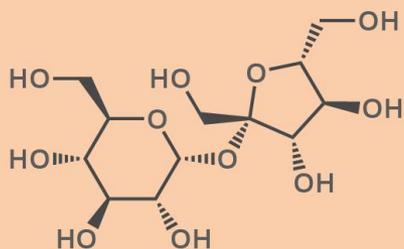


# THE CHEMISTRY OF HONEY

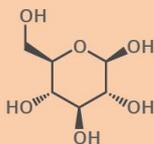
## HOW DO BEES MAKE HONEY?



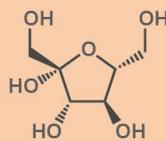
**SUCROSE**  
primary sugar in  
many nectars

When bees harvest nectar, it is stored in their honey stomachs, separate from their normal stomach. The nectar is mixed with enzymes which break down the larger sugars in the nectar, such as sucrose, into the smaller sugars glucose and fructose.

The forager bee then passes it on to a house bee, who regurgitates and re-drinks the nectar over a 20 minute period, breaking down the larger sugars further.



**GLUCOSE**

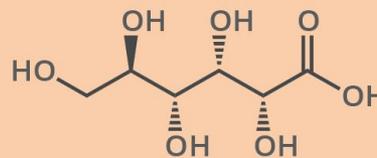


**FRUCTOSE**

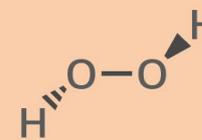
The nectar is deposited in the honeycomb, and the bees fan it to hasten water evaporation, until the water concentration falls to around 17%.



## WHY DOESN'T HONEY GO OFF?



**GLUCONIC ACID**



**HYDROGEN PEROXIDE**

Honey has such a low water content, it draws water from its surrounding environment, meaning it can dehydrate bacteria, thus preventing spoilage.

Gluconic acid is the dominant acid in honey, produced by the action of bee secretions on glucose. It, and other acids, give honey a low pH of between 3 and 4; this, along with the fact it also contains small amounts of hydrogen peroxide, makes it too hostile for bacterial growth.

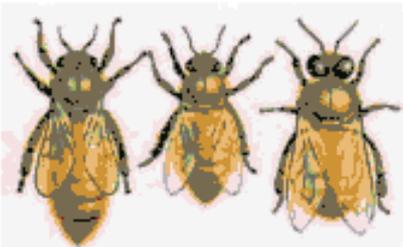


August 19, 2014



Late Summer Hive Evaluations  
and Honeybee Medications

# Life Cycle of the Honeybee Family

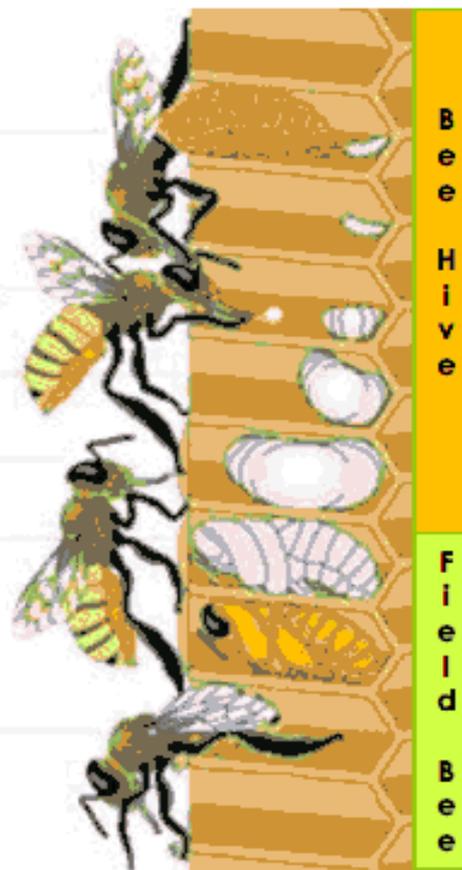


Queen	Worker	Drone
1-3	1-3	1-3
4-9	4-9	4-9
10-15	10-15	10-15
16	16-20	16-
	21	-23
		24

	Period As Egg
	Period As Larvae Feeding
	Larvae Spins Cocoon and Transforms Under a Closed Cap
	Bee Emerges

- 1 Queen lays egg in brood cell
- 2 Worker feeds hatched larva
- 3 Larva reaches full growth
- 4 Worker caps cell
- 5 Larva spins cocoon and becomes pupa

- 6 Adult bee leaves cell



days	worker bees tasks
1-2	Cleaning Cell and Keeping Brood Warm
3-5	Feeding Older Larvae
6-11	Feeding Younger Larvae
12-17	Producing Wax, Building Combs, Transporting Food Within the Hive
18-21	Guarding Hive Entrance
22-34	Visiting Flowers, Pollenating Them and Collecting Pollen/Nectar/Propolis/ Water
35-45	End of Life

## As conscientious beekeepers we should:

- Know that varroa is still the #1 threat. If left untreated, infested colonies will die in 1 - 2 years.
- Continue to improve our skills in evaluating presence of pests and disease
- Make wise choices and be knowledgeable with our application. Use correctly to avoid resistance.

# Timing is Everything

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- ❑ Evaluate hives now
- ❑ Treat declining hives as soon as possible. Now is a stress time of the year as mite levels will increase over the next two months as nectar flows decline and brood rearing slows down. Heavy mite loads over the next two months will put them over the edge and unable to recover before the winter months begin.
- ❑ Complete all treating before the September nectar and pollen flows begins. For us this means treating as close to August 1st as possible and allowing a month to get marginal control of the parasitic mites (varroa and tracheal). This allows the sick diseased bees, weakened and affected by the mites, to be replaced by a new healthy bee population which will survive the winter and be ready for growth in the spring.

# Evaluation

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- ❑ Hives will go downhill from now even if you don't see evidence.
- ❑ Treat all hives for mites by August 1<sup>st</sup>.
- ❑ This is the most important treatment of the year.

# Medication Notes:

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- ❑ Always follow manufacturers directions. If left in too long, the treatment can encourage resistance.
- ❑ Medications have different active ingredients and work in different ways to control the pest and/or disease.
- ❑ Using different products on a rotational basis may be effective in reducing resistance.

# Temperatures

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- Maximum and minimum outdoor temperatures are important when choosing your medication.



## Api-Life VAR 10 Pack

Product Code: C417

**\$36.50**



74% thymol oil, also contains eucalyptol, menthol, and camphor.

An alternative, natural **Varroa Mite** treatment. Up to 95% effective and most effective when temperatures are between 65'-95' F.

## Apiguard

Product Code: C430

**\$36.50**



A slow release **Thymol gel**, for the treatment of **Varroa Mites**. This is a safe, easy to use, organic treatment. Best results occur when daily temperature is between 60-105 degrees Fahrenheit.

## Apiguard 3KG Tub

Product Code: C431

**\$100.95**

**Thymol gel.** Apiguard Bulk Tub contains 60-50g treatments in bulk gel form. Tub comes with dosing scoop, spatula, and delivery pads. For the treatment of **Varroa Mites**.



## Mite Away Quick Strips 2 Pack

Product Code: C426

**\$6.38**



Contains: 2 doses of Mite Away Quick Strips (MAQS) 4 strips. Now even the smallest hobby beekeeper has access to using MAQS on their colonies.

**48.4% Formic Acid**

## 10 Pack Mite Away Quick Strip-10 Treatments, 20 Strips

Product Code: C425

**\$24.00**



Mite Away Strips (MAQS) are now available for the treatment of **Varroa** mites! These new strips are easy to use, very convenient, and you don't need any extra equipment. The treatment lasts for 7 days and it is the first treatment you can use with honey supers on.

**48.4% formic acid**

## Apistan - 10 Strips

Product Code: C415

**\$29.95**



Used for controlling **Varroa Mites**. Two strips are recommended for each hive.  
10 strips per box.  
**Fluvalinate**

## Apivar

Product Code: C422

**\$36.50**



**Amitraz 12.5 %** based  
weapon against **Varroa**  
**Mites**. Apivar is packaged in  
a vacuum sealed foil pouch  
that contains 10 strips. It  
takes 2 strips to treat a hive.

## Checkmite - 10 Pack

\$35.95

Product Code: C420

## Checkmite - 100 Pack

\$249.00

Product Code: C421



Checkmite is used for treatment of **Varroa** mites. This is the only treatment that will treat **Small Hive Beetles** inside the hive. **Coumaphos**

## Beetle Blaster

Product Code: C419

**\$1.60 each**



A new natural way to control  
**Small Hive Beetles**  
developed by Laurence  
Cutts. Simply fill the trap  
about halfway with food  
approved oil and place  
between the frames.

## Menthol - 10 Pack

Product Code: C412

**\$38.50**



Approved for the control of **Tracheal Mites**. Treat Tracheal Mites both spring and fall. Remove menthol 30 days before the honey flow begins.

## Fumigilin - B - 0.5 Gm

Product Code: C402

**\$19.95**

## Fumigilin - B - 2.0 Gm

Product Code: C401

**\$45.95**

## Fumigilin - B - 9.5 Gm

Product Code: C400

**\$144.95**



This product is used exclusively for the prevention and restriction of **Nosema Disease**. Research shows that spring feeding of Fumagilin-B can increase honey production significantly.

## Para - Moth - 1 Pound

Product Code: C407

**\$13.95**



**100% Para-dichlorobenzene,** active ingredient. This product aids in keeping **Wax Moths** and their larva under control in stored supers.

**BEE SHIELD™ Hobbyist  
(32 ounce spray)**

**\$50.00**

**BEE SHIELD™ (2.5 gal.)**

**\$95.00**

**1stlighttrading.com**  
Distributing ORGANIC Solutions

ALL NATURAL



# BEE SHIELD™

- Protects against black queen cell virus
- Increases viral resistance
- Increases production
- Increases nutritional uptake
- Protects against pesticides (systemic pesticides)
- Increases parasite resistance
- Shows 99% effective in field results

Instructions: Spray 1st light BEE SHIELD™ on working bees. Spray every other day, at the end of their working day. Do not store in direct sunlight.  
On average application: 60 bee hives for 21 days.

Contains: Water, 100% Organic Material. Net Weight: 2.5 gal

A division of 1st light trading, llc  
888.657.3636 [www.bee-shield.com](http://www.bee-shield.com)  
PO Box 27740, Las Vegas, NV 89126



# Application

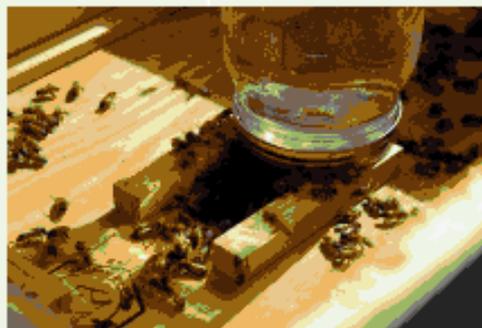
## BEE SHIELD™ II

Stage 2

**SYRUP  
ADDITIVE:**  
2 gallon  
container  
of 100%  
organic  
solution.

After the first month's application of spray, incorporate BEE SHIELD™ II. Add the concentrated syrup additive to your normal feeding program.

Ratio: 2 gallons BEE SHIELD™ II per 250 gallons syrup.



**PURPOSE:**

Once the BEE SHIELD™ II program has started, the spraying intervals can be reduced to once every 1-2 weeks depending on convenience and access to hives.

# INTRODUCTORY PRICING

**BEE SHIELD™** \$95.00 plus tax and shipping  
2.5 gallons (will treat approx. 785 hives)

**BEE SHIELD™ II** \$225.00 plus tax and shipping  
2 gallons concentrate  
(amount of treatment depends on rate of feeding  
program for 250 gal of syrup)

**BEE SHIELD™ Hobbyist** \$50.00 plus tax and shipping  
32 ounce spray

\*Using BEE SHIELD™ spray on hive every other day costs  
approximately \$13.33 a hive per year.

Replacing a hive costs about  
\$75-90 plus additional expense keeping that hive alive.

[bee-shield.com](http://bee-shield.com)

**Treat your bees responsibly,  
treat them now.**

**Get your hives strong,  
disease free, pest free for the  
Fall and Winter.**