OSU Honey Bee Research Update

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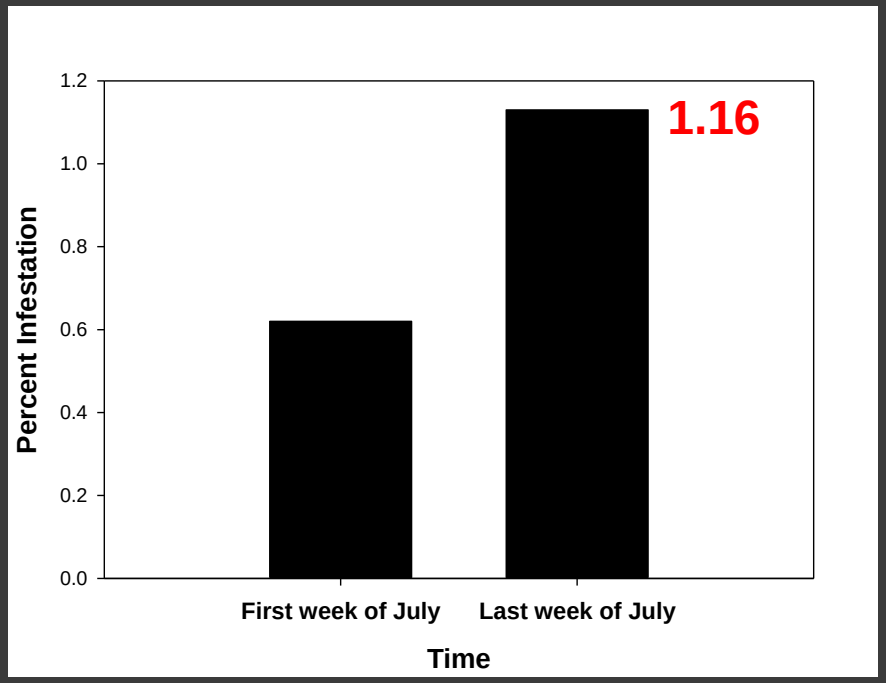
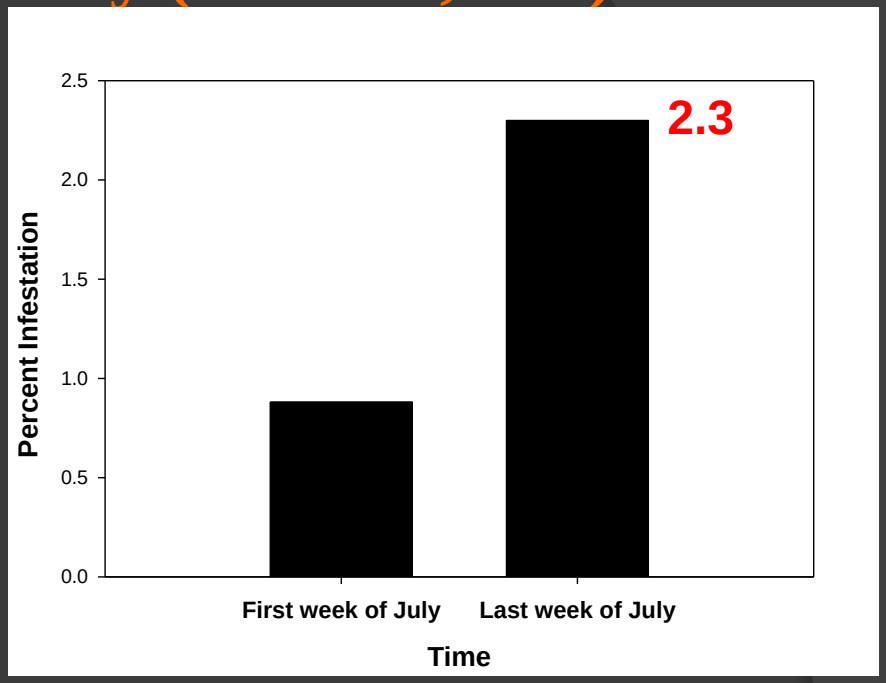
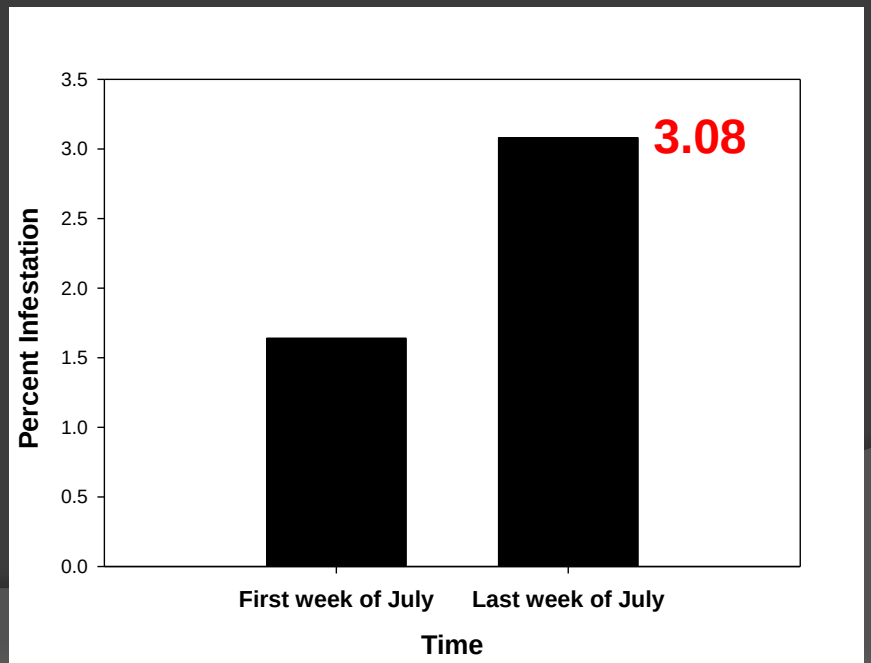
Varroa mite levels in July (Madras, OR)



2014



2015



2016

- ***Varroa*** **mite treatments should not be calendar based, but based on realistic mite levels.**

- **Early brood rearing means early mite control strategies to be implemented.**

Honey Bee Viruses

Honey bees are often infected with multiple viruses

Majority of these viruses are single-stranded RNA viruses that belong to two families (Dicistoviridae and Iflaviridae)

Honey bee viruses are getting more attention now

Honey Bee Viruses in Oregon Colonies

VIRUS	Present or Absent	
ABPV	+	(occasionally)
BQCV	+	(common)
CBPV	+	(occasionally)
DWV	**+**	**(very common)**
IAPV	+	(rare)
KBV	-	
SBPV	-	
LSV-2	+	(very common)

Correlation between *Varroa* levels and viruses.

Varroa mites have enhanced virulence of some viruses and selected for particular virus strains (e.g. in case of DWV).

Interaction between these viruses not well understood.

Varroa control options

- Apivar (Amitraz)
- Apiguard (Thymol)
- Hopguard (Hop beta acids)
- MAQS (Formic acid)
- Oxalic Acid

Take Home Message

Frequent monitoring and timely *Varroa* control is critical for colony survival.

Honey Bee Nutrition

(You Are What You Eat)

- **Nutrition is the first line of defense**

- **Optimal nutrition:**

  a) boost immune system and decreases susceptibility to pests and pathogens

  b) boost detoxifying enzymes

- **Honey constituents up-regulate detoxification and immunity genes in the honey bee (Mao et al. 2013)**

Honey Bee Diet

Pollen

Nectar (Honey)


Courtesy: Michael Trayn

Pollen (Protein)

Pollen is the primary source of protein

Most pollens: 10% to 40% protein

Crude protein and Amino acids

Also a source of lipids, minerals, vitamins, sterols

Nutrition (especially protein) is crucial when the colonies are rearing winter bees (diutinus bees)

Vitellogenin (Glycolipoprotein) - longevity

Protein Content of Few Crops Pollinated by Oregon Beekeepers

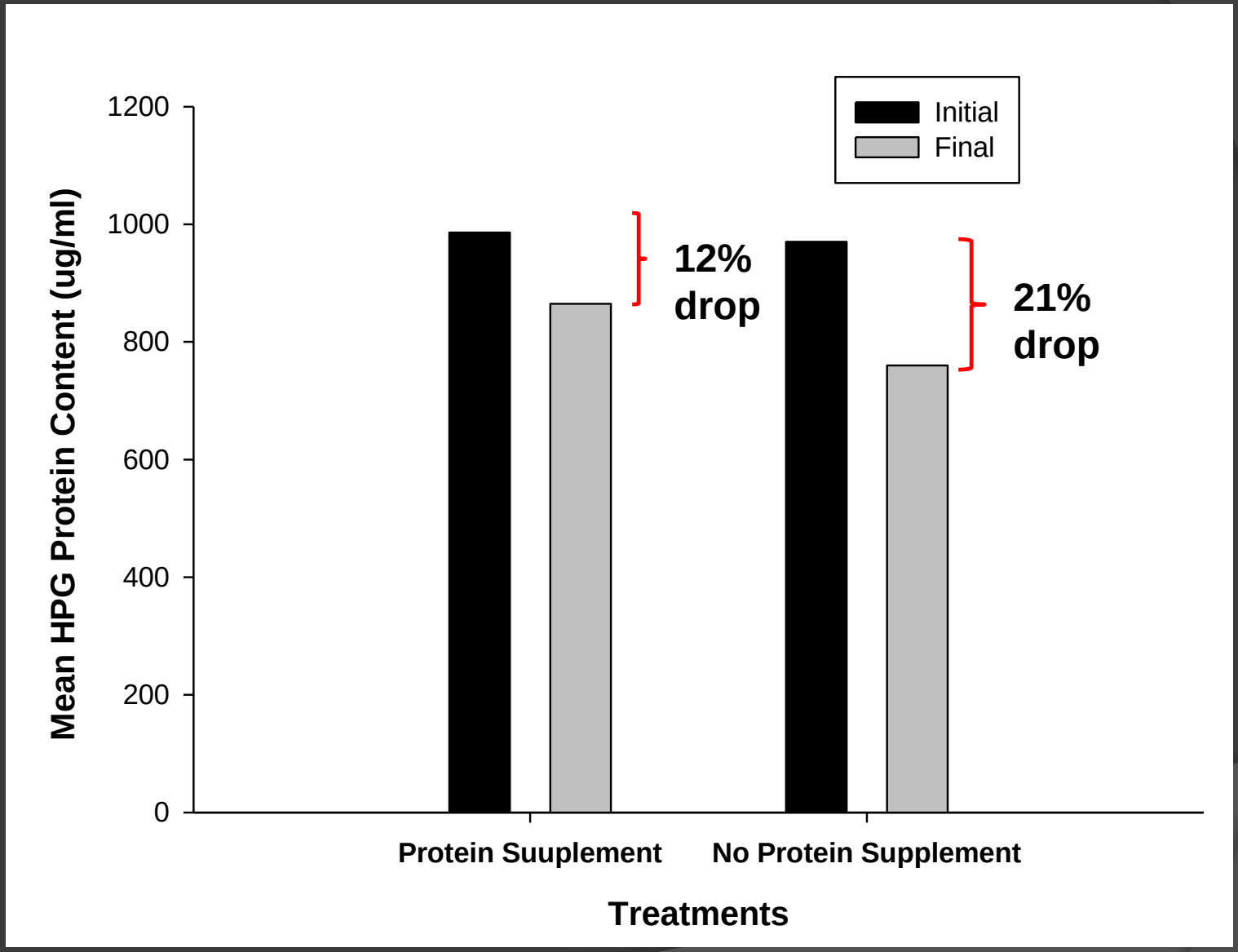
Almond: 29%

Cherry: 26%

Meadowfoam: 23%

Clover (Balansa): 23%

HPG Protein Content Change in Protein Fed and Unfed Colonies



Nutrition Management

- Two pounds of protein supplement is recommended in July when colonies are pollinating hybrid carrot seed crop in central Oregon.

- Protein supplement (preferably with some pollen) should be fed if colonies are low in pollen during spring and fall or late fall.

Take Home Message

Adequate nutrition (especially protein) is critical during Fall and Late Fall when winter bees are being raised in colonies.

Acknowledgements

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National Institute of Food and Agriculture

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Agricultural Research Foundation
promoting agricultural research since 1934

Family Owned GloryBee Since 1975

Bee Informed

Oregon Regional Beekeepers Associations

Project Apis m.

Central Oregon Seeds Inc.

Questions???