



INLAND BEEEMAIL

Monthly newsletter of the Inland Empire Beekeepers Association

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Presidents
Corner:

Presidents Corner:

I hope everyone had a great Christmas and New Year celebration. 2010 will be a very intense year for the association's education efforts. A new apprentice course, a new second year beekeeper course, the journeyman course, and several single topic courses are on the schedule. We will need lots of volunteers in order to make them happen.

The Dec beemail has the proposed IEBA Constitution and Bylaws in it. Please review and bring discussion points to the meeting. We will discuss and then vote on it at our annual meeting. I will give a short presentation on the additions to the current constitution at the meeting. Normally I present the annual budget during the Jan meeting. I expect the discussion of the constitution to take up most of the meeting time so I will defer the annual budget presentation to the Feb meeting.

The beemail also has the registration form for our first class of our 2010 education program. If you want to become a WSBA Journeyman beekeeper and meet all the requirements please sign up. The class will be limited to 12 people. Only IEBA members may attend. We still have two slots available. Our first class will be 22 Jan.

Our education topic for this meeting will be bee equipment and emergency feeding presented by Bob Arnold.

Hope to see everyone on the 8th.

Agenda

1/8/10

Welcome!

Happy New Year!!!

Reports:

The Secretary's Report - Linda
The Treasurer's Report - Julie
Fair Reports – none
Four Corner Bee Reports – none
First Year Beekeeper Questions - Darren

Old Business:

IEBA Constitution Update: Discussion and Vote
Journeyman class update

New Business:

2010 Budget Submission: deferred to Feb meeting

Meeting Adjourned

Education Topic: Beekeeping Equipment and
Emergency Feeding by Bob Arnold

IEBA - Meeting Minutes September

December 11, 2009

14 days prior to Christmas, President Ted Swenson opened our December meeting and dinner. Merry Christmas to everyone!

Two more new beekeepers, Robin and Scott Redman, completed and passed their tests for the Apprentice Level of the Master Beekeeper Program. Scott accepted their certificates from President Ted Swenson.

Secretary, Linda Carney, read the minutes from the November meeting and they were accepted as read. (These minutes were also published in the bee mail.)

Julie Watts, **Treasurer**, informed us of the balances in our accounts. We have \$8,887.53 in savings and \$8,251.18 in checking. The motion was made and accepted to accept the Treasurer's report as stated. A mention was made that the projector in use has been paid for. Julie and Ted mentioned the projector purchased by the Association and in use at this meeting, has been paid in full. Ted asked for bee pictures to put on the opening displays and picture shows.

A second year beekeeping class is being prepared.

The Walt Peterson's Joy in Beekeeping grant of \$250 will be awarded in February 2010. Nominations for the grant need to be presented in January 2010.

With the deadline approaching, President Swenson proposed all members read the constitution and have input into new changes to update and define our constitution.

The upcoming Journeyman Beekeeping class will be limited to "12". Remember--

Anyone wishing to go to the next level of certification for beekeepers needs to have the score sheets of the apprenticeship level. The individual beekeepers must keep this information.

The Election of Officers—Old is New Again---The officers of 2009 agreed to run for another term in 2010. No other nominees were presented and all officers were voted back into office.

President- Ted Swenson
Vice-President-Daren Mumau
Secretary- Linda Carney
Treasurer- Julie Watts

Congratulations to Will Olson, who was nominated and elected as the third member of the Joy of Beekeeping committee. Will is replacing Julie Watts and will serve a three year term.

Our meeting was adjourned. See all of you in a New Year—
Linda Carney, Secretary.

Honey Coconut Pecan Bars

The National Honey Board

Internet address: <http://www.honey.com/>

Servings: 16

1 cup graham cracker crumbs
1 cup plus 2 tablespoon all-purpose flour, divided
1/2 cup cold, cubed butter or margarine
3 eggs, divided
1 cup honey

1 teaspoon vanilla extract
1/2 teaspoon baking powder
1/2 cup shredded coconut
1/2 cup semi-sweet chocolate chips
1 cup chopped toasted pecans

In food processor with metal blade, combine graham cracker crumbs, 1 cup flour and butter; pulse to combine. Mixture should resemble coarse meal. Add 1 egg and process until dough forms a ball. Press dough evenly into greased 9 × 13-inch baking dish. Bake at 350°F for 15 minutes, until crust is set and lightly browned. Allow to

cool. In medium bowl, combine remaining 2 tablespoons flour and 2 eggs with remaining ingredients until thoroughly blended. Pour mixture over crust and bake for 30-35 minutes, until topping is firm and golden brown. Allow to cool completely. Cut into squares.

Yield: 16 Squares

"Winter Feeding w/Candy Boards"

by Harry Smitts

Winter and early Spring Feeding.

You've done everything by the book in the fall, and the bees were put to bed, but the Queen didn't shut down and continued laying brood and eating up precious stores. Or like most of us, you didn't get to the last of the 2 to 1 syrup feeding and now its too cold.

There are many options to feeding, but syrup is out of the question. One can just add honey frames from the honey bank we encourage everyone to keep, and if enough honey were available the next warm up would be a great time to make sure the frames are positioned next to the cluster so they use it. No Honey frames.... No problem we can feed sugar dry and a form of sugar is the invert sugar drivert. This is expensive and has unwanted consequences while it is still Winter, so the best solution will be a candy board. The Candy mixture is very hot and poured into a frame that will set on the top of the hive, hence the name candy board. But it can be made in smaller blocks and they could be set on top of the hive like a pollen patty. All things come with consequences and the candy can "melt" if too much moisture is present and the candy block on the top of the hive can get very cold and act as a good place to condense the moisture. Proper venting of the hive is essential as moisture is one of the big killers of hives in the winter. In addition, some insulation on the top of the hive will reduce the chance of condensation in the top of the hive.

This brings us to the recipe for the candy used in the board. I am going to make it for smaller batches so it is more convenient.

13# Sugar
2 ½# Honey
1 ¾ Cup Water
2 tsp. Apple Vinegar (optional)
1/8 tsp. Cream of Tarter
2 tsp. Salt

Put aside 5# of Sugar and mix all of the ingredients in a large cooking pan. Bring to slow rolling boil and continue until reaching the hard candy stage, which will be 250 degrees F. Then add the last 5#

of Sugar, which should make the mixture cloudy and super, saturated with sugar (this is necessary to help ensure the hard candy doesn't "melt" in the hive and become a sticky mess). Now pour the mixture in your candy boards or container of choice. The Candy Board can be put on the hive when cool, or the candy blocks added when cool. Ensure proper ventilation! The candy board can last up to a month on the hive. One can add Pollen or Pollen Substitute into the mixture of the candy board to get the benefit of a pollen patty, like Mega Bee Pollen Substitute.

Sting Alarm Pheromone

By: *Clarence Collison & Audrey Sheridan*—*Courtesy Bee Culture*

Honey bee defensive responses are modulated by environmental conditions.

Insect pheromones are categorized according to the response they elicit from the receiver, which by nature of the term 'pheromone' is a member of the same species. Some pheromones are released in a defensive context and signalize potential danger – these are called 'alarm pheromones.' Receivers of alarm pheromones respond by either dispersing or attacking the perceived source of danger. In honey bees, two principal alarm pheromones have been identified: the sting alarm pheromone (Boch et al. 1962), and the mandibular gland alarm pheromone (Shearer and Boch 1965), both produced exclusively by worker bees. The role of mandibular alarm pheromone (2-heptanone) in defensive behavior is not well understood, but sting alarm pheromone influences the recruitment, localization and attack behaviors demonstrated in a honey bee colony defense effort.

(Z)-11-eicosenol and isopentyl acetate (IPA, or isoamyl acetate), along with trace amounts of about 40 other compounds, comprise the sting alarm pheromone (Hunt 2007). This pheromone is produced by a mass of excretory cells, called Koschevnikov's gland, located on the dorsal side of the sting base, and is secreted when the sting is extruded. Alarm pheromone migrates from the Koschevnikov's gland to setae (hairs) located around the sting base, where it

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dissipates into the air (Breed et al. 2004). Although (Z)-11-eicosenol is the most abundant component in alarm pheromone, it seems to only serve as a synergist with the more potent isopentyl acetate. This synergistic mixture has been shown to actuate defensive response nearly as effectively as an intact sting (Hunt 2007).

Isopentyl acetate production begins around three to four days of age and peaks at about two to three weeks. It is believed to be mediated by the release of juvenile hormone; however, the onset of IPA production is not related to the shift from nest duty to foraging (Robinson 1985). The amount of IPA released during defensive behavior increases as a worker bee ages, reaching its highest level at about the time when the worker is old enough to perform guarding tasks. The number of guard bees at the hive entrance varies, increasing during times of dearth, when robbing is more likely to occur (Winston 1987). When patrolling guard bees perceive an intruder they raise their abdomens in the air, extruding the sting. Alarm pheromone is released and fanned into the hive by the agitation of wings, and workers come rushing out to pursue the intruder. However, the intruder must be in motion in order for bees to locate and attack it (Breed et al. 2004; Boch and Shearer 1971).

The immediate but rather short-lived defensive response that alarm pheromone produces classifies it as a 'releaser' pheromone. Yet, recent research has indicated that sting alarm pheromone not only provokes a quick defensive response but also influences behavior for a longer period of time by affecting brain gene expression (Alaux and Robinson 2007). This was demonstrated when an initial exposure to IPA affected behavioral responsiveness to subsequent exposures to IPA, inducing the expression of a gene and transcription factor in the antennal lobes. Normally, gene expression is triggered by 'primer' pheromones, so it is probable that alarm pheromone has both releaser and primer qualities.

There is an observable quantitative effect of IPA on honey bee sting behavior that appears to be a function of the number of bees present. The relationship of IPA concentration to oxidative metabolism (indicator of pheromone perception) was measured to determine the sensitivity of worker bees to IPA when the number of bees per group was varied. Small groups (< 100 bees) were the most metabolically responsive to IPA exposure, and large groups (>100) failed to show a dose-

dependency. A group of 40 bees was the optimum size for IPA responsiveness. In a group of this size the dose-response correlation was nearly perfect up to a dose of 2.4 µg/mL, after which IPA responses plateaued; doses greater than 2.4 µg/mL did not show an increased response (Southwick and Moritz 1985).

Although isopentyl acetate is the only chemical identified directly with sting-releasing activity, an array of other volatile hydrocarbons appears in extracts of the sting apparatus, some of which have an obvious role in defensive behavior (Wager and Breed 2000; Blum et al. 1978). In a combined laboratory and field assay of 11 alarm pheromone components, two of the compounds, 2-nonanol and octyl acetate, gave orientation information, respectively repelling and attracting bees. Isopentyl acetate was the only compound to affect the recruitment and flight behavior of honey bees, but in large concentrations it repelled bees, including drones (Wager and Breed 2000). The latter observation was surprising, considering drones do not participate in colony defense and thus do not need to respond to alarm pheromone. The chemoreception of drones was further investigated in an electroantennogram (EAG) study, in which the responsiveness of worker antennae and drone antennae to IPA was compared. Although drones lack a sting and do not exhibit any behavioral response to IPA, the EAG outputs for drones were nearly as great as those of workers (Vetter and Visscher 1997). The sensitivity of drone antennae to IPA may be due to the greater overall chemosensory potential of drones compared to worker bees.

Honey bee defensive responses are modulated by environmental conditions such as high humidity, heat, and nectar availability (Breed et al. 2004). However, a large portion of the defensive phenotype can be attributed to heritable factors. There is a very strong correlation between lifespan and heightened response to IPA, which merits attention when breeding bees for longevity and vigor (Rinderer et al. 1983). Genetic influences on defensive behavior are also evident from frequent observations that certain lines and races of bees are more 'aggressive' than others. The basis for aggression may be due to differences in the chemical composition of alarm pheromone. For example, at least nine of the components of sting alarm pheromone are produced in greater amounts in Africanized bees (*Apis mellifera scutellata*) than in the European honey bee (*A. m. ligustica*) (Hunt et al. 1999). Or, these defensive differences may be attributed to an increased sensitivity of neurore-

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ceptors to alarm pheromones in certain genetic stocks.

Smoke has been used to suppress honey bee defensive behavior in managed hives for thousands of years. Until recently, it has been a mystery as to why smoke interrupts the succession of behaviors following alarm pheromone release. An explanation was offered by the results of an electroantennogram study, which compared the antennal responses of worker bees to isopentyl acetate and 2-heptanone before and after the addition of smoke. In both assays, the addition of smoke significantly decreased antennal responses. This effect was reversible, and the responsiveness of antennae gradually returned to normal within 10-20 minutes of removing the smoke. A similar effect occurred with a floral odor, phenylacetaldehyde, suggesting that smoke interferes with olfaction generally, rather than specifically with honey bee alarm pheromones. A reduction in peripheral sensitivity appears to be one component of the mechanism by which smoke reduces nest defense behavior of honey bees (Visscher et al. 1995).

Alarm pheromones are critically important to the survival of honey bee colonies. However, in relation to the small hive beetle (SHB), *Aethina tumida*, the honey bee's alarm pheromones serve a negative function because they are potent attractants for the beetle (Torto et al. 2007). In addition, the beetles vector a strain of yeast, *Kodamaea ohmeri*, which produces an alarm pheromone mimic when it feeds on stored pollen. The environment of the European honey bee colony provides optimal conditions to promote the unique bee-beetle-yeast-pollen multitrophic interaction that facilitates SHB infestation of hives at the expense of the honey bee. The small hive beetle detects IPA at an even lower threshold than detected by the honey bee, so it is advisable to minimize agitating hives by frequently opening or disturbing them.

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IEBA Class Registration
Journeyman Course

Name: _____

Phone: _____

Minimum Requirements: Apprentice Certificate, 2 yrs experience, 30 Public Service Units

What:	WSBA Journeyman Course		Four Sessions Lots of home study Open Book/Class Discussion Tests
Where:	Extension Office		Text: <i>Hive and the Honeybee</i>
When:	6:30-8:30 PM 22 Jan 5 Feb 19 Feb 5 Mar		We will try to acquire enough texts so no one has to buy one just for this course.

Classified Ads

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WSBA Website

www.wasba.org

. Hive Care :

January

The Bees. The queen is surrounded by thousand of her workers. She is in the midst of their winter cluster. There is little activity except on a warm day (about 45-50 degrees) when the workers will take the opportunity to make cleansing flights. There are no drones in the hive, but some worker brood will begin to appear in the hive. The bees will consume about 25 pounds of stored honey this month.

The Beekeeper. Little work is required from you at the hives. If there is heavy snow, make certain the entrance to the hive is cleared to allow for proper ventilation. This is a great time to catch up on your reading about bees, attend bee club meetings, and build and repair equipment for next season. Order equipment and package bees (if needed) from a reputable supplier. Check your hive weight and make sure the winter stores are sufficient. If a hive is getting light, you may add some feed on a warm day.

-adapted from
www.backyardbeekeepers.com





**Inland Empire
Beekeepers
Association**

**Next Meeting:
Friday January 8th**

The Inland Empire Beekeepers Association (IEBA) meets the 2nd Friday of every month at the Spokane County Ag Extension office by the County Fairgrounds, at 222 N. Havana. Social time at 6:30 PM and the meeting starts at 7:00 PM. The association is affiliated with the Washington State Beekeepers Association (WSBA). IEBA membership dues are \$5.00 for an individual or \$10.00 for the entire family. This includes your receiving the *Inland Beemail*, which is published by the association every month.

INLAND BEEMAIL

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IEBA

January Birthdays

10th -- Sheryl Hanna
17th -- Bill Watts
23rd -- Joelle Ostendorf
24th -- Vern Staack
27th -- Katuska Kohut
28th -- Duane Hanna
30th -- Sabrina Murphy

Happy Bee-day to You !!

No anniversaries listed

Best wishes, dear beekeepers

Let's update the Birthday and Anniversary lists. If you are a registered IEBA member please send your name /spouse's name/b-day/anniversary dates to joan1422@msn.com so that we can celebrate you and your special day!

Beekeeping Calendar - Bob Arnold

January

Evaluate last year's colony performance and plan this year's activity. Plan to replace approximately 10% to 20% of your brood nest frames with new foundation. Determine what new equipment is needed to replace old worn or rotten bee ware. Assemble and paint new equipment. Purchase or schedule the purchase of medications and mite treatment materials. Determine the amount of sugar and pollen substitute used from last year and plan when to make this years purchase. Work with other beekeepers to combine purchases to minimize expenses.

Lift your colonies on the back on warm days to make certain they have sufficient stores. Colonies with excess stores may be robbed to strengthen others low on stores. Combine weak colonies with strong colonies. Use candy boards for feeding colonies if no honey frames are available. Clean up and store any equipment from dead colonies.

Pay annual dues for your beekeeping organizations. Join local, state and national organizations to help keep abreast of new developments in beekeeping.