



# Maximizing Production!



***But - of what??***



Byron Compton  
Elm Fork Beekeepers Association

# Different Approaches to maximizing production (product) all start with the same premise: *Larger colonies make more.*

C. L. FARRAR in “**Productive Management of Honey-Bee Colonies**” said:

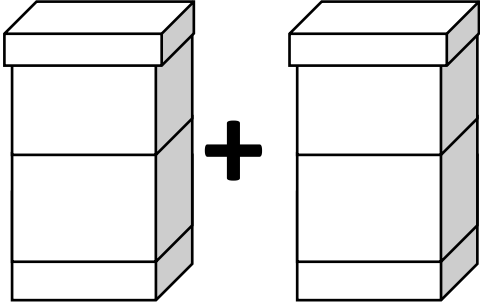
*The basic requirement for productive colony management in beekeeping are large food reserves of pollen and honey at all times and ample room for these food reserves, brood rearing, and the storage of surplus honey. Young productive queens from good stock are essential. The queen should be supported by a large population favorable to the time of the year.*

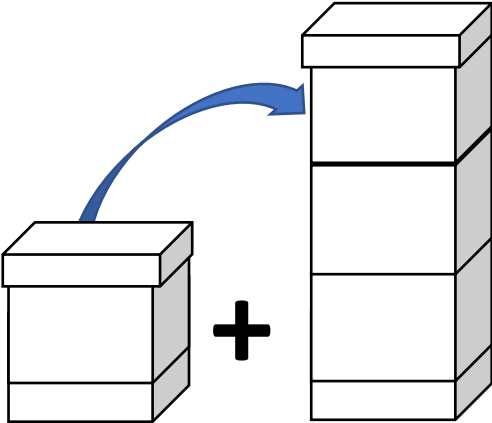
*The object is to build maximum colony populations for the nectar flow and maintain them throughout the season. The most populous colonies produce not only the most honey per colony but the most honey per bee. Brood rearing is the basis of colony development and the maintenance of maximum populations during the flow.*

**So, regardless of the product you want to maximize, you need to apply basic fundamentals and best practices in beekeeping.**

# Different Approaches still start with the same premise: Larger colonies make more.

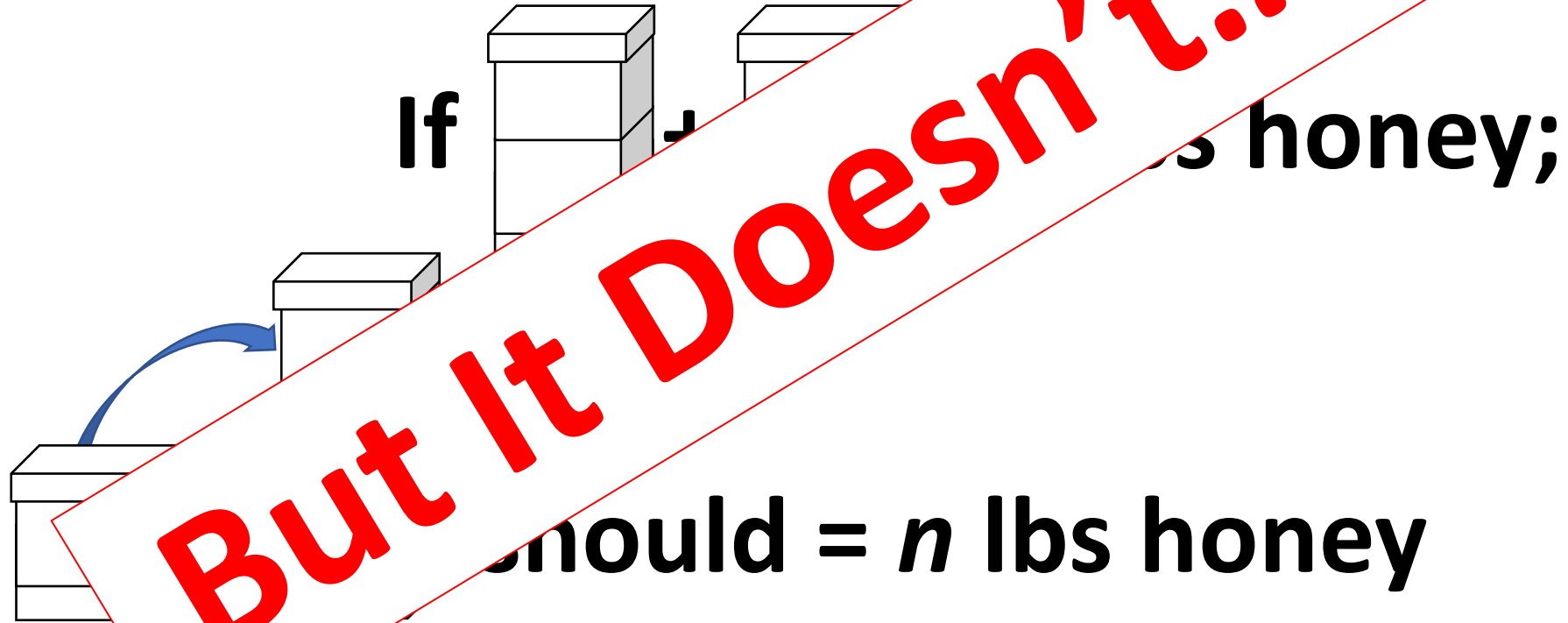
C. L. FARRAR tested the hypothesis:

If  + =  $n$  lbs honey;

Then  + should =  $n$  lbs honey

# Different Approaches still start with the same premise: Larger colonies make more honey

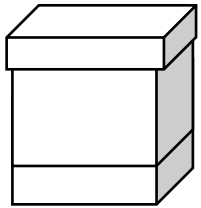
C. L. FARRAR tested the hypothesis:



**But It Doesn't...!**

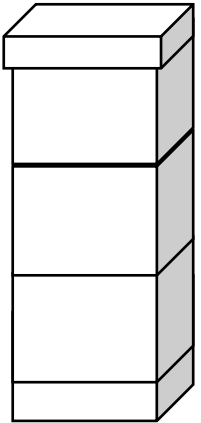
# Different Approaches still start with the same premise: Larger colonies make more.

The theory he was examining was:



← should produce  $1/4n$  lbs honey

Actual production was  $<25\% n$  lbs honey



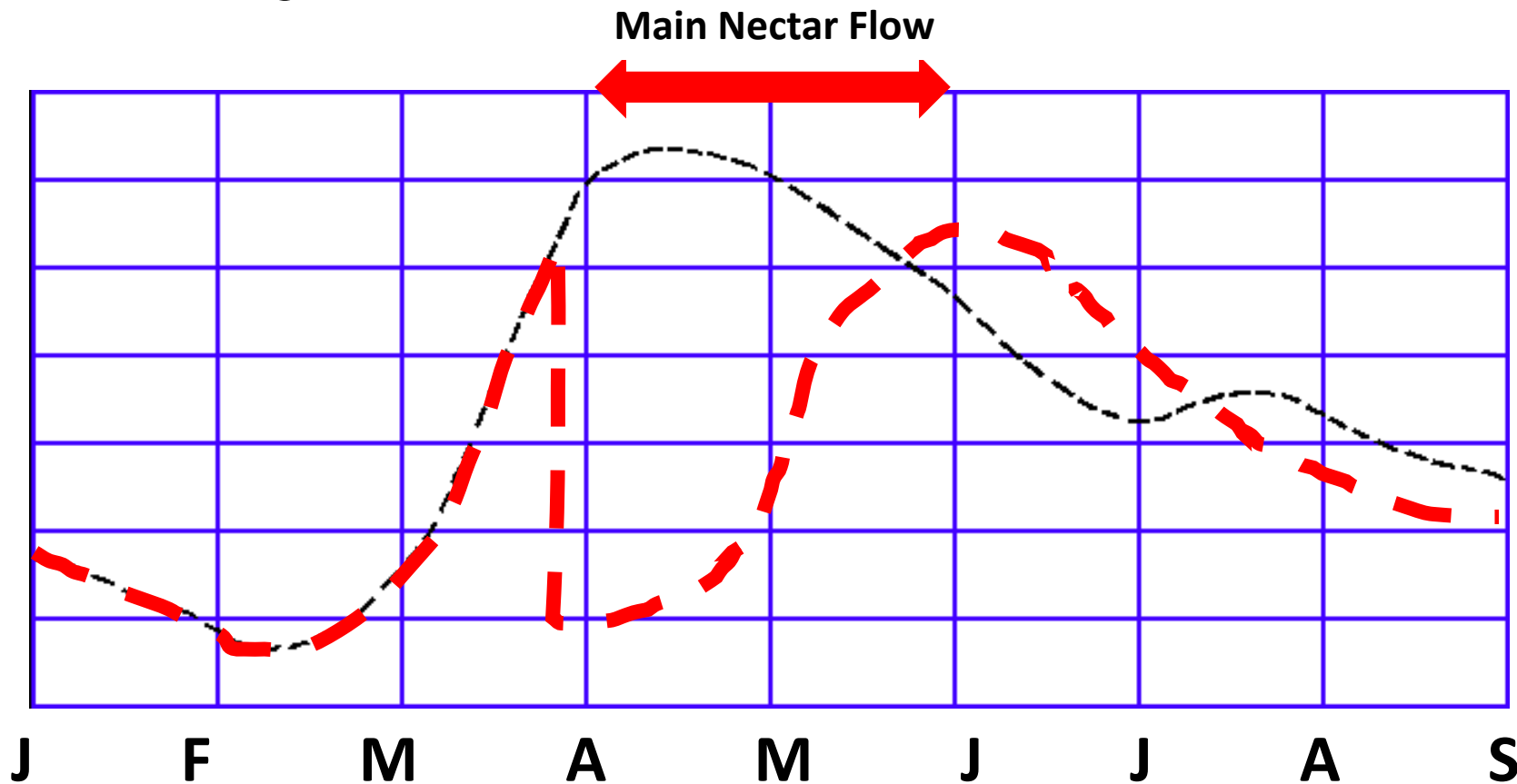
← should produce  $3/4n$  lbs honey

Actual production was  $>75\% n$  lbs honey

Leading to the *initially* illogical conclusion that larger colonies  
produce more per bee.

# Biggest Threat to Colony Size?

But... remember – Colonies want to create NEW Colonies. The **RED** curve shows a more accurate population curve if the bees aren't managed to prevent swarming.



# Pick Your Product

Honey/Comb or Chunk	≠	Bees (Nuc's/Pkg's/Queens)
Wax Products	≠	Comb or Chunk
Propolis	=	Wax Products
Pollen	=	Propolis
Bees (Nuc's/Pkg's/Queens)	≠	Pollen

**Each requires a slightly different colony management approach!**  
**Some are mutually exclusive! Some are compatible!**

**Before we look at how to maximize each product...**

**Let's review bee species traits**

**Each species has different traits that could be beneficial – or detrimental – to the Beekeepers goals...**

***Caucasian***

***Carniolan***

***Italian***

***Buckfast - Hybrid***

***Russian (Carniolan)***

***Africanized***



# Honey Bee Sub-species

- ***Mellifera caucasica* – Caucasian**

- Gentle
- Not as productive as Italians
- High propolis buildup (could be a positive)



- ***Mellifera carnica* – Carniolan**

- Darkest of the popular races – Queens are hard to spot
- Thought to be resistant to varroa mites
- Conservative in using resources and brood expansion in the spring



# Honey Bee Sub-species

- ***Mellifera ligustica* – Italian**

- Light golds and browns
- Gentle, Very productive
- Susceptibility to pests and disease
- Prone to starvation due to expansive early spring build up in excess of food stores.



- **Buckfast - Hybrid**

- A man-made bee race, a cross of many strains of bees, developed in 1919 by Brother Adam at Buckfast Abbey in the UK.
- Originally developed to resist tracheal mites; Hygienic
- Productive - Gentle
- Purity in TX is questionable due to open breeding



# Honey Bee Sub-species

- **Russian-mixed breed, predominately Carniolan**

- Some what resistant to varroa
- Productivity comparable to Italians
- Conservative spring buildup



- ***Mellifera scutellata* - Africanized bee**

- Extremely defensive
- Under good management they are productive and have become gentler
- Hives/queens in North Central Texas often have African genetics mixed in
- Virtually impossible to distinguish from European Honey Bees – genetic testing is the only definitive method to verify

# Honey Bee Sub-Species Comparison

	Defensive/Gentile	Productive	Mite Resistant	Cons
Caucasian	G	< Italians >Propolis	--	--
Carniolan	--	<b>Resource Conservative</b> <b>Slow Build-up</b>	Somewhat	<b>Queens hard to spot</b>
Italian	G	Very <b>Early Build-up</b>	Less than others	<b>Prone to starvation</b> Susceptible to pests
Buckfast - Hybrid	G	Very	Developed to resist tracheal mites	--
Russian (Carniolan)	--	Very <b>Slow build-up</b>	Yes	<b>Slow spring build-up</b>
Africanized	Very Defensive	<u>Very</u>	Somewhat	Multiple Swarms/year

***Individual colonies may exhibit varying degrees of the sub-species traits/behavior due to mixing of genetics... So, Your Mileage May Vary***

# Sub-species Traits' Impact on Production

## Honey - liquid:

- Need - Larger, more populous colonies at peak nectar flow
- How – Swarm prevention, productive honeybee line, don't split
- Avoid sub-species that are slow to build (Carniolan & Russian)

## Comb/Chunk Honey:

- Need - Larger, more populous colonies at peak nectar flow
- Wax or no foundation – wired frames, specialty foundation/frames
- How – Swarm prevention, productive honeybee line, don't split
- Quick buildup in spring (Italians)



# Sub-species Traits' Impact on Production

## Wax Products:

- Need - Larger, more populous colonies at peak nectar flow
- How – Swarm prevention, productive honeybee line, don't split
- Quick buildup in spring (Italians)



## Propolis:

- Need - Larger, more populous colonies at peak nectar flow
- How – Swarm prevention, productive honeybee line, don't split
- Prolific propolis builders (Italians)
- Propolis traps to collect it as the bees bring it into the hive



## Pollen:

- Need - Larger, more populous colonies when pollen first appears
- How – Swarm prevention, productive honeybee line, don't split
- Pollen traps to collect it as the bees bring it into the hive – just 2-4 days at a time per hive
- Supplement feed pollen substitute to replace the natural pollen you are taking (Italians, Buckfast, Russians)

# Sub-species Traits' Impact on Production

## Package Bees:

- Need - Larger, more populous colonies at peak nectar flow
- How – Swarm prevention, productive honeybee line, don't split – take bees from many colonies
- Need a source of Queens – buy or make yourself – learn how to get the bees to do it!
- Quick buildup in spring (Italians)

## Nuc's:

- Need - Larger, more populous colonies at peak nectar flow
- Need a source of Queens – buy or make yourself – learn how to get the bees to do it!
- How – Swarm prevention, productive honeybee line
- Quick buildup in spring (Italians)

## Queens:

- Need - Larger, more populous colonies when pollen first appears
- Productive honeybee line, don't split
- Let them Swarm, and you take the Queen cells until you learn how to induce them to create Queen cells even when they don't need to.

# Regardless of What You Want to Maximize...

## Here are 8 things successful Beekeepers do!

### 1. Control Varroa

- Do mite counts
- Treat with SOMETHING...!
  - Hopguard/Oxalic Acid/Apigard/Oils
- Move to hygienic strains/Queens

### 2. Manage Nutrition

- Winter stores, 15 lbs honey always
- Jan/Feb feed sugar syrup & crude protein/pollen substitute to stimulate earlier build-up

### 3. Know your Queen genetics

- Russian/VSH/Survivor stock

### 4. Regular requeening

- Buy or grow your own

### 5. Rotate Brood Comb

- Wax accumulates toxins
- Cells get smaller each generation

### 6. Swarm prevention

- Keeps productive queens
- Reverse hive bodies, checker-boarding

### 7. Learn Disease/Pest Identification

### 8. Control hive space

- Reduce overcrowding
- Double super



# Regardless of What You Want to Maximize...

## Here are 8 things successful Beekeepers do!

### 1. Control Varroa

- Do mite counts
- Treat with SOMETHING...!

### 4. Regular requeening

- Buy or grow your own

### 5. Rotate Brood Comb

**If you can master these 8 things, you will have healthy colonies...  
And healthy colonies do what.....?**

- Winter stores, 15 lbs honey always
- Jan/Feb feed sugar syrup & crude protein/pollen substitute to stimulate earlier build-up

### 3. Know your Queen genetics

- Russian/VSH/Survivor stock

- Keeps productive queens
- Reverse hive bodies, checker-boarding

### 7. Learn Disease/Pest Identification

### 8. Control hive space

- Reduce overcrowding
- Double super

# Questions?

**I hope I have the Answer...**



**If I don't, ask me something else please...**