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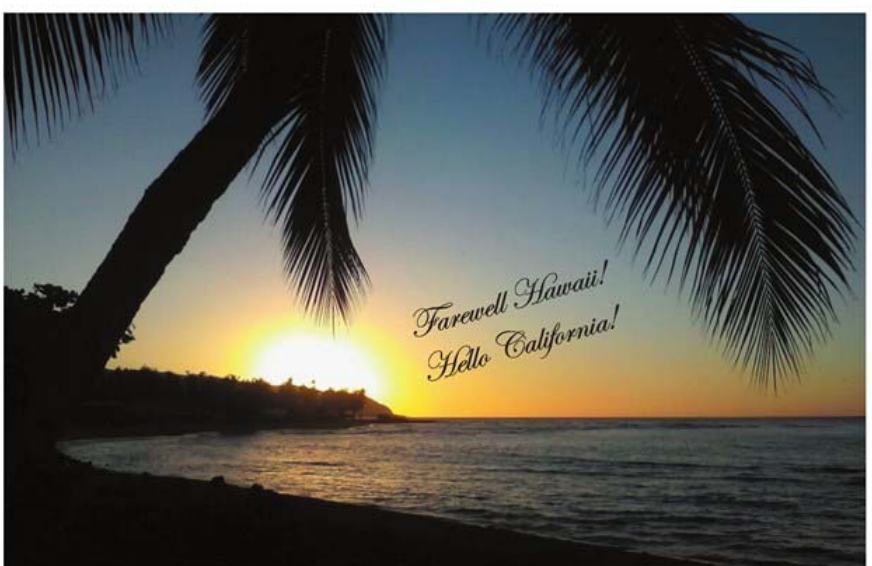
NOVEMBER 2016

W.A.S. Journal

Journal of the Western Apicultural Society of North America



One more look back at an iconic Hawaiian scene as WAS moves from Honolulu 2016 to Davis, CA for the 40th Annual Conference in 2017. This and more photos on pages 18 and 19 by long time WAS member and regular conference attendee Kevin French, of North Dighton, MA.

2017
NORTH AMERICAN BEEKEEPING CONFERENCE & TRADESHOW

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JANUARY 10-14, 2017
GALVESTON ISLAND CONVENTION CENTER
GALVESTON, TEXAS USA

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	EARLY REGISTRATION by 10/31/2016		REGULAR 11/1/2016 - 12/16/2016		ONSITE after 12/16/2016	
	PAYING MEMBER	NON-MEMBER	PAYING MEMBER	NON-MEMBER	PAYING MEMBER	NON-MEMBER
Single Registrant Full Conference	$250.00	$310.00	$300.00	$360.00	$350.00	$410.00
Family Full Conference (2 adults & any children	$375.00	$435.00	$425.00	$485.00	$475.00	$535.00
Single Registrant Day Rate	$125.00	$155.00	$150.00	$180.00	$175.00	$205.00
Family Day Rate	$190.00	$220.00	$215.00	$245.00	$240.00	$270.00
Student/Educator Rate	$50.00 per day (must provide current student ID)					

Paying member = Current ABF, AHPA and CHC dues-paying members. Rates are in US dollars. Non-member rates include a basic one-year membership to both ABF and AHPA.

SCHEDULE AT A GLANCE
(subject to change)

Tuesday, January 10	
All Day:	Board and Committee Meetings
Wednesday, January 11	
All Day:	General Session
Noon:	Tradeshow Opens
Evening:	Welcome Reception & Honey Queen Candidate Entertainment
Thursday, January 12	
All Day:	Track Sessions for Beginning, Serious Sideliner and Commercial Beekeepers
All Day:	Tradeshow
Lunch:	Auxiliary Lunch/Meeting*
Evening:	Social Activity – Moody Gardens Rainforest*
Friday, January 13	
Morning:	Kids and Bees Program
All Day:	General Session
All Day:	Tradeshow
Lunch:	Foundation for the Preservation of Honey Bees Lunch/Meeting*
Afternoon:	ABF Business Meeting
Afternoon:	2017 Honey Show Live Auction
Evening:	AHPA Banquet*
Saturday, January 14	
Morning:	Commercial Beekeepers Breakfast/Meeting
Morning:	AHPA Business Meeting
All Day:	Concurrent Hands-On Workshops
Evening:	ABF/CHC Banquet with the Coronation of the 2017 American Honey Queen and Princess*

**Additional Charges*

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PRESIDENT'S MESSAGE ...

2017 President Dr. Eric Mussen

Dr. Ethel Villalobos and her conference organizers for the 2016 WAS Conference in Honolulu are to be congratulated for providing such an information-packed and comfortably staged meeting. Speakers from many parts of the world explained how beekeeping was conducted and the problems that are encountered, especially when keeping bees in warmer climates.

An unexpected honey bee experience occurred at the Nu'uanu Pali State Wayside Park. When we exited our tour bus, we noticed some honey bees flying around a rock wall and some trash cans. Without much thought, we suspected that they were going into the cans for leftover beverages (but they weren't). It was a very windy day. As we headed for the trail to the overlook, there was a sign suggesting that we be aware of honey bees on windy days. I didn't notice the bees as we ascended with the wind, but I did hear someone say that there was a drone congregation area directly overhead. At the final overlook, however, it was apparent that quite a few worker bees were flying, or more accurately, were being blown up the trail. They bumped into people and bounced off the waist-high wall, in various states of vitality.

As we were leaving, a woman bent down and picked up what she thought was a bee body. But, it didn't look like a worker bee to her, and it had something hanging out of its abdomen. She had found a drone, fresh from mating, dead on the ground at the overlook. Taking a better look at the bees being blown up the hill, there were drones and workers intermixed, but I did not see any queens. For me, this was a first!

Turning our attention to next year, we are pleased to bring the conference back to the organizational birthplace of WAS. In the summer of 1977, Dr. Norman Gary, his graduate student Becky Westerdahl, and I organized the trial run of holding an organized conference for the benefit of non-commercial beekeepers in the western U.S. states, Canadian provinces, and Mexican states. We had very good attendance from the U.S. and Canada, prompting us to write up the articles and incorporate in 1978. Norm, Becky, and I have hung around UC Davis ever since that time and will be reminiscing a bit about early WAS at the 2017 conference.

Beginning Tuesday, September 5th, 2017 (the day after Labor Day), I have reserved a pretty spacious room for the general sessions, and the campus has some good places to grab a bite to eat during the day. Unlike the two earliest meetings on campus, we do not intend to try to get dorm rooms lined up for anyone. There are a number of motels in and around Davis. If you are coming, it is a good idea to ask whether or not breakfast is included in the lodging cost. Downtown breakfast spots are not too numerous. But, downtown adult beverage spots are fairly plentiful in the evenings. So are restaurants for lunch and dinner, but parking can be a bit of a problem. Our meeting will coincide with the last week of the second summer session, so we will have to contend with only about 3,000 students instead of 36,000. On Wednesdays we have "Picnic in the (Central) Park." It is held in conjunction with the Davis Farmers Market and includes farm-fresh produce, baked goods, hot entrées, live music, and a human-powered (bicycle-pedaled) carousel and bounce houses for the kids.

If you arrive a bit early before, or stay a bit later after the conference, there is quite a bit to see on campus and around Davis. The University has a lengthy arboretum that runs along the south side of the campus. It has regions devoted to focused plantings of California oak species, Asian and African plants, and a white flowers of all types garden (many species of hummingbirds). Various sculptures and other items of art are seen more toward the east end of campus. Nearby are the free Schrem Museum of Art and the (not quite free) Mondavi Theatre of the Performing Arts. We will have to wait a while before I can tell you what will be going on at Mondavi that week. Davis also is located about 30 minutes from Downtown Sacramento by car, a two-hour drive to San Francisco or Lake Tahoe, and around 60-90 minutes to Wine Country and Gold Country.

We are going to leave central campus a couple times (by attendees' vehicles), if things work out as I currently envision them. The Dr. Harry H. Laidlaw, Jr. Bee Biology Facility and the Häagen Dazs Bee Haven Garden will be focal points, as will The Moon Shine Honey Company packing facility and the Mann Lake warehouse and showroom, and their sugar syrup blending facility.

Presenters will discuss their latest findings in the areas of both honey bees and native bees. Native bee research at UC Davis has expanded exponentially and brings a wonderful additional element to our bee program.

Bee sure to save the dates – Tuesday, September 5th through Friday, September 8th, for WAS 2017 in Davis, California.

WAS Presidents to date

1978 Norman Gary (California)
1979 Lucien Alexander (Oregon)
1980 Randy Barker (Br. Columbia)
1981 Charles Duncan (California)
1982 William P. Nye (Utah)
1983 John Edwards (Washington)
1984 Eric Mussen (California)
1985 Mike Burgett (Oregon)
1986 Doug McCutcheon (British Columbia)
1987 Tom Muncey (Nevada)
1988 Dan Mayer (Washington)
1989 Stan Williams (California)
1990 Mark Shelton (California)
1991 William P. Nye (Utah)
1992 Mike Burgett (Oregon)
1993 Mark Winston (Br. Columbia)
1994 James Bach (Washington)
1995 Eric Mussen (California)
1996 Russell Messing (Hawaii)
1997 Eric Erickson (Arizona)
1998 Steve Sheppard (Idaho)
1999 Leonard Joy (Nevada)
2000 Fletcher Miller (Alaska)
2001 Mike Burgett (Oregon)
2002 Eric Mussen (California)
2003 Jaquie Bunse (British Columbia)
2004 Jerry Bromenshenk (Montana)
2005 Steve Sheppard (Washington)
2006 Adrian Wenner (California)
2007 Diana Sammataro (Arizona)
2008 Mark Pitcher (British Columbia)
2009 Eric Mussen (California)
2010 Dewey Caron (Oregon)
2011 Jenny Bach (Hawaii)
2012 James K. Smith (Washington)
2013 Melanie Kirby (New Mexico)
2014 Jerry Bromenshenk (Montana)
2015 Beth Conrey (Colorado)
2016 Ethel Villalobos (Hawaii)
2017 Eric Mussen (California)

Introducing our 2017 WAS President

Eric Mussen (left) and Norm Gary prime the bees for a bee beard demo at the first annual WAS conference in 1978.

Perhaps it would be more accurate to say "RE-introducing" Dr. Eric Mussen. Few who have ever been involved with WAS are unfamiliar with Eric, who (as he reminisces in his President's Message on page 5) has been with us from Day 1, Vice President to Dr. Norman Gary as they put together the beginnings of WAS. That was in 1977. In September 2017, we will celebrate our 40th Anniversary. How fitting that Eric again takes the leading role, and that Norm and (first secretary-tresurer) Becky Westerdahl will be part of the program once again.

Dr. Mussen is a native of Natick, Massachusetts. He received his BS in Entomology at the University of Massachusetts, his Masters and PhD at the University of Minnesota. He was hired as the Extension Apiculturist, Entomology Department at University of California, Davis in 1976 and made it his entire career. He retired in June 2014 with 38 years to his credit.

From the beginning, Eric published the popular (and still-running) bi-monthly "From the UC Apiaries" newsletter, originally by mail, now mainly by email, with over 1300 subscribers and considered one of the best honey bee newsletters in the world. Since 2000, this has been accompanied by "Bee Briefs" for the California bee clubs.

Research interests have spanned the range of bee issues in North America and beyond, the list of published studies and refereed publications going to several pages. Dr. Mussen is one of the most highly honored honey bee scientists in the world.

Conference venue WAS 2017, UC-Davis CA

Above, the Activities & Recreation Center, where the 2017 WAS meeting will be held. (Eric Mussen photo, others by Kathy Keatley-Garvey)

Left, the Haagen-Dazs Honey Bee Haven, next to the Harry H. Laidlaw Honey Bee Research Facility.

Right, no further introduction needed!

Western Apicultural Society
Annual Business Meeting
October 14, 2016 Ala Moana Hotel, Waikiki Beach Honolulu, HI

1st Vice President Lauren Rusert called the meeting to order at 4:45 pm.

Eric Mussen/ Sherry Olsen-Frank moved the printed minutes of the Annual Business Meeting in the November 2015 Journal be accepted. Carried.

Treasurer's Report: Treasurer Sherry Olsen-Frank presented a 7 page financial report which included Trial Balance as of September 30, 2016, Balance Sheet as of September 30, 2016, Statement of Activities July thru September 2016, Statement of Financial Income & Expenses - 2015 Conference (all transactions), Statement of Financial Position as of December 31, 2015, Statement of Activities January thru December 2015, and Profit & Loss by Class 2015 Conference January thru December 2015.

Sites Report: UC Davis September 5-8, 2017.

Nominations: Elina Lastro-Nino has stepped down from the position of president. Eric Mussen has offered to step up into this position. Kevin French/Sherry Olsen-Frank moved to nominate Eric Mussen for the position of 2017 president. Carried.

Eric Mussen spoke on the 2017 conference site, UC Davis. He laid out the direction of the conference, tentative speakers, dining, hotel/parking and possible tours.

Idaho was discussed with a general positive consensus as 2018 conference site with discussion on asking Steve Sweet to be the 2nd Vice President.

New Business

Dewey Caron/Beth Conrey moved to continue the support of the Honey Bee Health Coalition with another $2000 for the 2016 year.

Discussion: Sherry Olsen-Frank, Treasurer, wants to check the finances before committing any funds. Motion carried.

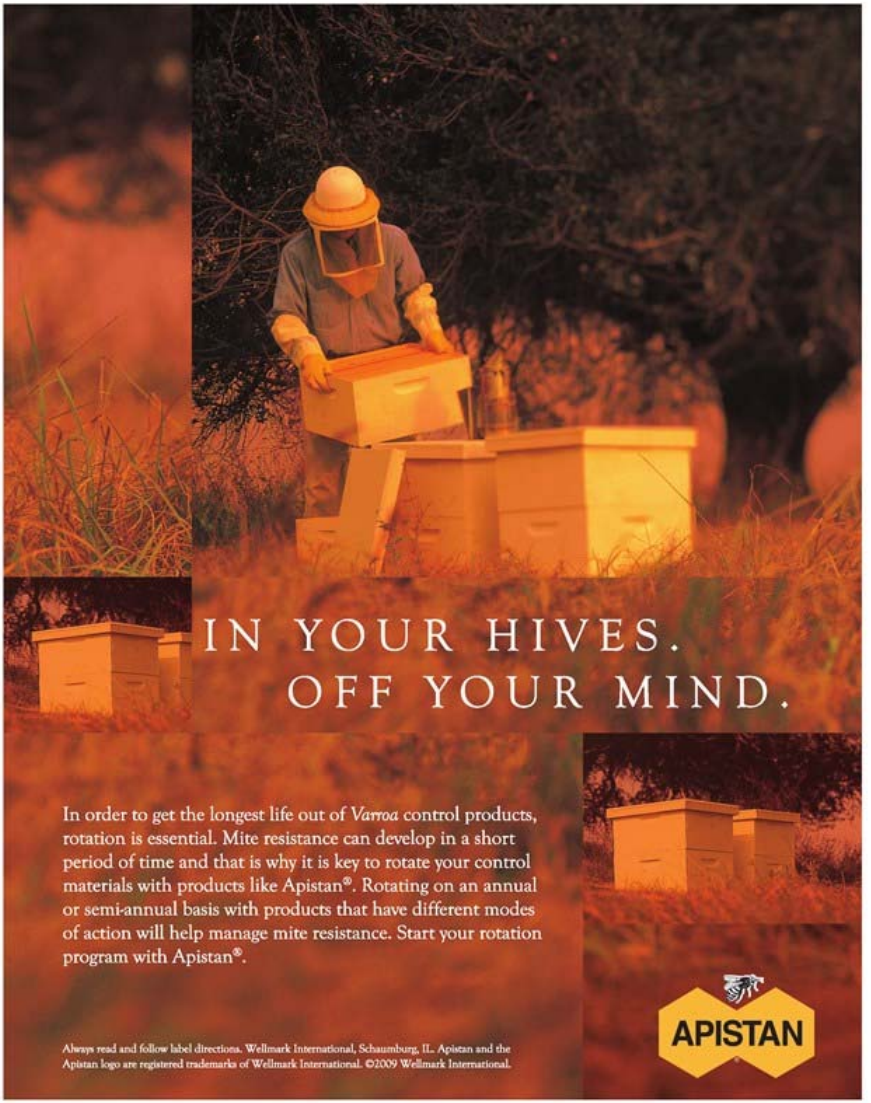
Beth Conrey would like a committee to vet requests that come into WAS, specifically the Bee Informed Centennial Hive Program. This will be followed up on.

No WAS committees were available to report.

No awards were given this year.

Dewey Caron/Sherry Frank-Olsen moved to adjourn the meeting. Carried. Meeting adjourned at 5:13 pm.

Cyndi Smith
WAS Secretary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OFF YOUR MIND.
In order to get the longest life out of *Varroa* control products, rotation is essential. Mite resistance can develop in a short period of time and that is why it is key to rotate your control materials with products like Apistan®. Rotating on an annual or semi-annual basis with products that have different modes of action will help manage mite resistance. Start your rotation program with Apistan®.
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APISTAN

A brief history of honey bee viruses

Prof. Stephen Martin, Salford University, Manchester, UK.

As far back as the start of the 19th century bee scientists believed that viruses may be the cause of Scabrood in honey bee larvae and paralysis in adults. However, we had to wait over 50 years before the first bee viruses were identified in 1963 by the father of honey bee virus research Bill Bailey, stationed at the Rothamsted Research Centre in the UK. This long delay was caused by the extreme difficulty ins viral detection due to their extremely small size. They are among the smallest forms of life and it was not until high powered electron microscopes were developed in the 1960's-70's that these bee viruses could be seen. Bill Bailey, later helped by Brenda Ball, spent the next couple of decades expanding the number of honey bee viruses so by 1996 around 18 different bee viruses had been named. This was the golden age of bee virus discovery, since in the past 20 years only around six new honey bee viruses have been found, and many of these are only variations (genotypes or strains) of the original 18. This is despite massive changes in both our ability to detech viral pathogens and explosion of researchers now working in the field of honey bee viral research.

Bill and Brenda employed a viral detection and classification method based on antibodies. This is where the bees are crushed, virus extracted and then injected into rabbits. This causes the rabbit to produce antibodies to the virus and these are extracted and subsequently used to detect that viral pathogen in other honey bee samples. Over the years the team at Rothamsted built up a collection of antiserum each containing a different antibody to a specific virus. This was extremely time consuming and difficult, coupled with the fact that honey bee viruses were just a curiosity, resulting in almost no-one outside the group working in this area. The one exception was Dennis Anderson who worked on Kashmir Bee Virus and Sacbrood in Australia using the antibody method.

In the 1990's the Varroa mite was spreading across Europe and the USA and this forced the honey bee viral world to change beyond all recognition. Initially it was Brenda Ball that suggested that Varroa mite infested colonies may be suffering from raised levels of viral infections, especially Acute paralysis bee virus (APBV). A few people in Europe supported this idea but the vast majority of both beekeepers and bee scientists rejected it. It was clear to most people that the Varroa mites sucked the bees' blood, resulting in deformed wings and so the increase in the number of mites caused sufficient bees to die, which in turn caused the entire colony to collapse. So there was no need to make life more complicated.

Around that time, I was working on Varroa reproduction in the UK and it soon became clear that the original assumptions around the role of the mite in the collapse of colonies were not sound. So Brenda and I teamed up and started to study the relationship between Varroa and all known bee viruses. It took six years of hard work with help from a couple of PhD students before we had a convincing story. This showed that our initial ideas about APBV were incorrect and it was a little know virus originally called Egypt Bee Virus, which later became known as Deformed Wing Virus (DWV), that was the one most closely associated with Varroa infested colonies. This idea was originally met with a large amount of doubt by the wider scientific community. However, around this time the use of a new molecular technique called polymerase chain reaction (PCR) was becoming widely available, so allowing anyone with access to a basic molecular lab to start conducting research in honey bee viral pathogens.

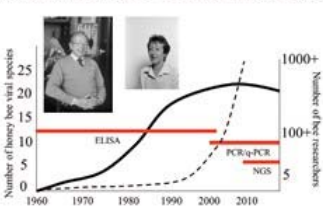


Figure 1. Images of Bill Bailey & Brenda Ball the founders of honey bee viral research. The solid black line shows the golden age of viral discovery between 1963 and 1980's. Thereafter the number of new viral species has grown slowly and even decreased as some previously described species are just a strain of an already described species. This is despite a rapid rise in number of bee researchers involved in viral studies (dash line). The straight lines indicate the three key viral detection methods.

Slowly at first, a few people set up new honey bee viral labs in Europe and the USA. The growth in bee virus research boomed after IAPV was linked to CCD in 2007 by raising the potential impact and importance of bee viruses on honey bee health. This gave birth to a new generation of people and labs studying bee virology that continues to grow. Furthermore, the number of advances in techniques, such as next generation sequencing (NGS), which allows us to study changes in the genetic code across the entire genome are now possible. However, the really amazing fact is that despite all these new research methods and the vast increase in researchers in this field, the majority of known bee viruses were detected and named by Bill Bailey and his team. This is a real testament to his skills and dedication to his subject.

CONFERENCE 2016 ....

Honey bee diseases

Laura E Brettell, University of Salford, Manchester, UK

When we think of looking after our own health and the kind of conditions that promote the spread of disease, we tend to think of people coughing and sneezing on crowded trains or sitting in a busy doctor's waiting room, surrounded by ill people. As social insects which live together in large groups, honey bees experience similar conditions in the hive. They live in crowded conditions and are physically very close, feeding each other and caring for the young - conditions well suited to the efficient spread of disease. Therefore beekeepers need to be vigilant against signs of disease to accurately diagnose any problems within the hive and intervene where possible as soon as we can.

However, this is no mean feat. Biologically, honey bee diseases fall into three groups: bacterial, fungal and viral. These vary in terms of symptoms, transmission - i.e. how they spread - pathogenicity - i.e. how much harm they do to the individual and to the colony (sometimes a disease that can quickly kill an individual is actually less of a problem to a colony than one which causes relatively little harm to the individual but gradually infects the whole colony) - and in how or whether they can be treated.

In general, bacterial and fungal diseases are spread by the consumption of contaminated food and viral diseases require the transfer of contaminated fluids whether that be during mating, trophylaxis or egg laying. The symptoms of bacterial and fungal diseases are often easiest to diagnose, such as the characteristic ropey brood and bad smell of American foulbrood and spotting at the hive entrance caused by nosema, whereas viral diseases can be harder to see. By the time you start to notice deformed bees in the hive the colony will have such high levels of deformed wing virus it may be too late to save it. To add an extra layer of complexity, colonies often harbour multiple infections, sometimes to no obvious ill effect but it can take just one to increase or an environmental effect such as the weather being particularly bad to weaken the colony enough for it to succumb to the infections.

In addition to diseases attacking the bees from within there are also an extensive array of parasites and pests which live in the hive and attack the bees either by feeding on their haemolymph or by making their homes in the hive and feeding on the bees' resources. The most well-known are probably Varroa mites which have caused devastation to bee colonies around the world, not only through the damage they cause to the bees through sucking their haemolymph but most importantly through transmitting deadly viruses, and small hive beetles which feed on honey, pollen and brood and can reproduce extremely quickly, taking out weak hives. However, there are other pests lurking on the horizon. The Asian hornet, for example, is the current most important threat to bees back home in the UK, where they have recently arrived, Cape bees are a big problem in South Africa and Tropilaelaps mites are a notable pest in Japan, to name but three.

As such it is important for us to come together with other beekeepers and scientists from far and wide to understand the threats faced in other areas so that we can be prepared and vigilant for, if, and when new threats arrive on our doorsteps.

I was fortunate to be able to give two talks at the WAS meeting. In addition to discussing honey bee diseases I also spoke about some of my most recent research studying a rare Varroa-tolerant population of European honey bees and what we may learn from such populations. Due to the importance of Varroa mite in combination with the deadly viruses it transmits and the effect these have on honey bee populations across the world we are trying to learn what we can from rare populations that survive untreated for Varroa mites to try to learn how we may protect our bees. This work has recently been submitted to a peer reviewed journal.

Pesticides and Honey Bees

Eric Mussen

What are Pesticides?

Pesticides are any substance used to mitigate a pest problem, excluding prescription antibiotics. In California, insecticides, acaricides, fungicides, herbicides, rodenticides, repellents for all sorts of pests, as well as bleach and other antiseptic cleansers, etc. are considered pesticides. As such, they must have two registrations – with EPA and with Cal EPA (Department of Pesticide Regulation). Other states have similar registration programs. Interestingly, numerous agricultural chemicals, referred to as "adjuvants" (emulsifiers, spreaders, stickers, "inert ingredients," and now penetrants) have proprietary secret substances that can be far from inert with respect to honey bees. While the EPA does not register adjuvants, California does. This is done to allow California to remove the products from the market if they are determined to cause important negative environmental damage.

Most pesticides contain an active ingredient that was selected or manufactured to interfere with a vital biochemical reaction in the target organism. The degree of toxicity (how poisonous) depends on the chemical and the biochemical makeup of the exposed organism. Generally this is measured as the LD50, the amount of material required to kill 50% of the exposed population of organisms. With honey bees (non-target), tests are run with acute topical and oral exposures in laboratory cages to determine impacts of the chemicals to adult worker honey bees. Due to serious concerns of beekeepers, scientists, and the general public, EPA is slowly requiring tests on long-term (chronic) exposures to workers, drones, and queens.

Honey bees, just like you, me, and other living organisms, have biochemical mechanisms to detoxify poisonous materials, if we don't get overwhelmed by them. Common toxins denatured by human livers include caffeine, alcohol, and nicotine. In order to prepare the toxins for excretion from our bodies, we have to produce enzymes in the category of P450s (cytochrome oxidases). These enzymes make major basic changes to the poisons, which then can be conjugated with a carrier that leads to excretion along with liquid or solid bodily wastes. Honey bees have fewer P450s than most other insects and mammals, so they are pretty susceptible to pesticides.

Somewhat recent, and current studies, are finding that bee exposure to toxic chemicals, mostly pesticides, is much more prevalent than we anticipated. Nearly 150 of the 200 or so residues of pesticides, or their primary breakdown products, have been found in various beehive and bee samples from around the country. This is typical of all areas with "advanced" agricultural practices. In a very recent study, three groups of similar colonies were placed in a distant meadow, near an untreated corn planting, and adjacent to a neonicotinoid-treated corn field. Studies of stored pollen and bees over the season determined that all three groups had 29-31 pesticide residues. The colonies located adjacent to the neonic-treated corn had only trace amounts of that category of pesticide in them. This suggests that pesticides are so ubiquitous in the environment that nearly all honey bee colonies will be exposed.

For nearly a century we have relied on synthesized pesticides, or naturally occurring compounds, to reduce or eliminate target pests from the local environment. In animals, the nervous system is often targeted. We have passed through a series of chemical types over the decades:

arsenicals, chlorinated hydrocarbons, organophosphates, carbamates, pyrethroids, neonicotinoids, and now the ryanoids. While research and development chemists try to select substances that will severely impact target pests while sparing non-targets, this is extremely difficult to accomplish. In the case of neonics, it was determined that under the global term "nicotinic receptors" in nerve cells, there were two distinct types – nicotinic receptors in invertebrates and muscarinic receptors in vertebrates. Thus, neonics could be targeted to invertebrates. Although less toxic to mammals, birds, fish (to a certain extent), reptiles, amphibians, etc., neonics are extremely toxic to insects, earthworms, etc. Observable effects of very small concentrations of neonics on honey bees in the lab suggested similar problems in the field. But, in field tests, where the bees are frequently being fed some nurse bee-processed food and have access to a mix of stored food sources, colony effects seem to mollify the potentially toxic effects.

Besides the nervous system, various pesticides have been selected to interfere with many stages of the respiratory system. Succinctly, all living, multi-cellular organisms require ATP as an energy carrier to keep cells alive and functioning. There are many ways to interfere with that system, and it is targeted especially by fungicides because fungi share the same requirement for energy. A research paper based on finally-completed analyses of pesticide residues collected during the CCD crisis, determined that the likelihood of a colony dying over the year increased with the increasing number of different insecticide residues found in the stored pollens and foraging bees collected over the season. But, the increased likelihood of losing the queen was related to the increasing number of different fungicides found in the pollen and bees.

Another category of chemicals that are being implicated in bee losses are the sterol biosynthesis inhibitor (SBI) fungicides (48 different ones on the market). Many fungi need to convert 14-methyl lanosterol into ergosterol. Ergosterol is the primary fungal hormone and is needed for fungal cell wall construction. Honey bees use cholesterol, as do we, for its main sterol. However, bees cannot absorb much cholesterol by eating egg yolks. They need to have the precursor 24-methyl cholesterol and de-methylate it. It is likely that SBI fungicides are interfering with honey bee brood development, but I have not seen results of any such studies in the literature. The EPA is just getting around to requiring more studies on exposure effects on bee brood.

We used to give insect growth regulators (IGRs) a pretty clean bill of health when used in the field near honey bee colonies. More recently, with the much greater exposure to so many other pesticides in the field, it appears that the bees cannot handle the IGRs the way they used to. Juvenile hormone-related IGRs have two general ways of acting: reducing the amount of juvenile hormone in developing insects so they cannot molt properly or adding an analog that "swamps" the insect, keeping it in the larval stage until it dies. A second category of IGRs, the chitin synthesis inhibitors, cause problems for developing bee brood by interfering with the production of the chitin matrix that forms the scaffolding for the exoskeleton. Then the exoskeleton becomes hardened through addition of protein. Often the field exposures can result in losses of significant amounts of capped brood that fail to molt to adults properly. This leads to bees that lack adult coloration, can get only their heads out through the cappings, and are pulled out by the adult workers in large numbers.

The final take away is that our bees are living in an environment that is highly polluted with pesticides of all types. Faced with any one of these chemicals alone, the bees might be able to fight through it. But, when the detoxification system is perpetually tied up trying to denature so many chemicals, there is little energy left to fuel the immune system, to provide energy for food processing and brood food production, energy for proper immature bee development, etc.

So, what can be done? Most of the bee problems with pesticides could be radically reduced simply by not exposing bee-attractive flowers (crop, weed, or garden flowers) to pesticides. We don't have to worry about how toxic the pesticides are, they ALL cause the bee to shift its molecular attention to detoxification, leaving less energy to accomplish other necessary life processes. How much time and energy does it take to check out the flowers and see if bees are visiting? Not much! But, it can make all the difference in the world.

Honey Bee Health Coalition

Dewey M. Caron, WAS rep to HCBC

The Honey Bee Health Coalition, founded in late 2013, is a diverse assembly of beekeepers (includes both WAS and EAS, ABF, AHP and OR State Beekeepers), commodity and specialty crop producers, agro-business, supply chain companies, NGOs, universities and agencies that seek to promote a vision of HEALTHY BEES, HEALTHY PEOPLE AND HEALTHY PLANET. The Coalition's mission is to collaboratively implement solutions that will help to achieve healthy populations of native and managed pollinators in the context of productive agricultural systems and thriving ecosystems.

At the brief business meeting at conclusion of the WAS meeting in Hawaii, WAS members voted, on motion by me, to again contribute $2000 to HBHC, although it was pointed out that the WAS financial situation was not clear, especially as regards our meeting. This contribution keeps us 'at the table' as a voice for the western beekeeper. NOTE: my travel and other expenses in conjunction with HBHC activities are voluntary and specifically NOT covered with this donation.

Immediately following the WAS conference, approximately 60 coalition and invited guests assembled at the University of Maryland to review progress of the 4 HBHC working groups. As WAS representative, I have been working with the Hive Management Task Force and as part of a coalition to examine bee nutrition/foraging.

Under my direction and guidance (as principle author), the HBHC developed the Honeybee Health Coalition Tools for Varroa Management Guide available as a free download at www.honeybeehealthcoalition.org/varroa It has recently been revised (4th edition) and expanded information on the various varroa controls is now included.

At the Fall HBHC meeting, members discussed our Tools outreach and started discussions on how to evaluate our impact. One thought toward wider use is to divide the manuscript into separate sections, such as "sampling" as a stand-alone that could be put in PDF formats and more easily distributed among bee associations and backyard beekeepers. Downloads of the Guide have been extensive, but we lack a mechanism to evaluate impact or to drive changes in varroa control.

Additionally, toward getting the Tools information better utilized, HBHC, with a grant from the National Honey Board, has developed a video series showing how to properly approach the varroa situation. The 10 videos were done in a commercial apiary (Foothills Honey Co. of Colton, OR). Mark Dykes of Apiary Inspectors of America (and head of the Texas Apiary Inspection Service) and Danielle Downey of Project Apis m. (and formerly chief apiary inspector of Hawaii) were both the on- screen talent and audio voices on the videos. As script writer I got to sit in the producer's chair.

Both sampling and control techniques/ chemicals, using IPM techniques emphasizing integration of multiple approaches to keeping bees healthy, are covered. Each video, 3 to 5 minutes in length, demonstrates why, how and when to use the currently available control techniques. There is a slightly longer video on sampling and another on why an integrated approach to control is required. The videos will be available shortly – anyone will be able to download them free or view on the HBHC site.

A new HBHC projected initiative being developed that I am also participating in, is a Bee Health Integrated Demonstration Project. Recognizing no single focus will solve all our bee health issues, this project goal is to demonstrate improved honey bee health by use of a portfolio of tools together in the same agricultural landscape addressing multiple factors known to negatively impact bee health. Specifically, the project will address inadequate forage and nutrition, hive pests and disease, adverse bee and crop protection product impacts and, perhaps most critically, ways to improve farmer/ beekeeper cooperation and communication.

Also, the Nutrition group met during the fall meeting and continued with its plan to interview commercial beekeepers and queen producers during the American Beekeeping Federation conference to be held during January 2017. The goal of these interviews is to determine the nutritional needs of hives and see which represent successful strategies that could be adopted by backyard beekeepers.

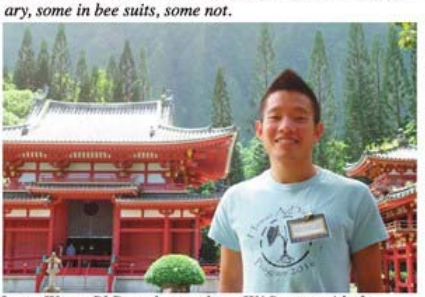
Bee health is not a single-factor driven management; it needs season-long attention by the beekeeper. The Tools document, the video series and active projects such as the multi-integrated project, are designed to demonstrate how to achieve integration of critical factors toward improvement of bee health. See the Coalition website www.honeybeehealthcoalition.org for the Fall quarterly newsletter and other items reporting our activity. Consider calling it to the attention of beekeepers in your local bee groups.

Are you going to the combined national bee meeting this coming January in Texas? Please plan to visit the HBHC booth to see the various activities/approaches we are currently investigating and look over free information we have available. It is an impressive amount of "stuff" that you can utilize toward what, we hope, is a shared vision of HEALTHY BEES, HEALTHY PEOPLE AND HEALTHY PLANET.

HONEY BEE HEALTH COALITION

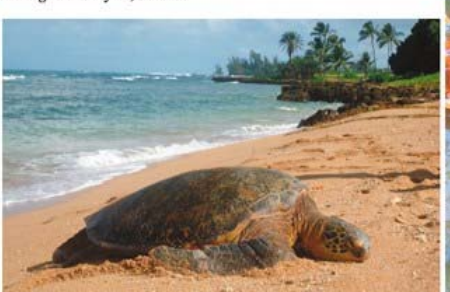
WAS members exploring the University of Hawaii bee apiary, some in bee suits, some not.

Brood frame inspection at the U of Hawaii bee apiary.



Jason Wong, PhD student and our WAS tour guide for Saturday, standing in front of the Byodo Temple, one of the stops on our bus tour. He was very informative and entertaining. Thank you, Jason!

We encountered this sign during our bus tour. Saturday was a windy day and there were honey bees blowing around and landing on everything at this stop. The beekeepers didn't mind, some of the other tourists were less enthusiastic.



Huge sea turtle on our beach in Haleiwa, post conference.

Koi pond at the Byodo Temple.

its unique honeys and some intrepid vendors who journeyed far to support the conference

Jason Wong opening a hive at U of Hawaii bee apiary.

Nice view from the North shore.

Tim from Western Bee Supply of Polson, Montana at the WAS conference in Honolulu. Wendy from NOD Apiaries (Mite-away) in the background.

Open hive at U of Hawaii bee apiary. These were gentle University bees, as I knew they would BEE.

Some beautiful honey displayed in the vendor exhibit area. There for all to judge and enjoy!!!

Brenda of Mann Lake exhibiting goods at her booth.

(All photos thanks to Kevin French)

LOOKING AHEAD....

The Care and Feeding of Vendors

This article, by Ann W. Harman, appeared in Bee Culture magazine in June 2012. Reprinted here with the author's permission and slightly condensed.

Every bee association, large or small, has meetings. Beekeepers love things — large things like extractors and fancy uncappers, smaller things like smokers and hive tools, and small things like 2-oz bear containers and beetle traps. Each year catalogs from equipment suppliers appear with new items highlighted. Beekeepers really like to see and feel bee equipment, try on the latest style in veils, and ponder the many types of syrup feeders. Beekeeper meetings provide an opportunity for vendors to introduce their wares to eager consumers. Vendors and their wares are important for newbees who are just getting introduced to the exciting and fascinating world of beekeeping. Newbees may be hesitant to purchase an item they see in a catalog but at a meeting they can see it and have an opportunity to talk to the vendor.

The life of a vendor is not an easy one. Unfortunately vendors are frequently overlooked in meeting planning in the rush to find a venue and speakers. Vendors come at the bottom of the list of things to do. Let's see how the club and its meeting planners can make vendors an effective part of a bee meeting and happy to return.

Every association, no matter the size, that invites vendors to their meetings should have a Vendor Coordinator (VC). This person is a club member NOT selected at the last-minute. A VC should not have other meeting responsibilities. A VC has a number of important tasks, before, during and after a meeting. The position can be considered a "permanent" one, similar to that of an association's secretary or treasurer. Those associations who have such a Vendor Coordinator will attest to the efficient planning and the resulting happiness of vendors.

Let us review the responsibilities of a VC. First of all the VC should be a member of the site selection committee. Only a knowledgeable VC knows what is normally needed — how many vendors, space needed for those, electricity if needed, good lighting, and — most important — access. Access means two things — can the vendors easily get their wares into the venue and do the beekeepers have easy access to the vendor area? Can beekeepers with mobility issues get around easily? Good access for both is really important.

Security is always in vendors' minds. Can vendors set up the evening before the meeting begins, will the room or area be locked? If a two-day or more meeting, what about security overnight? Does any cleaning crew have access to the vendor area during the night? Security is a vital question the VC needs to ask of the venue management and then report the findings to the vendors. The VC needs to approve a potential venue based on all these needs.

The VC must be aware of the venue Fire Code. What doors need to have free access? Are there any that can be blocked by a vendor's display? The venue management should be able to supply this information ahead of time so that the VC can plan the layout of the tables and spaces.

Vendors need to know the size of tables that will be provided. Lengths may be 5, 6 or 8 feet; widths from 2-feet to the more usual 3-foot size. If the vendor is aware of the size then the correct number of tables can be requested and there will be no need for the VC to scurry around in search of more tables at the last minute. If tables are old, battered, splintered or have lumps of hardened goo stuck on, the VC can direct vendors to bring a table covering.

Once the venue has been chosen the VC can then begin correspondence with the vendors. The VC should have a file with information on vendors who have attended in the past and also on potential vendors, large and small.

The next step is for the VC to send a short letter of invitation to each vendor. The letter should have the VC's contact information, especially telephone and email. A vendor registration form should be included. The information requested is important. Here's a sample list. Keep in mind that some information is applicable only for multiple-day meetings and unnecessary for a one-day meeting. You may think of other items to be listed.

All vendor contact information including telephone, mailing address and email.
If vendors will have pre-printed name tags, names of all vendor attendants.
How many tables, chairs are needed?
If area is divided into separate booths, the size of booth, width and depth.
How much extra space for large items is needed?
Do you need electricity?
Any other special requests?
If a fee for tables/space, clearly indicate.
If meals available at venue for attendees, how many on which days? Cost.
If special events, what, when and cost.
For large meetings, does vendor wish to sponsor a break? Cost of break.

For large meetings, does vendor wish to advertise in meeting program? Cost.
Include a deadline for submitting registration.

Some information given in advance will be very helpful for vendors.

Difficult access (such as stairs); need to use elevators; venue restrictions.
Vendor area has limited space.
Size of tables (length and width).
Give information on nearby motels, hotels and if meeting special rates are available.
Give information on access and parking.
Give the day(s) and times when the vendor can set up and also take down the exhibit. The vendor area should not be open to meeting attendees at those times.
Vendors need time uninterrupted by customers to set up and take down their exhibits.

The VC should send a confirmation to the vendor. Any questions the vendor may have could be answered at that time.

The VC is responsible for putting vendor opening and closing times in the meeting program, posting signs, or making an announcement to the meeting attendees.

On the day the meeting opens the VC must be in attendance at the time stated for vendor set up. The doors and access to the vendor area must be unlocked promptly. If the VC can have an opportunity to monitor table placement and space before that set up time, much time will be saved. The tables can then be labeled with the vendor's names so that when vendors arrive the set up will go smoothly and the vendors will be ready for customers when the vendor area is opened.

The VC will know what sort of directional signs are needed so that the meeting attendees can find the vendor area. Signs giving the opening time and closing time should be posted at the entrance(s) to the vendor area. As the vendors arrive and find their places the VC should ask them if any problems are apparent and, if so, try to correct them.

Having the breaks in the vendor area does bring many attendees in. Sometimes it is not feasible. Some Vendor Coordinators bring break drinks and snacks to the vendors before the actual break times. If a lunch, such as a box lunch, is available at the venue the vendors should

be informed when it is available and allowed to get their meal before the morning program finishes. Vendors are chaotically busy during breaks and meal times. They appreciate having a bit of quiet time to eat before the crush.

By the way, trash cans should be scattered around the vendor area. Otherwise vendors find half-filled coffee cups, empty soda cans and other trash left on their displays.

Volunteer help is always in short supply. Sometimes vendors really need a helper with doors that won't stay open, tight corridors, awkward access, using elevators. Since the VC is familiar with the venue one or more volunteers should be asked, before the meeting day, if they could help during set up and closing times. Vendors will be very appreciative.

Vendors come in two basic sizes: one group I'll call the Big Guys — like Dadant, Mann Lake, and the Small Ones, who are usually local to the meeting — like the soap makers and T-shirt sellers. Some of the needs are common to all, no matter the size. Some needs are particular to one or other of the groups.

In Part 2 of this article (which will be in the February issue) some other general needs as well as the special needs of these two groups will be discussed.

"The Jennifer" fires up National Honey Bee Day in Boise, Idaho

Steve Sweet on the beat

Jennifer Berry has, for the past seventeen years, been the Apicultural Research Professional and Lab Manager for the University of Georgia Honey Bee Program. "The Jennifer" arrived from Georgia to celebrate National Honey Bee Day with the Treasure Valley Beekeepers Club on a Wednesday afternoon in August, 2016. Following in the footsteps of previous NHBD headliners, John Miller, Kim Flottum and Dewey Caron, Jennifer displayed wit and charm throughout her Idaho stay.

Following arrival at the airport, Jennifer headed downtown to meet with Lt. Governor Brad Little. Once past a routine cuffing and frisking by Capitol Security, the Lt. Governor was most gracious, while waxing eloquent on honey bees before Jennifer and proclaiming the insect's importance to the state economy.

Early the following morning, Jennifer joined the TVBC "HornDawgs" (Mike Cooper, Frank Grover, Alan Herzfeld, and Dick Knapp) for a field day. The first official stop was to Frank Grover's queen yard and a then a trip to Hamilton Honey, where Scott Hamilton took the time to speak with the group and show them around his operation. Jennifer and party ended their tour with a stop at the renowned World Center for Birds of Prey and Bitner Vineyard before heading back to Boise.

That evening, NHBD festivities officially opened with a renewal of the vaunted "Pub Swarm." The 3rd Annual Swarm, once again superbly organized by Melinda Jean Stafford, wandered the streets and pubs of Boise before finishing up with dinner in the back room of a local distillery. Evening festivities were accentuated with a full chorus of Whoopee Cushions, in a boisterous salute to Jennifer's earlier undergrad theatric career. Ever the good sport, she regaled the group through the evening with tales of back home Georgia beekeeping.

Friday morning began with a session at the Boise City's Jim Hall Foothills Learning Center, where both Jennifer and Jan Lohman instructed present members of the Oregon Master Beekeepers Program. Friday evening concluded in the park with the TVBC's annual NHBD picnic.

On Saturday morning (the official National Honey Bee Day), Jennifer and TVBC members rose early and staffed a morning exhibit at the annual Idaho Botanical Garden's Bug Day that has an emphasis toward educating children on all things insects.

Later on Saturday, Jennifer took over a full house in the Boise State Lookout Room and wowed Idaho beekeepers with a presentation entitled "If We Would Let Bees Be Bees, Think of Where They'd Be!"

Following her talk and an awards presentation, Jennifer donned her veil and, gloveless, began working the hives at the Boise State University Roof Top Bee Farm. Using a wireless mic, Jennifer and Jan Lohman opened and inspected hives on the Roof Top Bee Farm, to the delight of the audience, safe behind a glass wall. To the chagrin of some of the male observers, Jennifer demonstrated to the gallery the proper method to "evert drones," which she maintained is an essential skill in all successful queen rearing operations.

Capping off a successful National Honey Bee Day celebration, the event concluded with Campfire Tales at Camp Duesmanville. The evening's highlight was Uncle Frank's bended-knee proposal around the campfire, seeking blessed matrimony with Jennifer. As the evening waned and while obviously enamored by such a flattering proposal, there was little doubt that Jennifer had definitely made up her mind concerning the prospects of betrothal and full time Idaho beekeeping. Too bad for Idaho!

Throughout Jennifer's four-day visit, local beekeepers and the public were once again afforded the opportunity to interact on a personal basis with one of the foremost beekeeping authorities in the country. Idaho beekeepers are extremely grateful that Jennifer displayed her ever-present, effervescent wit and charm, guaranteeing that NHBD 2016 ended up being another tremendously successful event for all.

Ohhh, My Aching Back!

A Make It Yourself Hive Loader

Jerry Bromenshenk

Large scale beekeepers often place hives on pallets and move them using forklifts and flatbed trucks. Small scale beekeepers are more likely to have a pickup truck or trailer. The problem is loading and unloading hives, especially if one is working alone.

A bed-mounted hoist is really handy but most are expensive. It's time to make a trip to a discount tool store like Harbor Freight (HF) or Northern Tool. I've got a nearby Harbor Freight store. A hydraulic-jack 1⁄2 ton hoist with a hand-crank winch costs $89 for a short crane and $149 for a taller crane. For another $89, you can toss the hand-winch and replace it with an electric ATV winch with a wireless remote control. Now you can operate the winch while steadying the hive.

If you don't mind bolting everything into the bed of the truck or trailer, you're ready to go. Just be sure to add a reinforcing plate to the truck bed, the thin bed sheet metal won't take the strain. If your truck has a trailer hitch, spend another $18 for a 12" receiver hitch extender. Weld the base plate of the hoist to the extension, and you've got a crane that can be easily mounted and dismounted. If you or a friend can weld, that's a total of $256 for the taller lift. Cost will be a bit more if you need to pay someone to attach the base onto the extension.

This works very well, but the downside is that since the crane is in the middle of the truck. You will have to either remove the tailgate or lift the hives up and over the sides of the truck. A better solution is to move the hoist to the side of the truck so that the tailgate can be opened.

You can find this type of crane on the web in aluminum or steel for around $1500 plus shipping – ouch!

Crane down

Not to worry, a chunk of square tubing welded into a T solves the problem. The hoist base needs support for heavy lifting, so you should add an adjustable foot. My design allows me to mount the crane on either side of any pickup with a trailer hitch. Basically, I had a T-shaped extension built, then added a longer, horizontal, square pipe that can be slid left or right to fit the truck, and a foot that slides up and down inside the vertical mast for the crane.

This part takes the most fabrication work. You need to drill a hole through the center of the crane base and weld on a piece of square tubing to receive the leg of the foot plate. None of the dimensions are critical, just fit to the base of the crane that you purchase and use the right-sized extension for the hitch on your truck. If you want to be able to adjust the left or right length or the height of the foot for uneven terrain, you'll need to drill some holes – how many is up to you. Given that you are drilling two layers of rather thick-walled square tubing, I highly recommend a drill press.

The version of this crane that I use on my own truck has one more feature. I added a direct-wired controller to the electric winch. The wireless fob is easy to drop and lose in the grass, the battery may die, and there's a bit of lag between pressing an up or down button and winch response. The crane-mounted controller is more precise, can't be lost, and runs off the battery.

A few tips – the HF hand-crank winch has soft teeth and the cable may jam when spooling. If you use the HF winch, take up cable slack without any load, then use the jack to lift the load. If you lift the weight of a heavy

Crane extended

The t-shaped extension plus the horizontal pipe

Adjustable foot

hive by cranking the winch, it will self-destruct in a season or two. Leave the hydraulic jack in the down-position when not using. The jack shaft is prone to rusting if exposed to weather. Hook a loop of string through the keyhole in the remote control for the winch and hook to your belt or wear around your neck (just be sure that the string will break before it chokes you, if you hook it on something). HF's crane has a loop for the jack handle pipe at the base of the crane.

I worry about bouncing the jack handle out on rough roads, or someone using it to smash a window to steal things from the cab or maybe even the truck. I carry the steel jack handle under a seat and have a light-weight handle that I leave in the base of the crane. I made it from a piece of PVC pipe with a wooden dowel glued inside to take the flex out of the PVC. Light, cheap to replace, and it's likely to take a lot of work to break a window with a PVC pipe.

The crane swivels, just remember to lock it down when driving or you may lose the rear window as the boom swings inward. Also, collapse the boom to its shortest length so it can't reach the window.

There's a locking pin for the crane swivel near the top of the mast. I replaced the HF clip with a bolt and a large thumb nut, painted red so I can easily find it. There's also a grease-fitting near the top of the mast. Keep the mast well lubed; do so frequently or the mast will be hard to turn with a load on the crane. Don't forget to raise the support foot before driving off! Otherwise you'll dig a trench in the dirt or hear a scraping sound. Worst case, you hook a stump or curb and tear the whole thing off.

The one change I'd make if I did this over would be to bend up the front of the support foot so it would act more like a sled, and I'd round the corners of the crane base – it'd be easier on the shins.

Finally, the whole thing bounces and rattles if left loose. Before driving, I attach the crane hook to a bed tie-down, then tighten the crane until the cable pulls tight and starts to lift the whole assembly. That lifts the support foot even higher off the ground, and it keeps the crane assembly secure and stable with little or no rattles.

As per lifting hives, I have ratchet-straps on all of my research hives. We slide the web strap through a D-ring, ratchet the strap tight, and attach the cable hook to the D-ring. That's the cheapest and simplest solution. There are lots of slings for lifting hives that you can build or buy. Most either have a cradle that slips under the base of a hive or have clamping arms that use the handholds of a hive body.

However, that's added expense and one more thing to carry.

Locking it down

Dr. Jerry Bromenshenk is a Class Development Leader at the University of Montana's Master Beekeeper Programs and retired researcher in the Entomology Department there.

Beekeepers' Calendar

Dec 1 - 2: Idaho Honey Industry Association Annual Conference, Red Lion Downtowner, Boise ID. Draft Schedule http://www.idahohoney.org/conference.html. Registration form is attached to that page or go to http://www.idahohoney.org/uploads/1/7/5/2/17522397/reg_form.pdf.

Jan 10 - 14: North American Beekeeping Conference & Trade Show - American Beekeeping Federation, American Honey Producers Association, Canadian Honey Council - Galveston Island Convention Center, Galveston, Texas. Info & registration nabeekeepingconference.com.

Jan 27 - 28: Alaska Treatment-Free Beekeeping Symposium 2017 III, "Bee Prospering", Glenn Massay Theater, Matanuska Susitna College, 8295 College Dr., Palmer AK. Page is still under construction, but keep an eye on http://matsu.alaska.edu.

Feb 24 - 25: Utah Beekeepers Association Convention, Hyatt Place Hotel, Lehi, UT. Info http://utahbeekeepers.com

Mar 3 - 5: 10th Annual Chemical-Free Beekeepers Conference, Oracle, Arizona. Info Dee Lusby deealusby1@aol.com

Mar 18 - 19: Wyoming Bee College Conference, 1400 E. College Dr., Cheyenne WY. Info www.eventbrite.com/e/wyoming-bee-college-conference-2017-tickets-27182621954?aff=erelexpmlt.

May 5 - 6: California Honey Festival (Woodland). Info honey.ucdavis.edu/events

May 7: Bee Symposium. Info honey.ucdavis.edu/events

Sept 5 - 8: Western Apicultural Society 40th Anniversary Conference & Annual Meeting, UC-Davis Campus, Davis CA. Info www.westernapiculturalsociety.org

WESTERN APICULTURAL SOCIETY

MEMBERSHIP FORM

Name _____
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_____
City Prov/State Zip Code

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Tell us about yourself

Full time beekeeper? ____ If not, what other field do you work in? _____

# of colonies? _____

How long have you kept bees? _____ years

Age group (circle one) under 25; 25 - 40; 40 - 65; 65 or over

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Häagen-Dazs Honey Bee Haven at UC Davis

Save the Date!
We're Going Back to Our Roots!
Our Western Apicultural Society, founded at UC Davis, will meet in Davis, Calif., on Sept. 5-8, 2017. for our 40th Anniversary Conference!

- Hear about the latest studies on honey and native bees
- Tour the Bee Biology Facility, the Häagen Dazs Bee Haven Garden, Mann Lake LLD and Z Specialty Food, and much, much more!