

# Surrey Beekeepers Association

## The Surrey Bee

Volume 1, Issue 3

*Dedicated To Better Beekeeping*

February 2003

### Special points of interest:

- Speaker: Hossein
- First Bee Doctor Article
- New rules for the library

**Next Meeting:**  
**Newton Library 7:30**  
**pm Feb. 19, 2003**

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### Inside this issue:

Notices	2
January Minutes	2
Jim's Corner	3
Hossein	3
Wasp Shelter	4
Honey Prices	4
Beginner's Corner	5
Recipes	6
Classified	6

## Hossein Our New Bee Doctor!

We are very pleased to have Hossein Yeganehrad as our guest speaker this month. Many of our members know Hossein from his presence at our meetings and our field days.

Hossein comes from a long line of beekeepers. Originally from Iran, he has been keeping bees since he

was seven years old.

By age 15, he developed a recipe to manage the deadly AFB and EFB. He now calls it the Caspian Solution. His revolutionary recipe promises to naturally rid a hive of these diseases unlike the present solution of burning a hive. The Caspian Solution strengthens a

hive's immune system and accelerates the growth of the bee.

Hossein is as hungry for knowledge as a bee who has just been smoked. Graciously, Hossein has agreed to write a monthly article in the Surrey Bee to pass along some of his knowledge. His first article appears in this newsletter.

## President's Message

It's so nice to see the sun again! Hopefully, the weather pattern will continue and the temperature will rise so we will have more bee activity.

On the warmer days last month, the bees got out a little on cleansing flights (right over my wife's car). You may want to give your bees a little citric acid if you think they are constipated (lemon or lime. Just a few drops in a spray).

The bad news is that Australia has had more trouble with the small hive beetle and the exporting of bees has been stopped.

Here in B.C. the government is in the process of allowing coumaphos for this year. We are told this will be the last time coumaphos will be allowed in the province. The BCHPA has paid the license fee for coumaphos. It is to be used in emergency situa-

tions.

Returning to bee management, keep an eye on the bees for signs of mites. I think with the warmer winter, the bees have been more active and they have been eating more stores. So, keep an eye on the food supply.

Looking forward to working with the little girls. Good luck with your hives.

Your President,

*Don Carter*

## April Minutes Continued

location and put an empty box there to catch the field bees. A complete text will be included in next months newsletter.

A bulk order for jars was discussed.

Elections.

An election was held and the new slate of officers are.

**President** Don Carter  
**Vice President** John Simpson  
**Secretary** Barry Wilcox  
**Treasurer** Wayne Niedig  
**Membership** John Cojacari  
**Library** John Cajacari  
**Stores** Dave Plett  
**Coffee** Fran Carter  
**Raffle** George Ruiz  
**Newsletter** Vanessa Simpson / Jim Barker  
**Directors** John Cojacari / Horst Leidel / Mike Campbell /

Karl Cremer /  
 Fran Carter / Dave Plett /  
**Programs** John Simpson /  
 Derek Lawrence  
**Auditor** Sonia Kindrachuck

Thanks to all the retiring officers and to the new officers.

## Bee Doctor: New Method For Raising Queens

By: Hossein Yeganehrad

Raising queens is the most important aspect of beekeeping. There are three main problems in raising queens: using old larvae, using dry larvae and providing poor nutrition during the raising of the queen. Each of these conditions causes serious problems when the resultant queens start to lay eggs. First, many of the new queen's eggs will not hatch after three days. Second, the colony cannot create solid brood. Third, the bees from these weak queens will have short lives. Fourth, the colony will

Royal jelly production during queen rearing must be stimulated by the presence of pheromone and larvae.

supercede the queen at the first opportunity. If breeders and beekeepers do not have a proper nutritional methodology, the queen larvae will not receive enough jelly in the first two days. Healthy queen larvae require high levels of royal jelly. Royal jelly production during queen rearing must be stimulated by the presence of pheromone and larvae. Many starter hives do not include these two factors; therefore, the bees have no reason to eat pollen and produce royal jelly. A starter colony must include proper levels of pheromone and sufficient numbers of larvae at least three days in advance of the grafting. A one-day-old graft must be covered in a

large amount of jelly. A new method of queen rearing starts with a strong hive containing a queen, a strong population and brood. The pupae and larvae are removed from this colony and the remaining population is fed a mixture of royal jelly, pheromone, pollen, honey, sugar and water. This population will produce large quantities of jelly because they have larvae and the nutritional supplement that provides an even greater stimulus to produce jelly.



## Bee Doctor: New Method in Raising Queens Part II

By: Hossein Yeganehrad



Raising your own queens is better than purchasing queens. The following article is a continuation from July's newsletter. In this article, I will discuss the materials needed for raising queens, the correct methodology as well as the results expected.

### Materials:

**Queen Raising Equipment:** Beekeepers use a wide variety of queen raising systems that may include starter hives, protector hives, incubators or other custom configurations. Over the years, my investigative teams have used a variety of systems with equal success.

**Caspian Solution:** a blend of royal jelly, pheromones and other all-natural ingredients: pollen sugar, honey and water.

### Methods:

To make royal jelly, bees must eat pollen and honey. There are two stimuli that compel bees to ingest the necessary levels of pollen and honey; these stimuli are the presence of larvae and pheromone.

This queen raising technique included preparation and set up steps in which the bees received the needed stimuli both from the physical presence of a queen and larvae, and from feeding the hive a liquid supplement that included Caspian Solution (a royal jelly and pheromone solution), pollen,

honey, sugar and water. Each colony was then altered as described below, to further increase the bees' pollen intake and then redirect the bees' protein potential to the production of royal jelly with the sudden removal of the queen. The step by step process was as follows:

1. A preparation step in which a mature queen, 10 frames of population complete with a number of frames of brood, are selected and this colony is fed a mixture of Caspian Solution, pollen, honey, sugar and water. These queen raising colonies were established 7 days before the placement of the first queen larvae (in cells or cassettes or other systems). The Caspian Solutions supplement was fed to the colony twice a week.
2. A preliminary set-up step that had, in each colony the brood and larvae were suddenly removed, but the strong population and queen were left behind.
3. A final set-up step that included the removal of the queen and the placing of a queen larvae in each hive. Because of repeated trials and successes with this technique it has been discovered that four frames of population can make twenty-six queens and two frames of strong brood.

### Results:

The following results have been seen season after season in Iran and Canada.

The bees' behaviour is dramatic. In the preparation step there is a compounding effect of the stimuli from the brood, the queen pheromone, and the added stimuli from the pheromone in the Caspian Solution supplement. The bees eat large quantities of royal jelly and this is the ideal situation for the selection of larvae for grafting.

In the preliminary set-up step, the sudden removal of the pupae and larvae returns the hive to a early spring or first generation condition. The bees understand that the first generation must be properly nourished and again ingest large quantities of pollen in anticipation of the needs of the larval bees. Once again the uptake of pollen is dramatic.

In the final set-up step, the removal of the queen and the introduction of the queen cells has the predictable effects. The bees not only feed large quantities of royal jelly to the queen cells, but they also select larvae from the frames and produce large well-nourished queen cells on the frames. The frames of brood that are now in the hive are bathed in worker jelly and produce a large,

*Continued on page 5*

## Varroa Mite By: Hossein Yeganehrad

Sadly, the damage caused by Varroa mites (*varroa jacobsoni*) is well known to many beekeepers. The history of the spread of this parasite and how this mite reproduces has been researched. The following information offers some help in dealing with the pest.

### Spread of Varroa Jacobsoni

There is not complete agreement on how the Varroa mite spread from place to place, but it is clear that the mite was found exclusively in Java, Indonesia at the beginning of the last century (Oudemans 1904). It is reported that Javanese bees were resistant to the varroa mite.

Throughout the fifties and early sixties, Varroa mites spread to most of the other countries in that region, but a critical event appears to be the large movement of native Javanese bees to Japan in 1965. The relocation of the parasite to Japan is important because Japanese colonies were moved to Paraguay in 1971. It seems that this movement was responsible for the eventual infestation of most colonies in South and North America.

A single Varroa mite was found in Maryland in 1979, but a larger scale infestation was confirmed when large numbers of mites were found in Wisconsin and Florida in 1987. Now, with the exception of some isolated locations in Canada, it

appears that Varroa mites are everywhere in the world.

### Varroa Mite

The adult female mites are brown to dark brown or dark red and are shaped like a crab, measuring 1-1.8 mm long and 1.5-2 mm wide. Their curved bodies fit into abdominal folds of the adult bee and are held there by the shape and arrangement of ventral setae. This protects them from the bee's normal cleaning habits. Adult males are yellowish with lightly tanned legs (3 on each side). Other pollinators can spread Varroa mites, but they can only reproduce in the brood cells of honeybees.

### Reproduction - Worker Cells

Each mated female Varroa mite will enter the worker cells during days 7, 8, or 9; she will lay her first egg 60 hours after the capping of the cell. The first egg can be male or female. The second egg is laid 30 hours after the first egg, and it is normally male. The mite will lay up to 5 eggs, each of the last three eggs will normally be female and they will also be laid at 30 hour intervals. The male eggs will hatch after 5.5 days, and the female eggs will hatch after 7.5 days. If time permits the mites will mature and mate in the capped cells, virgin females will be lighter in colour. The normal red/brown colour develops once the female is ready to lay eggs. The workers normally emerge after 21 days which means that only one of the female Varroa

mites will have an opportunity to mate in the cells. In the case of the bees in Java, some of the resistance can be traced to the accelerated emergence of the bees. The Javanese strains emerge after 19 days, giving the Varroa mite no time to mate. The Caspian Solution offers this same advantage to any type of bee. When a colony is treated with Caspian Solution, the workers will emerge after 18.5 days; therefore, the Varroa mite's opportunity to mate and increase in population is reduced. This is not a treatment, only a method to prevent rapid population increases of the Varroa mite. Mites must be treated with medication.

### Reproduction—Drone Cells

The mated female Varroa enters the drone cells in the 8-10 day period; this later entry is due to the slower maturing process of the drone larvae. The mites prefer the drone cells to worker cells because of the stronger pheromone signal from the male larvae. The Varroa mite egg laying and timing in the drone cells and worker cells are the same; however, because the drone larvae takes longer to mature and emerge, 24 days compared to 21 days for worker cells, two generations of the new Varroa can mate in the cells. Caspian Solution can reduce the average time from 24 days to 22 days which restricts but does not eliminate the mating of the second generation of mites. To eliminate mites medication must be used.

## Bee Doctor: New Method in Raising Queens Part I



By: Hossein Yeganehrad

The raising of queens offers a great opportunity to guarantee the future success of a beekeeper's colonies. Beekeepers throughout the world have always recognized that some colonies in certain conditions produce strong queens with large bodies. These strong, well-nourished queens have superior immune systems and a natural resistance to chalk brood disease. Once these queens are mated and ready, all of their eggs hatch after three days, which leads to some stage larvae and solid brood. It is important to understand why bees when they raise their own queens and beekeepers when they use queen raising techniques fail to produce strong queens. Inevitably, there will be one of three main problems present:

- Old larvae
- Dry Larvae
- Poor Nutrition during queen raising.

### Selecting Old Larvae

If old larvae are selected, the resultant queens will be small and weak; they will have difficulty managing the hive. The queens produced from old larvae will have a weak immune system and will be vulnerable to chalk brood disease. Some of their eggs will not hatch; therefore, eggs will be discarded, destroying the possibility of same stage larvae and solid brood. Colonies that lose the opportu-

nity to create same stage larvae and solid brood will encounter a host of other problems. Inevitably, a weak hive struggling with a weak queen will supercede, further damaging the colony's vitality.

Why is an old larvae selected as a future queen? Old larvae are selected for two reasons: nutrition level in the hive and the behaviour of the beekeeper.

If a malnourished hive loses their queen or if the queen is extremely weak the colony will immediately begin to discard the eggs. It is only after the egg disposal is complete that the bees will turn their attention to the selection of potential queen larvae. This delay means that the colony has selected old larvae and perpetuated the problem of poor nutrition.

Also, if a beekeeper is using grafting techniques, there will be a bias towards older larvae in the larvae selection process. The cause of the bias is quite simple, old larvae are easier to see and easier to pick up and handle with grafting tools.

### Selecting Dry Larvae

The problem with the selection of dry larvae for queen raising is linked to the nutrition level of the hive. During days one and two of the larval stage, the larvae should be bathed in worker jelly. This level of nourishment guarantees not only the health of the future worker population, but brings the

health of the selected larvae to a level that is necessary for the full impact of the royal jelly, in the queen cell, to be realized. If the larvae has been dry (malnourished) for the first two days, royal jelly cannot overcome the disadvantaged start. This amount of worker jelly will only be produced if the bees have access to protein (pollen) and the necessary stimulus from brood and pheromones.

Beekeepers use many different observations to assess the nutritional level in their colonies, with the most popular being, population. The best way to gauge the nutrition of any colony is to look at the amount of worker jelly that the one and two-day-old larvae are given. Queen raisers report that the size of their queen cells change with the different seasons. The seasonal variation is linked to the protein resources available from the environment.

### Poor Nutrition During the Raising of the Queen

Successful queen raising must begin with the selection of young larvae bathed in worker jelly by the bees or the beekeeper. Once the queen larvae are selected and the queen cells begin to receive royal jelly, the need for high levels of nutrition in the queen raising system is paramount.

*Continued on the back page*

# The Bee Doctor on Diseases

By: Hossein Yeganehrad

## Diseases and the Causes

If the winter is unseasonably mild, as it was this year, a queen will start to lay eggs despite not having pollen sources available outside of the hive. The bees must respond to the new brood by using the protein potential from their bodies and the pollen stored in the comb to make jelly for the larvae. If cold temperatures return before the brood emerge, the bees will be unable to retrieve water outdoors for the next generation. The emerging bees will need pollen and water for the first three days. When the bees cannot fly out of the hive they will use water that has condensed in the corners of the hive.

For larvae to grow, the temperature in the hive must be maintained between 32 and 37 degrees Celsius, but in cold weather the corner temperature could be as low as 25 degrees Celsius. Stagnant water held at 25 degrees Celsius is a perfect breeding ground for protozoa such as *Nosema Apis*, the cause of *Nosema* disease, and *Malpighamoeba melificae*, the cause of *Amoeba* disease. Protozoa and other microorganisms cause diarrhea which amplifies the severity of the disease.

In some colonies that have experienced a mild spell that caused the queen to lay eggs

when the temperature turns cold, the bees cannot defecate and they will become constipated. These bees will have fat (bloated) abdomens. When the abdomens of these bees are squeezed, dry pollen is released. This problem can be fixed with a mixture of 70% hot water, 25% honey and 5% lemon juice. Spray 100 grams of this solution for each single box of population on a sunny afternoon.

## Signs of Disease

A classic sign of disease is dead bees close to the hive entrance. When the abdomen of one of the bees that has died with diarrhea problems is squeezed, a watery yellow liquid will ooze and when that liquid is placed on white Kleenex or a piece of white paper, the liquid will leave behind tiny yellow specs. Bees that have *Nosema* disease will have digestive systems that are white and fat. A normal bee digestive system is red. The colonies that have the greatest problem with diarrhea and *Nosema* disease are the ones that had nutrition problems during the previous summer.

## Another Cause of Bee Digestion Problems

Not all of the diarrhea or *Nosema* disease problems can be traced to a winter warm spell. In some colonies circum-

stances in the Fall can cause defecation problems in the Winter. When a colony has been fed sugar, and cold weather or a weak population prevents the evaporation of water from the honey, the water/sugar mixture will ferment. This fermentation will cause diarrhea in the colony.

## Prevention and Treatment

In all cases, the best solution is prevention. Maintaining bee nutrition throughout the year is the answer to all of the above problems. Well-nourished bees can overcome microbial attacks and strong hives are able to properly de-water honey even in cool weather.

Aforementioned, constipation can be treated with a mixture of :70% hot water, 25% honey and 5% lemon juice. There are all natural biological treatments for *Nosema* disease, *Amoeba* disease and other digestive disorders. These treatments will be discussed in a future article.