

**Part Science
Part Art
Part Observation
Part Action**



Keeping Bees Alive



The Science Part

Know your bees



- Races and their traits
- Biology-the science of life or living matter in all its forms and phenomena, especially with reference to origin, growth, reproduction, structure, and behavior. – *Dictionary.com*
- Physiology-a branch of biology that deals with the functions and activities of life.- *Merriam-Webster.com*



Science

Know Your Bees Enemies

Diseases

- DISEASES and VIRUSES
 - Brood diseases- AFB, EFB, Chalkbrood, Sacbrood
 - Viruses- Bee paralysis, IAPV, Deformed wing virus,
 - Nosema (fungi)- apis, ceranae



ACTION

TREATMENTS-

DISEASE

AFB

EFB

Chalkbrood,
Sacbrood,
Stonebrood

Virus

Nosema

TREATMENT

Burn It

Terramycin??

Fumigillin



OBSERVATION

More On Treatments

Stay informed with current science via state universities, credentialed journals, State entomologists, State Apiarists

Varroa Mites-

- Learn the life cycle
- Break the life cycle

Make splits

Treat early (July/Aug)

IPM- include soft treatments e.g.

Powdered sugar

Screened bottom boards, Drone

frames (v. trapping)

Small cell foundation



ACTION & ART

Know Your Bees Enemies

Continued..

Pests



ACTION

IPM Continued...

Varroa Treatments

- Api Life Var- thymol
- Mite Away Quick Strip- formic acid
- Coumaphos, (CheckMite+) is no longer effective against v. destructor. Varroa has become resistant to it.



OBSERVATION

Varroa

- Virus vectored include:
 - Deformed Wing Virus
 - Israeli Acute Paralysis Virus (IAPV)
 - Chronic Bee Paralysis
- v. weakens immune system, opens the door for bacteria as well.



OBSERVATION & ACTION

More Enemies

- Small Hive Beetle
- Wax Moth
- Genetically Modified/Engineered Crops (forage)
- Poor Genetics in Queen
- Pesticides, which includes insecticides, herbicides, fungicides. -Following slide shows how pesticides can interact with each other



The Science of Pesticides

Assail

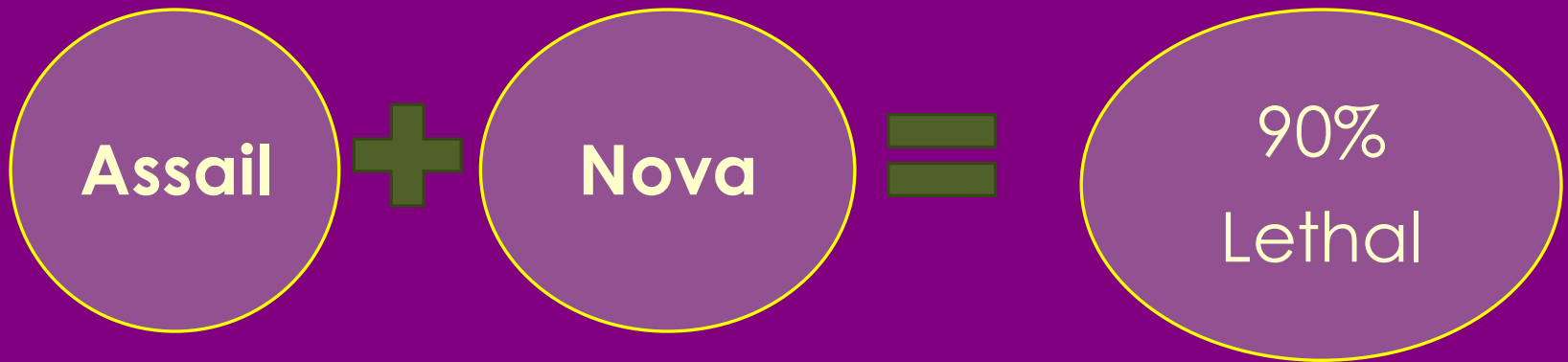
- Insecticide applied to apples, blueberries and more
- Rated benign for bee kill

Nova

- Fungicide applied to similar crops as Assail
- Rated benign for bee kill



SCIENCE



2 Combined Benign Pesticides
Produce Substantial Bee Kill



ACTION

- Keep good variety of pollen available for your bees- no monoculture
- Use quality supplements-
- Keep sufficient food reserves, bees love their own honey!
- Consider planting a bee pasture with year around forage possibilities
- Clean feeders

NUTRITION

**Nectar
and
Pollen**

NUTRITION



Pollen is protein for the honey bee.

To give your bees quality protein ---
keep them off of GM crops

-use quality ingredients in pollen
patties

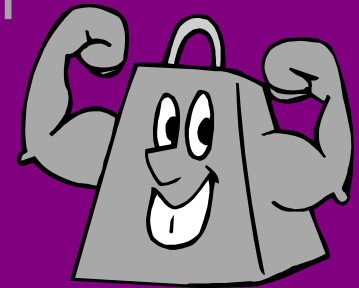
-use pollen supplements (mixture of
pollen substitute and 10-20% natural
pollen) over pollen substitutes
(replaces pollen completely with soy
flour & brewer's yeast)



NUTRITION

NECTAR is carbohydrate, which are the sugars and sources of energy for bees.

Pollen and nectar combined make the perfect food for bees.





NUTRITION

A colony with good nutrition and high v. count are just as healthy as a colony with low v. count and poor nutrition.

Good nutrition gives bees the strength they need to overcome varroa, nosema, pesticide and viruses. (Z. Huang)



ART & OBSERVATION

Queen Quality

Desirable Traits in a Queen

- Disease Resistance
- Honey Production
- Gentleness
- Well mated=good brood
- Overwinters well





SUMMARY

- Know your science
- Observe your colonies-
notes/journal entries are great
- When it's time for action, act
- Enjoy practicing the
Art of Beekeeping

