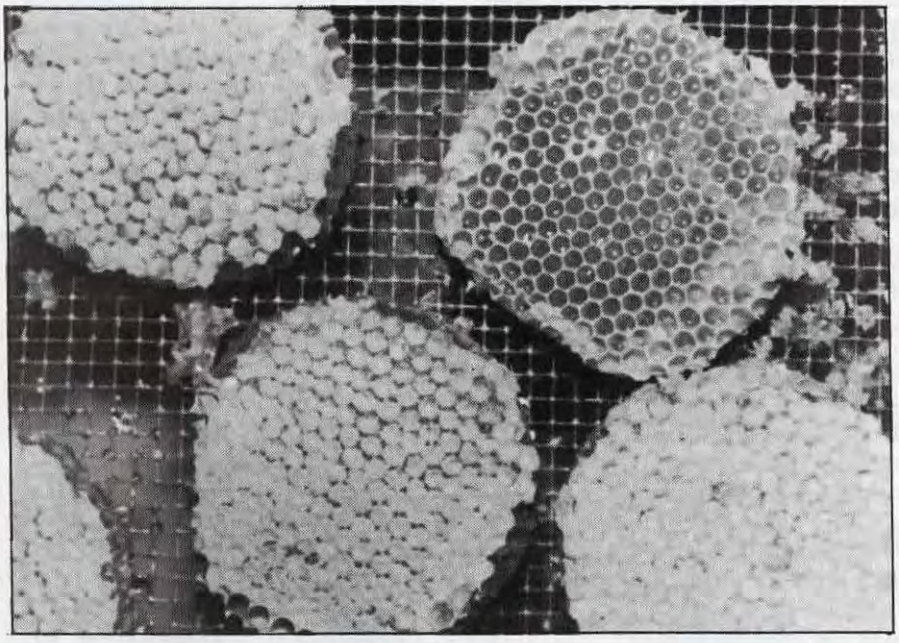


Some use fume boards though because they are fast and you can harvest an entire apiary rapidly. Fume boards are built like a cover, but most have an absorbant pad on the inside top. To use, apply the label recommended amount of repellent to the pad ...



... and place on top of the colony, in place of the cover. The fumes will drive the bees down, emptying the top super. Continue removing supers and reapplying the board to the super below until all supers are harvested.

Adding too much repellent can drive the bees completely out of the colony. Though not harmful, it can make your work more difficult and certainly disrupts the bee's day!



What to do with culls? Some put all the culls back in a single super and put it back on a colony. This is okay if the colony is strong. Otherwise, the sections get waxy and other problems arise. Some simply harvest them, cutting the comb from the rings, draining and using like chunk honey. Waste not, want not.

An old witch stood a-stirring
of a cauldron in a wood
such an evil-smelling brewing
of an herb she counted good.

All around her buzzing insects
added to the witchly air
of a ritual tainting springtime
with intent kept secret there.

So the elemental beings
summoned by an essence old,
knowing medicine is bitter,
turned the brew into pure gold.

Nettles & Stings

and a Confusion of Things

GWENDOLYN EISENMANN

Sometimes a picture of a witch stirring a cauldron comes to mind as I stir a pot of nettles steeping in water in the sun. It is a putrid mess, but plants love it for nourishment and for stress medicine.

The tips of the nettles are washed and steamed for our supper. The rest of the stalk is put into a crock or pail filled with water and left to steep in the sun. Frequent stirring keeps it brewing, and when it smells too bad to approach, maybe a week later, the tea is diluted and poured on roots or sprayed on foliage of plants in need of a boost. When nettle stalks flower, the whole patch can be cut and dried for later use.

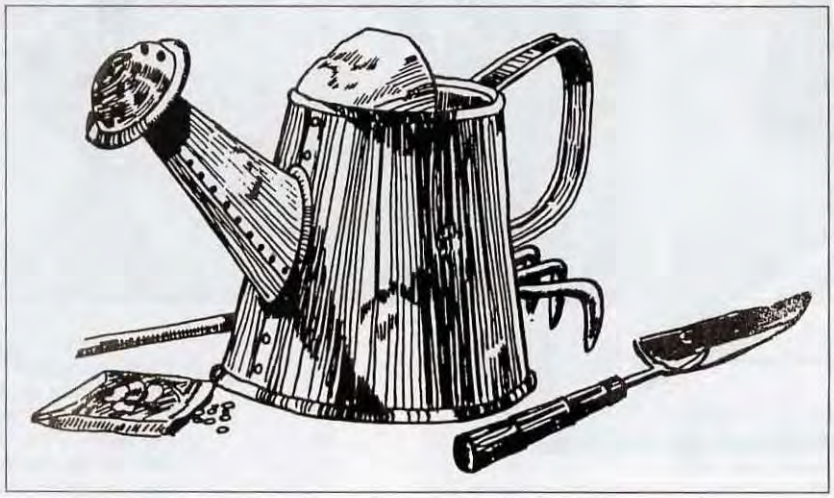
There is a feeling about the ritual of nettle gathering that comes from a dimly conscious connection with very old herbal lore, and with farmers who knew secrets of nature now mostly forgotten. It is a good feeling because nettle gathering is a good thing to do. The other feeling that goes with nettle gathering is sharply conscious, and does **not** feel good.

Called a "dynamic" plant by E. Pfeiffer in his book *Weeds and What They Tell*, Stinging Nettle is called other things by boys who bump into the plant while picking apples in an orchard. It stings like a bee because it too has a venom. But the dynamism of which Dr. Pfeiffer spoke is that which makes the apples so good — it stimulates humus formation wherever it grows. It also changes the chemical process in neighboring crops and makes other plants more resistant. Rudolf Steiner, in his book *Agriculture*, calls Stinging Nettle "a regular Jack-of-all-trades", and says it is "such a good fellow and does not deserve the contempt with which we often look down on it where it grows wild in nature"

The Nettle tribe, *Urticaceae*, grows worldwide with about 500 species, originally including Elm, Mulberry, Fig, Hemp and Hop. But the nettles are unique, and the others are now regarded as separate groups. There is Stinging Nettle (*Urtica dioica*), smaller Burning Nettle (*Urtica urens*), Slender Nettle (*Urtica Gracilis*), and the harmless False Nettle (*Boehneria Cylindrica*). Stinging Nettle is the only one considered so beneficial, and it has no substitute with all its properties.

Could the "hands-off" sting be there to protect a plant so valuable? It grows in temperate regions as weeds in "waste" places (a term which leads one to wonder what is wasted), along roadsides, in ditches, woodlands, and with a peculiar preference for following habitation by man. It usually indicates a soil rich in nitrogen.

Stinging Nettle makes nutritious spring greens (the sting disappears with both drying and steaming or boiling), excellent forage (chopped green for chickens, cut and dried for cattle), fabric fiber as good as flax, dye (the root produces a beautiful yellow color), homeopathic medicines, hay (two crops a year), and the very best compost material for its humus-forming properties.



Burning Nettle is similar in looks and sting but does not produce the same benefi-

cial results in other ways. Slender Nettle and False Nettle are too infrequent or lacking in the above qualities to be considered important.

Though Stinging Nettle is "such a good fellow", its only apparent benefit to bees is that when planted near bee hives it keeps frogs away! So when a "bee man" asked about nettles, the search was on and led to Dead Nettle, white (*Lamium album*), and Dead Nettle, Henbit (*Lamium amplexicaule*).

White Dead Nettle is called nettle because it strongly resembles Stinging Nettle for which it may be easily mistaken in early spring before it is in bloom. But the flowers are absolutely different, and the plants are quite unrelated. It can readily be distinguished from Stinging Nettle by its square hollow stems — if you are willing to risk a close examination. The "Dead" refers, of course, to its inability to sting. The resemblance affords it protection since the two plants commonly grow together. Dead Nettle is also called Bee Nettle since the flowers are very attractive to bees, though only bumblebees can reach the nectar.

So it is left to the little Dead Nettle, Henbit (often called ground ivy) to be the real nectar source for honey bees. Who would think those little purple flowers which make such spectacular display in lawns and meadows in early spring would be a source of the orange pollen we see the bee bringing in? According to Lovell this is so. He also says it is an important aid to spring buildup.

The white flowers of Lamium alba *show early in spring on 8" - 10" plants. The leaf, with its characteristic white stripe down the center, is the key to identification. These plants are growing in a bed of henbit, or ground ivy, which also flowers in early spring. Both do well in moist, partially shaded locations.*

Now we come to the confusion of things. Mrs. M. Grieve, in *A Modern Herbal*, adds Dead Nettle, purple (*Lamium purpureum*) to the list. Lovell calls Dead Nettle, Henbit, *Lamium purpureum*. Then Grieve goes on to say Henbit Dead Nettle is like purple Dead Nettle but somewhat lighter and more graceful. "Its fine deep rose-coloured flowers have a much slenderer tube, thrown out farther from the leaves."

The confusion of terms is enough to get one nettled; but to a bee, Henbit by any other name is still ambrosia.

So the nettle search led to look-alikes, purple flowers, orange pollen, and Oh, yes!, one other thing — the juice of Stinging Nettle alleviates the sting, as does the juice of Dock leaves applied while repeating this charm slowly:

"Nettle in, dock out,
Dock rub nettle out!"
(Grieve)

Or if you grow herbs as well as bees, the sting may be cured by rubbing with Rosemary, Mint or Sage leaves.

Gardeners and beekeepers appreciate both Stinging Nettle, Dead Nettle and Henbit, and, as honey is worth a sting or two — so is a juicy apple. □

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BE PREPARED

Bee spills can occur anywhere, and anytime between early spring and late fall. As a result, emergency preparedness agencies must be ready to respond for several months a year. Some agencies have put together an action plan to deal with this situation.

Since every spill is different, and available resources vary, I've outlined below a general action plan for a bee spill. Not all spills will require this amount of work, and some may need more, but the plan is easily modified, and is only a list of suggestions.

- Because Highway patrol, State, County or local police are usually notified first of a highway spill, it is critical that any plan works hand in hand with these groups — from the first meeting on.
- Compile a list of local beekeepers who can respond to a bee spill. You'll need some who can show up days and some at night. Don't forget, bees move at night, too. Make this list available to the police and fire departments and beekeeping organizations. Gather as many names as possible, because you'll never get them all in an emergency. Provide daytime and evening phone numbers, addresses, and any other appropriate skills or equipment they may have (i.e. large trucks, fork lifts, pallets, etc.).
- Compile a list of available resources and make sure it is in the hands of everybody who may need it. Know where forklifts, pallets, sprayers (see below) and extra bee equipment can be obtained, and how to reach the people who can operate or obtain them in an emergency.
- Obtain and store several complete sets of bee gear. These can be used or new. They should be in a convenient location (local police), and checked periodically.
- Make certain the fire department has the appropriate equipment to put a fine, cold-water spray on the entire spill. This may require two or three nozzles, a tank truck(s), extra hoses and other equipment. They should have appropriate gear (bee suits, veils, gloves) for protection when setting up the equipment. They will probably be the second group at the scene. Fire rescue teams should have the same equipment too, in case there are injured people at the scene.
- Several legal questions must be answered before any work can proceed. They are simple questions, but the answers may not be so simple. First, who is liable for damages caused by the accident (usually the carriers insurance co.), but second, who is liable for property damage and for injuries that occur during the clean-up. Is it the carrier, the insurance co., the police, or who? Make sure you know the answers. Twenty/Twenty hind sight doesn't pay medical bills.
- When the area has been secured by the police and the bees are being wetted down with a cold water spray, the situation has been temporarily stabilized and rational decisions can be made. The first of which is — should the load be destroyed or saved? This is usually made by the owner, or the insurance company.
- If the load is to be destroyed there are several non-toxic techniques available – cold, soapy water; carbon dioxide foam; and burning (a last resort). A high pressure agricultural sprayer (like those used in orchards) can be used, which will put out 250 - 300 lbs. of pressure is ideal. A lot of soap will be needed. In 200 gallons of spray, you'll need 50 gallons of liquid soap. Know where to obtain commercial sized soap containers. You'll probably need 250-300 gallons of spray solution. The foam, as used in fire extinguishers works well too, if available.
- If a toxic spray is needed, know before-hand what the local EPA officials think of dumping that much chemical into the local drain system. They may not appreciate it, and nobody will blame them. If needed, and permitted, use a fast acting, quick knock-down chemical. The synthetic pyrethroids are often recommended. Pesticide contaminated equipment can't be reused.
- Expediency is almost always the rule. If the load is to be saved, don't worry about queens or bees, get the equipment picked up and back on the truck ASAP. Keep the water spray on as much as needed, to keep workers cool, and bees down.
- Make it a rule that somebody takes pictures. Record the event because you may wind up in court. Also, photos will be good to review later when heads are cool and you can see what went right, and what went wrong.
- When loaded, kill all remaining bees. Use soap, pesticides or whatever. Leave bait hives to lure them in and remove them ASAP.
- Have a spokesperson chosen ahead of time to deal with the press. Have some sort of general statement prepared for a right-away-in-front-of-the-camera shot. Then, consult with several people during the event to get the best story out. But keep it to as few people as possible in front of the camera or talking to reporters.

Remember, this is just a list of suggestions. Your local situation will undoubtedly call for changes and modifications. But, again, I urge you to begin planning your plan it's moving season.

Kim Flottum

BEE TALK

RICHARD TAYLOR

9374 Route 89, Trumansburg, NY 14886

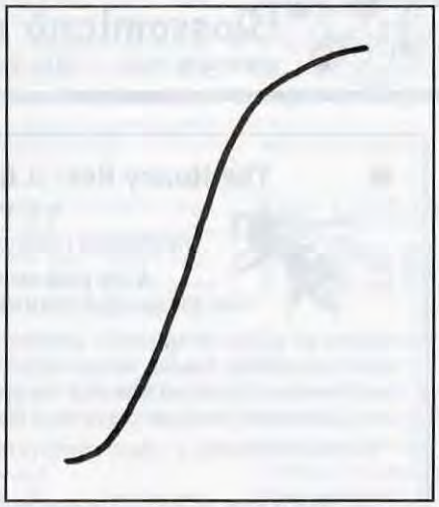
"Rituals make life predictable, but not perfectly so."

Spring is a season of ritual, and even those of us who tend to shun rituals find them imposed upon us by nature. It is a time of rebirth and renewal, and Easter, which embodies that notion, could hardly fall at any other season. The holiday itself is older than the Christian church, for pagan worshipers celebrated Easter before the Christian era, associating spring with the rebirth of this or that god or goddess. The apostolic fathers make no mention of such a day, but as the early church grew and spread over pagan cultures, it absorbed from them the already established celebration. The word itself "Easter", is derived from Teutonic mythology and the goddess of spring, Eostre. It is, in our culture, the only traditional holiday that is not fixed, but is instead governed by the phases of the moon. More precisely, it falls on the first Sunday after a full moon following the vernal equinox. So the feelings that country people, like myself, associate with spring are very old indeed, perhaps older even than civilization, and they seem to be of uniquely natural, rather than cultural, origin.

It is the time to clean out all our blue bird nesting boxes, get the purple martin bird house back up and, of course, get back to my apiaries. There are about forty blue bird boxes to check. In one of these, on a very chilly day, I found a nest with one blue egg. I was about to discard it, as left from last year, but then remembered the advice I always give to beekeepers — when you don't know what to do, do nothing. So I replaced next and egg. And two days later my wife found two eggs there and a few days after that, the mother blue bird going into the box! How beautiful! The whole of nature responds to the cycle of spring in the same way.

Easter was cold this year, but last year it was very warm, even though it came weeks earlier. That Easter I not only got the purple martin house back up, down by the lake at our cottage, but I got around to all my apiaries, too. And the next time I got down to the cottage the purple martins were back, lots of them. My martin house accommodates twelve pairs. I wish it were twice as large.

Do the purple martins eat bees? Some people say so, but I think not. I have never checked for sure — I don't even know how I would but I can't think it's much of a problem.



The other ritual that spring imposes is getting my comb honey supers ready. I get a bit frantic each spring, thinking I've put off too long getting the supers ready, but then I check my bee diary and learn that I was no sooner getting at it the last year. So for the next few weeks there will be many early morning hours in my honey house, preparing supers, seeing the sun rise, and sensing the awakening of nature for another heavenly spring day.

The bees, too, have their rituals of spring, the most dramatic being the casting of swarms. This activity peaks in May and June at this latitude. I think of swarming as strictly seasonal, even though autumn swarms are not uncommon. In fact, one year, back in the 70's, the apiculture office at Cornell University nearby logged as many reports of autumn swarms as they had in spring. But I am convinced that was abnormal. I had myself seen several autumn swarms that year, though I usually do not see any.

A colony of bees in the spring follows a definite growth pattern, in terms of population, which can be represented by the so-called sigmoid curve. That is, the brood nest slowly begins to expand, beginning even as early as February, and then brood rearing rapidly accelerates in May and June, then tapers back off. And in that curve can be seen the basic explanation of swarming, which is a congested brood nest. The queen lays eggs at such a prodigious rate as spring advances, that the available comb space becomes filled with brood, and there is little room to lay more eggs at the rate the queen feels compelled to lay them. Result: Swarm preparation. And therein lies what I think is the best method of swarm control; namely, ensuring that there are always, during the swarming season, empty combs down there in the brood nest. I do this by going down a row of hives and removing from the most populous ones two or

Continued on Next Page

preferably three combs of brood and bees, replacing these with empty combs or foundation. Then a week or two later I do this again. It is an easy system, and it doesn't disrupt the bees at all. Of course, I get a few swarms — nothing is perfect — but not many. Dracionian methods of swarm control, involving destroying queen cells or otherwise doing veritable battle with the bees, are *absolutely* to be avoided. They give you lots of headaches, and they don't work.

One further thing about spring: It goes by awfully fast. Winter drags, summer is the time for sitting down and watching the world in its course, and autumn feels like something of a prolonged and drowsy afternoon. But spring races along, waiting for nothing. The pressure is on for a serious beekeeper. I've got lots to do, but the nice thing is, I'm going to love doing it. □

Questions and comments are welcomed. Enclose a stamped envelope for a prompt response, and use Trumansburg address, above. No phone calls, please.

GLEANINGS GLOBE

JUNE, 1990 ALL THE NEWS THAT FITS

Pesticides a Problem, Too

GROUND WATER CONCERNS

Cleaning up the nation's rivers and lakes took top priority in the last 20 years, but now attention is turning to groundwater.

Two things protect groundwater from contamination, says Karen Mancl, water quality specialist at Ohio State University. First, groundwater is underground. "Most people underestimate the cleansing properties of soil," she says. As water seeps through the ground into the aquifer, contaminants are filtered and diluted.

Second, Mancl says, groundwater doesn't move much. If one area does become polluted, the contamination doesn't spread as it does in a lake or stream.

However, unrestricted human activities can threaten groundwater, Mancl says.

"Anytime you punch a hole through the soil, whether you're digging a well, mining, or drilling for gas and oil, you disturb groundwater's natural protection." Mancl says. The hole can act as a pipeline for contaminants if people are careless, she says.

Burying items, whether it's trash or fuel storage tanks, also threaten groundwater, Mancl says.

"Burying things eliminates some of that protective layer of soil," she says. "It also hides any problem that might occur." A leak in an above-ground fuel storage tank could be repaired quickly, she says. The same leak in an underground tank could go unnoticed for a long time.

Concentrated spills of hazardous chemicals also threaten groundwater, Mancl says. Areas with porous soil or a high water table are most threatened by this, she says.

Use of diluted chemicals over a wide area is much less threatening, although still a concern, Mancl says. Agricultural pesticides used at recommended rates fall into this category. Research indicates that only 0.01% of well water in Ohio has been found to contain pesticides in any significant amount, she says.

However, Mancl advocates even more groundwater testing.

"There haven't been a whole lot of surveys yet," Mancl says. "We really need to gather more data to get a rational basis for decision-making. We should know what the quality of our groundwater is instead of just speculating."

WIND EROSION HITS HARD

Wind erosion has damaged nearly 5 million acres in the Great Plains since November 1989 — the second highest figure on record for this time of year, says Manly Wilder, associate chief of USDA's Soil Conservation Service. "We're seeing the continued effects of several years of drought," Wilder says. The greatest damage was in North Dakota. Only in the 1954-55 season was land damage higher for the Great Plains for this period, Wilder said.

Management the Key

FORESTS NEED HELP

Millions of acres of American forest land belong to private non-industrial owners. Whether they wish to leave their land "natural" or develop it for economic profit, landowners need a management plan, says Randall Heiligmann, forestry specialist at Ohio State University.

"A management plan is designed to keep forests healthy and vigorous and provide the products and amenities the landowner wants," Heiligmann says.

First identify your objectives. You may wish to manage your forest as a source of income or for wildlife habitat and recreation, among other things, Heiligmann says.

The second step is to inventory the available resources. The inventory includes forest characteristics that determine production potential, such as species, number and age or trees, and soil and site quality. The inventory should also include other resources such as wildlife, roads, and sources of water.

You can then develop a management strategy, Heiligmann says.

"It is essential for landowners to consult a professional forester for assistance as they develop their management plan," Heiligmann says. Private consulting foresters are available on a fee basis in nearly every state.

Heiligmann suggests reviewing the management strategy every five to 10 years to account for changes in landowner objectives, inventory and the general business climate.

The Ultimate Control

WASPS IN SPACE!

The shuttle launch pads at the Kennedy Space Center have become a lover's lane for wasps, who fly to the tops of the launch pads to mate and winterover. National Aeronautics & Space Administration officials, concerned for employee safety and the sensitive shuttle equipment, have turned to USDA Entomologist Peter J. Landolt to find a less drastic means of control than a shuttle lift-off. Developing a wasp trap and lure will take several years of research. "We want to develop a bait-trap system that will keep the wasps off the shuttle," Landolt says. When Landolt completes the system, he's got other customers waiting in the wings Disney World and two tourist towers in Florida — who also have wasp problems.

"It is never too late to give up our predjudices."

Thoreau

Concerned Beekeepers to Speak Out

OKLAHOMA CITY HEATS UP

Plans for a meeting of concerned beekeepers are progressing nicely. The session will commence noon, July 16 and end at noon, July 18. An unusual procedure will be followed somewhat on the lines of a congressional committee hearing.

Speakers will be called *witnesses*. No list of witnesses will be published. However, a number will have advised the planners of their desire to testify beforehand. Should there be too many witnesses, a first-come-first-served process will be triggered. Also, there will be brief statements from those who cannot attend (these will be read). The audience will be encouraged to submit written questions to a screening committee (4 or 6 conferees).

A select group of moderators will be given the responsibility of conducting the hearing (there is already a good list of volunteers, but the selection will be delayed until a group made up from all segments or organizations of the industry is chosen). If needed, the moderators will reserve the right to limit time for witnesses and questions from the audience.

Witnesses will be asked to furnish background information for the moderator to use in the introduction. After the witness has given oral testimony (or read his statement, the moderators will ask questions and in due time ask questions that have cleared the screening committee. Loaded questions will not be permitted.

Invitations have been sent to all industry leaders, and especially a strong appeal to individuals in the industry who have ideas they feel should be discussed has been made.

At this point, there are no plans to publish a report or make any recommendation, but this will not preclude follow-up articles by any of the attendees.

A cordial invitation is extended to all industry people. To make hotel reservations contact: The Plantation Inn, 800 S. Meridian, Oklahoma City, OK 73108. Phone (405) 942-0040. The registration fee is $20.00 before July 1 and $25.00 after that. Send registration fee to Glenn Gibson, Box 368, Minco, OK 73059.

"A man of words and not of deeds is like a garden full of weeds."

Anonymous

DRY SEASON OUT WEST MAY IMPROVE

The water supply outlook is average or better in much of the Northwest but below average almost everywhere else in the West, says Manly Wilder, associate chief of USDA's Soil Conservation Service. The most dramatic changes during February took place in Washington, southeast British Columbia and northwestern Oregon, where well-below- and below-average snowpacks improved to near- and above-average snowpacks. "We could have used more moisture in the form of snow for the coming growing season," says Wilder. "But, farmers and ranchers need to be prepared as best they can to deal with expected shortages."

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Leslie L. Kuenzi, 1987 American Honey Queen, is a contestant in the Miss Oregon Scholarship Pageant. Representing Washington County, the Williamette University graduate is the former Western Region Sales Rep. for Americold, the largest U.S. public cold storage company.

"What a beekeeper needs is a cast iron back with a hinge in it."

(with apologies to C. D. Warner)

HONEY BOARD HIGHLIGHTS

To increase honey's use by the world's many athletes and spectators, the Honey Board became a sponsor of the 1990 Goodwill Games and has been designated as the official sweetener by the Game's Seattle Organizing Committee.

The Goodwill Games, the largest athletic event planned in North America in the 90's, will feature 2,500 athletes from over 50 countries. Competition will be held in 21 sports at sites throughout Washington state, July 20 August 5. The games will be televised worldwide by Turner Broadcasting.

The National Honey Board will be providing honey for training tables, sports events and media. The Board will focus on obtaining publicity regarding the use of honey by athletes. Programs will include a special sports drink for athletes, a healthy "survival kit" for journalists and broadcasters and national features on athletes' use of honey in training. Honey will be recognized as a sponsor on television tags during the games.

The Goodwill Games/Honey logo will be featured on posters, table tents and banners.

Also, in connection with the Goodwill Games, honey sports recipes and ethnic recipes will be sent to suburban and major market newspapers across the country.

"This is a wonderful opportunity to increase the awareness of honey as a potent source of energy for world class athletes and for all of us who are concerned with good health," said Dan Hall, executive director for the National Honey Board.

In conjunction with the promotion efforts, the Honey Board Export program will display U.S. honey/honey products at the Games' International Trade Exhibition. The Honey Board will also sponsor a trade mission for European, Japanese and Mid-East honey buyers. These buyers will visit U.S. honey production, testing and packaging operations as part of the "Buy American Honey" campaign.

Join with the National Honey Board to let your customers know about the official sweetener of the Goodwill Games.

Honey Board Makes Changes

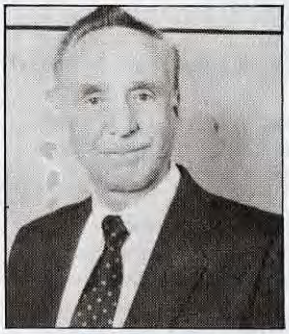
It has been unofficially reported that **Dan Hall**, Exec. Dir. of the National Honey Board, has left the position. Neither the Honey Board Staff nor members of the Board of Directors would comment. The report said that Hall left after a Board Meeting vote in late April, but that it was a split vote.

By presstime, May 11, no official statement had been made and Harry Rodenberg, Chairman of the Board, said that neither he, nor other members of the Board or Staff, were in a position to say anything until all aspects of the alleged change had been considered.

The legal representative of the Honey Board said that as of early May, Mary Humann was Acting Exec. Dir., and that as soon as a statement was ready and clearned by USDA, it would be released.

Other Board members contacted said they had no indication of changes in direction or programs and that industry support for the Honey Board should continue.

Bee Culture will have more information next month, by which time (it is hoped) an official statement will have been made (after the Annual Meeting held in mid-June in Vale, CO).



Harry Rodenberg

Honey Board has Loads of Literature Available to Help ...

HOBBY BEEKEEPERS!

While the Honey Board is funded primarily by beekeepers who produce more than 6,000 pounds each year, the Honey Board's programs benefit beekeepers of all sizes.

In its public relations efforts, the Honey Board lifts consumers' understanding and awareness of the importance of the honey bee and honey bee pollination. Programs have included honey bee trivia to radio stations, sponsorship of a pollination value study and news releases on its result ... even a honey bee pollination story on the front page of *The Wall Street Journal*.

"What's Buzzin", an educational videotape and teacher's packet for elementary school children, was developed to inform students about the roles of honey bees, pollination and what bees do best — make honey.

These programs help to lower people's fear of bees by raising the appreciation for the work of honey bees.

The majority of the Honey Board's work is directed at increasing the demand for honey by consumers, foodservice operators and manufacturers. In 1989, retail sales of honey increased by 10%. Such increases in demand reflect a growing appreciation for honey and its many uses.

The National Honey Board has developed a variety of informational and promotional materials which are available to you at cost: Posters, Aprons, Recipe brochures, Tip sheets, Buttons ... and more. These items help you to educate your friends and neighbors and to say "Honey I Love You"

from Mary Humann

Vaca Valley Apiaries to Close Shop

SUE COBEY TO OHIO

Susan Cobey of Vaca Valley Apiaries has accepted the position of Apiarist at Ohio State University. As of June 1st, she will be working with Dr. Brian Smith who recently accepted the position as Assistant Professor. The focus of research is bee behavior.

Susan states the position is very attractive because she is encouraged to continue her work in bee breeding and instrumental insemination and will have the advantage and support of the scientific community of the university.

For Susan, the move to Ohio is a move from commercial beekeeping back into bee research. Before establishing Vaca Valley Apiaries, she worked at the USDA Bee Lab in Baton Rouge, the Bee Biology Facility at the University of California in Davis, Genetic Systems, Inc. in Florida and for several beekeepers in CA and MT.

Vaca Valley Apiaries, a commercial operation devoted to honey bee improvement, was founded in 1983 by Susan and her husband, Tim Lawrence. Working exclusively with Carniolans, the New World Carniolan line was developed within a closed population breeding program. This stock has been distributed worldwide. Cordovan stock, a color mutation, has also been maintained at Vaca Valley Api-

Continued on Page 377

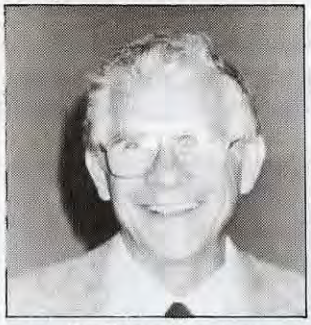
MICHIGAN CELEBRATES 125th

Since 1865, the beekeepers of MI have shared their techniques and technology, kept records on bee populations and the pounds of beeswax and honey they produced, and enjoyed good times when they got together.

In that tradition, members of the Michigan Beekeepers Association (MBA) are planning an old-fashioned picnic at Ray Kussmaul's Honey House in Clinton to celebrate their 125th anniversary. Roger Hoopingarner, Michigan State University Extension honey bee specialist, says a good representation of the 400 currently registered members is expected at the July 21 gala, where a smoker contest and a decorated hive contest will be among the featured attractions.

Some of the historical highlights of the association's activities from 1865 to 1965 were preserved by the late Howard Potter, a beekeeper and MBA member from Ithaca.

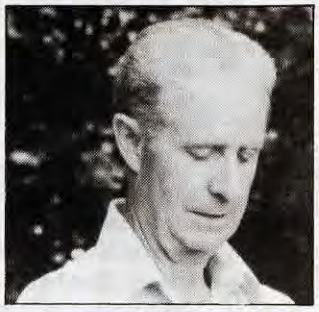
In the early days, reading "essays" at the annual convention was a prominent feature.



Dr. Roger Hoopingarner

"These were prepared speeches or lectures delivered by various beekeepers of note, and occasionally by others such as honey dealers and college professors, each speaking as an authority on his subject," Potter wrote. He also noted that this "article of the Constitution" did not survive the first hundred years."

The times and places of those early meetings were set with railroad service in mind. Local associations were established along the Central, Detroit & Grand Haven or other railroad lines, and for years the annual conventions were held during the Christmas season to take advantage of holiday rate, often in the same city as



E. C. 'Bert' Martin

the Dairy Association meeting so the combined attendance could qualify for reduced fares.

Popular discussion topics of the time included Langstroth's hive, comb foundation, hand-cranked honey extractors, and foot-powered and horse-driven circular saws. "Reports" which were responses to questionnaires handed out at both local and state meetings, were tallied and published, and paint an accurate picture of beekeeping in the past.

Among the many notables mentioned in beekeeping records, A. J. Cook is among the more prominent. He taught at Michigan State University from 1868 to 1897 and is considered the "father of Michigan beekeeping" because he made the state the No. 1 honey producer in the nation during the 1880's. He also authored *The Manual of the Apiary*, the most popular beekeeping book of the time, according to Hoopingarner.

Early in the 20th century, beekeeping expanded to the northern half of the Lower Peninsula, and the 1902 state convention was held in Petoskey. Other historically important meetings included the 50th anniversary convention in Grand Rapids in 1915, the 75th anniversary celebration during Farmers' Week in 1940 and the 100th anniversary convention, with was a tri-state (Michigan, Ohio, Indiana) meeting at Adrian College, July 16-17, 1965.

In the mid-1920's, Russell Kelty became MBA secretary and Extension beekeeping specialist at MSU. The MBA regarded him as the "Inspiration for much of the progress and success of both the industry and the association," according to Potter. During his 25-year MSU career, he advanced disease control and inspection procedures, guided the industry through the Depression, established the American Honey Institute and helped the industry through the hectic days of World War II.

The very first MSU Extension apiculture specialist was Edwin Ewell, who came to the university in 1918. John C. Kremer succeeded him in 1929 and Kelty held the job from 1935 to 1950. E. C. Martin took over from 1950 to 1975, followed by Hoopingarner.

"Over the years, we, as Extension specialists, have tried to keep the organization active and functioning well. The MBA is a good arm for Extension and we assist the beekeepers every way we can," Hoopingarner says.

Currently, much of Hoopingarner's work centers around pests and pesticides. With the advent of low-input sustainable agriculture, Hoopingarner expects reduced use of pesticides to be beneficial to the bees. He is also working with beekeepers to combat recently discovered destructive pests, such as tracheal and varroa mites.

Russell Kelty

On its 125th anniversary, the Michigan Beekeepers Association has good reason to celebrate. Michigan has 4,000 beekeepers; 50 to 60 are truly commercial operations and the remainder are sideline businesses.

Michigan is usually 10th or 12th in honey production among the 50 states. An estimated 106,000 colonies produce about 5,000,000 pounds of honey valued at $2.7 million each year. They also contribute to Michigan's economy by pollinating millions of dollars worth of fruit and seed crops, in addition to producing nearly 75,000 pounds of beeswax worth an estimated $100,000.

SUE COBY, Continued

aries for use by bee researchers.

Vaca Valley Apiaries will be liquidated. Instrumental Insemination Service, a division of Vaca Valley Apiaries, will relocate in Ohio and continue to provide specialized equipment to the bee industry. Cobey will continue to provide training in instrumental insemination and offer classes in practical bee breeding. These classes will be offered at OSU and various places across the country dependent upon beekeeper interest.

Cobey has delayed her starting date at OSU to provide a new generation of New World Carniolan breeder queens to queen producers requiring stock for the 1990 season. Tim will remain in CA through the summer to distribute breeder stock to customers. In the future, it is hoped to establish a honey bee stock center at OSU to provide commercial stock to the beekeeping industry and research community. This will depend on interest and support from the industry, and the ability to obtain initial funding.

Crop Forecasts Seem to be Improving in Midwest

Good rains ... have producers dancing, says Mike Buchanan of Ottumwa, IA. There has been sufficient rainfall to remove his region from drought conditions, but, he says, just 30 miles to the south conditions remain dry. Largest concern this spring is ground water contamination. Recent reports issued by the state indicate well-water contamination from ag chemicals, but there are calls for a second look. Mike says one report cites surface water findings that were taken last May shortly after field application, but that year-long studies show much lower levels.

Planting ... will get underway late April in the region served by Lynn Watts, in Carrollton, MO. She says spring moisture has been adequate and that producer interest in new equipment is much greater than at this time last year.

BOTTOM ...Cont. from Page 384

winter. I'll have to be content for a time — reading journals, writing for catalogs and dreaming my winter dreams. Yet I must, in all candor, admit that I have even gone to my apiary on a cold winter evening. Gone with flashlight in hand, across the crusted snow, the moon my only companion. I have knelt there, ear against a hive and tapped slightly, just to hear that reassuring hum of response from within. Then home again through the silent night, with thoughts of warm days to come.

Were my neighbors to witness such night time walks, they would think me rather strange. But beekeepers would, I feel, be the first to understand. ■

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BOTTOM·BOARD

BEEKEEPING AFTER HOURS

Richard Dalby

Whether by choice or necessity, I've become a night time beekeeper. This sounds, I realize, a bit strange, but during the honey season I often find myself puttering about in my apiary after dark. It's rather amazing the bee work I've sometimes done after the bees have gone to bed. Everything from putting on supers to pulling weeds to pulling honey. By necessity rather than choice. The kind of necessity that says, "If you don't do it now, it won't get done till next weekend. And then only if you make the long drive from the city." That's a situation I often face these days, since my desire for more hives outdistanced the time available to take care of them. So I am often still working when night time comes, finishing that last essential task, whatever it might be.

But if sheer necessity first drove me to night time beekeeping, I soon discovered an apiary after dark holds much of beauty and wonder. And none of it requires me to so much as open a hive. In fact, I'd much rather not do so after dark., nor do I recommend the practice. Bees are, after all, difficult to work after sundown. They have a rather distressing tendency to shoot first and ask questions later. However, if you find you must work after dark, make certain you are suitably attired — and work fast.

Better by far to get your bee work done while the sun shines, and save the night for observation.

Night time beekeepers gain from a honey flow a double reward. Certainly the honey, but also the pleasure of observing the bees as they make it. How pleasant to wander, flashlight in hand, amid a night-time symphony of fanning bees. At each hive entrance a contingent of fanners draws moisture-laden air from the hive. These are the visible part of the grand alchemy that changes the day's take of nectar into honey. The contented humming of hundreds of wings is a sound to soothe the soul and one I seldom noticed in the day time.

Another delight is the setting itself. The night air is cool and pleasant after the heat of the day. There is always a moon above, waxing or waning and throwing its silvery light. And the sky, away from the lights of the city, is huge and full of stars.

Often, standing amid my hives after dark, I catch the scent of whatever nectar the bees have been bringing in that day. A scent with more allure than any manmade perfume. Each is a clue to the nectar's source, and the scents change as the seasons progress. From the pleasing pungency of dandelion spring to summer's scent of clover, to fall's rich rabbit brush.

Sometimes, at night, I like to eavesdrop on one of my hives by putting my ear to the back of a super and listening to the bees inside. One hears a general humming with now and then a higher-pitched individual note, as though some bee from another part of the hive had just arrived with a message of some sort. The impression one gets from this is that the bees know exactly what they are doing, not to mention why.

As spring gives way to summer, and as summer ripens to fall the night time scene changes, too. An autumnal chill steals into the clear night air. Bees, once plentiful at hive entrances are no longer seen — the honey season is drawing to a close. Now one is likely to find a forlorn group of drones huddled outside the hive entrance, cold, demoralized and no longer needed. Sensing the approach of winter, the worker bees have driven them out into the night — a deadly one-way trip.. One understands the logic of their banishment but pities them all the same.

One night last autumn I went to my apiary for a night time look around. The scene was much different than it had been in summer. Gone the low-pitched hum of fanning bees. No nectar scent. No honey flow. Those hectic summer days of making honey were over for a while. The nip in the frosty night air spoke of winter, a message the bees heard weeks ago when they began propolizing hive cracks, previously of no concern.

Soon the first snow will fall, I thought. Then I must cease these night time rambles among my hives. I have left the bees plenty of honey. They should be secure now as they dream their winter dreams.

But, come again those warm spring nights and I'll be back to my night time ways. South winds will be melting the last of the snow and bits of wax and honey on the bottom boards will tell me the bees have started spring cleaning.

But between comes another

Continued on Page 382