NOV '91

GLEANINGS IN BEE CULTURE

EVERY EXTRACTOR

EVERY EXTRACTOR

EVERY EXTRACTOR

EVERY EXTRACTOR

EVERY EXTRACTOR

EVERY EXTRACTOR

EVERY EXTRACTOR

EVERY EXTRACTOR

EVERY EXTRACTOR

EVERY EXTRACTOR

EVERY EXTRACTOR

EVERY EXTRACTOR

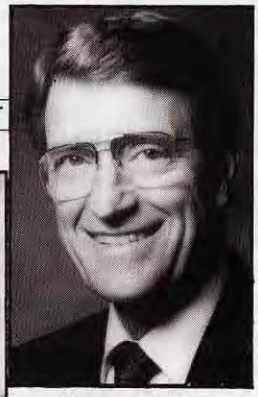
EVERY EXTRACTOR

EVERY EXTRACTOR

EVERY EXTR

ROOT PUBLISHING

JOHN ROOT



Over 116 Years of Publishing Experience

KIM FLOTTUM

THE A. I. ROOT CO., Publishers
623 W. LIBERTY STREET
MEDINA, OHIO 44256

John Root	Publisher
Robert Stanners	Assoc. Publisher
Kim Flottum	Editor
Kathy Summers	Production Coordinator
Susan Steppenbacker	Photo Supervisor
Diana Sammataro	Consultant
Buzz Phillips	Circulation Director
Dawn Brotherton	Circulation & Advertising

Contributors:
• Roger Morse • Richard Taylor •
• Michael Burgett • Dewey Caron •
• Eric Mussen • Sue Cobey • Tim Lawrence •
• B. A. Stringer •

SUBSCRIPTION RATES: United States, one year, $14.40; two years, $27.00. **Newsstand Price: $1.95.** All other countries (U.S. Currency only), $7.50 per year additional for postage. Send remittance by money order, bank draft, express money order or check. Published monthly. Change of Address: Return completed form contained inside issue. Articles are solicited. *Opinions expressed by the authors are not necessarily those of the publishers.*

Advertising: For information on placing display advertisements, contact our Advertising Dept. 216-725-6677 Ext. 220.

POSTMASTER: Please send form 3579 to: The A. I. Root Co., 623 W. Liberty St., Medina, OH 44256. Tele. 216-725-6677.

Columns

Departments

COVER .. If you keep bees you have probably extracted honey, in some fashion, at least once. Now, for the first time ever, you can compare and contrast every extractor made in the U.S.

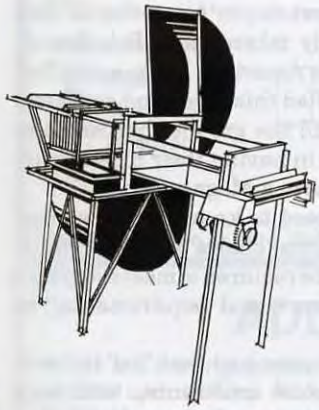
Cover Design by K. Flottum

EVERY EXTRACTOR
EVERY EXTRACTOR
VERY EXTRACTOR
EXTRACTOR
Y EXTRACTOR
VERY EXTRACTOR
EVERY EXTRACTOR
EVERY EXTR

NOV '91

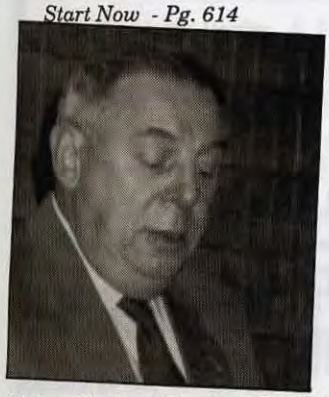
CONTENTS

(ISSN 0017-114X) Vol. 119, No. 11
118 Years Continuous Publication by the Same Organization



Every Extractor - Pg. 591

Start Now - Pg. 614



Globe – National Meetings Pg. 625

Features

INNER·COVER

The results of the two-part Referendum to 1) Continue the Honey Board for another five years, and 2) whether to terminate the refund provision of the act, were released September 30, 1991 by Daniel D. Haley, Administrator of USDA's Agricultural Marketing Service (AMS).

Of the approximately 8000 honey producers who were mailed referendum ballots in early August, nearly 2000 voted and returned their choice. It is not known how many honey producers obtained ballots from local or regional ASCS offices.

Sheila Young, a Program Analyst in the AMS Administration Branch, who is responsible for overseeing the honey marketing order (among others) said that the 25% return was phenomenal, since referendums of this type usually garner a 5-10% response.

In the AMS release, Haley said about 91% (1800) of those voting favored continuation of the order. These producers represented fully 89% of the honey produced and imported by those voting.

The second part of the referendum has been at the center of a two-year debate within the industry. The question – whether or not to continue the refund provision – was decidedly settled however. Fully 72% (1400) of the producers and importers who voted favored ending the assessment refund provision. These producers and importers also represented 73% of the honey produced by the those voting.

So, the Honey Board continues for another five years, and those producers and importers who contribute to it's activities no longer have the option to request their assessment fees be refunded.

I can honestly say I am overjoyed this industry voted to maintain the concept, the ideals and the body of the National Honey Board. I'm also glad the matter of assessment refunds has been settled.

It's no secret I have an opinion about nearly everything, and I routinely use this space to not only tell "what is", but what "I think it should be" That's the role of an editorial. The opinion expressed on these pages regarding assessment refunds is, I think, fairly well known. I wanted them available.

But, as the saying goes, "the people have said otherwise" And so it shall be.

I congratulate the wisdom of those who voted to continue the goals and projects of the National Honey Board. And, I support, 101%, the final decision on both questions.

To the Honey Board's Directors, Staff and Nomination's Committee – Good luck, and please, keep up the good work!

•

How well did your extractor work this year? Was it big enough? Did it work O.K.? Or has your operation grown to the point where the power behind the spin had better come from something other than your three-day-sore arm next year? Are you becoming bored with the load-spin-reverse-spin-unload-drain routine?

Is it finally time to try a radial because even your reversible tangential isn't adequate anymore? But what exactly is a radial extractor, anyway?

If you've asked yourself any of these questions this year, (especially while loading, spinning, reversing, unloading), if it's just plain time to move up, or even if you're just dreaming about getting big, or bigger, don't dare miss *Every Extractor*, by our Weekender, Jeff Ott. Every aspect of every extractor produced in the U.S. is explored, and explained in detail.

Every U.S. producer has cooperated for this monumental event – Maxant, Cowen, Dadant, Cook & Beals, Kelley ... And all have reviewed Jeff's story for accuracy and content. We've got it all, and we've got it all for the first time ever.

You can, with this article, compare side by side every type and model, every size and kind of extractor – so, when (or if) it's time to change, you can make the best, most informed decision possible.

•

The next step in 'Altogether In 1994' has already taken place. Bob Brandi, Pres. of the American Beekeeping Federation called this office and suggested I contact all the groups that would be interested in having their meetings coincide to form a Mega-meeting.

"We need to know just how many people, rooms, chairs and other facilities would be required to meet everyone's expectations – and requirements," he said.

If everyone had that 'list' in hand, then a phone conference, with each group's planners on line could take place with some amount of order.

This information gathering step is taking place now (I hope) and if everything goes according to plan, we will have a much better idea if a Mega-meeting is feasible. Or, at least if this many people can all talk on the phone at once.

I'm excited about this. Even if, as Bob suggests, this large a meeting may require facilities beyond even the imagination of any of us, it is a good first step. I'll let you know how this phase turns out.

Kim Flottum

Yes,
Yes,
Yes!

Reader Assistance

To subscribe to *Gleanings in Bee Culture* remove or copy the form below, fill it in and return it and your remittance to the address at the bottom. Please allow 3 - 5 weeks for your first copy to arrive. And Thank you!

1191

☐ Please Renew ☐ New Subscription ☐ Send Sample

☐ **2 Years - $27.00** ☐ **1 Year - $14.40**

Foreign Postage — $7.50/year additional for Foreign and Canada.
Find my enclosed check, or charge to my Credit Card.

Name _____

Address _____

City _____ State _____ Zip _____

Please check one.

☐ Visa
☐ MasterCard
☐ Discover

Signature _____ Expiration Date

Send remittance and form to:
Gleanings in Bee Culture, Subscription Department, P. O. Box 706, Medina, Ohio 44258

ADDRESS CHANGE

If you are moving, please fill in the form below so we can process the change without undue delay. Also, if you have 2 addresses during the year (i.e., winters in Florida and summers in Connecticut), let us know which months you spend where and we can pre-program your address change so you will find us waiting when you move — No Delays, No Fuss!

FOR PERMANENT CHANGE:

Name: _____

Old Address: Street _____

City: _____ State _____ Zip _____

New Address: Street _____

City: _____ State _____ Zip _____

FOR TEMPORARY CHANGE:

Name: _____

Address No. 1: Street _____

City: _____ State _____ Zip _____

Circle Appropriate Months: J F M A M J J A S O N D

Address No. 2: Street _____

City: _____ State _____ Zip _____

Circle Appropriate Months: J F M A M J J A S O N D

Send to: The A. I. Root Co., Subscription Dept., P. O. Box 706, Medina, OH 44258

Gleanings in Bee Culture is available on microfilm from: University Microfilms, Inc., 300 N. Zeeb Rd., Ann Arbor, MI 48103. Second Class Postage Paid at Medina, OH and additional offices.

- Circulation figures are reviewed by Deloitte & Touche Accounting/Auditing Firm.
- We encourage letters to the editor on any subject whether appearing in the magazine or not. Direct your letters to: Editor, P. O. Box 706, Medina, OH 44258. We reserve the right to edit letters for content and length, but will avoid this if possible.

POSTMASTER: Send Form 3579 to:
623 W. Liberty St., P.O. Box 706, Medina, OH 44258-0706, (216) 725-6677 • FAX No.: (216) 725-5624

NEXT MONTH

Almost everyone, at one time or another in the beekeeping experience, encounters 'The Teacher'. This person may simply be another beekeeper, who takes the time to help you out during a particularly difficult time back when you were first learning the nuts and bolts of this fascinating activity.

That teacher may have been more or less a professional trainer, like an extension agent, or a commercial beekeeper who routinely teaches courses to new and those-who-still-feel-new beekeepers. There are lots of them in the world of learning.

The Teacher may have been that old fellow on the other side of town, who, when you were still a kid, showed you what it was like to be a beekeeper, even though you hadn't the slightest desire to to this sort of thing. And, of course you didn't, at least for another 20 years or so. Then, one day it all comes back to you, and you remember that one time, and the smell of smoke and

Or your teacher may have been someone remote, who you knew as well as the inside of a colony, but had never met, or never hoped to meet.

Next month we celebrate the Teachers in our lives. Those who take the time and make the effort to help some of us be a little better at what we do.

Our first effort will be a fireside chat with Jack Happ, long-time Editor of Bee Culture. Jack was innovative in how this magazine grew, both in scope, in professionalism and even in size. His drive and ambition haven't slowed any since he took up other tasks, but his focus is on other goals now.

We'll also have a chat, and take a field trip with Delos Mellert, a long time beekeeper and teacher. He explains what, and why next month.

And finally there's the Honey Bus, a place known only to those who like honey, and honey bees, and who want to spend the time with someone who will explain what goes on, and why.

Next month – The Teachers.

MAILBOX

■ All Together in '94

This letter is in support of the proposal put forth in this magazine to consolidate beekeeping's major national meetings.

I am one of the vendors mentioned in the editorial. I have, in the past, attended both the American Honey Producers and the American Beekeeping Federation national meetings and had a booth at each. This past year I chose to attend only one because of the cost. In 1992 I plan to attend one – the one closest to home.

One meeting, even if it is a day longer, would be most welcome to me and my company. I welcome the opportunity to see as many potential customers as possible.

Thank you for considering my viewpoint.

Judith C. Shaw
Scentry Inc.

Thanks for sending me the advance copy of your editorial advocating the reunification of our national beekeeping organizations (meetings). I urge you to continue your leadership until that goal is accomplished. It seems to me that as early as 1993 the American Beekeeping Federation and the American Honey Producers could hold a joint convention, with, perhaps, some separate committee and business meetings. However, I hope that in the near future we can become one completely united body again. I think the older members of our industry are ready for that if the younger ones will not resist.

For many years I have grieved that the industry has been slow in accomplishing some good things because we have been fragmented. I believe the two organizations agree on much more than they disagree on, so it should be possible to get together. I am writing the presidents of the ABF and AHP asking them to pursue the goal of reuniting.

Roy A. Weaver, Jr.
Weaver Apiaries, Navasota, TX

■ Tool Finder

Over the years I've lost many hive tools in the bee yards but last spring I put a piece of red flannel through the "nail puller" aperture. Even though the bit of cloth got badly soiled it served its purpose as I didn't lose either hive tool. Recently I substituted bright red plastic which will be easy to keep clean.

I'm enjoying my renewal of *Bee Culture* and at 71 am still a migrant beekeeper, pollinating apples, blueberries and cucumbers.

Paul Fredrickson
Holland, MI

■ Honey Plants, & More

I've meant to thank you for a long time for the articles about bee plants. I enjoy reading about nectar, pollination, other kinds of bees and the uses for bee products around the world.

Mary Bajuz
Milford, MI

■ Making Honey Plants Work

I read with interest the first part of Jim Tabors article in the September *Bee Culture* entitled "Grow Your Own"

In the various Apiculture courses that I teach, I generally tell my students that unless they have some appreciable acreage you generally cannot make a significant contribution to nectar forage. I also inform them that there are many honey plants that lend themselves to attractive landscaping and even though they produce very little nectar, it is always a thrill to see honey bees working their blossoms.

But it is possible to make a significant impact on honey bee forage. Over 20 years ago, when I started teaching here at Delaware Valley College there was an old timer by the name of Sam Johnson who came to all of our bee meetings. He was interested in the burr

Continued on Next Page

MAILBOX

marigold plant, a member of the Bidens plant family. This fall blooming honey plant is indigenous to the Raritan River Basin in Central New Jersey. Although Sam was no longer driving, each fall when the burr marigold seeds were ripe, he would get someone from his family to drive him to the Raritan basin, where he would collect shopping bags full of these seeds. At each meeting Sam would be there with seed packets which everyone had to take home and sow. Sam also had his relatives drive him around Central Bucks County, here in Pennsylvania, so he could throw seeds by the handful out the car window. Twenty years later, burr marigolds are now established along all of our major water ways, producing a blanket of golden yellow blossoms in the fall of the year, alive with the hum of busy honey bees.

Robert Berthold, Jr.
Prof. of Biology
Delaware Valley College

■ Keeping Warm, and Cool

With reference to your article in the August issue entitled "Wintering the Easy Way"

It seemed to me that this would have been very good advice 50 years ago. Keeping the temperature under the cover agreeable for the bees is of great value to their health and comfort.

But there is now available a much better, easier and less time consuming material than straw and poultry netting.

The answer is the modern foam insulation board, covered on both sides with aluminum foil. It is very efficient and available at any builders supply outlet.

The 4' x 8' sheets can be cut with a knife or saw to make 12 insulating covers. If there is doubt about the effiency of one 1/2" layer, a second is not prohibitive in cost.

This insulating foam placed between the inner and outer cover is effective in summer as well as winter. With

Contined on Page 582

MAILBOX

hot sun beating on the hive cover it must be very difficult to keep the hive cool.

I have heard of people frying eggs on the sidewalks on hot days. Sanitation aside it demonstrates how hot those covers can get, too.

Stuart Kuik
Houston, TX

■ Common Sense

You smart guys can just skip this and go on to the next letter, but the others may want to read this. It took me 10 years of beekeeping before I realized this year that I could make life a lot easier by taking an old apple crate to set next to those lovely hives tall with the harvest for lifting off those top supers.Climbing up on one of those (or whatever you have to get you a foot or so up) to do that lifting makes life a *lot* easier on the back. That may be common knowledge, but I don't remember every seeing it written down anywhere.

Jim Lowe
Red Hoak, NY

■ Pollen Cleaning Tip

In response to the question in the July, '91 issue about how to remove foreign material and bee parts from pollen, I used to pour the pollen slowly from one container to another in front of a household fan. Once you get the distance from the fan right, the pollen pours into the lower container and the lighter bee parts and vegetable material simply fly across the room. Some simple cleaning is all that is required afterward. It worked like a charm for me. Be careful as to how you position the lower container. The breeze will move the pollen a bit and don't do it too close to the fan. Start far away and work closer.

Alan Rogers, MD
Santa Fe, NM

■ Honey Producers Respond

The executive committee and officers of the American Honey Producers Association (AHPA) are extremely interested in your Editorial regarding a coordinated meeting with the American Beekeeping Federation (ABF).

It is useful to explain why the AHPA and ABF continue to exist as separate organizations. The ABF represents all aspects of the industry, keeping in mind the needs of packers, dealers and beekeepers. The AHPA is a producer-only group, representing producers and pollinators. Only beekeepers can join, and vote in the AHPA, a minor point to some, but historically it has resulted in different policies about key issues.

During our 22 year history, the AHPA has selected meeting sites which reflect the desires of the membership for a southern, low-cost venue, and a program tailored to the needs of the honey producer. Often the meeting is held in conjunction with a bee laboratory where members can visit with scientists. Our programs have concentrated on high-impact speakers and low-cost hotels. This means the AHPA may not consider certain sites because of the high cost.

The AHPA collects dues and other money used to run its year-long program from members who attend the annual convention. The AHPA cannot afford to meet in such a way that our annual income would be put in jeopardy.

The AHPA is willing to meet with ABF representatives to explore the concept of a coordinated meeting. At this time, we see the following points as critical to such a program:

1. AHPA income must be protected. This means that a separate conference from that of the ABF would be necessary.

2. We need a facility which meets the requirements of our membership. This may mean that we would meet in a separate hotel or motel than the ABF.

3. We support the concept of creating a one-trip meeting. We would extend an invitation for a coordinated meeting to the ABF, the AIA, the AAPA, regional and even international associations to meet at the same general time and city as the AHPA. We feel that this will allow a maximum amount of exposure to various speakers and programs for a minimum cost.

4. The AHPA is willing to send a representative to a meeting with a representative of the ABF to discuss this matter during the first three months of 1992.

Finally, we appreciate your personal interest in this matter. For many years the AHPA has attempted to conduct the best meeting possible for the lowest cost to our members. Your proposal may very well help us continue this objective.

Lawerence J. Connor
Executive Secretary/Treas.
AHPA

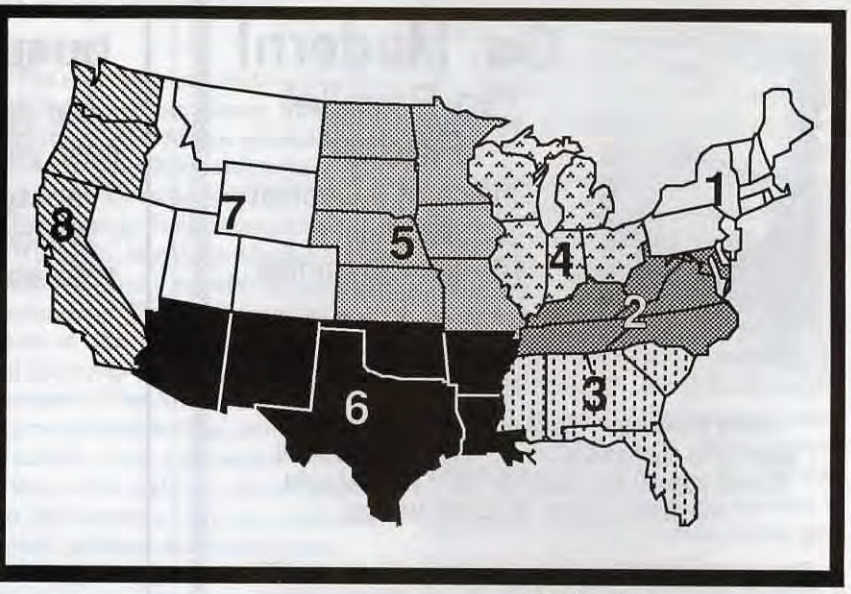
Letters to the Editor are always welcome.

NOVEMBER Honey Report

NOVEMBER 1, 1991

REPORT FEATURES

Prices shown are averages from many reporters living in a region. They reflect a region's general direction. The range lists highest and lowest prices received across all regions.



	Reporting Regions								Summary		History	
	1	2	3	4	5	6	7	8			Last	Last
Extracted honey sold bulk to Packers or Processors									Range	Avg.	Month	Yr.
Wholesale Extracted												
60 #Wh.	36.00	41.47	42.77	33.20	40.20	40.00	41.00	47.00	33.00-45.00	37.77	42.30	41.25
60 # Am.	34.50	38.03	34.50	31.25	40.00	39.50	40.00	36.50	30.00-43.00	36.82	39.75	37.89
55 gal. Wh.	.51	.53	.49	.55	.51	.48	.52	.53	.45-.55	.525	.576	.52
55 gal. Am.	.55	.54	.49	.52	.52	.50	.51	.50	.42-.52	.512	.519	.48
Case lots — Wholesale												
1/2 # 24's	22.55	22.17	30.00	26.20	30.00	21.00	23.75	24.10	18.70-30.00	24.97	20.16	28.47
1 # 24's	24.60	30.77	24.20	30.00	25.00	27.63	28.18	31.30	24.00-32.80	27.71	29.55	-
2 # 12's	22.90	29.28	22.45	27.65	22.75	29.15	27.63	26.46	21.84-38.40	26.03	27.19	26.00
12 oz. Bears 24's	22.20	28.19	23.50	26.01	22.75	27.10	26.50	26.37	21.60-36.00	25.33	26.48	-
5 # 6's	25.50	28.50	24.75	30.70	25.10	28.15	26.25	26.58	25.20-30.60	26.94	28.35	26.82
Retail Honey Prices												
1/2 #	1.00	1.21	1.00	1.23	.82	.89	.99	1.39	.75-1.39	1.07	1.10	1.09
12 oz. Plas.	1.19	1.62	1.39	1.49	1.25	1.29	1.59	1.59	1.19-1.89	1.43	1.50	1.41
1 #	1.36	1.79	1.42	1.59	1.39	1.59	1.70	1.74	1.25-2.25	1.57	1.70	1.74
2 #	2.15	3.10	2.35	2.75	2.43	3.10	2.83	3.10	2.00-3.59	2.73	3.02	2.95
3 #	4.69	4.30	4.55	4.14	5.00	4.25	4.50	3.99	3.95-4.75	4.43	4.13	4.12
4 #	4.25	4.99	5.50	4.63	4.77	5.08	4.88	4.66	3.99-5.50	4.82	5.29	4.77
5 #	5.59	6.65	4.95	6.25	4.59	5.10	5.85	6.29	4.80-6.95	5.66	6.37	6.00
1 # Cr.	1.39	2.81	2.75	1.95	2.66	2.99	2.80	1.76	1.39-4.00	2.39	1.99	1.96
1 # Cb.	2.14	2.91	2.95	2.99	1.95	2.00	3.25	2.50	2.00-4.00	2.59	2.62	2.20
Round Plas.	2.29	2.26	2.40	2.66	2.45	2.59	2.60	1.95	1.95-3.00	2.40	2.37	2.00
Wax (Light)	1.23	1.18	1.25	1.25	1.20	1.20	1.15	1.35	1.05-1.25	1.23	1.29	1.28
Wax (Dark)	1.05	1.08	1.05	1.10	1.05	1.00	1.05	1.10	.95-1.35	1.06	1.09	1.05
Poll./Col.	30.00	21.25	25.50	30.00				30.00	20.00-30.00	27.35	29.11	26.00

MARKET SHARE

It's time to gear up for holiday sales, especially if you have the market outlet. Consider gift baskets with an 8 oz. jar of light and/or dark honey; a couple of dipped or poured candles; maybe a Christmas tree decoration; honey sticks; comb honey, or baked goods using honey.

Farm Markets & small grocery stores are ideal for displaying these. If you sell from your home try a classified ad in the paper or a bulletin board ad in grocery stores.

Try sending a well done 'invitation' to business leaders in your community inviting them to try a 'locally grown' gift basket for their employees or friends.

November's prices, and regional reports, do not reflect the flux in the market place regarding imported honey prices, U.S. crop shortages, world supplies and the extreme competitiveness of U.S. honey producers. Prices reported are generally lower than last month, however, this is more a retail picture than wholesale. Imports are increasing as domestic prices increase. The change in refund status is also just beginning to be felt. Watch this space as the plot thickens - next month.

Region 1

Sales steady to increasing as cold weather and holiday sales approach, but prices not moving up fast enough to compensate. Colonies in generally good condition with adequate stores.

Region 2

Sales steady to improving a bit, but prices not reflecting this, except for speciality crops. Early season rains abated enough to make winter stores, but not much surplus.

Region 3

Prices seem to be steady, and sales are reported solid, especially for specialty crops. Mites seem to have backed off a bit, as controls and resistance increase.

Region 4

Prices down, sales down and optimism not good for much improvement. Weather has helped, in some areas, for fall crop, but beekeepers guarded on predictions for overwintering.

Region 5

Prices ready to increase, but steady for now. Sales gradually increasing due to cold weather and holiday sales. Colonies in average condition, but opinions guarded until spring.

Region 6

Sales and prices only good enough, not improving to anyone's satisfaction. Colonies in poor to average condition, depending on rainfall.

Region 7

Sales steady, prices steady, outlook steady. Colony conditions seem healthy and good for winter, but caution is the word.

Region 8

Production and prices are, for the first time in three years, more black than red, and the first hint of optimism in that same amount of time is being heard. Regulation changes next year being watched closely.

NEW FOR YOU

The Workable Africanized Bee. Bob Meise. Distributed by David Miksa, 1304 Honey Comb Rd., Groveland, FL 34736. Forty minute VHS video tape.

Bob Meise has put together a remarkable story about Africanized honey bees, beekeeping and honey production. He has kept bees in Northern Brazil for the last eight years and routinely uses 'Africanized' bees in his outfit.

Experienced in queen rearing in FL and HI, and migratory beekeeping in the U.S., he has the background and experience to comment on this volatile subject.

His success in Northern Brazil has been remarkable, but his management techniques reflect the differences between AHB and EHB.

"Don't vibrate the colony, approach with smoke first, and use lots of it at both the entrance and top", is one comment he made.

"Don't use leather gloves. Plastic gloves are easier to keep clean and easier to use", and ...

"As long as they have food and brood they won't abscond", is another.

Finally, "... if you handle an AHB like you handle EHB, there will be a horror story. You will get stung a lot, and you will be very uncomfortable."

However, there is lots of tape on handling docile swarms, raising queens and making honey with what appears to be AHB. This 40+ minute tape is worth the price, because it shows a story most of us haven't seen.

– Kim Flottum

Economic Zoology. B.S. Jangi, A.A. Balkema, Old Post Road, Brookefield, VT 05036. 216 pages. Hardcover.

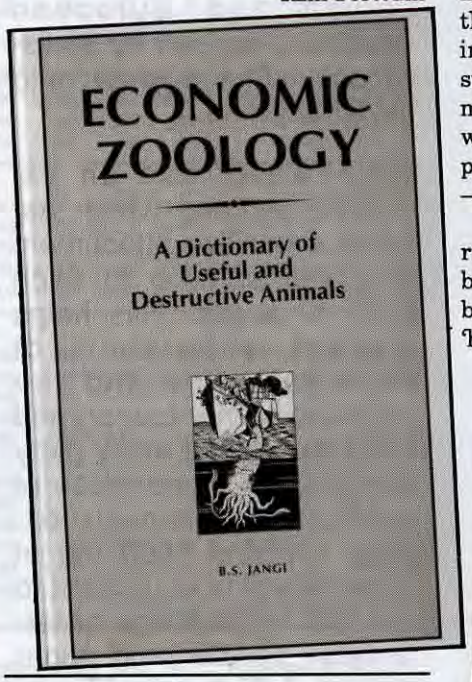
This book is a Dictionary of useful and destructive animals, and is a handy little reference to have on the shelf. It lists, alphabetically, everything from assassin bugs (a beneficial insect), to cutworms (a serious pest), to housefly (a spreader of diseases), to poultry bug (a serious poultry pest) to a toad fish (a venomous fish).

Probably not meant for a quiet evening in front of the fire, it is a good reference for professional and amateur naturalists. No photos and very few line drawings are noticed, but it is a dictionary, after all.

The only drawback in the price ($63.00), a bit steep, but you won't find this amount of information in any text, anywhere.

I've already used it twice while reading *Science* magazine, but not once reading *USA Today*.

– Kim Flottum



Honey Bee Pathology (Second Edition). L. Bailey & B.V. Ball, Academic press, Harcourt Brace Jovanovich, San Diego, CA ISBN 0-12-073481-8. 193 pages. Hardcover.

The second edition of Baily's book, released this past summer, is at once overwhelming in its content, and excruciatingly unappealing in appearance inside. But don't let the looks deceive you.

Although much information is the same, there is enough new and revised information to make the modest price ($27.50) worthwhile.

The work covers viruses (symptoms and diagnosis) in great detail – for more than anyone but a researcher will even need. AFB and EFB are covered well as are treatments (in a separate chapter).

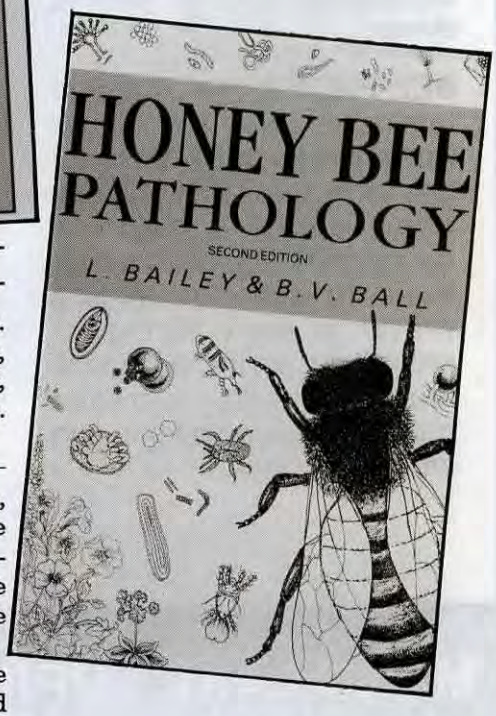
Chalkbrood and stonebrood are discussed, but since treatments are nonexistant they get somewhat short changed.

A great deal of minor and unknown diseases are discussed, again more for researchers than beekeepers.

Mites, all kinds of mites, receive Baily's special attention; but even though much is described in life cycle, infestation techniques and the like, only superficial and somewhat dated information is given regarding control. This was a disappointment, but perhaps expected because of the focus of the book – pathology, not control.

This book is a must for honey bee researchers or anyone studying honey bee pathology or basic biology. It offers basic information, and, though not a 'how-to', is excellent for diagnosis.

– Kim Flottum



When city folks move to a rural setting, or even recently suburbanized area, there are bound to be clashes between those creatures that have historically lived there and the people who have invaded.

A delightful, and practical way of dealing with everything from spiders to snakes and bees to bats, is presented in a new book from the George Whittell Memorial Press. *How to Stay Cool when you have a toad in your garden, a squirrel in your attic, a snake in your grass, a bat in your belfry,* explores a series of letters received by Animal Charity about critter problems experienced over their years in the humane business. The letters, which are amusing but true, are shared with the reader, as well as common sense responses.

Written by members of the Wildlife Task Force of Animal Charity, the book also includes a chapter on stinging insects (one homeowner actually tried dynamite to rid himself of the insects). The response tells the homeowner how to cope with them in a more reasonable and nonviolent manner.

Copies are available from the George Whittell Memorial Press, 3722 South Avenue, Youngstown, OH 44502 for $6.95. The book makes a perfect gift for a "bugged" suburbanite, but better get one for yourself also, there's lots to learn about how to handle an owl or hawk that dive bombs people.

Pamela Moore

A Day In The Life Of A Beekeeper. Penny Michels, Judith Tropea. Troll Associates, Mahwah, NJ ISBN 0 8167 2207 2. 32 pgs. Soft Cover. $2.95.

We recently had brought to our attention a delightful little book on beekeeping that is certainly worth mentioning.

Beekeepers may want to use this

book as an introductory text to send to schools before they do a talk, or they may just want to have it around to help explain some of the things they do.

A Day ... takes a young student through the daily activities of a beekeeper.

Of course the day is somewhat unusual because the student is exposed to checking a colony, uncapping, extracting, bottling and even filling and sending a package of bees.

The beekeeper is Al Avitabile, recently retired Director of the Waterbury Branch of the Univ. of CT, long time beekeeper, teacher and coauthor of *The Beekeepers Handbook,* with Diana Sammataro. Al has has also been a friend for many years, so this may appear somewhat less than objective. However, it is not, and doesn't need to be.

The text is easily read and understood, and the 53 full color photos are excellent, showing everything discussed in the book.

This is one of the best introductory level books (there's only 32 pages) on a complicated and somewhat mysterious activity I've ever seen. It is well worth the very modest price of $2.95. Every beekeeper, and every teacher who is interested in teaching students about beekeeping should have at least one.

And, I compliment the authors for a job well done. We are too often maligned in a world that only wants to hear of killer bees and fast cars.

Thanks, to Al Avitabile, Norm Framer (a *Bee Culture* Honey reporter) and all the rest responsible for this wonderful little book.

Kim Flottum

Tiny Game Hunting. Hilary Klien & Adrian Wenner. Bantam Books. $8.50. ISBN 0 553 35331 4. 279 pgs. Soft cover.

A terrific book on controlling home and garden pests without resorting to the usual routine of spray and spray and spray. Klien has the knack of telling what should be in a way that makes you want to read more, and Wenner (more on him later) lends a professional's touch.

This book covers almost every nasty little beast that troubles humans, gives a bit about their lifestyle, and how to control them without using nasty and dangerous chemicals.

It covers every critter you will probably encounter, and many you probably won't, but you'll learn lots about insects, and their control in the process. Meanwhile, it is a great reference for anybody who espouses using anything but chemicals when controlling insect pests in the home or garden. It has more than 200 ways to control or kill common pests without harming pets, wildlife, or yourself.

Adrian Wenner, author of *Anatomy of A Controversy*, the book that actually challenges the fact the bee dance may not be the end of the discussion on honey bee communication, has an upcoming article in *Bee Culture* that looks at this controversial subject.

Anybody who is concerned about pesticides in their environment, (whether home or garden) should have a copy of this not so tiny book at the ready.

Kim Flottum

Making Mead. Dryan Acton, Peter Duncan. Published by G.W. Kent, Inc. 3691 Morgan Road, Ann Arbor, MI 48108. ISBN 0 900841 07 9. 61 pgs. Soft cover.

This no nonsense book covers nearly 40 ways to make this nectar of the Gods, and will enable you to make

Continued on Next Page

NEW FOR YOU ... Cont. from pg. 587

mead, no doubt about it.

From England orginally, it has the flavor of history and tradition often associated with the best of honey drinks. But, it uses modern and understandable verbage to show and teach anybody how to make any and all meads.

It also has a whole host of tricks and techniques that work, and make your work easier when undertaking this somewhat esoteric pastime.

Kim Flottum

Bee NErgizer is a natural product which contains biologically active substances extracted from nectar carrying plants, producing a biostimulating reaction in bees. From research work conducted 1984 1987 in Russia, colonies which had been weak and unproductive became strong and productive after the administration of this product. The inventors noticed that honey production increased from 9.0 to 42%, dependant on the condition and amounts of honey producing plants in that region. On the average, it was reported that the growth of a bee colony, as counted on the frames before and after the administration of the product increased by 85%. The above product is being successfully used at the present time in the Ukraine, Russia, Poland, Latvia, and Germany.

In the U.S., the products are being marketed under the trade name BeeNergizer by UST BioMark, Inc., a New Jersey based company. It has received a product excellence certification award, by the director of the consolidation pavilions of animal husbandry VDNH of the USSR. The product is administered one pre-mixed ampule at a time every ten days until the total dose of eight ampules is consumed. For more information about this product contact: UST BioMark, Inc., 16 Ferry St., Suite 300, Newark, New Jersey 07105, Ph. (201) 491-9100.

TRADITIONAL BOOKS ON BEESWAX

Beeswax Molding & Candlemaking. 38 pages: 1973. Richard Taylor US $4.00.

A specialist booklet dealing with wax melting, refining, and its properties when molding for candlemaking. A very well illustrated American publication.

Beeswax. 74 pages: 1984 R.H. Brown US $16.00.

An overview of the historical use of beeswax, its production by the bee and its obtaining by the beekeeper. Various uses are described including candle and foundation making.

Other waxes are discussed as well as the prevention of waxmoth damage to Combs. A 23 title reading list is provided.

Beeswax: Production, Harvesting, Processing & Products. 192 pages, 1984 W.L. Coggshall & R.A. Morse US $10.95.

Written for the practical beekeeper who wishes to explore the subject in some depth. Its bibliography lists 122 titles covering key and supporting publications.

Honeybees & Wax: an experimental natural history. 205 pages, 1986. R.H. Hepburn US $69.00.

Professor Hepburn, no ordinary writer, challenges accepted thinking, drawing on his own extensive reading. A book for those who want to understand the complex relationship between the bee its wax and man's perception of that relationship.

A 394 item bibliography is provided together with Author and Subject indexes.

A Manual of Beekeeping. 413 pages. 1942 and subsequently reprinted, E.B. Wedmore US $14.95.

Wedmore's topic summaries are models of clear and concise presentation and therefore worth reading, although originally written 60 years ago. Paragraphs 330-361 cover wax.

These books are available from Karl Showler, Riverside, Newport Street, Hay-on-Wye, HR3 5BG. UK.

RESEARCH REVIEW

DR. ROGER A. MORSE

Cornell University • Ithaca, NY 14853

"Another varroa resistance mechanism."

Worker bees in some colonies are able to detect capped brood cells that contain varroa mites according to a recently published paper from Germany. The bees respond to artificially infested cells by opening them and removing the mites and the honey bee pupae, all of which die in the process. Even though the honey pupae are killed it is clearly more important that the mites die. How the bees determine that mites are present in the capped cells is not known.

The percentage of varroa infested bees that are detected in this manner is low, in fact so much so in most colonies that this behavior has little effect on the disease. However, the fact that such a behavior exists is important. It should help us in selecting varroa resistant stock and help in our attempt to grow bees that are resistant to varroa mites and organisms that cause other diseases.

In the tests cited in the paper below, plastic foundation on which the bees had been allowed to draw comb on one side only was used. Small holes that could be plugged were drilled into the cell bases before the bees drew the foundation. After the queens had deposited eggs in these cells, and the larvae were mature and the cells capped, one or two mites were placed into the cells by removing and then replacing the plug in the base of the cell. Uninfested check cells had the plugs removed and replaced only.

The percentage of mite infested cells detected by worker bees varied from about five to one hundred percent in the 17 different colonies that were used in the experiment. The percentage of cells detected was similar whether one or two mites were added.

The authors of this paper draw attention to the 1964 work by Walter Rothenbuhler that indicated some bees have the ability to detect and remove larvae infected with the bacteria that causes American foulbrood. Another, earlier paper by Rath and Drescher, indicates the same action on the part of some bees to remove larvae killed by the fungus that causes chalkbrood. All this complements the research that has been done with the native host of varroa, *Apis cerana*, the Indian honey bee. All of these papers, and some that are related, are cited in the reference cited below. This research also complements that by others that indicates bees may also gain resistance through grooming the mites from their bodies. The fact that there is more than one method of resistance to varroa greatly increases our chances for finding better bees.

It seems to me that within a few years we should be able to develop stock resistant to several important bee diseases. It is not clear if this will be done by government or private industry. At present, the private sector appears to be ahead in making selections.

It has been known for some time that drone honey bees may move (drift) into colonies not their own. Unlike worker bees, drones do not appear to have much colony loyalty or be concerned with which hive is their own. A new report indicates that drones are more inclined to drift into colonies with virgin queens, or those with synthetic queen pheromone, than they are colonies with mated queens. The older the drone the more likely it is to do so. Curiously, in an apiary, drones are also inclined to drift in a westward direction, a factor that must be taken into account when such studies are made. It is not clear why this is true but the authors state, "the drift of both workers and drones is higher towards the west than the east and appears to be influenced by the position or apparent movement of the sun across the sky during the day, irrespective of other environmental factors."

References:

Boecking, O. & W. Drescher, *Response of Apis mellifera L. colonies infested with* Varroa jacobsoni *Oud.* Apidologie 22: 237-241. 1991.

Currie, R. W. & S. C. Jay, *The influence of a colony's queen state on the drifting of drone honey bees.* Apidologie 22: 183-195. 1991.

E·V·E·R·Y EXTRACTOR

At one time or another every beekeeper will sit back and give the idea of buying an extractor a whirl (pun intended...). So they pull out the nearest beekeeping supply catalog and thumb through the pages. But it's easy to get lost in the pictures, text and techo-babble that each catalog has. After reading about one or two, that 'seem' right, and looking at the check book (or bank card) balance, the decision is made (or not) and the order is sent – hoping for the best.

How many extractor types and kinds and models are there? Is anything better than stainless steel to use in construction of an extractor? Is a power extractor worth the cost? What size is best? "I have 10 hives, what extractor should I buy?" These are good questions and finding the answers just by looking in the catalogs can be confusing.

To help you make these decisions, I've tried to do most of the find-out leg work. I've talked with every commercial extractor manufacturer I could find, and had them give me every bit of information I could get. In turn, they reviewed the technical information presented here and have assured me it is accurate.

The information is listed in a table so you can look at the same specifications of different extractors side by side to help you make a decision. But I haven't tried to tell you which extractor is the best. That would require side by side comparisons of extractors in action, while taking careful and precise measurements.

To find out which is best, however, I recommend you talk to other beekeepers and find out what kind, type and size of extractor they use. You can observe the extractor and maybe even see it in action. Ask how old it is and see how it is holding up. Not much can go wrong with an extractor unless you have an elaborate, automatic and expensive piece of machinery. But motors can go bad and bearings can wear out. Ask the owner if they have had to deal with the manufacturer after the sale. Were they as eager to solve a problem or answer a question as they were to sell the extractor? Ask if he could change something, or improve the extractor, what would they do? Maybe this improvement has been made, either on a current model or is available from a different manufacturer. This chart will help with that question.

What one beekeeper needs in an extractor, another may not. Many variables influence the decision process, such as the number of hives you have, the amount of honey you expect to pull off, your expansion plans, and financial situation. Another consideration is the type of honey extracting set up you have, or plan on having. Do you extract in the kitchen, garage, or other temporary location? Or do you have a permanent location, a honey house or room used only for extracting honey? Some extractors are not easily moved. A quick glance at the shipping weights will give you an idea of what you'd be dealing with. How old are you? How much time do you want to spend on extracting each Fall? Do you have help or do you extract by yourself – all questions whose answers will influence your decision.

If you sit down and consider these questions, you can then decide what extractor is best for you and your operation. If you plan on your operation growing, then it is better to pay more now for a larger extractor than it is to settle for a smaller one. It would be misleading for me to say that if you have 10 colonies you should buy Acme's Super-X Extractor. You need to take into consideration all the factors mentioned above (and probably others I haven't thought of) before you put your hard earned dollars down. But by reviewing this list, contacting the manufacturers yourself for catalogs and current prices, talking to other beekeepers and finally, looking hard at your own beekeeping operation, you will not make a wrong decision when you purchase an extractor.

Continued on Next Page

JEFF OTT

THE WEEKENDER

EXTRACTOR CHART

Model & Cat. #	# Frms	Frame Size	Material	Power	Pow. Req.	Tank Size	Drain	Wt.	Price	Notes
DADANT										
Jr. Bench-M00390 (T)	2	9 1/8 max	304 MIG SS	Hand	N/A	14"x23 1/4"	Side 1.5" Honey Gate	25	$236.00	1,2,5,22
Little Wonder M00396 (T)	4	9 1/8 max	304 MIG SS	Hand	N/A	18"x24"	Side 1.5" Honey Gate	35	$340.00	1,2,3,5,22
Little Wonder M00403 (T)	4	9 1/8 max	304 MIG SS	PowerDir. Drive w/ Speed Control	110 v	18"x24"	Side 1.5" Honey Gate	49	$535.00	1,2,3,4, 5,22
Ranger M00400 (R,T)	3 D, T; 6-M, R	9 1/8 max	304 MIG SS	Hand	N/A	18"x24"	Side 1.5" Honey Gate	45	$365.00	2,5,6, 22
Ranger M00401 (R,T)	3 D, T; 6-M,R	9 1/8 max	304 MIG SS	PowerDir. Drive with Speed Contl	110 v	18"x24"	Side 1.5 Honey Gate	45	$555.00	2,5,6, 22
6-12 M00411 (R)	6 D 12 S	9 1/8 max	304 MIG SS	PowerDir. Drive with Speed Contl	110 v	24"x271/2"	Side 1.5" female pipe & Honey Gate	105	$860.00	2,4,7, 22
20 Frame M00440 (R)	20D; 20 to 36 S	Any size frame	304 MIG SS	PowerDir. Drive with Speed Contrl	110 v	30"x27 1/2"	Side2" Female pipe thread fitting. No gate includ.	120	$1015.00	2,4,8
30 Frame M00420 (R)	32 D or S	Any size frame	304 MIG SS	Power 1/2 HP motor. Speed Contl	110v	37"x36"	3" btm. drain	450	$1,999.00	7,8,9,10,11
60 Frame M00430 (R)	20 frame	Any size frame	304 MIG SS20 Ga (.036)	Power 1/2 HP. DC.motor .Speed Contr.	110v	52"x39"	Outside btm. edge drain. 3" threaded male pipe	656	$2,718.00	7,8,9, 10,11
60 Frame M00450 (R)	85 to 90 frame	Any size frame	304 MIG SS20 Ga. (.036)	Power 1/2 HP DC motor. Speed Contr.	110v	52"x39"	Outside btm. edge drain. 3" threaded male pipe	646	$2,605.00	7,8,9, 10,11
Honey Master (segmented Reel)M00432 (R)	84 frms.	Any size frame	304 MIG SS16 Ga. (.060)	Power 3/4 HP DC Motor. Speed Contl	110v	62"x40"	Bottom center drain. 3" male	698	$3,750.00	8,9,10, 11,12
Honey Master (Smooth Reel) M00452 (R)	96-120 frames	9 1/8 max	304 MIG SS16 Ga. (.060)	Power 3/4 HP DC Motor. Speed Contrl	110v	62"x40"	Bottom center drain. 3" male	688	$3,575.00	8,9,10, 11,12
MAXANT										
Series 500-30 (R)	30	9 1/8	304 TIG 20 ga SS Tanks. Al reel	Power 1/3 HP. 4 speed control. Hnd brk.	110v	38"x32"	Side	480	$1,350.00	17,23, 24

Model & Cat. #	# Frms	Frame Size	Material	Power	Power Req.	Tank Size	Drain	Wt.	Price	Notes
Series 500-50 (R)	50	9 1/8	304 TIG 20 ga SS Tanks. Al reel	Power 1/3 HP. 4 speed control. Hand brake	110v	50"x34"	Side	550	$1,875.00	17,23, 24
Series 500-70 (R)	70	9 1/8	304 TIG 20 ga SS Tanks. Al reel	Power 1/3 HP. 4 speed control. Hand brake	110v	58"x34"	Side	625	$2,250.00	17,23, 24
Series 1400-H (R)	10 D; 20 S	9 1/8	304 TIG 24 ga SS Tank	Hand Cast iron gears	N/A	26"x28 1/4"	Side 1.25 " Honey outlet	125	$595.00	
Series 1400-P (R)	10 D; 20 S	9 1/8	304 TIG 24 ga SS Tank	Pow.Belt DrvnCast iron gears	110v	26"x28 1/4"	Side 1.25" Honey outlet	125	$775.00	23,24
Series 1600-H (T,R)	4	9 1/8	304 TIG 24 ga SS	Hnd. Cast iron gears	N/A	26"x28 1/4"	Side 1.25 Honey outlet	125	$595.00	
Series 1600-P (T,R)	4	9 1/8	304 TIG 24 ga SS	Pow. Cast iron gears	110v	26"x28 1/4"	Side 1.25 " Honey outlet	125	$695.00	23,24
Series 2000-4 (T,R)	4	9 1/8	304 TIG 24 ga SS Tank	Hand	N/A	26"x28 1/4"	Side 1.25" Honey outlet	125	$595.00	9,11,18
Series 2000-10 (R)	10	9 1/8	304 TIG 24 ga SS Tank	Hand	N/A	26"x28 1/4"	Side 1.25" Honey outlet	125	$660.00	9,11,18
Series 3000-10 Economy (PR)	10	9 1/8	304 TIG 24 ga SS Tank	Power	110v	46"x36"x19"	Bottom center drain.	250	$975.00	4,9,23,24
Series 3000-10 (R)	10	9 1/8	304 TIG 24 ga SS Tank	Power	110v	46"x36"x19"	Bottom center drain.	375	$1,295.00	4,9,23,24
Series 3000-21 (PR)	21	9 1/8	304 TIG 24 ga SS Tank	Power	110v	51"x48"x24"	Bottom center drain.	425	$1,995.00	9,19, 23,24
Series 3000-30 (PR)	30	9 1/8	304 TIG 24 ga SS Tank	Power	110v	51"x48"x30"	Bottom center drain.	65	$2,495.00	9,19, 23,24
Series 3100 -H (T)	3 D; 6 S	9 1/8	304 TIG 24 ga SS Tank	Hnd. 4:1 V-belt Drv	N/A	17"x28"	Side 1.25 " Honey outlet	50	$345.00	1,18,20
Series 3100 -P (T)	3 D; 6 S	9 1/8	304 TIG 24 ga SS Tank	Power 1/8 HP var. mot.	110v	17"x28"	Side 1.25 " Honey outlet	54	$485.00	1,20
Series 3101 (R,T)	3 D; 6 S	9 1/8	Plastic	Hand	N/A	18"x28"	Side 1.25 " Honey outlet	30	$215.00	20
Series 3700 (R)	5 D; 10 S	9 1/8	304 TIG 24 ga SS	Power Under tnk Dir. drive motor	110v	23"x30"	Side 1.25" Honey outlet	120	$695.00	4,9,20
Series 3800 (R)	10 D; 20 S	9 1/8	304 TIG 24 ga SS	Power	110v	26"x24"	Bottom drain	135	$945.00	
Series 4000-20 (R)	20	9 1/8	304 TIG 20 ga SS Tnk. Al.reel	Power 1/3 HP.DCVar spd. contr. Hnd. brk.	110v	30"x29"	Side	350	$1,495.00	17
Series 4000-30 (R)	30	9 1/8	304 TIG 20 ga SS Tank. Al.reel	Power 1/2HP.DC Var. spd contl. Hnd. brk.	110v	38"x32"	Side	450	$1,899.00	17

Model & Cat. #	# Frms	Frame Size	Material	Power	Power Req.	Tank Size	Drain	Wt.	Price	Notes
Series 4000 -50 (R)	50	9 1/8	304 TIG 20 ga SS Tank. Al.reel	Power 3/4 HP.DC Var. spd.con. Hand brk	110v	50"x34"	Side	525	$2,295.00	17
Series 4000 -70 (R)	70	9 1/8	304 TIG 20 ga SS Tank. Al.reel	Power 3/4 HP.DC Var. spd. con. Hand brake	110v	58"x34"	Side	600	$2,699.00	17
Series 6000-30/63 (R)	30 D; 63 S	9 1/8	304 TIG 16 ga SS	Power 1/2 HP DC Var. spd. con. Hand brake	110v	38"x32"	Btm cent.	550	$2,775.00	7,9,10,11,17, 19
Series 6000-70 (R)	70	9 1/8	304 TIG 16 ga SS	Power 3/4 HP DC Var. spd. con. Hand brake	110v	38"x32"	Btm. cent.	700	$3,975.00	7,9,10,11,17, 19
KELLEY										
200 (T,R)	4- 4 1/2 2- 5 3/8 2- 9 1/8	9 1/8	304 24 ga SS	Hand	N/A	21"x32-1/2"	Side	135	$285.00	2,18
200-P (T,R)	4- 4 1/2 2- 5 3/8 2- 9 1/8	9 1/8	304 24 ga SS	Power	110v	21"x32 1/2"	Side	135	$310.00	2,21
208-S (T)	8- 5 3/8 4- 9 1/8	9 1/8	304 24 ga SS	Hand	N/A	21"x32"	Side	115	$245.00	1,2
208-P (T)	8- 5 3/8 4- 9 1/8	9 1/8	304 24 ga SS	Power	110v	21"x32"	Side	112	$270.00	1,2,21
260 (T)	6- 5 3/8 3- 9 1/8	9 1/8	304 24 ga SS	Hand	N/A	16"x22 1/2"	Side 1.5	43	$220.00	1,2
318 (R)	12 D & 9 S,or 21 S	9 1/8	304 22 ga SS	Power 1/3 HP. Man., var speed	110 v	27 1/2"x 30 1/2 "	Side 2" flange	205	$525.00	2,4,8,11
337 (R)	33	9 1/8	304 22 ga SS	Power 1/3 HP 3 speed	110 v	38"x35"	Side 2" thrd out	270	$1,050.00	8
338 (R)	72	9 1/8	304 22 ga SS	Power 1/2 HP Gear box auto.adv.	110 v	60"x35"	Side 3" thrd out	600	$1,850.00	8
COWEN										
18 Frame Extractor (PR)	18	9 1/8 max	SS Drum and Reel	Power 1/3 HP	110v	39"x50" x 84"	2" outlet	300	$1,995.00	8,9,15,16
36 Frame Extractor (PR)	36	9 1/8 max	SS Drum and Reel	Power 1/2 HP	110/ 220V	30"x43" x 14'	3" outlet	550	$3595.00	8,9,10
60 Frame Extractor (PR)	60	9 1/8	SS Drum and Reel	Power 3/4 HP	110/ 220v	70"x43" x 17'6"	3" outlet	650	$4,795.00	8,9,10,11
120 Frame Extractor (PR)	120	9 1/8	SS Drum and Reel	Power 1 HP	110/ 220v	64"x58"25'	4" outlet	850	$7,795.00	8,9,10,11, 26
Series 500-20 (R)	20	9 1/8	304 TIG 20 ga SS Tanks Al reel	Power 1/3 HP. 4 speed contrl. Handbrake	110v	30"x29"	Side	380	$1,185.00	17,23, 24
COOK & BEALS										
Auto Load Extractor (PR)	128	9 1/8 max	Drum1/8 alum plate Internals SS	Power 1 HP DC	220vAC	29'x8'	4" pipe	1000	$11,730.00	9,10, 11, 13, 14, 15, 25

Extractor Table Notes

T. Tangential
R. Radial
PR. Parallel Radial
SS. Stainless Steel
D. Deep Frame
M. Medium Frame
S. Shallow Frame

1. Frames must be removed and reversed to extract both sides.
2. Extractor stand available from manufacturer.
3. Shallow frames reversed within basket; deep frames removed.
4. Manually adjusted electronic speed control.
5. Internal components removable to convert extractor into storage tank.
6. Optional basket required for extracting deep (9-1/8") frames.
7. Coned bottom to facilitate draining.
8. No honey gate included.
9. Stand incorporated into extractor for permanent setup.
10. Automatic Speed control included.
11. Manual Brake included.
12. Inverted Cone Bottom.
13. Automatic Loading.
14. Automatic Unloading.
15. Unloading Rack.
16. S eam or Hot water uncapper included.
17. Sections numbered so frames returned to same super.
18. Power conversion unit available from manufacturer.
19. Automatic Shut-off timers. Adjustable from 0-60 minutes.
20. Clips provided for radially extracting shallows up to 6-5/8" frames.
21. Order the motor separately.
22. A 25% discount is available. Contact manufacturer for details
23. Available in a 220v model.
24. Available in a 220v 50 cycle for export.
25. Only needs 3 people to extract.
26. Air powered options available.

Types of Extractors

Tangential These extractors are by far the least expensive. All but two of the manufacturers listed have at least one tangential type model for sale. What is a tangential extractor? In tangential extractors frames are placed at a 90° angle to the center axis of the extractor tank. Placed this way, one side of a frame faces the inside tank wall. You extract honey from one side of the frames, stop the extractor, pull the frames out, turn them around so the other side of the frame faces the inside tank wall, and put them back in. Now when you spin the frames the other side of the frame is extracted. Some models are large enough that you can reverse a frame of honey without lifting it from the extractor, or are on swinging reels (called Reversible) that turn so you can extract the second side without removing the frame from the extractor.

Most tangential extractors are hand powered. However, most manufacturers provide some sort of power conversion kit. Some of the extractors will spin three deep frames (9-1/8") tangentially, or, with clips or special reels, six shallow frames (6-1/4" or smaller) radially.

Radial These extractors are most commonly used by large hobbyist, sideline, or commercial beekeepers. In radial extractors uncapped frames of honey are placed in the reel (basket) pointing *away* from the extractor's axis (center) radiating out like the spokes of a bicycle wheel. The top bars face the outside of the extractor reel, towards the tank wall. Thus, frames lie on their side. This means you can take advantage of the natural upward slope of the cells in the comb. Once the frames start spinning, the honey is quickly forced from the cells on *both* sides of the frame by centrifugal force and without stopping to reverse a frame.

These extractors are real time savers because you don't have to stop to reverse frames. You break fewer combs with a radial extractor because the honey on one side of the frame is not forcing itself through the other side, which happens in a tangential extractor.

Cost, though, is the major consideration with radials. Count on paying more for a radial extractor than the tangential.

Parallel Radial These are the newest type of extractors on the market. Both the tangential and the radial extractors rotate on a vertical axis; the parallel radial turns on a horizontal axis. At first the concept may be hard to grasp, especially if you're accustomed to a "typical extractor". But it is a good one. The frames load into the extractor just as they would into a super. Once the rack is full and the frames locked into place, the operator releases a brake and the unbalanced load rotates on the horizontal axis. The frames will now be upside down and already draining while the next set of frames are loaded into the rack.

These extractors take up very little space in a room, and they extract the same amount of honey in half the time of radial extractors. It takes an average of ten minutes to extract a load. One manufacturer told me that parallel radials will even extract crystalized honey from the comb. And, there is essentially no comb destruction because there is no side pressure on the comb.

Of course, all of this comes with a hefty price tag. Parallel radials are the most expensive models sold.

Now that you know the three basic types of extractors available, let's take a look at the construction of these pieces of equipment. But I've taken a look at more than the types of extractors – the materials they are made from, the 'gadgets' that come with them, and the way they are made are also important considerations.

Continued on Next Page

EXTRACTORS ... Cont. from Pg. 595

Tank Material Nearly all of the extractors on the market today are made from stainless steel, but there is one made from plastic. Stainless steel is preferred by most (if not all) beekeepers, which makes extractors expensive. But stainless steel does not rust, will not discolor or alter the flavor of the honey, cleans easily and generally looks attractive. It is required in most other food processing equipment and may one day be required for use by all beekeepers who extract and sell honey.

Stainless steel, like everything else in life, is available in several grades. Look for stainless designated as a 304 or food grade stainless. All stainless extractors listed here are of this type.

The gauge, or thickness, of the steel is the next consideration. The lower the gauge number, the thicker the metal, and the more durable the extractor will be. This may be a consideration if you are constantly moving your extractor or knocking it about. But once the extractor is set up, it will matter little. All the manufacturers make a durable extractor, appropriately gauged for the size of the tank.

Another thing to notice is the type of welding used to hold everything together. TIG and MIG welding are two ways of electrically welding stainless steel sheets together. The TIG method fuses the metal together, while the MIG method uses a metal rod that is melted to hold the pieces of stainless together. For an extractor either is acceptable, and both are reliable and strong. What you should avoid are extractors welded together with solder, which may cause contamination of the honey.

Power In the table, hand powered extractors are noted as such. These are moved by sweat, and the stamina in your arm. Don't get me wrong – there is nothing wrong with hand powered extractors. In fact, much of the honey produced by hobby or Weekend beekeepers is produced in a hand powered extractor.

Motorized extractors are convenient. If you extract by yourself, it frees you up to uncap frames of honey while the extractor spins away. However, this presents at least two new problems to contend with. First, you have to anchor your extractor to the floor. If you recall the battle to keep the extractor down with an unbalanced load before, wait until the extractor decides to go for a walk powered along at 300 rpm.

Second, you will find you can uncap faster than you extract – considering you probably have a radial and you leave it spinning for 20 minutes or so. Most beekeepers either create (or buy) some sort of rack to hold uncapped frames of honey, or just let the load spin until they've uncapped the next load, not waiting a full 20 minutes. Balancing out your operation will be a challenge for the creative spirit in you because about the time you balance the uncapping and the loading, you must

Dadant & Sons Extractors

Maxant #500

Maxant #1400P

Maxant #3000

Maxant #6000

decide how you're going to handle all that honey coming out of the extractor.

The more expensive powered units have some type of adjustable speed control. These are worthwhile because they allow you to slowly increase the speed of your extractor, minimizing the risk of breaking combs. It also enables you to have better control over an unbalanced load.

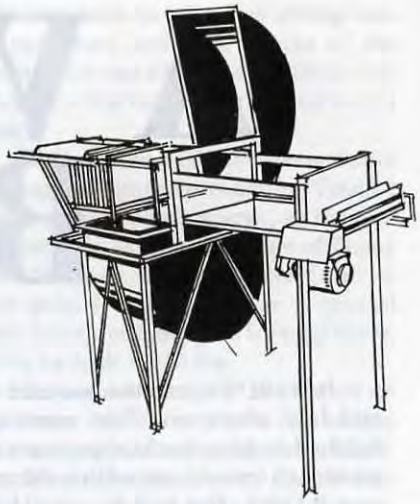
All powered extractors, except for the Auto Load Extractor from Cook and Beals, are 110v (household current) rated. However, Maxant Industries pointed out that several of their power units would work with 110v or 220v (you must request the higher power requirement).

Tank Size, Honey Outlet Tank size, in diameter and height is listed in the table. These measurements will give you an idea of their space requirements when you are trying to figure out where to set things up.

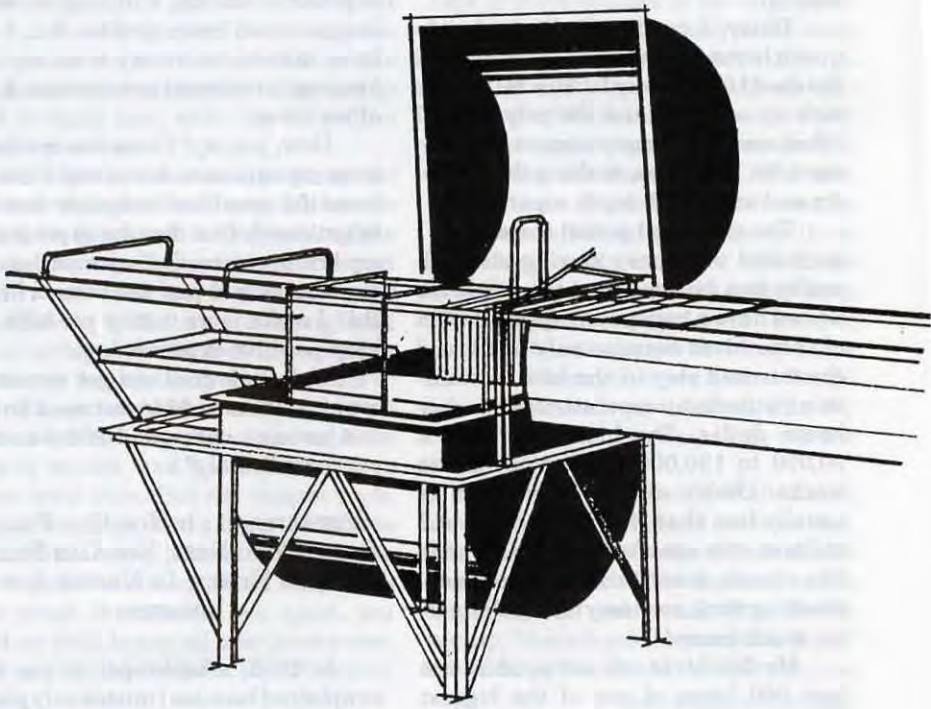
Honey outlets differ depending on what the manufacturer designed the extractor for. Generally the hobbyist extractors are made with some sort of honey gate, while the extractors made for sideliners and commercial beekeepers come with a fitting to which tubing can be connected. Side outlets are provided for hobbyists because it would be hard to set up a bottom outlet extractor on the kitchen table. Again, it depends on the requirements of your own operation. If you bought an extractor with a side outlet but would now prefer a bottom outlet the manufacturer may be willing to make that alteration for a slight cost. If everything else is o.k. with your machine, this is far cheaper than buying a new one.

There are (at least) 50 different extractors made in America today. They have been listed for you to review. Buying one may have now just become a little harder to do because you can see the differences between them. Do not buy your new extractor based solely on the information given in this article, but use it as a guide in the decision making process. You must weigh your own requirements and limitations before you buy. Plan on your extractor lasting a lifetime and buy it with that in mind. □

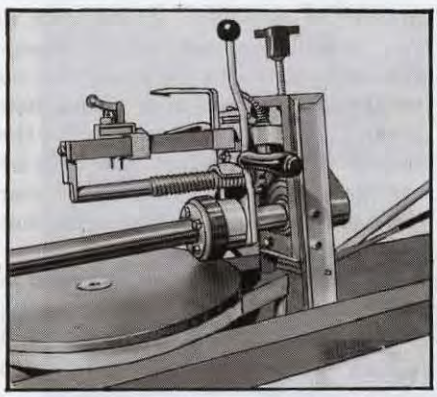
Maxant #3100 Hand & Power



Cowen



Cowen



Close-up of the Advancer on the 72 frame extractor. Kelley

Kelley 12-frame

A Wall Street Beekeeper

O.B. Wiser

It is 101°F out in the bee yard on a mid-July afternoon. This morning, I finished making the final payment on a six month investment with a return of over 2,150%. Not bad for an old beekeeper.

Today, I combined all my double queen hives. I started at 6:00 a.m. and finished 100 hives by 10:30 a.m. I didn't pick up one hive and the only boxes I lifted were the empty supers I had to stack on the hives, making them five, six and seven full-depth supers high.

The moment I pulled the screen, I increased my honey storing strength not by two, but by three, the two hives united have a honey storing population of three hives because only one brood cluster need stay in the hive to maintain incubation temperatures and other house duties. The hive will reach a 90,000 to 120,000 population in two weeks. Utah's average production is usually less than 45 lbs. a year, but I make an average of over 150 lbs. Sounds like a crock, doesn't it? Too much back-breaking work, too many manipulations, too much honey!

My 200 hives will out produce the best 600 hives of one of the biggest beekeepers in the state, who, like so many others, have been deluded into thinking more hives are better. They think that more locations, more bees, more miles to move, more forklifts, more expensive trucks, and bigger warehouses mean more profits. Yet, I will have take-home money from my beekeeping investment greater than 1,000 of his hives.

How, you say? I have low overhead, keep my expenses down, and I use my beautiful excaliber computer that has taken nearly four decades to program – my brain – instead of my muscles. But most important and the bottom line is that I make more money per hive and keep per-hive expenses low.

Well, how does one get returns of over 2,100% on a $6 investment and do it in just six months, and do it year after year, predictably?

Principle #1: If You Can Fill A Super With Bees, You Can Fill It With Honey, In Nearly Any Location

In 1985, a beekeeper in my area complained because I mistakenly placed a bee yard of 25 hives within a half mile of one of his. We do not have a law that makes you tell where your bees are, so you have no idea where other beekeepers are. You can inadvertently step on tender toes because you do not see their bees. I agreed to move my bees after the season was over. I do not move bees for the fun of it once on location. I never move once I am on location again that year, not for anyone.

I had this little point I wanted to make, one I intended to make subtly, you know, like being kicked in the head is a cow's subtle way of telling you not to pinch her utter.

So I divided the 25 hives on April 7, and put some of Homer Park's queens in the hives. I put the divides right on top of the same 25 hives, (not on the same hive I took the bees from). I used double screens and solid plywood inner covers and single screen inner covers. It doesn't matter what you use. The idea that queens fight across a screen is bologna. Laying queens nearly never fight and certainly never across any kind of a barrier.

So my new little four-frame divides (two brood and two honey), got put on top of a parent hive to incubate. Most of their field force returns to the original parent colony but that does not matter one little bit. The brood is nice and warm on top of the 90° heater and hatches out just fine. I put the queen cage in the very minute the divide is done. Her pheromones keep many bees in the hive that would otherwise migrate to a local, parent queen if not put in the divide at once. I get near 100% acceptance this way.

Now the hardest part was that my hives were in a gully and the ground was not real flat. The next visit I took out the queen cage and added one super to the parent hive. Then, next time I added one to the top hive and on the 4th visit, the first part of July, one more super was added to the top of the stack. At this time, I pulled the screen. If you've been counting, that is six full depth supers, two of them brood chambers. The bees literally boil over the edges of the top box when the lid is opened.

Now picture the usual spring in the High Rockies. The snows of late April in this pristine high mountain valley find all 25 hives stacked three full depths high, one divide on top of each hive, as the bees bide their time until the first honey flow. They are strong and ready to harvest the early spring dandelion and first major honey flows.

But here's what's going on next door. Right on schedule, the first part of April, I made my divides, but the neighbors are too busy feeding and moving bees to make divides, and they must drag all the dead hives in and scrape out the dead bees. They do not pack the bees

the way I do – it's a waste of time and money, they say!

My neighbor's location was a half mile away, and had winter killed over 25%, with another 25% very weak. When I took off my winter coverings, (straw and tarpaper), I lost none and they were all ready to divide by April 7. The day I was dividing, my neighbor flies by like a demon in his tank truck, trying to get feed to the remaining hives before they starve. The problem I face is much different. I must face the question of there being so much honey in the hive that I am not sure there is enough room for the brood, and if I did not divide, they would all swarm by May first, sure as sure. I have no choice. It's terrible.

The day I put the first super on the lower hive, their truck goes by again, only this time he stops up on the hill and tries to figure what I am doing with hives that are four boxes high the first part of May when he is just getting around to dividing his bees.

The next time we meet, he is pulling queen cages from his one story hives and feeding nucs that are sitting on the ground, trying to stay warm in the still-cold nights of May. They are totally isolated from all other hives, on the perimeter of his bee yard and facing in different directions. He worries a lot about drift, you know.

My hives stand in three rows, box to box, hive to hive to conserve heat. My task is having to put another super on the boiling boxes of bees, as well as having to use nails and 2 x 4's and 2 x 6's to shore-up the hives because they are not on level ground. My major problem was developing a scaffolding to support the bees from falling over on the uneven ground.

It is the first week of July when my neighbor and I meet again. He is putting his first super on the parent hives, making them three stories high and he adds the second box to the divides. He sits on one of these foot stool hives and watches me pull divider screens from between the hives by simply pivoting the top hive back on the lower hive while my assistant pulls the screen out from the front. Then, I pivot the upper back into position without ever picking up a hive or a box.

When I pull the screen it is time for supering again, making the stack six high. Of course, more 2 x 4's are braced and nailed into place and my neighbor loses sight of me in the towers of honey and bees. He wonders why on earth I leave all the hives in rows side by side,

> "Fill a box with bees, and they will fill it with honey."

eight hives long while he has gone to such great pain to divide his bees and place them at odd angles isolated on the perimeters of his yard so they will not drift. Of course, most of the energy his little nucs use is to convert honey into heat to stay warm, with little energy left to build bees with. My hives just grow more bees.

Our paths cross one more time that season when I add the seventh box on 12 of the hives, while he is adding the first super to half of his divides. The rest will never make any honey that year and have a 25% chance of being dead next spring and a 25% chance of being uselessly weak – the cycle begins anew.

There are problems to this two queen beekeeping. You have to have lots of supers, and you really need to have level sites. But the biggest problem is that you need a big truck just to take off the honey from one yard of bees. So it does take more time, and, when you break the seventh box apart, you end up with honey all over your coveralls as you slide it off the top. Of course, it is very wise to have two strong beekeepers front and back to take all the honey off or use a bee boom. I think it is worth it – the extra effort to harvest, I mean.

Well, the end of the season found my angry neighbor screaming "Foul" I was overcrowding his area, as his reason for only taking 25 boxes of honey from 30 hives. Of course, that is all he ever gets. I took 112 boxes of crystal clear honey, or 5,600 lbs. from 25 hives, while he took 1,250 lbs.

Now remember, our bees were on the same limited pasture. His excuse was too many bees per number of flowers. My explanation was the flowers were there, my bees just took advantage of them because of the huge numbers of bees. My bees just made more trips because there were more of them.

And so it is as my hypothesis simply states, *fill a box with bees and it will be filled with honey*. The flowers and the nectar are there galore. The beekeeper is not limited, in most cases, by bee pasture, but rather by his ability as a beekeeper. My neighbor still keeps bees the way his grandfather kept bees. The world has changed, and I have to wonder if back then when they made 100 lbs. of honey their way, what I could have made with my method. The sky would have been the only limit – or the limbs of the trees.

My experience with Wall Street and stocks and bonds has not been bad. I usually make between 17% and 23% on mutual funds and I have made some big profits in real estate. But, for my money, "there is gold in them thar hives" and that golden liquid called honey has

Continued on Next Page

Even midseason the 'short' stacks are filled to the top and need more.

WALLSTREET ... Cont. From pg. 599

The big stacks make hard work, but lots of honey.

made me rich in many ways.

So my investment went something like this. I sent a check to Homer Park for $6.00 per queen in April, the prime price. My net increase of beehives at the end of the year will be zero. I started with 200 hives and ended with the same. I average at least three supers, or 150 lbs. per hive run as a two-queen unit.

So for my $6.00 investment in queens, I receive a return beyond my original investment of $129. Of course, one must deduct expenses and figure the time spent. But, you see, my competitors spends much more money per hive in moving expenses, feed and warehouse fees than I do, so his margin of profit is very slender indeed.

As for me and my money, I'll bank on my bees right here at home on permanent locations and trust my decades of experience. I will be a Wall Street Beekeeper and win because the bees will be good to me, if I am good to them.

Strong colonies make big honey crops, not because of the great bee pasture, but because of the numbers of bees. Miles of blooming clover never have and never will be a substitute for super-strong hives.

Good locations don't make honey crops – good beekeepers do!! There are few exceptions. That is just the way it is – and I learned *that* the hard way.

POPPIES

STEVE TABER of Honey Bee Genetics

Goudous • 82370 Villebrumier, France

"Yes, even you can make an observation that has never been previously recorded."

All across America when Veterans Day approaches on Nov. 11, you can see on street corners, at Post Offices and many other places, Representatives of various Veteran organizations selling little red paper poppies for people to pin to their clothes. The money collected goes to a worthy cause.

When I was in grade school, back in the 30's, we were expected to memorize a poem entitled, *In Flanders Fields*, a place in France where so many young American men lost their lives during WWI. I don't know if school children have to learn that poem anymore because WWI is now so long ago. But here in France you can still see what a terrible toll it took on every community. Even a small village like mine, with 750 people has a monument listing 24 young men who died in the conflict. Only two are listed as killed in WWII.

Since this is a magazine about beekeeping and not one of war I want to talk about the beautiful poppies that still grow in Flanders fields, and are memorialized each Veteran's Day here in the U.S. Their Latin name is *Papaver rheas*, the common French name is coquelicot, and they grow everywhere in great and wonderful profusion. It is no wonder they made such an impression on so many U.S. soldiers while they were in France. And honey bees love them.

They reach peak bloom about June first, and you can see bees bringing in load after load of poppy pollen. How can you tell? Well it is as black as coal dust. When stored in the combs it looks terrible, like some new disease has just attacked your bees. And pollen offered for sale for human consumption is specially labeled, "does not contain poppy pollen", because it is bitter.

When something is common, even though beautiful, and you grow up looking at it all your life, you tend to take it for granted. But because I learned that poem during my childhood, when I first saw these poppies bloom two years ago I just couldn't look at them enough.

But their beauty didn't interfere with my curiosity. I marked several plants that showed some genetic differences and then collected seed for planting. I am sure no one has made selections from them in the past and it represents a great genetic diversity to observe. Occasionally I would see one that was nearly purple, another a pale pink. Some with all red petals, while others had large black nectar guides at the base of the petals. And there was one that even had yellow pollen.

Of the thousand or so seeds I collected and scattered, only a few grew, but fortunately some with the yellow centers did. Recently I had a visitor, a professional botanist, and I showed her the half dozen or so poppies with yellow centers. She said that even though she had lived in France all her life, she had never seen such a poppy.

All this illustrates, really, an important point that many beekeepers, particularly beginning beekeepers fail to realize. The point is that even *you* can make an observation about bees that has been overlooked by all the other beekeepers who came before you. The only problem is (if you consider this a problem) you will have to spend a lot of time watching your bees, and I mean really watching them while making copious notes to document your observations. I call this rocking chair research, and I did some long ago.

What I wanted to find out was really quite simple – When do drones fly? At what time of the day do they leave the hive to mate? What effect does

Continued on Next Page

IN FLANDERS FIELDS

John McCrae

In Flanders fields the poppies blow
Between the crosses, row on row,
That mark our place; and in the sky
The larks, still bravely singing, fly
Scarce heard amid the guns below.

We are the dead. Short days ago
We lived, felt dawn, saw sunset glow,
Loved, and were loved, and now we lie
In Flanders fields.

Take up our quarrel with the foe:
To you from failing hands we throw
The torch; be yours to hold it high.
If ye break faith with us who die
We shall not sleep, though poppies grow
In Flanders fields.

POPPIES ... Cont. From pg. 601

weather, or time of year have on their flight time? Can anything be done to change the time drones fly?

To make these observations I decided to pick three hives with lots of drones, and watch the entrance of each for exactly two minutes in a 10 minute period from the time that drones first began their flight in the morning until no more drones flew for the day. All the equipment I needed was a place to sit (a rocking chair is wonderful), a stop watch, three hives of bees, a pencil and a notebook. This 'rocking chair' research resulted in several scientific publications over a number of years. And, for your information, (that you may want to put in the back of your mind), there still is very little work done on drone flight times concerning bee races or other genetic differences.

James I. Hambelton, who hired me to work in the Division of Bee Culture, as it was called back in 1950, paid a visit to the laboratory of Karl von Frish in Austria shortly after the war. Later, during a visit to our laboratory in Baton Rouge he pointed out that von Frish was using equipment that cost perhaps $200.00 making observations on the dance language of honey bees. A few years later he was awarded the Nobel Prize for those observations.

Well I have strayed from the subject of poppies, which is a frequent failing I have – been like that all my life, I guess. I don't know if these poppies are available from flower seed companies in the U.S. or not. And I am sure it would be illegal for me to send seeds from here without all sorts of proper permits. But if you can find a way, I have plenty available. □

Grow Your Own III

Large seeds like buckwheat *can* be spread by hand (though not recommended) but it is a mistake to try to broadcast clover and other small seeds this way. In fact, uniform distribution of very small seeds, such as ladino, present problems even with a mechanical, hand operated spreader. It is difficult to accurately adjust the flow rate of most spreading devices and operate the equipment at an even tempo.

Also, unless seed is broadcast on snow it is almost impossible to see the dispersion pattern. And there is the tendency to think coverage has not been adequate and apply too much seed. However, anybody can get the hang of it with practice and by following a few simple rules:

- Pick a calm day when there is little, if any wind to blow the seed around. Wind will unevenly affect the dispersion pattern, with more seeds 'downwind' than 'upwind'.

- Set the spreader's calibration (the adjustment that determines how much seed is dispensed) at a lower rate of application than is prescribed in the spreader's manual. Then, instead of making only one pass over your plot make two or more in a criss-cross fashion. Multiple passes in different directions assure uniform seed distribution.

- When broadcasting ladino or other comparably sized small seeds I mix them with a spreading agent or extender which helps attain even distribution. Coarse bone meal (powdered bone meal is too fine) or sand, which has been run through window screening to take out coarse grains, can be used as extender. Personally, I don't care for sand because it gets into my spreader's mechanism and fouls up the gears, but others have found it quite satisfactory.

- Check your spreader's manual and note the width of the seeding swath laid down by the spreader. Then, using flag markers, delineate the parameters of the several swaths to be made.

- Before seeding a large area mark off a small test plot – a good size is 1,000 sq. ft. (20 ft. x 50 ft.) to determine the actual amount of seed applied at a given calibration.

For example, suppose you want to plant sweet clover at 14 lbs. of seed per acre and your manual recommends a setting of 2-1/2 for this seed. By simple computation you find you need five to 5-1/4 oz. of seed (1,000 ft. is approximately 1/42 of an acre so you should have an amount that weighs 1/42 of 14 lbs.) (22.4 oz.) With calibrator set at an arbitrary 1-1/2 instead of 2-1/2 as recommended and five oz. (1/42 of 14) of inoculated seed in the spreader's hopper you seed your 1,000 sq. ft. test area. If more than two or three trips across the plot are required to expend the seed, the calibrator can be opened a tad.

JAMES TABOR

Continued on Next Page

No doubt, the more land available the more contribution you can make to your bee's nectar collection. However, even six square feet will help, and will enhance both the land you use, and the skills you develop.

GROW ... Cont. From Pg. 607

Through trial and error you'll learn the correct setting for a particular seed and how fast to turn the seeder's crank and walk while broadcasting. Although this sounds a bit like being able to pat your head and rub your stomach at the same time, it is actually much easier.

A variation of this test plot exercise is mandatory when seed is mixed with a spreading agent. By making trial runs at various settings to find out the amount of the agent – without seeds – that will be dispensed when multiple passes are made over the test plot.

If the amount of the spreading agent used happens to be a pound and the seed to be planted is ladino, you'd mix your two pounds of seed with 42 pounds of agent for each acre to be seeded.

SEEDING SMALL PLOTS

When planting only a few hundred square feet it is not practical to use a cyclone type seeder, but the small hand-made seeder mentioned earlier is ideal. Multiple nail holes are punched through the entire bottom of a can, the size of the holes being determined by the size of the seeds to be broadcast.

Three quarters full and the cover in place, the can is agitated in the same manner that one uses a salt shaker. Here again the success of this technique comes with experience.

FROST SEEDING

Frost seeding is broadcasting seed during late winter or early spring. Aided by freezing and thawing action, seeds work their way down into the soil via frost-created cracks. They are then ready to germinate when the soil temperature and moisture levels are right for growth.

The fact that there is snow on the ground should not deter you from trying this. As a matter of fact, it offers some distinct advantages because you can monitor the seed's dispersal pattern because they are easily visible lying on the snow. Furthermore, your footprints in the snow make it easy to follow a systematic pattern which avoids overlapping or missing some areas.

REDUCED TILL

Since it is imperative that individual seeds actually lodge in the soil and don't get caught on tufts of sod, I seed on pasture that has been worked up by reduced tillage in two stages. After the ground cover has been well chopped up, half the required seed is broadcast, the plot is worked over again by lightly harrowing, and the balance of the seed is dispensed.

COVERING SEEDS

Ideally, clover, birdsfoot trefoil and canola seeds should be buried a quarter of an inch deep, about the same as for grass seed. Buckwheat should be at least a half inch.

I find when planting small seeds on conventionally tilled soil they will be covered enough just by dragging the plot. I bury buckwheat seeds the same way but I don't smooth out the finely harrowed surface before I lay down the seed. This provides a greater opportunity for individual seeds to be seated a bit deeper into the soil.

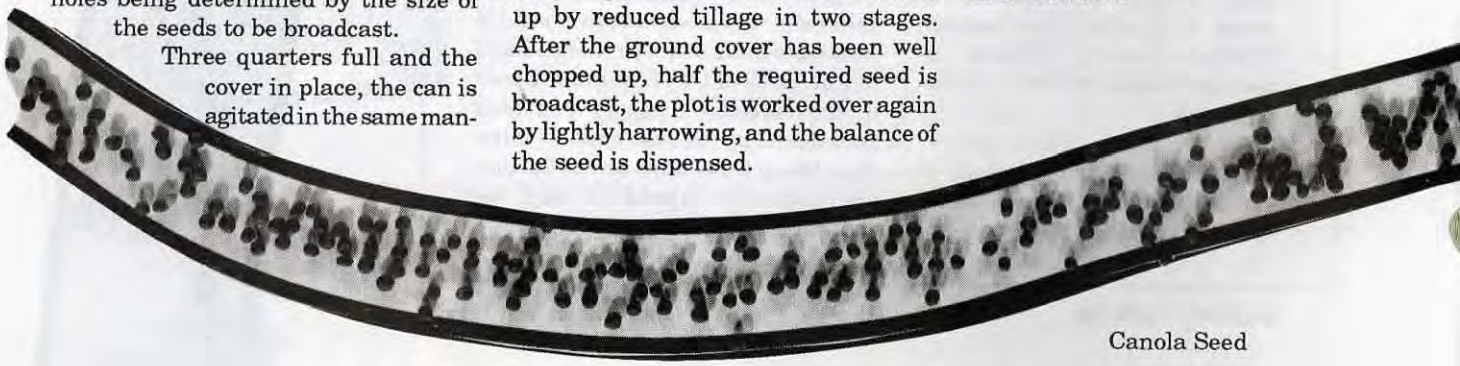
COMPACTING THE SEEDBED

Compacting the seedbed soil after planting is *very* important. Given timely rain and luck, conventional tillage cultivation without firming the seedbed *might* result in some seed germination. It is definitely worth the effort for the work involved.

Although manual compaction of the seedbed is not a "must" after frost seeding it is usually helpful, particularly with sweet clover. Improperly compacted seedbeds account for more failures in growing sweet clover than any other cause. Obviously, a frost seeded plot cannot be rolled until spring when the ground will support the equipment needed to do the job.

If a regular or homemade roller is not available you can make repeated passes over the ground with a piece of garden equipment, car, truck or tractor. When systematically done, it is surprising how fast the task can be accomplished. Before I had a roller at my disposal I used my tractor and weighted utility trailer, with an off-center tongue attached to the tractor's tow bar. I could roll an acre in a half hour or less with this.

When a seeded plot is only a few hundred square feet and has been raked over, tramping down the seedbed by foot can do the trick after the seed has been raked in.



Canola Seed

INOCULATION

Unless clover or other legume seeds are being planted in a field known to have Rhizobium microorganisms in the soil, they should be treated with an appropriate inoculant before being sowed.

Exposing a legume's roots to *Rhizobium* bacteria enhances growth, foliage development and blossoming as well as the production of nitrogen in the soil.

These inoculants are specific for the host legume for which they work. *Rhizobium legumenosarium – Biovar trifolii* is used with the true clover – alsike, ladino and white Dutch. *Rhizobium neliloti* inoculates biennial yellow and white sweet clover and annual Hubam sweet clover, and *Rhizobium loti* goes with birdsfoot trefoil.

Dr. Thomas Wacek of Urbana Laboratories, one of the country's largest producers of agricultural inoculants, points out that since they contain live bacteria, inoculants must remain so to be effective. Heat and dryness will kill them. Consequently, keep them refrigerated or, at the very least, in a cool place until used. Reseal the bag if you don't use it all. To help protect their viability inoculant packages are printed with an expiration date beyond which the product should not be used.

To insure even distribution of the inoculant in the field a sticker such as a 10% sugar syrup, skimmed milk or gum arabic can be applied to the seed before mixing in the powder. The amount used will vary somewhat depending on the seed. It should be just enough to moisten each seed so that the powder will stick but not so much that the seeds stick to each other and clog the spreader.

When I inoculate ladino seed mixed with bone meal I use skimmed milk, starting with two tablespoons of milk for each pound of meal. If additional liquid is required add very small quantities, very slowly. It is better to proceed cautiously than pour in too much and then have to add more bone meal and seed. Keeping in mind an inoculant's vulnerability to lack of moisture, it is advisable – in so far so possible – to sow inoculated seed when the ground is damp or rain is forecast.

A typical commercial lime application rig. You can do it, but they can do it cheaper, faster and with more accuracy.

Should an inoculant be used when frost seeding clover? Yes, say some authorities who claim that snow enhances its effectiveness. The reasoning is bacteria has a better change for survival until germination in the cold, moist environment provided by snow cover. The possible flaw is that before germination the soil may dry out, jeopardizing the inoculant's effectiveness. To guard against this, triple the amount of powder prescribed by the manufacturer. Since powder is relatively inexpensive I routinely triple, or even quadruple the called-for quantity, no matter when I broadcast my seed.

PLANTING STRATEGIES

The primary objective in growing bee pasture is to provide an abundant flow of diverse nectars over an extended period of the growing season with a minimum of effort and expense.

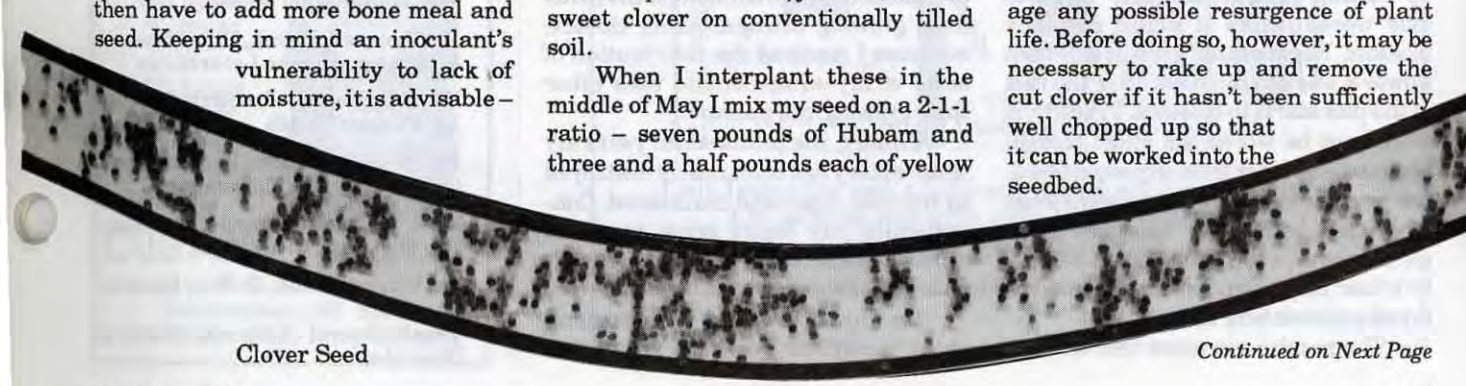
A good start toward this objective is to interplant Hubam, yellow and white sweet clover on conventionally tilled soil.

When I interplant these in the middle of May I mix my seed on a 2-1-1 ratio – seven pounds of Hubam and three and a half pounds each of yellow and white per acre.

Even through some of the Hubam is still blossoming, I mow the plot the first or second week in September. If left standing too long sweet clover becomes difficult to mow with a Bush Hog. The tall, stout stems become tough when they're old, they don't chop well and occasionally foul the machine. I do not rake up after mowing and leave the cuttings on the ground as a mulch.

The following spring the biennial clovers mature and, after blossoming for about six weeks, they too are cut. If the stand is thrifty you can frost seed alsike and/or ladino on the same piece the following winter or early spring.

Like buckwheat and canola, a strong stand of sweet clover will usually choke out most competing weeds and grasses, providing a hospitable seedbed after the stubble has been harrowed, rototilled or otherwise cut up. Even though most growth will have been smothered it is advisable to go over the ground once or twice after cutting to break up the top soil prior to the end of the growing season. This will discourage any possible resurgence of plant life. Before doing so, however, it may be necessary to rake up and remove the cut clover if it hasn't been sufficiently well chopped up so that it can be worked into the seedbed.



Clover Seed

Continued on Next Page

GROW ... Cont. From Pg. 609

Another way to extend the life of your bee pasture, is to plant buckwheat the first year instead of sweet clovers.

I have not yet followed a planting of buckwheat with sweet clover, but to do so I would make my first buckwheat planting the third or fourth week in May. Flowering the end of June, it would be cut and raked up the last week in July. The stubble would then be harrowed, rototilled or otherwise worked over, seeded and rolled for a second crop. This stand would be allowed to blossom for four weeks before being cut.

To prepare a seedbed for next season's sweet clover crop follow the sweet clover, alsike and/or ladino clover program outlined above.

Another good mix for conventional tillage is to plant a third of the available land in alsike, a third in ladino and a third in birdsfoot trefoil. This gives nectar diversity with seasonal extension of the bee pasture availability. Also, from my experience with birdsfoot trefoil it appears this legume outlasts both alsike and ladino in the number of seasons it will stand up to competitive growth.

Let's look at a low-input option – growing alsike on half of a plot prepared by reduced tillage, with biennial sweet clover mix on the other half. True, this strategy will probably net only a few alsike blossoms the first season but the second year the alsike should do well, along with the sweet clover, and continue to provide good bee pasture the third year with the possibility of some returns beyond.

An interesting irony to growing a nitrogen-fixing perennial clover is that the more it prospers, the more nitrogen is pumped into the soil. This, in turn, encourages the growth of other plants which ultimately over power the legume which enabled it to grow.

The flowering period of a portion of a stand of sweet clover can be postponed by cutting it approximately three to four weeks before it would normally blossom. Regenerated growth will then flower a week to ten days after the rest of the plot starts to blossom. Frankly, it might not be worth the effort though because – at least from my experience, the new growth seems to be somewhat emaciated with fewer blossoms overall. However, a top dressing of 10-10-10 fertilizer may help, but this is an additional expense and labor output.

The results are more trial and error than scientific fact. Another possibility, for one interested in growing canola and buckwheat might be to interplant these two producers. They seem to do well in the same soil, grow at approximately the same rate and they are quite compatible. But I'm not at all sure this procedure, in most circumstances won't yield the "worst of both worlds", because of the mixed honey types that result. This, however, is only a concern in large acreage plantings.

THE BOTTOM LINE

In any discussion on growing bee pasture, inevitably the question arises, "Is it cost effective? Do revenues from increased honey production pay for the cost of growing the pasture and still leave a profit?"

No matter how much Nectar you grow – you, your soil & your bees will benefit.

Although I am convinced that this activity can be profitable I am not able to prove it from my own trials to date. Why?

First, many of the experiments I've conducted have been limited in scope to only a few thousand square feet. Second, I have no accurate historical records of honey production before I started my bee pasture program. Third, to be valid there must be a detailed financial analysis that takes into account all costs and expenses – return on investment, depreciation, taxes, insurance, overhead – to mention a few items, as well as meticulous records of expenses. Also, I have not determined the value-added benefit to our property through the improvement and enrichment of the fields from growing nitrogen-fixing clovers; nor have I credited the contribution of some of my equipment to uses other than growing bee pasture.

Finally, the past several years my small apiary has been nearly destroyed by tracheal mites and chalkbrood. Consequently, my honey crops have not reflected the actual productivity of available bee pasture.

On what basis, then, am I sanguine about the efficacy of home grown bee pasture?

I have a scale hive which has given me some sense of the nectar yields of the various major plantings. Furthermore, I have assiduously monitored the bees' activities on the different species of honey plants while they are giving up their nectar.

Over the 10 years I have been involved in this study it has become clear to me that it is possible to maintain significant bee forage continuously from the first of June into September with relatively little effort – at least in my northern reach. Southern areas, with longer growing seasons could stretch this out considerably.

Currently, I am looking at some species of goldenrod and asters in the hope I can extend my program even further into the fall.

SUMMARY

But no matter the size or profitability of your plot, you can grow bee pasture that will help your bees and the soil you grow it on. Whether a 100 square feet or 100 acres the principles are the same and the results will be in direct proportion to the efforts you expend.

Even if you never harvest a drop of honey from the fruits of your labor, the hours spent working the soil, watching the plants grow and enjoying the peace and solitude of your "garden" make any effort worthwhile. There is something particularly satisfying in nurturing a living, growing plant, be it for pure commodity, to improve the soil or for the simple beauty of the flowers it may produce. □

I am indebted to the following authorities for their generous help in my bee pasture research efforts

Dr. Vaughn H. Holyoke, Program Administrator, Cooperative Extension Service, University of Maine

Glenn K. Wildes, Area Dairy Specialist, Cooperative Ext. Ser., Univ. of ME

Dr. Richard J. Brzozowski, Extension Educator, Cooperative Extension Service, University of Maine

Dr. Thomas J. Wacek, Dir. of Research & Develop., Urbana Laboratories

Dr. D.L. Nelson, Research Scientist, Agriculture Canada

Dr. Douglas S. Chamblee, Professor of Crop Science, NC University

Dr. S.C. Jay, Professor of Entomology, The University of Manitoba

Mr. Roman Pankin, Dufrost, Manitoba

Canola Council of Canada, Winnipeg, Manitoba

HOME HARMONY

ANN HARMAN
6511 Griffith Road • Laytonsville, MD 2088

CRANBERRIES

Cranberries are frequently called the "All-American Berry", joining the blueberry and the Concord grape as America's only native fruits. Although our knowledge of the cranberry begins with the landing of the Pilgrims, the native American Indians had long made use of this tart berry. The regional tribes had their own names for the berries, however the settlers' name of "cranberry" is the one used today. The actual origin of the name is not known exactly, but probably stems from the shape of the tiny blossom which resembles the neck and head of a crane. Thus "crane berry" became "cranberry"

Indians made use of the cranberry as a food ...

ground berries with dried venison and suet were the "trail mix" called "pemmican"; ground berries mixed with cornmeal produced a nutritious bread,

... as a medicine ...

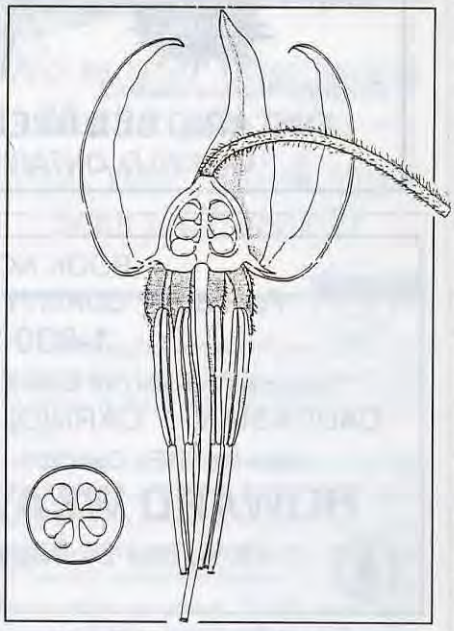
mashed berries formed a poltice for arrow wounds, and

as a dye ...

for decorating blankets and rugs.

The settlers evidently readily adopted the Indians' uses of cranberries and then developed some of their own. Cranberry sauce appeared in 1663 in a Pilgrim cookbook. Although there seems to be no written account, the menu for the first Thanksgiving dinner must have included cranberries since harvest time for them is in the autumn.

In order for cranberries to be palatable, some form of sweetening must be used. So what did the Indians use? Most probably maple sugar since the technique for producing sweet syrup and crystallized sugar from the sap of various maple species was well known to the northern tribes.



Longitudinal section of a 'Searles' cranberry flower. USDA.

With the settlers came honey bees and with them came success for the cranberry. You see, the honey bees provided the sweetness – honey, to make the cranberries more palatable, and also provided the means of pollination which increased the crop. However, the colonists did not know this at that time.

In spite of its All-American reputation, the cranberry is a very exacting plant to grow and care for. Furthermore, it is grown only in Massachusetts (first in production), Wisconsin (second), followed by New Jersey, Washington and Oregon. What do these states offer that others do not? A particular type of acid wetland with a good source of sand. Although wild cranberries grew in bog conditions, they were susceptible to drought and frost damage, but controlled conditions mean a dependable yearly crop. Today, a cranberry bog is not really a bog, although it is under water at appropriate times.

One acre of cranberry vines needs 11 acres of wetlands for water supply. In late November, after harvest time, the cranberry beds are completely flooded. The weather is cold, so the water freezes, thus protecting the vines against bitter cold and dehydrating winter winds. At this time the beds are re-sanded from dump trucks driving on the now-frozen beds. When Spring arrives, the beds are drained and will remain dry for the growing season. However, nighttime frosts require growers to turn on the water sprinklers when necessary. Irrigation water can be obtained from the surrounding wetlands in time of drought.

Finally harvest time arrives. If the cranberries will be processed into juices or sauces, the beds are again flooded. Mechanical harvesters slosh through the flooded field to dislodge the cranberries from their vines. Because the berries float the bed is soon a dramatic ruby red from the blanket of bobbing cranberries. The berries are gathered together by floating booms, and loaded into trucks for the trip to the processing plant. Some cranberries are harvested by a mechanical raker, a giant version

of the old hand cranberry rake. These berries are packaged as fresh fruit – the familiar bags found in the produce section during the holiday season.

But the story of cranberry harvest gets a bit silly now that the berries have reached the processing plants. A fresh, good quality cranberry bounces. (Try them the next time you buy a package of fresh berries.) A soft berry does not bounce. So the harvested cranberries are sent bouncing down a slope with 4" high wooden hurdles to jump over. A good cranberry bounces seven times! Soft, squishy berries are discarded. Now you know that the fresh berries you buy are winners in the cranberry Olympics.

Cranberry vines produced a reasonable harvest before settlers arrived with their honey bees. Wild, native bees and bumble bees were effective pollinators. As honey bees spread into cranberry growing areas, the crops increased. Cranberry growers today bring honey bee colonies into the bogs. One strong colony per acre is recommended since honey bees do not find the cranberry blossom particularly attractive. In some areas cranberry honey can be obtained, although bees visit the flowers mainly for pollen.

Cranberries are pretty to look at – string them on heavy thread, with or without white popcorn, for a Christmas tree decoration. After the holidays, give the garland to the birds for a mid-winter snack. Cranberries are nutritious, too, high in fiber, low in calories, and a good source of vitamins C, A and B. Some will appreciate the low content of sodium, but everyone will benefit from the berries content of calcium, phosphorus and iron.

In the early days of cranberry production, many barrels of the berries were sold at major port cities for shipboard use to prevent scurvy. Some modern medical research has shown that cranberries, taken as juice can help prevent certain urinary tract infections. The All-American berry seems to be the "all-purpose" berry as well.

The versatility of the cranberry is well demonstrated by glancing through numerous phamphlets and booklets of cranberry recipes. Every category is represented – beverages, meats, vegetables, fruits, desserts, breads and salads are all listed! An interesting note is that honey also fits into all those categories, and honey brings out the natural taste of the cranberry. Bees and blossoms, honey and berries – all seem to be a natural match.

HINT

Purchase fresh cranberries during the season, October through December, and freeze the entire bag for use later in the year. Do not wash berries before freezing, but pick them over before using. There is no need to wait for the berries to thaw before using in your favorite recipes. Leaflets for cooking cranberries, as well as the prepared juices and sauce, can be obtained from the Wisconsin State Cranberry Growers Association, P.O. Box 365, Wisconsin Rapids, WI 54495, and from Ocean Spray Cranberries, Inc., Plymouth, MA 02360. Use these sources and incorporate cranberries into your year-around menus. □

Now is an excellent time to try these cranberry recipes, both using honey, of course.

Spiced Cranberry Fall Pot Roast

2 Tbs cooking oil
1 boneless beef rump, chuck or round roast, about 4 pounds
Flour, about equal to the amount of fat that drips off roast
1/2 pound cranberries
1 cup water
1 cup honey
1 large onion, quartered
2 cinnamon sticks, about 3 inches long, broken
1/2 cup red wine
1-1/2 cups beef broth
2 Tbs grated horseradish

In a Dutch oven, heat oil over medium-high heat. Add meat and cook slowly until browned on all sides. Remove from heat. Pour off drippings into a bowl and combine with an equal amount of flour. Reserve. In a saucepan, combine cranberries, water and honey. Simmer until dissolved. Stir in onion, cinnamon sticks, red wine, beef broth and horseradish. Pour over roast. Cover tightly and cook over low-medium heat for 2-1/2 to 3 hours, until meat is quite tender. Strain cooking liquid, combining the resulting liquid with the reserved fat and flour mixture. Heat gently, stirring constantly, until the gravy thickens. Serve pot roast with the gravy.

Adapted from "The Best Recipes from New England Inns"

Cranberry Lemon Sauce

3/4 cup honey
2 tsp unflavored gelatin
1/4 cup water
2 cups fresh or frozen cranberries
2 Tbs lemon juice
1 tsp lemon peel

In a saucepan, mix together honey, water and gelatin. Stir and heat to dissolve gelatin. Bring to boil, then add cranberries, lemon peel and juice. Cook, stirring until skins pop. Chill until thickened. Serve as a topping for cheesecake, crepes or ice cream. Makes 2 cups.

Adapted from "All-Time Favorite Cranberry Recipes"

As you sit down to your holiday meals with the traditional cranberry sauce, remember the cranberry was once used as a symbol of peace by the chief of the DE Indians. His name, Pakimintzen, means cranberry eater. □

START NOW

Use these lists to plan for next year's Beauty & The Bees

B.A. STRINGER

There comes a time when the bees have offered up their honey and you've tucked them in for winter, and it's time to sit back and ruminate on the beekeeping year. In particular, it's a good time to think about the stores that were open for your bees in their search for nectar and pollen ... were the basic ingredients always in stock in your neighborhood, or did your bees have to travel far in their quest for food? While the migratory beekeeper follows the bloom through the season, those with bees in fixed locations are dependent on the local flora for hive sustenance and a surplus honey crop. Take a trip through your last year's garden and consider some ideas which can contribute to your hive's harvest.

What do you want or need in your garden? If you grow your own vegetables, take another look at the The Incredible Edible Garden in the May issue of *Bee Culture* for more ideas on improving your kitchen garden bee forage. If flowers and ornamentals are your pride and joy, you may find information here to please your bees and delight your eye. You may also refer to back issues of *Bee Culture* for plants described in the Beauty and the Bees and Bee Plant History columns. Most people grow a combination of food plants and ornamentals which, with forethought, can provide maximum utility and beauty to you and your honey-making companions.

Consider your garden and the area in a three mile radius of your hives, and think of them as a grand supermarket for bees. What are the "specials" in bloom each week? When your garden is low on nectar-bearing flowers, how far do the bees have to travel for food? At which times of the year are pollen and nectar abundant and when are they scarce? What plants do your neighbors grow? Perhaps their gardens can fill some floral gaps when your own plot is between blooms. How prolific are weeds in your area? Wild plants are an especially valuable resource to the bee colony, often providing a trickle charge of nectar and pollen when little else is in flower.

The more sources of nectar you have in your vicinity, the more your bees can collect, and this translates into health and well-being for your bees and a honey crop for you.

Bee Bee Tree Blossom

When selecting plants for your garden, remember the regional growing limitations such as winter cold, summer heat, severity of drought, soil type and the like. Tailor the following suggestions to your own preference and growing conditions. There will be many plants suited to your area which are not on these lists. And there will be plants on the lists not suitable to your garden.

Good places to go for advice on growth requirements and ideas on using plants are your local plant nursery, the County Extension Service (especially the Master Gardener Program) and botanical gardens. Read seed catalogs for detailed information on individual plants, and dream about flowers to come. Don't forget to visit your neighbor who has the superb garden which always has something in bloom; with honey in hand, you will learn a lot about what grows well in your area.

To help you plan a succession of bloom, the following table lists some early, mid season and late flowering plants, divided roughly into growth type (tree, shrub, perennial, annual). The botanical names are given to assist you in selecting the plants, as common names can be wildly misleading and can mean completely different plants in different parts of the country. (The N or P following plant names refer to what bees *generally* gather from a particular plant – N-Nectar; P-Pollen.)

EARLY BLOOMING PLANTS

Trees

Acacia *Acacia* spp. NP
Alders *Alnus spp. P*
Apples, Crabapples *Malus* spp. NP
Aspens, Cottonwoods Poplars *Populus* spp. P
California Laurel *Umbellularia californica* NP
Elms *Ulmus* spp. P
Empress tree *Pawlonia tomentosa* N
Hawthorns Crat*aegus* spp. NP
Holly Ilex spp. NP
Horse chestnuts *Aesculus hippocastanum, A. carnea* NP
Maples *Acer* spp. NP
Pear *Pyrus* spp. NP
Plums, Prunes *Prunus* spp. NP
Redbud (Judas Tree) *Cercis occidentalis* N
Willows, Pussy willows *Salix* spp. NP

Shrubs

Alder Buckthorn *Rhamnus frangula* NP
Barberries *Berberis* spp. NP
Bearberry *Arctostaphylos* spp. N
Blue Elderberry *Sambucus cerulea* NP
Bog Myrtle *Myrica gale* P
Bottlebrush *Callistemon* spp. NP
Broom *Cytisus* spp. P
Butterfly Bush *Buddleia* spp. N
Clematis *Clematis* spp. P
Cotoneaster *Cotoneaster* spp. NP
Deutzia *Deutzia* spp. P
English Laurel *Prunus laurocerasus* NP
Escallonia *Escallonia* spp. NP
Huckleberries *Vaccinium* spp. NP
Japanese Quince *Chaenomeles* spp. NP
Lavender *Lavandula* spp. N
Mock Orange *Philadelphus* spp. NP
Rose *Rosa* spp. NP
Russian Olive *Eleagnus angustifolia* N
Sagebrush *Artemisia* spp. P
Salal *Gaultheria shallon* N
Showy Hebe *Hebe speciosa* NP
Siberian Pea Shrub *Caragana arborescens* NP
Silver Lace Vine *Polygonum aubertii* N
Silver Sage *Perovskia atriplicifolia* N
Snowberry *Symphoricarpos* spp. NP
Spiraea *Spiraea* spp. P
St. Johnswort *Hypericum calycinum* P
Sunrose *Helianthemum* spp. NP
Toyon (Christmas berry) *Heteromeles arbutifolia* N
Wisteria *Wisteria* spp. NP

Perennials

Aubrieta *Aubrieta deltoidea* NP
Bellflowers *Campanula* spp. NP
Bog Rosemary *Andromeda polifolia* NP
Buckbrush, *Ceanothus Ceanothus* spp. NP
Crocus *Crocus* spp. NP

Borage

Daffodil *Narcissus* spp. NP
Firethorn *Pyracantha* spp. NP
Flowering currants *Ribes* spp. NP
Forget-me-not *Myosotis* spp. NP
Grape Hyacinth *Muscari* spp. NP
Heather *Erica* spp. NP
Korean Spice Bush *Viburnum carlesii* NP
Laurestinus *Viburnum tinus NP*
Marsh Marigold *Caltha palustris* NP
Mexican Orange *Choisya ternata* NP
Oregano *Origanum* spp. N
Oriental poppy *Papaver orientale* P
Photinia *Photinia Ispp. N*
Rock cress *Arabis alpina* NP
Rockrose *Cistus* spp. P
Strawberry tree *Arbutus unedo* NP
Thyme *Thymus* spp. N

Annuals, Biennials

California Poppy *Exchscholtzia* spp. P
Forget me not *Myosotis* spp. NP
Sweet Alyssum *Lobularia maritima* N
Wallflower *Cheiranthus* spp. NP

Wild

Chickweed *Stellaria* spp. NP
Dandelion *Taraxacum officinale* NP

MID SEASON PLANTS

Trees

Basswood *Tilia* spp. NP
Black Locust *Robinia pseudo-acacia* NP
Catalpa *Catalpa bignonioides* NP
Eucalyptus *Eucalyptus* spp. NP
Golden Rain Tree *Koelreuteria paniculata* N
Snowbell Tree *Styrax* spp. NP
Sourwood *Oxydendron arboreum* N
Tree of Heaven *Ailanthus altissima* N
Tulip Tree *Liriodendrn tulipifera* N
Tupelo *Nyssa sylvatica* N

Perennials

Asters *Aster* spp. NP
Bellflowers *Campanula* spp. NP
Blanket Flower *Gaillardia* spp. NP
Coreopsis *Coreopsis* spp. NP
Dahlia *Dahlia* spp. NP
Evening Primrose *Oenothera berlandieri* P
Fennel *Foeniculum vulgare* N
Fleabane *Erigeron* spp. N
Gayfeather (Blazing Star) *Liatris spicata* N
Geum (Avens) *Geum* cultivars NP
Globe Thistle *Echinops* spp. N
Gloriosa Daisy (Blackeyed Susan) *Rudbeckia hirta* NP
Hollyhock *Althaea* spp. NP
Horehound *Marrubium vulgare* N
Mallows *Malva, Lavatera* spp. NP
Matilija Poppy *Romneya coulteri* P
Mints *Mentha* spp. N
Oriental poppy *Papaver orientale* P
Ornamental and edible onions *Allium* spp. NP
Red Hot Poker *Kniphofia uvaria* NP
Red-osier Dogwood *Cornus stolonifera* N
Statice *Limonium* spp.
Stonecrops *Sedum* spp. N
Thrift *Armeria* spp. N
Thyme *Thymus* spp. N
Vipers Bugloss *Echium vulgare* NP
Windflower *Anemone blanda* NP

Annual/Biennial

Blanket Flower *Gaillardia* spp. NP
Brassicas *Brassica* spp. NP
Buckwheat NP
California poppy *Eschscholtzia* spp. P
Coreopsis *Coreopsis* spp. NP
Cornflower (Bachelor's Button) *Centaurea cyanus* NP
Cosmos *Cosmos* spp. NP
Crimson clover *Trifolium incarnatum* NP
Farewell-to-Spring *Clarkia (Godetia)* spp. NP
Field Poppy *Papaver rhoeas* P
Flax *Linum usitatissimum* NP
Marigold *Tagetes* spp. P
Phacelia (Fiddleneck) *Phacelia tanacetifolia* NP
Pot Marigold *Calendula* spp. P
Statice *Limonium* spp. N
Sunflower *Helianthus annuus* NP
Sweet Alyssum *Lobularia maritima* N
Sweet Clovers *Melilotus* spp. NP
Sweet Scabious *Scabiosa atropurpurea* NP

Continued on Next Page

PLAN AHEAD ... Cont. From Pg. 615

Zinnia *Zinnia* spp. P

WILD
Blackberries *Rubus* spp. NP
Clovers *Trifolium* spp. NP
Hairy Vetch *Vicia villosa* NP

LATE SEASON PLANTS

TREES
Bee Bee tree *Evodia daniellii* NP
Chinquapin *Chrysolepis chrysophylla* N
Japanese Pagoda *Sophora japonica* NP
Tamarisk *Tamarix* spp. N

SHRUBS
Chaparral Broom *Baccharis pilularis* NP
Glossy Abelia *Abelia grandiflora* NP
Japanese Privet *Ligustrum ovalifolium* N
Silver Sage *Pereovskia atriplicifolia* N
Summersweet *Clethra alnifolia* NP
Vitex *Vitex negundo incisa* N

PERENNIALS
Anise Hyssop *Agastache anaethiodora* N
Autumn crocus *Colchicum* spp. NP
Bellflowers *Campanula* spp. NP
Blanket Flower *Gaillardia* spp. NP
Catnip *Nepeta cataria* NP
Chrysanthemum, *Chrysanthemum* spp. NP
Coreopsis *Coreopsis* spp. NP
English Ivy *Hedera helix* NP
Globe Thistle *Echinops* spp. NP
Golden Honey Plant *Actinomeris squarrosa* NP
Japanese Knotweed *Polygonum cuspidatum compactum* N
Michaelmas daisies and other *Aster* spp. NP
Mints *Mentha* spp. NP
Motherwort *Leonurus cardiaca* NP
Mountain Mint *Pycnanthemum virginianum* NP
New England Aster *Aster novae-angliae* NP
Sedum (Stonecrop) *Sedum spectabile* N
Spider Flower *Cleome spinosa* N
Spurge *Euphorbia* spp. N
Statice *Limonium perezii* N
Stoke's Aster *Stokesia laevis* NP
Teasel *Dipsacus Ispp. N*
Vipers Bugloss *Echiium vulgare* NP

ANNUALS/BIENNIALS
Borage *Borago officinalis* NP
Iceplant *Mesembryanthemum* spp. NP
Ornamental and edible onions *Allium* spp. NP
Sunflowers *Helianthus* spp. NP
Sweet Alyssum *Lobularia maritima* N
Sweet Scabious *Scabiosa atropurpurea* NP

WILD
Burdock *Arctium* spp. NP
Chicory *Cichorium intybus* NP
False dandelion *Hypochaeris* sp. NP
Fireweed *Epilobium angustifolium* NP
Goldenrod *Solidago* spp. NP
Loosestrife *Lythrum salicaria* NP
Sneezewood *Helenium autumnale* NP
Sweet Clovers *Melilotus* spp. NP

Horehound

WET SOIL PLANTS

TREES
Alders
Aspens, Cottonwoods
California Laurel
Red Maple
Tupelo
Willow

SHRUBS
Blue Elderberry
Bog Myrtle
Bog Rosemary
Huckleberries
Pussywillow
Red-osier Dogwood
Salal
Summersweet

PERRENNIALS
Forget-me-not
Loosestrife
Marsh Marigold
Mints
New England Aster

DROUGHT TOLERANT PLANTS

TREES
Acacia
Black Locust
Eucalyptus
Golden Rain Tree
Redbed (Judas Tree)
Silver Linden
Tree of Heaven
Western Cottonwood

SHRUBS
Alder Buckthorn
Barberries
Bearberry
Bottlebrush
Broom
Buckbrush, Ceanothus
Chaparral Broom
Cotoneaster
Escallonia
Firethorn
Lavender
Rosemary
Rugosa Rose
Russian Olive
Sagebrush
Siberian Pea Shrub
Silver Sage
St. Johnswort
Strawberry Tree
Toyon (Christmas berry)
Wisteria

PERENNIALS
Blanket Flower
Chicory
Coreopsis
Gaybeather
Horehound
Japanese Knotweed
Mexican Evening Primrose
Red Hot Poker
Spider Flower
Spruge
Static
Stonecrops
Vipers Bugloss

TALL PLANTS (Background)

Chimney Bellflower
Cosmos
Fennel
Fireweed
Foxglove
Geum
Globe Thistle
Gloriosa Daisy
Goldenrod
Hollyhock
Loosestrife
Mallows
Matilija Poppy
Michaelmas Daisies

Red Hot Poker
Silver Sage
Sunflower

MEDIUM HEIGHT PLANTS

Aster
Bellflower
Blanket Flower
Borage
Clarkia
Coreopsis
Cornflower
Dahlia
Field Poppy
Flax
Gayfeather
Mallows
Marigold
Mignonette
Mints
Oregano
Oriental Poppy
Rosemary
Sedum
Statice
Strawflower
Sweet Scabious
Wallflower
Zinnia

SHORT PLANTS

Bog Rosemary
Californian Poppy
Creeping Bellflower
Crocus
Grape Hyacinth
Sweet Alyssum
Thyme

FRAGRANT FLOWERS

Trees

Basswoods
Black locust
Citrus
Crabapples
Fragrant Snowbell
Siberian Pea Shrub
Southern Magnolia
Sweet Bay

Shrubs

Acacias
Autumn Olive
Broom
Buffalo Currant
Butterfly Bush
Chinese Witch Hazel
Hebes
Honeysuckle
Korean Spice Viburnum
Lavender
Mexican Orange
Mock Orange
Oregano
Rosemary
Sages
Sweet Pepper Bush
Vitex
Wisteria

Perennial/Annual/Bulb

Anise Hyssop
Catnip
Hyacinth
Mignonette
Mints
Sweet Alyssum
Sweet Rocket
Thymes
Wallflower

FLOWERS BY COLOR

Flowers en masse are more attractive to honey bees than single specimens. Plant groups of flowers to provide a worthwhile "shopping stop" for your bees. Try massing flowers in swaths or drifts to create sweeping vistas of color even in a small area. Visit your local parks and gardens for some ideas.

Blue/Lavender

Bellflowers
Borage
Butterfly bush
Catnip
Ceanothus
Chicory
Cornflower
Globe Thistle
Wisteria

Red/Pink

Abelia
Cotoneaster
Deutzia
Escallonia
Hollyhock
Oriental Poppy

An interesting exercise is to plot a chart of what-blooms-when in your neighborhood. With a list of months across the top of the page and the plant names down the side, you can mark when the bloom of each variety begins and ends. This will give you a good idea of the available bee forage in your vicinity throughout the beekeeping year. The sequence of bloom is always the same although the date of first bloom and the length of bloom of each species may differ each year. A cold spring may delay early flowers so they bloom consecutively with later plants. □

Catnip

Yellow/Orange

Barberries
Blanket Flower
Calendula
California Poppy
Coreopsis
Oregon Grape
Rockrose
Sneezeweed
Sunflower
Wallflower

White

English Laurel
Matilija Poppy
Mexican Orange
Mignonette
Mock Orange
Mountain Mint
Rock Cress
Salal
Silver Lace Vine
Sweet Alyssum
Thyme
Viburnum

A Variety Of Colors

Aster
Chrysanthemum
Cornflower
Cosmos
Dahlia
Hollyhock
Statice
Strawflower
Zinnia

Continued on Next Page

Willow

PLAN AHEAD ... Cont. From Pg. 617

FLOWERS FOR DRYING

Three ways to enjoy your summer flowers all year round are to take photos of them for the wall, make honey from them for the shelf, and dry them for dried flower arrangements. Try these flowers for drying. Hang bunches of flowers upside down in a dark, warm, dry place with good air circulation. When the stems snap when bent, they are dried. Some stems are thin and spindly and will need to be reinforced or replaced with florists wire to support the flower head. You could get books out of your local library on drying flowers for arrangements. Dry it, you'll like it!

Cornflower
Globe Thistle
Lavender
Statice
Strawflower
Teasel
Thrift

COLORFUL FALL FOLIAGE

After the bloom is over, some plants put on a showy coat for the coming fall. Consider brightening up a corner of your yard with bee plants that provide fancy fall foliage.

Barberry
Cotoneaster
Golden Rain Tree
Hawthorns
Photinia
Red-osier Dogwood
Sedums
Snowbell Tree
Tulip Tree
Tupelo
Viburnums
Vine Maple
Wisteria
Witch Hazel

SOURCES OF SEEDS AND PLANTS

Write to these companies for their catalogues. There may be a small charge for some.

Thompson & Morgan
P.O. Box 1308
Jackson, NJ 08527

Nichols Garden Nursery
1190 North Pacific Hwy.
Albany, OR 97321

Park Seed
Cokesbury Road
Greenwood, SC 29647-0001

Bluestrone Perennials
7219 Middle Ridge Road
Madison, OH 44057

Mellingers
2380 Range Road
North Lima, OH 44452

Sandy Mush Herb Nursery
Rt. 2
Leicester, NC 28748

Wildseed, Inc.
P.O. Box 308
Eagle Lake, TX 77434

White Flower Farm
Litchfield, CT 06759-0050

Native Seeds/SEARCH
3950 W. New York Drive
Tucson, AZ 85745

Michigan Bulb Company
1959 Waldorf NW
Grand Rapids, MI 49550

W. Atlee Burpee & Co.
Warminster, PA 18974

Gurney Seed & Nursery
110 Capital Street
Yankton, SD 57079

Stokes Seeds, Inc.
Box 548
Buffalo, NY 14240

Peace Seeds
2385 SE Thompson St.
Corvallis, OR 97333

Cold Stream Farm
2030 Free Soil Road
Free Soil, MI 49411-9752

County Extension Service
Master Gardener Programme

Magazines:

Bee Culture; Beauty & The Bees series, Bee Plant History series

Organic Gardening (Organic Gardening Magazine offers a listing of over 200 seed, bulb & nursery suppliers in U.S. & Canada. For the list, send $1.00 to OA Seed List, 33 E. Minor St., Emmaus, PA 18098)

National Gardening

The Herb Quarterly

The Herb Companion

Books:

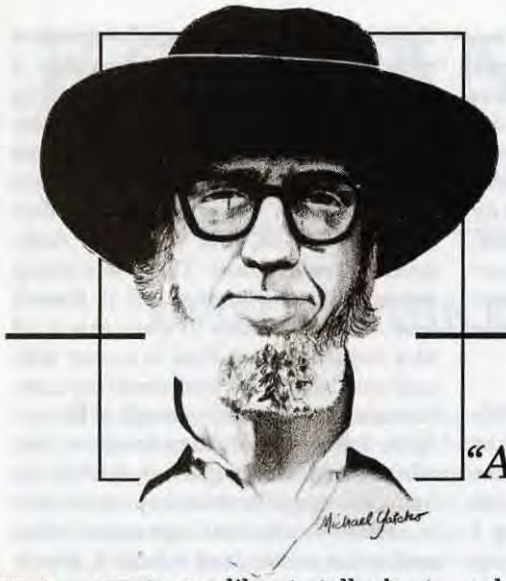
Many of these are available through BES/Wicwas Press, P.O. Box 817, Cheshire, CT 06410-0817.

Nectar and Pollen Plants of Oregon and the Pacific Northwest by Mike Burgett, Bertie Stringer and LaRea Johnston (1989) Honeystone Press.

Plants for Beekeeping in Canada and the Northern USA by Jane Ramsay. (1987) IBRA

Sunset Western Garden Book by editors of Sunset Magazine (1990)

The Beekeeper's Garden by Ted Hooper and Mike Taylor (1988) A&C Black Alphabooks, London □



BEE TALK

RICHARD TAYLOR

Box 352, Interlaken, NY 14847

"Avoid these half dozen common mistakes."

No one likes to talk about his mistakes and, after a lifetime of beekeeping, one hates even to admit that he makes them. Yet it is by making mistakes that you learn, provided, of course, you confess to them, and then take a good look at where you went wrong. I don't think I learned much in school in the days of my youth; I was too busy thinking about insects and bees and, of course, girls. But something one of my teachers used to tell me has stuck with me all these years. "Learn from *other* people's mistakes," she would say. And, bearing that in mind, I have become a pretty good observer of human folly. And the biggest mistake people make, I have concluded, is not admitting that they have made one.

I seem to do something wrong with my bees every year. I seldom make the same mistake twice, but sometimes I do even that, which is the ultimate stupidity. Every year I think I'm going to end up having done everything exactly right, a first-class master beekeeper for sure, but it has never happened. Maybe next year. But this year I blundered good, and I'll get around shortly to saying what it was.

Meanwhile, it might be worthwhile to enumerate some of the most common mistakes beekeepers make. I won't bother to say which one's I've made; most of them, probably, at one time or another. About forty years ago, when I resumed beekeeping after a temporary interruption to go to college and then off to war, I began keeping a notebook in which I listed and described every mistake I made with my bees. That notebook soon got filled up, and likewise another fat one. They are still around someplace. Those notebooks taught me a lot, by forcing me to think things through and get them right next time.

Okay, so here are some of the most common mistakes beekeepers make, especially beginners.

1. *Neglect of the bee space principle.* The principle is very simple. Any space in the hive smaller than a quarter inch will be stuffed with propolis, and any space larger than three eighths inch will quickly be filled with burr comb. Beginning beekeepers put the inner cover on upside down, that is, with the rim down, and the bees build burr comb under it. Or they leave a comb out, thinking to replace it later. Or they build hives or supers a tiny bit too small, or too big. And even some manufacturers of bee equipment sell, as a circular section super, the standard comb honey super. This can indeed be fitted out with the plastic frames used for circular sections, but it is a quarter inch too deep, and the result is that the frames are plastered over the top with drizzling burr comb, causing a mess. It is a fraud upon the purchaser of the super.

2. *Moving a super containing honey to a different place in the apiary.* Or doing the same with a weak hive containing honey, or feeding sugar syrup to a weak colony when strong colonies are nearby. The first sometimes happens when a beekeeper splits a colony. If a colony's stores get moved, and they can find them, they immediately bring those stores back where they belong. And a moved weak but heavy colony gets robbed out. Bees will gather sugar syrup wherever they find it, including from another hive, and in this case they do not even behave like robber bees. From their point of view, they are simply foraging.

3. *Procrastination.* In beekeeping, it is *always* later than you think. Supers must be gotten on the hives on time. Swarm prevention measures must be made early. This mistake seems too obvious to mention, yet every beekeeper makes it. One always thinks tomorrow will be plenty of time. It isn't. Whenever you go to your apiary, especially early in the season, you will be astonished at all that has happened there since your last recent visit. Every June I have beekeepers call me to buy some foundation or something, because they want to put a super on their hive, or start a new hive, or something of that sort. Sorry, too late.

4. *Fretting about unimportant things. Like* what color to paint their hives, which race of bees to have, whether to use drone foundation in comb honey supers, whether to use follower boards, or frames with divided bottom bars, and so on. These things don't matter much. What *does* matter is having a simple and straightforward system of management which is applied in pretty much the same way to every colony and every apiary.

Continued on Next Page

BEE TALK ... Cont. From Pg. 619

5. *Trying to invent a better beehive.* Beginning beekeepers can hardly resist concocting some piece of equipment that will somehow trick the bees into storing more honey, or not swarming, or whatever. Hence follower boards, bottom racks, complex double screens and, worst of all, hives made to hold twenty frames and that sort of thing. Stick with standard equipment, and concentrate, not on hive design, but on a more or less standardized system of management that works in your area.

6. *Trying in various **artificial** ways to get an abnormally high population of bees in a hive.* Here the idea is that the more bees there are in a hive, the more honey they will store. Thus beekeepers sometimes try to unite swarms with already strong established colonies, by hiving a swarm in a super, for example, and then uniting the super to an established colony. Stunts like this seldom achieve the desired result. It is of the utmost importance to have strong colonies, but the way to get them is by good management, which means, ensuring ample stores over winter and, especially, in the spring, and then applying effective but simple swarm control measures.

Now, what was my big blunder this year, after all these many years that should have taught me better? I under estimated how fast bees fill comb honey supers, and this, alas, is something I have done before. It doesn't take a strong colony long to fill a super, maybe a week or so – I never actually checked. And a comb honey super has got to come off as soon as the sections are capped over, or most of them capped over. Otherwise, you get travel stain. And that is what happened to me. I didn't think I had had those supers on very long, after the first round of harvests, and besides, I thought, the honey wouldn't be coming in so fast in this latter part of the season. I was mistaken. The result was that I ended up with a lot of sections that had been left on the hives after they were filled, and were now darkened by travel stain. There is nothing wrong with the honey, but it doesn't look nice, and I have to wholesale it all at a reduced price. That is money lost, and needlessly lost, because of my carelessness. It won't happen again. Henceforth I'm going to keep track of just when every super goes on a hive, by using colored thumb tacks or push pins in each super and making a note of what each color means (red = June 3, blue = June 10, etc.). And then I am going to see that no super stays on a hive unchecked for more than a week. That will solve that problem. □

(Questions and comments are welcomed. Use address above and enclose stamped envelope for a prompt response.)

KOREAN BEEKEEPING

MIKE McPHERREN

A VISIT TO THE KOREAN BEEKEEPING ASSOCIATION

The Korean Beekeepers Association (KBA) has been in existence since 1967. They currently have over 4000 members, with the organization's headquarters located in Seoul. At the headquarters, they employ 10 full time personnel who maintain contact with the members, check moisture levels of honey, edit and publish the monthly newsletter, check honey for adulteration and other jobs that keep the organization running smoothly.

I have been involved with beekeeping for over 20 years, My first experience was a 4-H project in Kansas, where I maintained 15 hives for two years. When I moved to Indiana I bought 50 hives, and kept them for a year until I joined the army. In the 18 years since, I have looked for bees and beekeepers wherever I have been stationed, including Hawaii, Maryland, Germany, Korea and now Texas.

When I first arrived in the Republic of Korea in June of 1990, I decided to find out about the Korean Beekeeping Association (KBA). I began by contacting the American Embassy. They were very helpful by putting me in touch with the General Secretary of the KBA, and I soon contacted Mr. Young Soo, Lew, and the following week I went to Soul and was given a tour of the facilities. The KBA has some very modern equipment, used to check honey for moisture, chemicals and other types of research. Mr. Young is fluent in English, so there was no problem in communicating.

Mr. Young showed me his honey collection, consisting of honeys from around the world collected while traveling for the KBA. We agreed to again meet in the fall after Mr. Young returned from trips to both China and Canada on beekeeping business.

In October we traveled east of Seoul to visit the Seoul University Research station. When we arrived, I was introduced to Mr. Jo, the resident researcher at the station. In Korea they generally keep bees in one story, 10 frame hives year round. They use telescoping outer covers with a burlap cloth and insulation for an inner cover. For additional insulation, the hives are covered with tarpaulins, plastic or rice straw. The entrances have a sliding metal strip, which allows the beekeeper to either increase or reduce the entrance to any size required. The hives are normally maintained with eight to nine frames and a frame feeder. During the spring and summer nectar flows, frames are removed and extracted when they are full. The hives never go above one story.

The nectar flows are usually short in length, small and not close together. This makes supplemental feeding a requirement to survive. However, there are Korean beekeepers who move their bees from crop to crop in the Republic. They start in the south and work their way north as the season

Continued on Next Page

Mr. Young Soo and Mike McPherren

Checking honey sample at the KBA Lab.

Moisture checks are routine for KBA members.

Honey produced in Korea comes in many flavors.

KOREAN ... Cont. From Pg. 621

The sliding entrance reducer used by KBA members.

progresses. They end in the northern part of South Korea in August or September.

The bees used by most beekeepers are Italian and Starline. Queens are raised between April and August and may be artificially inseminated to insure good breeding and honey production.

In addition to honey, Korean beekeepers collect pollen and royal jelly for consumer consumption. Their pollen traps are made of hard plastic and sit on the front of the hive. They are six to eight inches long, two inches wide and three inches deep. The openings for the bees are 4.5mm wide. The small collection box must be emptied daily.

Acacia is the primary (60%) honey crop, but canola, chestnuts, clover and, of course, wild flowers also contribute. For pollen, lime trees and fruit trees are the primary sources. □

HONEY SIPS

A MARKETING SUCCESS

DR. DEWEY CARON

Honey filled straws – a snack for the health conscious! The idea isn't new but with unceasing enthusiasm, Brook Freeman markets over a million of them a month. And he intends to increase that number in the months ahead.

Brooke Freeman didn't start as an entrepreneur. He is a skilled carpenter and has been a beekeeper producing honey and using his bees in crop pollination since 1980. The bees got him into the sales business. Brooke says "beekeeping is a sideline business and I was looking for additional sources of income." The search led him to Honey Sips.

Honey sips "is a high energy natural food source and a great alternative to candy. Kids love 'em" he says. "Honey sips aren't sticky" so parents like them. According to Brooke "many parents tell me they'd rather see their children eat honey as a snack instead of candy because honey is healthier."

Honey filled straws were first introduced to *Bee Culture* readers in a December '88 article. They consist of one teaspoon of honey in a clear plastic container that resembles a drinking straw sealed at both ends. To eat, you bite on the straw to puncture it and then sip the honey. You usually have to squeeze the straw between your fingers to force the honey into your mouth. After refrigeration the honey is crunchier and from the freezer it is like taffy.

Brooke markets the straws as **Honey Sips**. They are sold at convenience stores and roadside markets throughout the mid Atlantic area and through a marketing agreement, at specialty food stores in several eastern and midwestern states. Brooke also has aggressively marketed his honey sips at shows, fairs and similar public events. And it is paying off.

Honey sips are produced in Oregon. Brooke eventually hopes to substitute tulip poplar honey, a local East coast favorite, for the clover honey now used. He is also experimenting with different flavors. Currently honey with lemon, licorice, cinnamon and mint are packaged along with a plain honey straw. Test marketing of honey flavored with blueberry, strawberry and peach shows some promise according to Brooke.

To promote and test honey sips, Brooke Freeman applied for and received an Alternative Crop and Marketing Research Grant from the Delaware Department of Agriculture totaling over $10,000. Brooke said he had "never written a research proposal in my life" before applying for these grants. He has been so encouraged by consumer acceptance that he is looking for venture capital to develop equipment to package his product in Delaware.

He has also forged a unique association in his new business. He uses Kent/Sussex Industries, a non-profit rehabilitation facility for mentally or emotionally handicapped individuals, to package his product. "I hope that this product can create new jobs and I plan to look to places like Kent/Sussex Industries as the backbone." Brooke says. His goal is to employ 40 to 45 individuals. "They do the shipping, receiving, packaging and bookkeeping – I have no employee problems" Brooke says. "They're a work force with great potential and I'm not competing with other employers." They even take orders over an 800 toll free number. Brooke says he "wants to make this (honey sips) work and provide jobs for the disabled."

With his promotion and marketing of **Honey Sips**, Brooke finds less time to be a carpenter. His bees "suffer a little" too he says. Since he rents his bees for pollination, he concentrates on spring management as he insists on providing quality colonies for watermelon pollination. His annual honey production won't even fill the straws he sells in a normal week.

Brooke Freeman believes part of his success is his hard work and good decisions to seek Department of Agriculture and Kent/Sussex Industries help with Honey Sips. "One thing is for certain: I will not compromise on quality because quality is a major reason for the success of any product" says Brook. It is quality, hard work and a good, healthy product packaged in an attractive "new" way that has resulted in honey sips acceptance on the local market. □

QUESTIONS?

Brood Numbers

Q. Can there be such a thing as too much brood in the fall? How can this be controlled?

George Robertson
Raleigh, NC

A. In the north, where winters are cold, there cannot be too much brood in the fall, because a large winter cluster is vital to good wintering. In warmer climates, where bees may or may not form a winter cluster, it might be different, especially since there is likely to be no fall flow there. Two things need to be kept in mind concerning brood rearing and wintering: (1) It is the brood that is mostly responsible for the consumption of stores. This is why early spring is the most critical time for wintering in the north. And (2) feeding a colony sugar syrup is a strong stimulus to brood rearing. Hence, such feeding can be somewhat self-defeating in a warm climate, if you don't want a larger population.

No Data, No Proof

Q. Do menthol cough drops work for the control of tracheal mites?

Lewis S. Martin
Hagerstown, MD

A. In one of my apiaries, of 15 colonies, I found a loss of over one third in the spring of 1990. That fall I put five menthol cough drops in each of these 15 hives, and the following spring I found that every colony had come through the winter alive and strong. This, however, proves nothing, because all the colonies in my other three apiaries had come through the winter equally strong, and I had done nothing to control mites in these apiaries. I think that cough drop approach is to date unproved.

Wet Honey

Q. How does one check the moisture content of honey? Is a hydrometer used? If so, what is the range?

Wilbert Hotsinpiller
Philippi, WV

A. The specific gravity of honey at room temperature of 68°F ranges from about 1.42, indicating a moisture content of 17%, to about 1.39, indicating 21% moisture, which is the allowable limit. Another way to check moisture content, is to place a drop of honey on a piece of paper or other flat surface and tilt it. If it runs or drizzles and seems thin, then there *is probably* too much moisture.

It is difficult to remove moisture from honey, but not difficult to prevent it. Pick a dry day for removing supers and carting them to the honey house, stack them in a dry room, not a damp basement, and use a dehumidifier if dampness occurs. A small, portable dehumidifier is inexpensive and very effective. Some types of honey, such as buckwheat, absorb moisture faster than others, and can be completely ruined by exposure to dampness. Honey also absorbs moisture more readily after it becomes crystallized, and is then very liable to ferment.

Warm Up

Q. How does one build an electric warming box for warming and liquifying honey?

Wilbert Hotsinpiller
Philippi, WV

A. A warming box is very easy to make. Decide what size you want, that is, for warming two, four, or however many 5-gallon pails. Then cut plywood sides and top accordingly. Add a good thickness of spun glass insulation, and cover this with plywood, creating a double insulated wall all around. Bottom need not be insulated, but top should be. Install a slatted support for the pails about four inches from the bottom of the box. Heat source can be plain electric bulbs. Two 150-watt bulbs, placed under the slatted rack, provide sufficient heat to melt two 5-gallon pails overnight. You can insert a tiny fan in the box to circulate warmth if you wish, but this is not essential. What is important is that the honey warm up slowly, over the course of several hours, and evenly, to avoid any overheating. The box can be of crude construction, or you can use the carcass of a discarded refrigerator or freezer. Keep a thermometer inside, check from time to time, holding the temperature down to around 130°F.

Too Hot?

Q. I have five hives of bees and five horses. Can I pile the straw from the horse barn onto the hives for insulation to get the bees off to an earlier start in the spring? The straw has some manure in it but not much.

Eric R. Litt
Oakton, VA

A. Opinions differ as to the value of insulating hives in winter. I have never thought it worthwhile even at this cold latitude. One bee expert told me he saves about four pounds of honey per hive by insulating. On the other hand, that honey is never harvested, and uninsulated hives can make that up very quickly on the first early spring flows. A better way to get the bees off to an early start would be to give them a gallon or two of sugar syrup on the first warm days of spring, thus stimulating brood rearing. To the specific question of using the straw from your horses, I probably would not, because of the chance of blocking entrances which inhibit cleansing flights.

How Does It Work?

Q. Does a laying worker use her sting as an ovipositor?

Charles Brand
Beltsville, MD

A. No, nor does a queen.

[Questions are welcomed. Address Dr. Richard Taylor, Box 352, Interlaken, NY 14847, enclosing a stamped, self-addressed envelope.]

ANSWERS!

Richard Taylor

GLEANINGS GLOBE

NOVEMBER, 1991 ALL THE NEWS THAT FITS

FEDERATION MEETS IN SAN DIEGO IN '92

The schedule for the American Beekeeping Federation's San Diego convention includes something new: "Special Interest Sections" – a 1/2 day segment of the program for several special interest groups to meet under the auspices of the Federation.

The convention is set for January 16-22 at the brand-new Red Lion Hotel in San Diego's Mission Valley.

The idea for Special Interest Sections grows out of the Queen Breeding Symposium and workshops which were held at the ABF's 1991 convention. The queen breeders reported such good results from having an opportunity to meet by themselves and delve into their unique problems that a decision was made to expand the concept to provide time for each interest group to meet.

Planned for the San Diego meeting are sections for honey packers and dealers, queen breeders, bee supply dealers/manufacturers, and honey producers. An organizing chairman will be named for those sections which do not have an established organization.

The sections will meet on Saturday morning. After lunch on Saturday, the convention will move into the concurrent workshops which have proved so popular at recent conventions. There will be five 75-minute workshops; some of them will repeat once or twice, depending on their popularity. A hobbyist beekeeper workshop will be conducted concurrently with the Saturday afternoon workshops.

On Monday, the convention program topics will revolve around the common theme of management. Subject areas will include management of the

Continued on Page 627

FED. ... Cont. From Pg. 625

Africanized bees and mites problems, business management, management under (non-beekeeping) government regulations, market management, and problem-solving management.

On Tuesday morning, the program will turn to the National Honey Board and the question of levying an assessment on honey packers. On Tuesday afternoon, the annual ABF business meeting will determine the organization's policies and officers for 1992.

Troy Fore

The 300-room Red Lion Hotel, which has just marked its first anniversary, is located in the Mission Valley area. For room reservations, call 619-297-5466.

Paul Heins' Albany (OR) Travel Service has been chosen as the official travel coordinator for the San Diego convention. Call Albany Travel toll free 1-800-327-2699 or 503-967-1022.

For further information on the convention, contact the American Beekeeping Federation, P.O. Box 1038, Jesup, GA 31545, ph. 912-427-8447.

HONEY BOARD HIGHLIGHTS

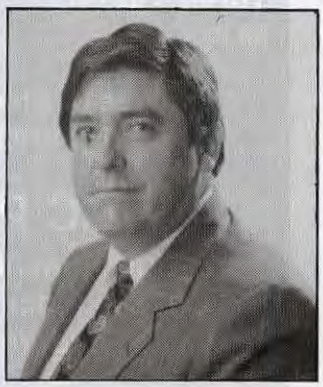
... into some of the finest restaurants ...

The National Honey Board's lovable spokesbear will appear in leading women's magazines this fall. "I've actually squeezed my way into some of the finest restaurants in the world," declares the bear.

Look for the squeeze bear advertising honey in *Family Circle, Ladies Home Journal, Redbook,* and *Bon Appetit*. The ads feature recipes from fine restaurants. The recipes draw attention to honey's versatility – from salad dressing to the main course to dessert.

Honey is a popular ingredient in ready-to-eat cereals. Cereal manufacturers are quick to advertise that their products contain honey because it adds value to the products. (In fact, studies have shown that consumers are willing to pay up to 20% more for products with honey.) However, honey is often not the major sweetener, nor is it even used in high levels in cereal. Is this a surprise?

"No," says Bob Smith, executive director of the National Honey Board, "existing standards and technology allow manufacturers to use only a small percentage of honey as the sweetener in many dry cereals, but we want to change that."



Bob Smith

To establish maximum levels for honey in ready-to-eat cereals and to address the concerns and difficulties of adding more honey to cereal products, the Honey Board is launching a research project with Kansas State University and cereal industry food technologists.

Honey adds color, but may also cause over-browning. In addition, honey can soften cereal meant to be crisp. "We want to provide sound technical data to the cereal industry showing that is better tasting than sugar, can extend shelf life and, used properly, can actually add 'crunch'," said Smith.

The Honey Board cereal research will be completed in the summer of 1992 for presentation at the American Association of Cereal Chemists annual meeting.

HONEY PRODUCERS MEET IN NASHVILLE

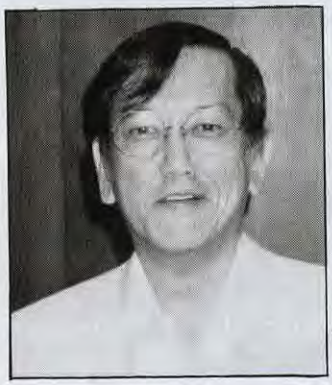
The American Honey Producers Associations will meet at the Doubletree Hotel (Two Commerce Place, Nashville, TN 37219) from January 7 to 12, 1992. Reservation may be made by phoning 615-747-4804 or 800-528-0444.

All AHPA members, spouses, employees, interested beekeepers and friends are invited to attend. Commercial vendors are invited to set up a display and should contact the National AHPA office for display guidelines.

Program highlights include –

AHPA reports by President Richard Adee, Executive Sec-Treas. Larry Connor, and legislative chairperson Jack Meyer.

The Key-Note address will be given by Dr. Clarence Collison, Head, Department of Entomology, MS State University. He was apiculturist at Penn State University before moving to MS.



Dr. Shimanuki

A featured speaker will be David Senter, President of the American Agriculture Movement.

Other presentations will be heard from Dr. Howard Kerr, Dr. Bill Wilson, Dr. Jim Tew, Dr. H. Shimanuki, Mr. Kim Flottum, Dr. Fred Hoff, Dr. Roger Morse, Dr. Charles Milne, and others to be announced.

The National honey Board will present its update report under the direction of Mr. Bob Smith and Ms. Sherry Jennings.

A special bus tour to the Walter T. Kelley Company is being planned.

General sessions will begin on Wednesday, January 8th and end with the annual banquet on Friday, January 10th. The annual

Sherry Jennings

business meeting will be conducted on Saturday, January 11, at 9:00 a.m. A visit to the Grand Ol' Opry will be Saturday

Fred Hoff

evening, January 11th. For more information contact AHPA, P.O. Box 584, Cheshire, CT 06410. Phone or FAX 203-250-7575.

American Honey Producers Association

BEEKEEPERS TO CHINA

Twenty-nine beekeepers (27 U.S. and 2 Canadians) led by Dr. James Tew visited selected beekeeping and historical sites in China August 12 29, 1991. Tew is the National Program Leader, ES USDA, from Wooster, OH. The visit was arranged by the Citizen's Ambassador Program of Seattle, Washington. Stops were made in Beijing, Nanjing, Shanghai, and Hangzhou. Shorter, non-beekeeping stops were made in Naritia, Japan and in Hong Kong. The beekeepers visited Chinese beekeepers, research and educational institutions, and toured royal jelly, pollen, and honey processing factories. Additionally, many Chinese historical sites such as the Forbidden City and the Great Wall were also visited.

In many respects Chinese beekeeping with *Apis Mellifera* is quite similar to United States and Canadian beekeeping procedures. Hive equipment is of comparable design though locally made. However, some other characteristics are quite different. Two hundred hives is considered quite a large operation. Honey seemed to be processed with simple, but practical extracting equipment. All hives are managed for income generation. Royal jelly is a popular beehive product. Approximately 900 tons are produced annually.

Dr. James E. Tew, National Program Leader – Apiculture, Extension Service, USDA, Wooster, OH 44691.

Dr. Tew

Nearly 90 Crops Affected

PARATHION REMOVED FROM EPA LIST

The Deadliest of Available Chemicals

The U.S. Environmental Protection Agency has announced that it has reached a settlement agreement with the registrants of the pesticide parathion (ethyl parathion) whereby most uses of this product will be voluntarily cancelled immediately. The Agency also announced that it is planning to cancel the remaining uses in the near future. Of the approximately 90 crops for which parathion use has been registered to control insects, the agreement eliminates all but nine.

EPA has determined that risks to agricultural workers associated with parathion use on the nine field crops – alfalfa, barley, canola, corn, cotton, sorghum, soybeans, sunflower and wheat – are lower than for other crops such as fruits and vegetables because of mechanical harvesting rather than hand labor. In addition, the agreement calls for numerous restrictive measures to provide additional protection to workers during mechanical harvesting of these nine field crops as well as during all other phases of parathion use.

Parathion is one of the most acutely toxic pesticides registered by EPA. As a result, it is a restricted use pesticide (not available to the general public) with mandatory protective clothing requirements and a three-day minimum reentry period for treated areas. Nevertheless, persisting reports of illness continue.

"The agreement EPA has reached with parathion registrants will result in a dramatic reduction in the number of workers who annually are poisoned by exposure to this pesticide," said William K. Reilly, EPA Administrator. "Those uses which pose the greatest dangers to workers will be prohibited almost immediately and the Agency plans to cancel the other uses soon."

The agreement reflects EPA's determination that the use of parathion poses a serious danger of poisoning to workers exposed through mixing, loading, applying or working in a field where this pesticide has been applied. The Agency is not aware of health related dietary incidents associated with parathion use.

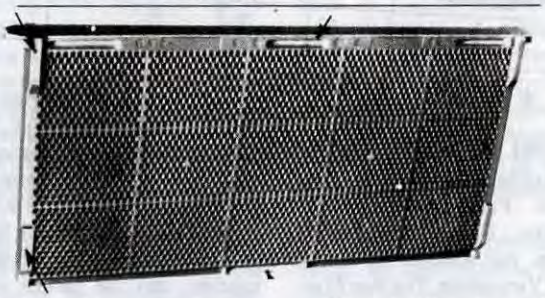
Parathion is an organophosphate pesticide and has been registered since 1948. Approximately three to six million pounds are used annually in the United States. Uses include field crops as noted above, fruit, vegetable and nut crops and a few non-food crops. it is applied by hand-held sprayers, ground equipment and airplanes. Cheminova of Denmark is the only manufacturer of technical parathion used in the United States. An additional eight companies formulate registered parathion products.

To put a meeting announcement in our Calendar Section please consider the following ...

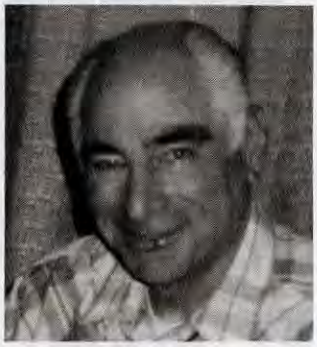
- We need the announcement in our office 1 (one) month *BEFORE* the date of the magazine you want it to appear in. (For instance, it should be here Dec. 1 for a January publication).
- Provide: Name of group, location of meeting, time(s), speakers and fees (if any). Schedules are not usually appropriate.
- We will publish as many as arrive on time, and meet these minimum qualifications.

PERMA COMB GOES TO SPAIN FOR SALE

All Plastic Comb Product Joins Plastic Hive Product Company for Combined Effort



Dr. Herb Drapkin, owner of Perma Comb Systems, the All Plastic Comb announced he has recently joined forces with Polexpan, in Spain, to facilitate distribution of their products in Europe.



Dr. Herb Drapkin

Under the direction of Alberto F. Colmeiro, an expert beekeeper, Polexpan manufactures polyurethane foam products, including beekeeping equipment. A full line of hive products, including bottoms, supers, feeders and covers is already being manufactured.

Perma Comb plastic comb has made an immediate and profound impact in Spain over the last year, and as a result, sales have already expanded into France. Plans are to expand into the entire EEC.

Polexpan is a member of the Association De Apicoltores De Galicia, Spain; The Association De Apicoltores De Norte De Portugal, and the Am. Beekeeping Federation.

NEWS FROM THE USDA

Paper Work Reduction goes into effect, & USDA Payments don't go everywhere

In 1987 and 1988, two-thirds of all farms, or 1.4 million, did not receive direct support from federal farm programs, says USDA economist Robert D. Reinsel. Not all farmers receive support from the government and the characteristics of those who do not receive payments differ greatly from those of farmers who did, Reinsel says. Farms which did not receive payments accounted for about one-half of the land in farms and one-half of the sales of farm products in 1987.

Sec. of Agriculture Edward Madigan has planned eight test programs to try to improve services while reducing red tape and paperwork farmers face when doing business with USDA. Madigan said the eight pilot projects, called "Easy Access," would be in 15 different locations by spring 1992 signup. "When I came aboard as secretary, I told Pres. Bush and the Congress that part of my mission would be to make it easier for farmers to be farmers," Madigan said. " 'Easy Access' will reduce bureaucratic hurdles that get in the way of this nation's farmers and ranchers."

Continued on Page 631

joint meeting of the two associations in 25 years. A honey show will be included.

Raymond Borneck, President of the international beekeepers organization, Apimondia, will be a featured speaker. Mr. Borneck, from France, is a commercial beekeeper and has traveled widely in international beekeeping circles.

Other speakers include Dr. Cynthia Scott-Dupree from the University of Guelph, Dr. Dewey Caron of Delaware State University, Doug McRory the Ontario Provincial Apiarist, Dr. Dennis McKenna of Fairview College, Dr. Tibor Szabo of Beaverlodge, Willy Baumgartner of Medivat Pharmaceuticals of Alberta, Professor Roger Morse of Cornell University and Dr. Gard Otis of Guelph University.

☆ OHIO ☆

The Ohio State Beekeepers fall meeting will be held on November 9, 1991, at the Red Carpet Inn South, located approximately ten miles south of downtown Columbus on Interstate 71 at Stringtown Road, exit 100.

Meeting topics include rearing queens; mites and bees; answers for your wintering questions; the Association's Annual Meeting and Election of officers.

Registration begins at 8:00 a.m.; the meeting at 9:00 a.m. and ends at 4:00 p.m.

For more information contact Louis F. Haines, 354 Kessler St., Groveport, OH 13125, (614) 837-2181.

☆ PENNSYLVANIA ☆

The Delaware Valley College Apiary Society in conjunction with the Delaware Valley College will be sponsoring a beeswax candle-making workshop, on Wednesday, December 4, 1991 at 7:00 p.m. at the College Student Activity Center. The workshop is open to anyone who is interested in candle-making.

Although beeswax will be used exclusively in the workshop, the techniques demonstrated can be used to make paraffin candles. Those attending the workshop will have the option of making a variety of different types of beeswax candles.

The workshop will be under the direction of Dr. Bob Berthold, the College's beekeeping expert and an authority on beeswax and candle-making. He will be assisted by members of the Delaware Valley College Student Beekeeping Club. There is no fee for the workshop; however, there will be a nominal charge for materials used. Participants will be able to take their finished candles home with them that evening.

For more information call Bob Berthold, 345-1500, ext. 2285.

☆ TENNESSEE ☆

The American Honey Producers Association, Inc. will hold the Annual Conference Tuesday January 7 through Sunday, January 12, 1992, at the Doubletree Hotel, Two Commerce Place, Nashville, TN

Activities include a Friendship Reception, Board of Directors meeting, General Sessions, Annual Banquet & Awards Ceremony. Also an evening at the Grand Ole Opry is scheduled.

For more information call T. Ray Chancey, Convention Chairman, (409) 258-3034.

☆ UTAH ☆

The Annual Convention of the Utah Beekeepers Association will be December 6th and 7th in the Auditorium of the Utah State Agriculture Building at 350 N. Redwood Road in Salt Lake City. Neil Miller will be the featured speaker. The banquet will be held December 6 at 7:00 p.m.

For further information contact William R. Jones, 286 Andrew Lane, Salt Lake City, UT (801) 262-6079 or (801) 355-2033.

SEND YOUR NEWS TO THE *GLOBE*

ALASKA GETS GRANT

Stephen Petersen (dba Toklat Apiaries) a Fairbanks, Alaska beekeeper, has been awarded an $18,955 research grant to study the application of menthol in cool climates by the Alaska Science and Technology Foundation.

Honey bee tracheal mites (HBTM) were first found in Alaska in June of 1990. During the winter of 1990-91, losses of 40-50% woke up Alaskan beekeepers to the potential economic impact of HBTMs. The Fairbanks Private Industry Council sponsored a workshop, held in the spring of 1991, on the detection of HBTMs. Participants found that all of the packages examined, imported from California, had significant HBTM infestation levels.

Menthol is best applied when average temperatures are between 60-80°F, temperatures not common in Alaska during the fall, after the honey flow, or during the spring – four weeks before the honey flow. Petersen's work will involve several protocols to determine the efficacy of menthol in cool climates. They include; colony management practices, addition of supplemental heat, mixing menthol and Crisco®, evaluation of Buckfast bees, and a control.

Toklat Apiaries is a small business whose primary goal is fostering a viable and self-sustaining apiculture industry for the State of Alaska. Petersen sees compatibility with the subsistance life style and economic opportunity for remote Alaskan villages with beekeeping and honey production. The State of Alaska has supported the growth of the industry in small communities around the State.

"Until we can become self sufficient we will continue to face most of the problems currently faced by the apiculture industry in the 'lower 48' ", says Petersen. "Varroa hasn't shown up yet and it will be some years before africanized bees impact the package industry in CA. I'm pushing for "apicultural independence" The State has been very supportive of the beekeeping industry, but there is still much to be done."

More information on the HBTM project can be obtained from Stephen Petersen, Toklat Apiaries, 1153 Donna Dr., Fairbanks, AK 99712.

GIBRALTAR'S HONEY IMPORTS

Gibraltar has to import honey to supply it's local demand.

Gibraltar has frontiers with Spain and the Mediterranean Sea, one of the smallest nations in Europe.

It's political status is a colony of the British. English is the official language, but Spanish is well known. The population is estimated at 31,000 inhabitants. Tourism is an important source of income.

According to Mrs. M. Sánchez – from the local government – in 1989 honey imports reached a total of 31,706 pounds with value equivalent to USA $35,889.

If you are interested in obtaining the names of companies importing honey, withe mailing address, telephone and fax number, plus management personnel, enclose $1.00 and write to: Gibraltar's Honey – P.O. Box 145, Lares, Puerto Rico, 00669-0145. (Puerto Rico is a protectorate of the United States of America.)

SWEDEN HONORS BEE CULTURE

The Postal Authorities of Sweden, honored beekeeping with an issue of 10 postal stamps. It shows bees in different tasks and other aspects of beekeeping.

STATEMENT OF OWNERSHIP

STATEMENT OF OWNERSHIP MANAGEMENT AND CIRCULATION (Act of August 12, 1970). Section 3685. Title 39, United States Code. 1. Title of publication: GLEANINGS IN BEE CULTURE. 2. Date of Filing: October 1, 1991. 3. Frequency of Issue: Monthly: A. Issues #12. B. Price $14.50. 4. and 5. Location of known office of publication, headquarters or general business offices of the publisher: 623 West Liberty St., Medina, Ohio 44256. 6. Names and addresses of publisher and editor are: Publisher, John Root, 623 West Liberty Street, Medina, Ohio 44256 and P. Kim Flottum, Medina, Ohio. 7. Owner: The A. I. Root Co., Medina, Ohio; Stockholders: Alan Root, Medina, Ohio; John Root, Medina Ohio; Stuart Root, Medina, Ohio; Brad I. Root, Medina, Ohio; David Root, Sebring, Florida; Elizabeth Judkins, Silver Bay, Minnesota; Katherine Warner, Kent, Ohio; Donald Demuth, London, England; Roberta or Andrew Heyer, San Diego, California; Ruth Packard, Tustin, California; Barbara Tweedle, Macon, GA; Robin L. or Richard Kuntzelman, Belgrade, Illinois; Gretchen Otness, Portland, Oregon; Huber Warner, Bethesda, Maryland; and Mary Williams, Medina, Ohio. 8. The known bondholders, mortgagees, and the security holders owing or holding one percent of more of total amounts of bonds, mortgages or other securities are: None. 9. For completion by nonprofit organization authorized to mail at special rates (Sec. 132-122, Postal Manual); Not applicable. 10A. Total number copies printed (net press run); Average number copies each issue during preceding 12 months, 12,264. Actual number of copies of single issue published nearest to filing date, 12,849. 10B. Paid circulation. 1. Sales through dealers and carriers, street vendors and counter sales. Average number copies each issue during preceding 12 months: 193. Actual number of copies of single issue published nearest to filing date: 80. 2. Mail subscriptions: Average number copies each issue during preceding 12 months: 10,644. Actual number of copies of single issue published nearest to filing date: 11,663 10C. Total paid circulation: Average number copies each issue during preceding 12 months: 10,837. Actual number of copies of single issue published nearest to filing date: 11,743. 10D. Free distribution (including samples) by mail carrier or other means. Average number copies each issue during preceding 12 months: 282. Actual number of copies of single issue published nearest to filing date: 282. 10E. Total distribution (sum of C and D). Average number copies each issue during preceding 12 months: 11,119. Actual number of copies of single issue published nearest to filing date, 12,025. 10F. Office use leftover, unaccounted, spoiled after printing. Average number copies each issue during preceding 12 months, 1,145. Actual number of copies of single issue published nearest to filing date: 824. 10G. Total (sum of E and F should equal net press run shown in A). Average number copies each issue during preceding 12 months: 12,264. Actual number of copies of single issue published nearest to filing date: 12,849. Total paid circulation as of October 1, 1990 GLEANINGS IN BEE CULTURE: 12,025. I certify that the statements made by me above are correct and complete (Signed) Kim Flottum, Editor.

BOTTOM ... Cont. From Pg. 636

cal ultimatum: Collect clover honey or else! The bees have no choice. If they find a few blossoms of something other than clover, I'm realistic and tolerant enough to accept, say, 99.93% clover as undiluted to any great extent, and pure enough that I'll accept it as a 100% pure product.

And yet, those who are not surrounded by seas of clover blossoms are not really mislabeling their product as 100% pure clover honey. They are honest, reliable, hardworking beekeepers who long ago discovered a few simple truths that only recently came to me. Most consumers prefer a mild flavored, light colored honey. Clover is a mild flavored, light colored honey and, to those so attuned, the best.

Like most, my bees are reasonably normal in their taste preferences. But unless there is an abundance, and predominance, of any particular blossom at any particular time, I get a mixture of wild flower honey. A few cells, perhaps, of clover honey. Not bad, really.

Which leads me to a final conclusion. The honey producers are 100% honest in their labeling, but I'm not sure which tack they use.

That label, 100% Pure Clover (or whatever) Honey, refers to one of two standards. Either, or both, of which may apply.

First: The quantity of pure clover honey in the container is not stated, either as a percentage or amount. But the actual clover honey that is in the container is 100% *pure* clover honey, be it 99.999% or 0.02% of the contents.

Second: Since the labeling does not state whether the reference is to the weight or percentage of the contents both are applicable and true. Therefore, there being no deliberate intent to mislead or misrepresent, there is no dishonesty.

Whether it is the amount or percentage of the contents that are referenced, it is indeed 100% Pure Clover Honey, although the label does not state which. And the pure clover honey, whatever the quantity or percentage, is without even the shadow of a doubt 100% pure clover honey; even if it is one drop, or 0.003%, in a five pound container.

In the final analysis, the labeling of varied honeys as 100% pure clover honey is *really* 100% baloney. □

L. Edwin Rybak raises 100% Pure Honey in Morrisville, VT.

Display Index

100% Pure ...

L. Edwin Rybak

Gold! Liquid gold! One hundred percent, and purer than the 0.999 refinement of the metal Au, a.k.a. – GOLD!

Whatever slight differences or minute variations in aroma, color, flavor, or moisture content might occur in the final composition, it is the golden ambrosia which our bees gather, and process to a purity purer than the boasted refinement of the precious metal. It is practical, useful, and sweet. And, regardless of nectar source, it is honey!

I know it is 100% pure honey, every gleaming, glistening, golden globule of it. I feel confident and safe in labeling the output of my beehives as 100% pure honey. Not a droplet of doubt. But there are moments when I am assailed by questions about the labeling on similar containers of honey produced by other beekeepers with a like kind and quality product.

It isn't that they are dishonest, or that I'm more honest than they. I'm a trusting soul, within limits, of course. It's just that – Well, I feel someone isn't telling it like it is, or is leaving out a few important details. Perhaps if I explain my dilemma you'll understand the confusion that confronts me when I'm asked to dispel doubts about my honey, simply because my containers don't carry the same deceptively honest – or is it honestly deceptive? – labeling.

I'll give a single "for instance" which is applicable to any variety of honey.

Wherever I chance upon a container of honey labeled 100% *Pure Clover Honey*, my mind runs through the same concatenation of questions, analyses and conclusions. Does the label refer to the total contents of the container or only the actual clover honey included in the container, regardless of the quantity?

Now it so happens that there is a fair amount of white clover, and other clovers in my area. I said fair, not abundant. Farming in these parts isn't what it used to be, and more farms have been abandoned than remain. So that, too, diminishes the clover pasturage that is available for bee forage.

My lawn has a generous sprinkling of white clover and is large enough so that it should be quite attractive to my bees. At times I've left it unmowed until it looked like a jungle, all for the sake of bee pasture. Perhaps some bees prefer anything else in the whole wide world except clover. I see very few bees working my white clover blossoms. I've given up. And that underlies the basis of my confusion, distress and dilemma; my quandary.

How do the producers who label their product 100% pure clover honey get 100% pure clover honey? Bribes? Threats of excommunication? Cutting down all other blossoms within three miles while clover is in bloom?

I've tried the latter and it's a lot of investment (hard work) for the returns. I've even gone so far as to put labels on my frames with instructions as to which type of honey to store where, but my bees, every hive of them, disregard the notices. What am I overlooking?

As I've said, there isn't the farming here there used to be when I was young. There isn't as much of any one nectar source as there used to be. And it might well be that some areas of the northeast still have lots of clover acreage. But by some careful calculations, bolstered by fairly accurate estimates, there isn't enough white clover in the whole wide world to produce all the honey that is purported to be, (and labeled as), 100% pure clover honey. Not even if it bloomed all year round.

I've seen jars of deeply different colors of honey all labeled as clover honey. And imported honey, too, all labeled as pure clover honey. Uh, huh. How many color variations of clover honey are there?

Recently, one sleepless night, I was in that twilight zone between sleep and wakefulness when the apparent – and obviously the most obvious – answer came from my subconscious mind. It was a rude awakening. Those honey producers are 100% correct and honest in labeling their product 100% pure clover honey, in spite of the fact that they do not live in the middle of oceans of white clover. And my bees are really quite normal, when they do not fight about who'll work the clover blossoms.

Here's the scoop. Those who live and labor in the regions where clover is grown for seed, amidst hundreds or perhaps thousands of acres of clover blossoms, give their bees an unequivo-

Continued on Page 634

BOTTOM·BOARD