New Method for American Foulbrood Disease Control

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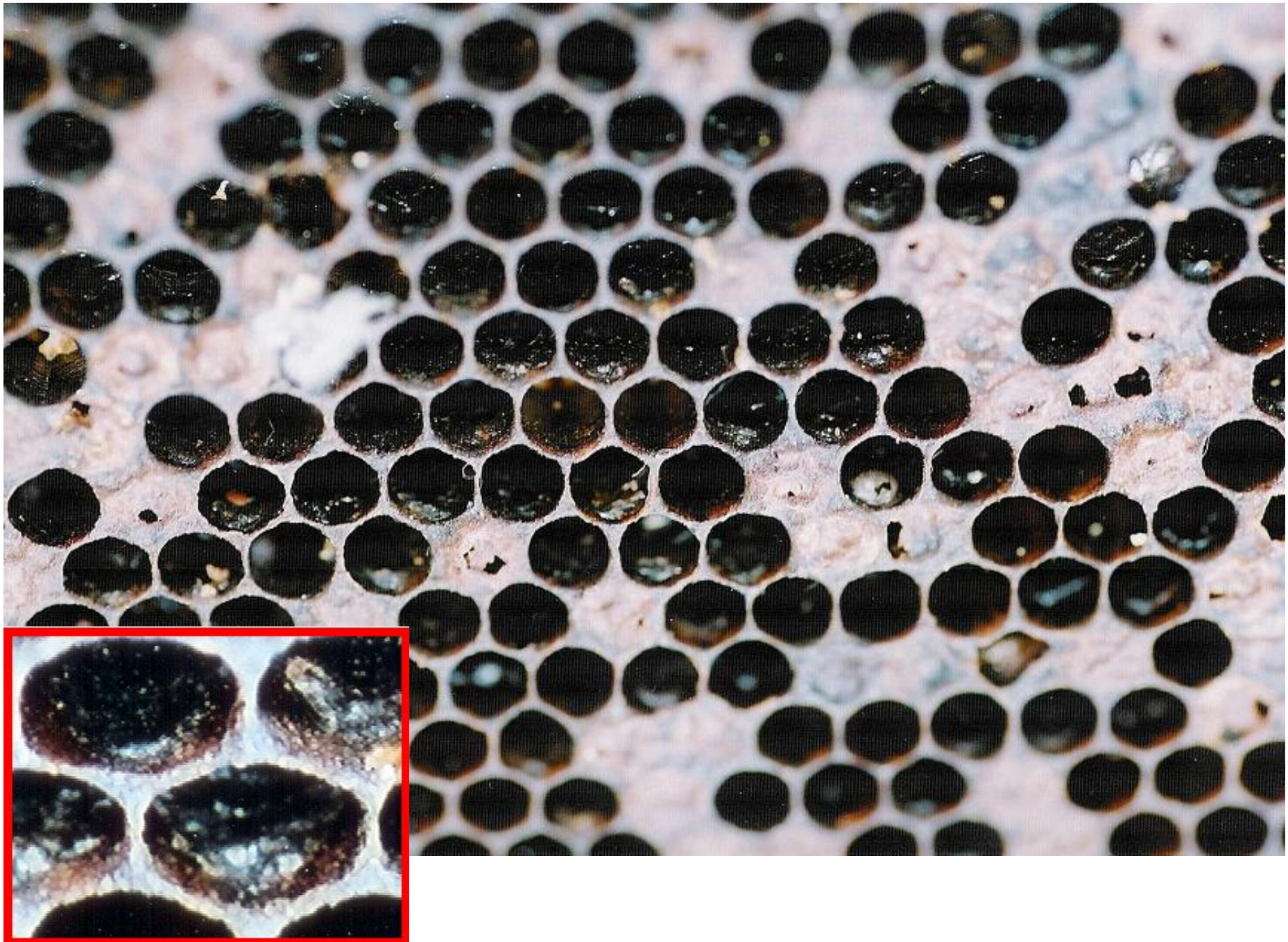
Caspian Apiaries

American Foulbrood Disease Control

Introduction

American Foulbrood [AFB] disease is and endemic and epidemic bacterial disease caused by the *Paenibacillus larvae*. There are no antibiotics that can kill *Paenibacillus larvae* spores. The germinated *Paenibacillus larvae* must be treated in the worker jelly when the honeybee larvae are or or two days old and have not been infected.



American Foulbrood Disease Control

Introduction (continued)

Caspian Apiaries has been treating AFB since 1986. The methodology includes: minor frame manipulation, a diet of a specific nutrient-rich food that includes Caspian Solution, pollen, honey, sugar, and water, and a minute amount of antibiotics.

American Foulbrood Disease Control

Introduction (continued)

Caspian Solution is a blend of royal jelly, pheromones and other natural ingredients. It stimulates the production of worker / royal jelly and the cleaning of scale from the hives.

American Foulbrood Disease Control

Introduction

All treated colonies are rendered 100% disease free.

With this method all of the equipment, honey, pollen and wax can be used. No equipment is burned.

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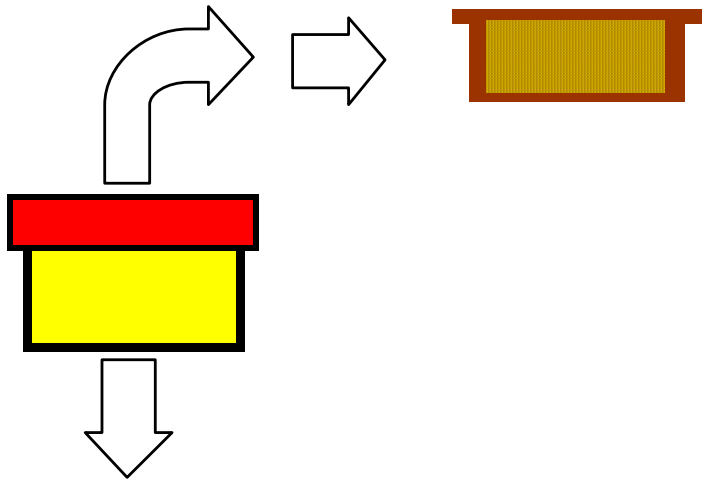
Method

There are two different methodologies

- One method for a colonies without brood, and
- A second procedure for colonies with brood

METHOD ONE: COLONY WITH NO BROOD (EARLY SPRING)



COLONY WITH AFB
BUT NO BROOD

REMOVE FRAMES WITH AFB SCALE

(OPTIONAL)
THESE FRAMES COULD BE LEFT IN THE HIVE, BUT IT WILL TAKE THREE GENERATIONS TO CLEAN THE CELLS AND THIS REDUCES THE ECONOMIC BENEFIT.

COLONY WITH AFB
AFB SPORES WILL BE
IN THE HONEY POLLEN

TREAT THIS COLONY WITH CASPIAN SOLUTION, POLLEN, HONEY, SUGAR, WATER, AND A SMALL DOSE OF ANTIBIOTICS.

American Foulbrood Disease Control

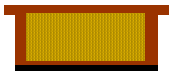
Method (continued)

Introducing Caspian Solution stimulates the bees to produce large quantities of worker / royal jelly and the queen responds by laying large quantities of eggs. This is the ideal situation for the germination of large quantities of Paenibacillus larvae creating the perfect opportunity to kill the bacteria with small amounts of antibiotic.

METHOD TWO: COLONY WITH BROOD

FRAMES WITH NO BROOD

FRAMES WITH POPULATION, HONEY / POLLEN, AND SPORES (most frames without brood)



FRAMES WITH POPULATION, AND AFB SCALE (a few frames)

RECONDITION THESE FRAMES (a few frames)

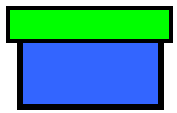
COLONY WITH AFB AND BROOD

PLACE FRAMES POPULATION AND QUEEN IN CLEAN EQUIPMENT

SHAKE POPULATION, INTO CLEAN EQUIPMENT

FRAMES WITH BROOD

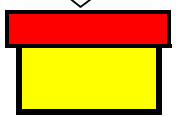
QUEENLESS COLONY WITH BROOD AND AFB
TREAT THIS COLONY WITH CASPIAN SOLUTION, HONEY, POLLEN, SUGAR, WATER, AND A SMALL DOSE OF ANTIBIOTICS

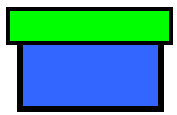


TREAT THIS COLONY WITH CASPIAN SOLUTION, HONEY, POLLEN, SUGAR, WATER, AND A SMALL DOSE OF ANTIBIOTICS

LEAVE UNTOUCHED FOR 21 DAYS
ALL BEES EMERGE AND THE COLONY PRODUCES A NEW QUEEN

BEFORE THE NEW QUEEN STARTS TO LAY EGGS [DAY 27 OR 28] TREAT COLONY WITH CASPIAN SOLUTION HONEY, POLLEN, SUGAR, WATER, AND A SMALL DOSE OF ANTIBIOTICS





ORIGINAL QUEEN
STRONG POPULATION
DISEASE FREE

FINISH WITH TWO BENEFITS:
AFB IS ELIMINATED FROM THE COLONY, AND
ONE COLONY INCREASE

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Results

Since 1986 the results of this AFB treatment system have been without question.

ALL infected hives have been successfully treated.

AFB has been eliminated from more than 15,000 hives.

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1995 Test (Typical Results)

Hives	Test Condition	Result	Comments
20	treated with Caspian Solution and antibiotics	100% of AFB eliminated	
20	treated with antibiotics only	5% of AFB eliminated	
5	treated with Caspian Solution only	75% of AFB eliminated	bees were weak and suseptible to disease
5	not treated (control)	all bees died	

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Recent Canadian Sucesses

Year	Number of Apiaries	Number of Colonies	Situation	Result	Comments
2000	1	42	active AFB	all disease eliminated	37 disease free after 1st generation, 5 disease free after 2nd generation
2001	4	175	active AFB	all disease eliminated	observed by provincial apiculture inspector
2002	2	10,000	active AFB, 20% mortality dues to AFB	all disease eliminated	
2003	1	320	active AFB	all disease eliminated	
2003	1	25	active AFB	all disease eliminated	observed by provincial apiculture inspector and provincial apiculturalist, will be reported nation wide in the fall of 2003

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Discussion

Caspian Solution and a small amount of antibiotics combine for maximum effect.

- Caspian Solution promotes the production of worker and royal jelly.
- This stimulates the queen to lay many eggs, which leads to more jelly production.
- This causes the maximum germination of the *Paenibacillus larvae* spore.

Large Amounts of Worker and Royal Jelly The Perfect Condition for Spores to Germinate and Be Destroyed by Antibiotics

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Discussion (continued)

- Large quantities of the *Paenibacillus larvae* bacteria become vulnerable in the jelly as they germinate.
- The antibiotic, mixed with supplement solution when the colony was fed, contacts and destroys the bacteria immediately after germination.

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Discussion (continued)

Incidental Benefits

- Brood is capped between 8.5 to 10 days
- Workers emerge between 18.5 to 20 days.

This acceleration of the brood means that only one or two varroa can hatch in a worker cell.