

WINTER

SPRING BUILDUP

MAJOR NECTAR FLOW

HARVESTING

FALL

WITH-HOLDING PERIOD

VARROA MITE (VARROA DESTRUCTOR) - VM



CULTURAL CONTROL



APRIL: INSERT SCREENED BOTTOM BOARDS. UPGRADE TO VARROA RESISTANT STOCK. TRAP VARROA USING DRONE COMB OR TWO EMPTY FRAMES FOR BEES TO BUILD DRONE COMB. REMOVE COMB TO FREEZER BEFORE DRONES HATCH.

OCTOBER: REMOVE SCREENED BOTTOM BOARDS.

MONITORING

USE ONE OR MORE METHODS TO DETECT VARROA MITES; UNCAP DRONE BROOD, ETHER ROLL, ALCOHOL WASH, STICKY BOARD.



CUT DRONE COMB FROM COLONY DURING EACH INSPECTION THROUGH SUMMER.

END DRONE REMOVAL IN MID FALL WHEN DRONES ARE EVICTED BY WORKER BEES.

TREATMENT

IF MITE LEVELS ARE HIGH (GREATER THAN 3 IN ETHER ROLL, 4 IN ALCOHOL WASH OR 5 ON STICKY BOARD) TREAT WITH FORMIC ACID, FLUVALINATE OR COUMAPHOS AS DIRECTED ON LABEL.

MONITOR IN FALL USING ETHER ROLL, ALCOHOL WASH OR STICKY BOARDS. MONITOR FOR ACARACIDE RESISTANCE USING PETTIS TEST OR SEND BEES TO LAB.

IF MITE LEVELS ARE HIGH TREAT WITH FORMIC ACID, FLUVALINATE OR COUMAPHOS AS DIRECTED ON LABEL. LATE FALL TREATMENT OF OXALIC ACID MAY BE USED WHEN COLONY IS BROODLESS.

TRACHEAL MITE (ACARAPIS WOODI) - HBTM



CULTURAL CONTROL



REQUEEN WITH TRACHEAL MITE RESISTANT STOCK. DESTROY ATTENDANT WORKERS WHEN INTRODUCING QUEEN.

MOVE COLONIES TO ENSURE CONTINUOUS NECTAR FLOW AND STIMULATE MORE YOUNG BEES.

DO NOT COMBINE WEAK COLONIES UNLESS THEY ARE HBTM FREE

MONITORING

SEND SAMPLE OF 150 BEES (1/4 CUP) TO LAB FOR TESTING FOR TRACHEAL MITES.

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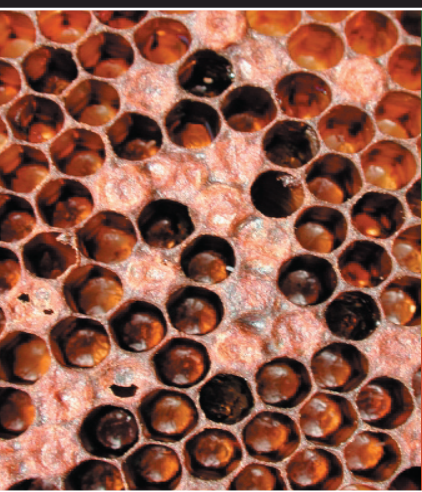
TREATMENT

APPLY PATTIES USING 1 PART VEGETABLE SHORTENING TO 2 PARTS POWDERED SUGAR ABOVE THE BROOD NEST OF EACH COLONY.

IF MITE LEVELS GREATER THAN 10% TREAT WITH FORMIC ACID OR MENTHOL.

IF TRACHEAL MITE INFESTATION IS GREATER THAN 10% TREAT WITH FORMIC ACID.

AMERICAN FOULBROOD (PAENIBACILLUS LARVAE SP) - AFB



CULTURAL CONTROL



FEED USING CLEAN EQUIPMENT AND DISEASE FREE HONEY OR SYRUP.

REQUEEN WITH STOCK SELECTED FOR HYGIENIC BEHAVIOUR. PRACTICE APIARY HYGIENE. CLEANUP AND DISPOSE OF PROPOLIS AND BURR COMB. DO NOT INTERCHANGE EQUIPMENT BETWEEN APIARIES.

REPLACE 2 FRAMES PER BOX WITH NEW COMB EACH YEAR. BURN OLD FRAMES THAT ARE ROTATED OUT OF COLONY OR RENDER FRAMES FOR WAX AT RENDERING FACILITY.

MONITORING

SPRING TO FALL: CHECK FOR BROWN SCALES AND DEAD LARVAE THAT ARE STICKY TO ROPEY TEXTURE.

SEND AFB SAMPLES TO LAB FOR TESTING FOR ANTIBIOTIC RESISTANCE.

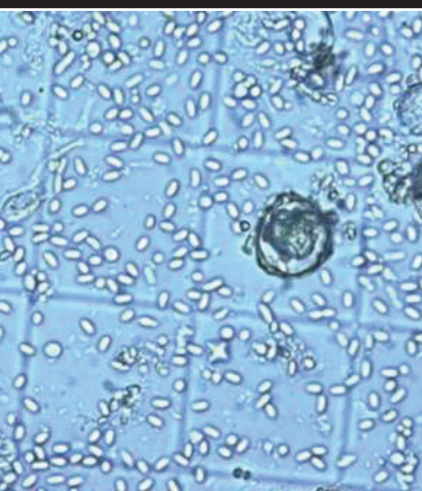
TREATMENT

LIMIT SPRING TREATMENT WITH OXYTETRACYCLINE TO NUCLEUS COLONIES OR COLONIES DIAGNOSED WITH AFB.

BURN ANY INFECTED EQUIPMENT..

FALL TREATMENT WITH OXYTETRACYCLINE IF AFB IS PRESENT. STERILIZE WOOD EQUIPMENT WITH HOT PARAFFIN WAX OR STERILIZE FRAMES AND BOX USING ELECTRON BEAM IRRADIATION.

NOSEMA (NOSEMA APIS & NOSEMA CERANAE) - NO



CULTURAL CONTROL

REQUEEN IN SPRING WITH GENETICALLY RESISTANT STOCK.

PROTECT COLONIES FROM COLD, WET WINDS AND LOCATE APIARIES WITH A SOUTHERN EXPOSURE.

AVOID MOVING HIVES DURING WINTER. PROVIDE HIGH PROTEIN POLLEN SOURCE FOR WINTER SURVIVAL. REPLACE AT LEAST 2 FRAMES OF OLD BROOD COMB WITH NEW IN LATE SPRING AND SUMMER.

MONITORING

OBSERVE BEES FOR SIGNS OF DYSENTERY, DISTENDED ABDOMENS OR UNHOOKED WINGS. MONITOR THE SPORE LEVELS IN SPRING BY SENDING A SAMPLE OF 150 BEES TO A LAB FOR TESTING.

MONITOR IN FALL. IF MORE THAN 1 MILLION SPORES PER BEE BEGIN TREATMENT.

TREATMENT

IF MORE THAN 1 MILLION SPORES/BEE BEGIN TREATMENT. FEED ONE GALLON SUGAR SYRUP WITH FUMAGILLIN SPRING IF NECESSARY.

FEED 2 GALLONS OF SUGAR SYRUP WITH FUMAGILLIN IN FALL ACCORDING TO LABEL DIRECTIONS. DISINFECT EMPTY EQUIPMENT IN WINTER WITH GLACIAL ACETIC ACID.

LABS AND TESTING FACILITIES

DIAGNOSTIC BEE LABS
Contact the lab before collecting samples to confirm cost, testing schedule and any specific sampling or shipping requirements.

ACTIVE INGREDIENT	REGISTERED PRODUCT	TARGET
Fluvalinate	Apistan®	VM
Coumaphos	CheckMite+™	VM
Formic Acid	MiteAway!™	VM, HBTM
	65% Formic Acid	VM, HBTM
	Oxalic acid crystals	VM
	Menthol crystals	HBTM
	Oxytel-25®	AFB
	Oxysol-62.5®	AFB
	Fumagillin-B®	NO

BRITISH COLUMBIA
BC Ministry of Agriculture & Lands' Animal Health Centre
1767 Angus Campbell Rd
Abbotsford BC V3G 2M3
Phone 604-556-3129
HBTM, VM, AFB, EFB, Nosema spore count. Diagnostics of bee diseases, including Polymerase Chain Reaction (PCR) viral analysis and antibiotic resistance.

SASKATCHEWAN
Provincial Apiculturist
Box 3003 Prince Albert SK
S6V 6G1 Phone 306-953-2790
HBTM, VM, AFB, Nosema spore count (on request)

ALBERTA
Provincial Apiculturist
Alberta Agriculture and Food,
Edmonton AB
Phone 780-415-2314
HBTM, VM, AFB, EFB, Nosema spore count
Connies Tracheal Mite Testing Services
PO Box 80, Alcomdale, AB
T0G 0A0 Phone 780-967-4163
HBTM

MANITOBA
Manitoba Agriculture Food and Apiculture Lab, 201-545 University Cr, Winnipeg, MB R3T 5S6
Phone 204-945-3861
HBTM, VM, AFB, EFB, Nosema Acaracide and antibiotic resistance

ONTARIO
Perrin's Bee Lab
RR 2, Cameron, ON K0M 1G0
Phone 705-359-1505,
ON N1H 8J7
Email mike.perrin@ontario.ca
HBTM, VM, AFB, EFB, Nosema spore count.

Tanglewood Honey Bee Lab Services
RR 1, 35548 Hwy 41, Eganville, ON
K0J 1T0 Phone 613-628-2890 Email jim.anderson@ontario.ca
HBTM, VM, AFB, EFB, Nosema spore count.

University of Guelph, Laboratory Services
95 Stone Rd West, Guelph, ON N1H 8J7
Phone 519-767-6299 or email info@lsd.uoguelph.ca. For technical information contact 519 767-6232

QUEBEC
Ministère de l'Agriculture des Pêcheries et de l'alimentation du Québec
Laboratoire d'Épidémiologie-vétilance Animale du Québec
3220 Rue Sicotte C.P. 3500 St-Hyacinthe QC J2S 7X9
Phone 450-778-6542
HBTM, VM, AFB, EFB, AFB and parasitology, Nosema spore count

ATLANTIC PROVINCES
Wildwood Labs Inc
53 Blossom Drive Kentville, NS
B4N 3Z1 Phone 902-679-2818 or Skype: wildwoodlabs, email contactus@wildwoodlabs.com
HBTM, VM, AFB, EFB, Nosema spore count.

Amirault's Bee Lab
129 Hall Road Kingston NS
B0P 1R0 Phone 902-765-8644
HBTM

Provincial Apiculturist or Bee Health Advisor
NS 902-679-8998, NB 506-453-3477, PE 902-368-5621, NL 709-637-2662
HBTM, VM, AFB, EFB, Nosema spore count.

DISINFECTION IRRADIATION TREATMENT

Iotron Technologies Canada Inc
1425 Kebet Way
Port Coquitlam BC V3C 6L3
604-945-8838 - Email iotron@iotron.com

Acision Industries
402 Ara Mooradian Way
Pinawa MB R0E 1L0
ph. 204-753-2255 - Email acision@acision.com

Staris Isomedix Corporation
arrangements made through Steve Bowman
Whitby, ON
905-432-1106

ETHER ROLL

- 1 Brush two or three frames of bees into a tub, taking care not to include the queen.
- 2 Scoop up a quarter cup of bees into a measuring cup. It is important to use the same amount of bees in repeated tests.
- 3 Pour the bees into a mason jar. Tap the glass to knock the bees to the bottom of the jar.
- 4 Spray starter fluid into the jar and shake the jar thoroughly.
- 5 The heavy bees fall to the bottom of the jar, the lighter mites will stick to the walls allowing you to count them.

CANADIAN HONEY COUNCIL

SEASONAL MONITORING & TREATMENT

Integrated Pest Management (IPM) represents the 3 E's of management for pests. An IPM program must be

- EFFECTIVE**
- ECONOMICAL AND**
- ENVIRONMENTALLY-SOUND.**

IPM involves the suppression of pests and disease through several means of control:

Using **CULTURAL AND PHYSICAL PRACTICES** to reduce the incidence

MONITORING AND IDENTIFYING before they reach an economic threshold

TREATING through a combination of soft and hard chemicals to suppress to acceptable levels

EVALUATING THE EFFICACY of treatment

IPM FOR BEEKEEPERS

CHECK THAT THE TREATMENT WORKED

I cannot overemphasize the importance of not only controlling parasites and disease in the bee colony but also checking that the treatment worked. Varroa mites are a problem on their own. Combined with the presence of tracheal mites, the effect is exponential. We have documented losses of 80% when the two mites are present. Add in a dose of nosema or AFB to the mite situation and the colony will not survive. We have found that achieving mite control will reduce losses to very low levels. Checking that the treatment worked is vital to a good IPM program. It is time consuming but well worth the investment.

Dr Rob Currie University of Manitoba

REDUCE THE USE OF HARD CHEMICALS

Our tech transfer program concentrates on cultural and physical practices for pest and disease control. We help beekeepers breed queens for hygienic behaviour and tracheal mite resistance. It has made a big impact on reducing the use of hard chemicals and in over winter survival. An effective IPM program does not eliminate the use of pesticides but reduces the need, which means money in the bank at the end of the year.

Alison Skinner OBA Tech Transfer program

For more information
Honey Bee Disease and Pests.

Canadian Association Professional Apiculturists revised 2nd English edition 3rd French edition. visit: www.capabees.ca, www.honeycouncil.ca or contact your provincial apiculturist