

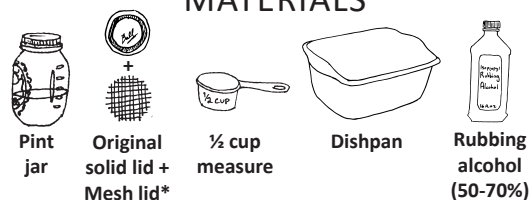
SAMPLE REGULARLY

(AT LEAST ONCE A MONTH)

Alcohol wash

The most accurate way to determine *Varroa* levels in your hives

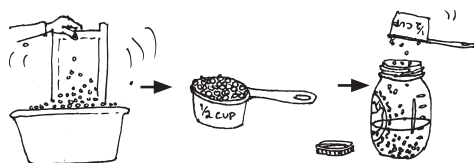
MATERIALS



*1/8 inch hardware cloth, cut to match solid lid

10 STEPS

- 1) Pour alcohol into jar. Set materials in easy reach
- 2) Find a frame of **open brood**
Check that the queen is not on frame!
- 3) **Shake adult bees from frame into dishpan**
Scoop 1/2 cup (~300) bees and pour into jar



- 4) Shake remaining bees from bin into colony
- 5) Seal solid lid on jar and **shake for 1-2 min**
- 6) Let jar sit for 1-2 minutes
- 7) Replace solid lid with mesh lid
- 8) **Shake jar contents into empty dishpan**
- 9) **Count the total # mites.**
If there are 4+, it is time to apply a chemical treatment (see inside of brochure)

- 10) Discard bees and mites
Wash all materials; can reuse alcohol

→ email bees@mass.gov for a free kit!

KNOW YOUR PEST

Meet the *Varroa* mite...

The Varroa Mite, *Varroa destructor*, is an external parasite that feeds on honey bee adults and brood. **They weaken bees and transmit viruses.**



Unmonitored and unmanaged infestations of Varroa mites will result in colony death.

COMMON SIGNS OF MITE DAMAGE:



- Open or damaged pupal cells
- Chewed-down pupae
- Emerging adult bees with deformed or missing wings

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United States
Department of
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of Food and
Agriculture



Integrated Pest Management (IPM) for *Varroa* mites



IPM is a decades-old farm strategy for mitigating pests while minimizing chemical use. Experts now recommend IPM for *Varroa*.

Rather than relying on a “silver bullet”, good IPM incorporates multiple practices throughout the season, based on pest levels and pest biology.

IPM PRINCIPLES:

- **KNOW YOUR PEST**
- **PREVENT** pest build up using non-chemical practices
- **SAMPLE REGULARLY** to track pest population levels
- **INTERVENE** with pesticides when populations reach damaging thresholds
(vary products to prevent pest resistance)



This pamphlet will help you to use IPM principles to manage *Varroa* mites.

PREVENT PEST BUILD-UP USING NON-CHEMICAL PRACTICES

ALL YEAR

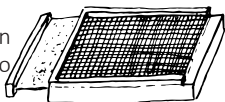
Hive Differentiation

Reduce mite transmission via bee drift by maximizing hive spacing and varying hive color and orientation.



Screened Bottom Board

Studies show mixed results on Varroa but can also be used to increase hive ventilation.



SPRING AND SUMMER

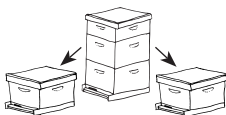
Re-Queen

Select mite resistant stock when available.



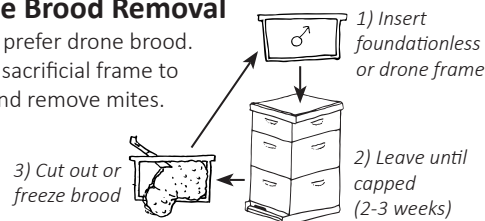
Brood Interruption

Split hive or allow to swarm (capture swarm!) to interrupt mite reproduction.



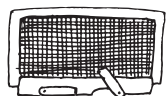
Drone Brood Removal

Mites prefer drone brood. Use a sacrificial frame to bait and remove mites.



Robber Screens

Install screens to reduce mite transmission via drift and robbing.



*PERSONAL PROTECTIVE EQUIPMENT (PPE):

- 1 Chemical-resistant gloves
- 2 Safety goggles
- 3 Respirator with an organic particulate filter

INTERVENE WITH PESTICIDES IF PESTS EXCEED THRESHOLDS (4+ MITES/SAMPLE)

MITICIDES AT-A-GLANCE *Always follow the label! The label is the law. Find full labels on the [EPA database](#):*



	Product Name <i>Active Ingredient</i> [mode of action]	Season [temp] = less effective when brood is present	Honey super safe?	Treatment Duration	Application Type for full video instructions, visit the Honey Bee Health Coalition	Personal Protective Equipment
Synthetics	Apivar® <i>Amitraz</i> [contact]	[Not Temp Dependent] 	NO 	6-8 weeks wait 2 weeks to add honey supers	PLASTIC STRIP 	
	Apiguard® <i>Thymol</i> [fumigant]	[60-105°F] 	NO 	4-8 weeks Can add supers immediately	GEL OR GEL TRAY 	
Essential Oils	Api Life Var® <i>Thymol, Menthol, Eucalyptus oil</i> [fumigant]	[64-95°F] 	NO 	26-32 days wait 4 weeks to add honey supers	FOAM WAFER 	
	Formic Pro® <i>Formic acid</i> [fumigant]	[50-85°F] <i>Kills mites in brood!</i> 	YES 	2-3 weeks 	GEL STRIP 	 Recommended (not required)
Organic Acids	Api-Bioxal®, Ez-Ox Tablets® <i>Oxalic acid dihydrate</i> [contact, fumigant]	[No Temp Restriction] 	YES 	Immediate (but may need to repeat)	POWDER, TABLET: <i>Spray (liquid) Dribble (liquid) Fumigation (vapor)</i>	
	Varroxxan® <i>Oxalic acid dihydrate</i> [contact]	[No Temp Restriction] 	YES 	6-8 weeks Pesticide must be separated by at least one chamber from any honey to be extracted	FIBER STRIP 	
	HopGuard III® <i>Potassium salt of hops beta acids</i> [contact]	[55-99°F] 	YES 	2-4 weeks 	CARDBOARD STRIP 	

Miticides can harm people too!! Protect yourself with proper PPE*