



# The Courtship of Honeybees and Buckwheat Blossoms

## Increasing Pollinator Activity in Your Crop

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There are many fruit and vegetable crops we depend on that require pollinators to produce the flesh we enjoy to eat and cause seeds to mature save for our next planting







As farmers and growers we have learned to manage our cropping activities to insure a predictable outcome-successful crop yields

Cropping such as activities

- Use green manure crop
- Construct deer fence
- Apply soil amendments
- Conduct other activities to insure crop outcome





But when it comes to crop  
pollination and pollinators  
most growers depend on  
nature's generosity to provide  
insects to do the job for them.  
In most cases nature has  
been predictable in providing  
enough pollinators to insure  
yield







However in the last 7 years or so, one of nature's main pollinator for our crops, honeybee, has come under attack by pests that have threaten their population in wild and in managed hives. Small Hive Beetle, Varroa Mites and Wax Moth have gained a foothold in hives in our communities and threatening the health of our hives.



As a result there have been reports of decline in honeybee populations and increase in misshapen fruits due to lack of pollination. Nature has become less predictable in her capacity to pollinate farmer's crops.







As a result of the invading honeybee pest, there is a increased need to monitor and care for our honeybee population, and not to leaving it to nature.





While it is not new, with farmers taking honeybee hives to their field, it has become important that we develop cropping methods that include using multi-cropping systems to manage our pollination activities in our crops to insure predictable results. There is a need to attract high concentration of pollinators to our field when our crop is ready to be pollinated.





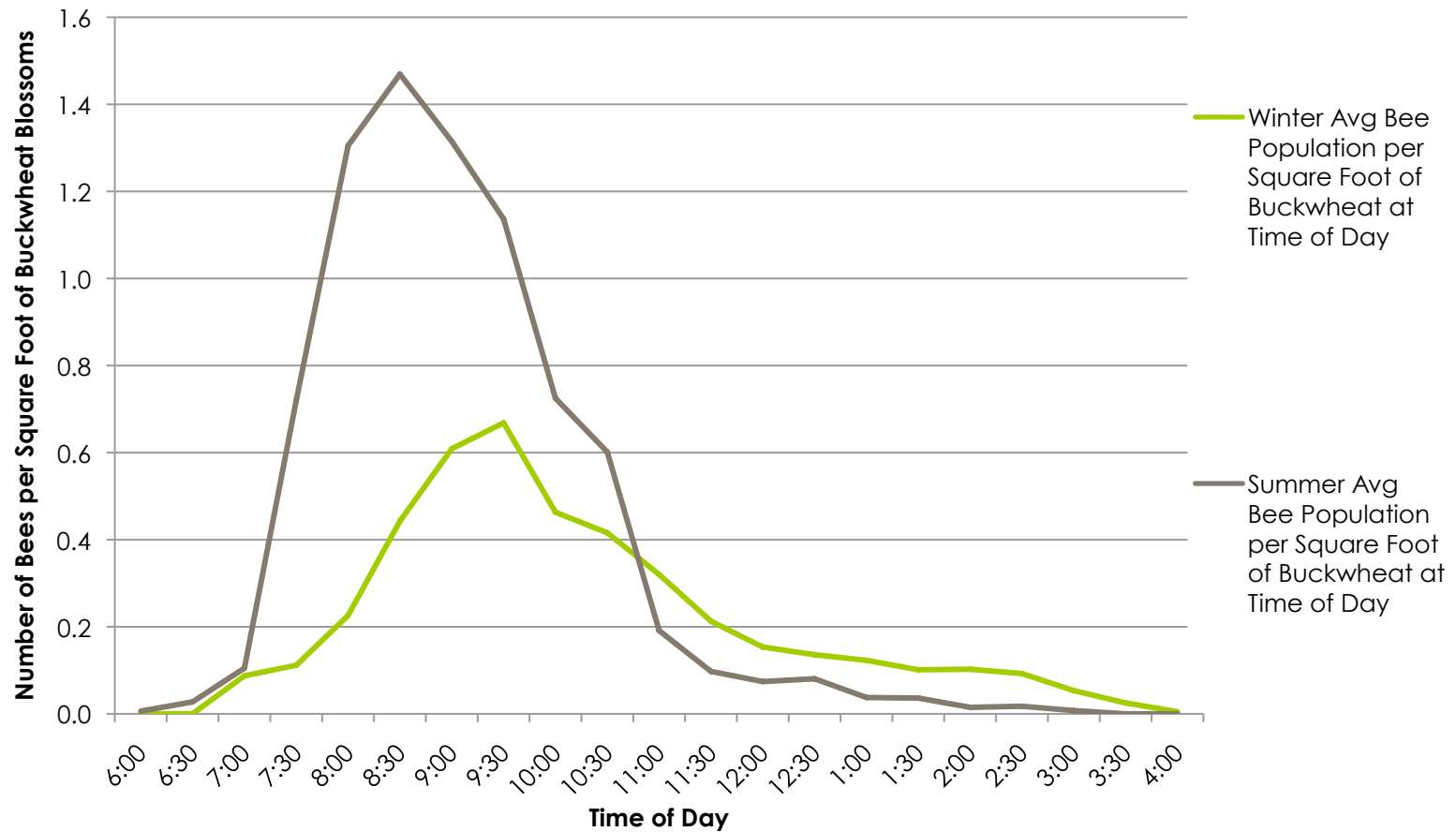
This project attempts to develop an understanding in the relationship or the “courtship” of buckwheat blossoms and honeybees. Buckwheat is a fast maturing plant that produces seeds within 30 days and attract pollinators and other beneficial insects.

Planted 4- 10X10 plots of Buckwheat

Monitor and count honeybees to determine when they visit, for how long in the day and how long in the crop.

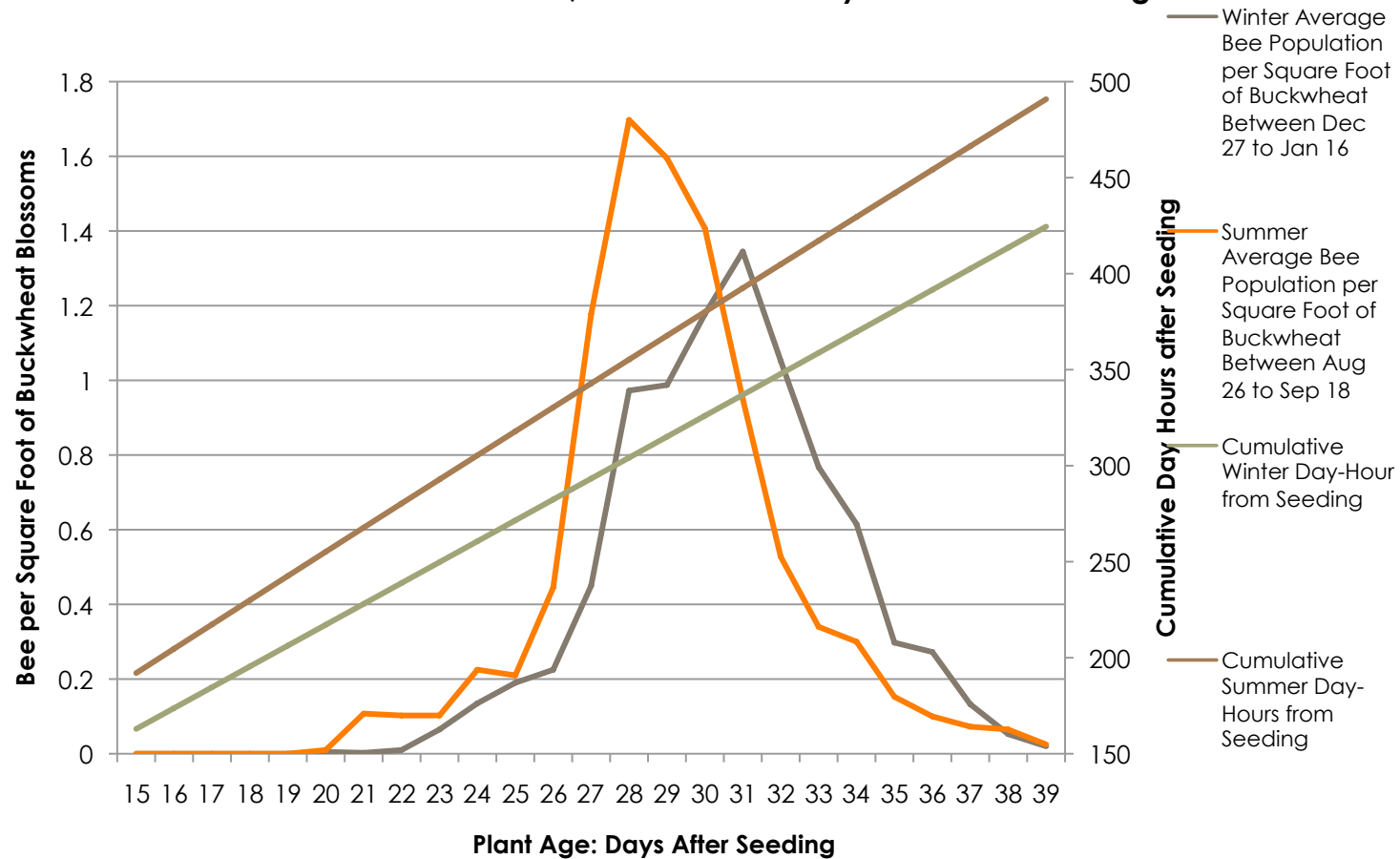
What determination made?

**Summer and Winter Day-Time Average Population of Bees per Square Foot of Buckwheat Blossoms**

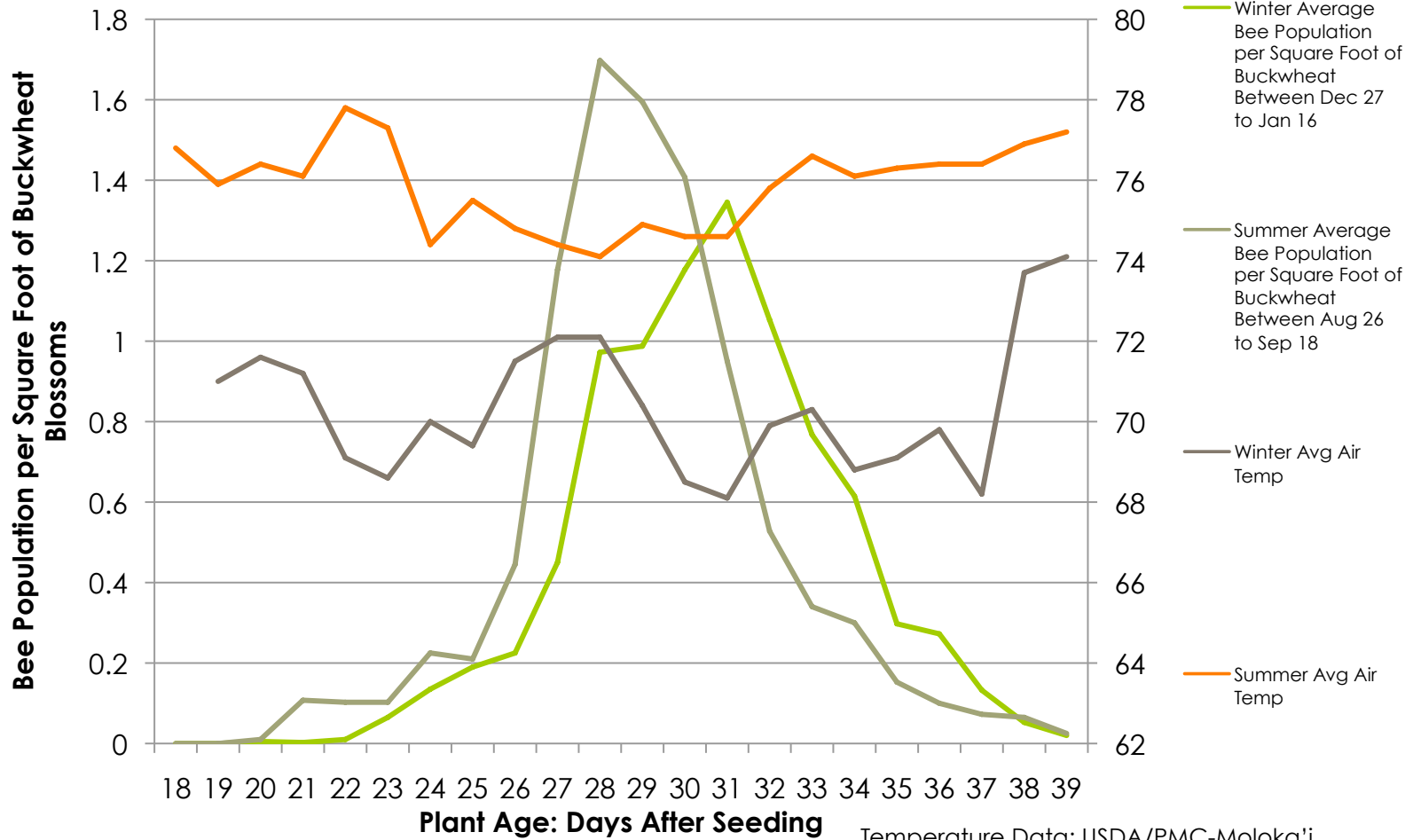




**Relationship Between Bee Day's Peak Population, @ 8:30 am for Summer  
and 9:30 am for Winter, to Cumulative Day Hours after Seeding**



**Relationship of Day's Peak Bee Population, 8:30 am for Summer and 9:30 for Winter, to Average Day Temperature**








## Observations and recommendations from trial results:

- On the peak day, potentially a population of 64,000 honeybees could be attracted to an acre of summer buckwheat blossoms.
- On the peak day, potentially a population of 29,000 honeybees could be attracted to an acre of winter buckwheat blossoms.
- During the summer days, honeybee population peaks at 8:30 am.
- During the winter days, honeybee population peaks at 9:30 am.

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- As a guide, in the summer, buckwheat should be seeded 21 to 27 days before early flowering of cucurbit crops.
  - As a guide, in the winter, buckwheat should be seeded 24 to 31 days before early flowering of cucurbit crops
  - Do not conduct field activities that might reduce honeybee pollinating activities before noon.
  - During the winter honeybees stay in the buckwheat field longer than the summer.
  - Honeybees appear on buckwheat blossoms plus or minus minutes of sunrise.
  - Do not apply overhead sprinklers before noon as trial observation indicates that honeybee field activity reduced or ceased during rainy periods.



- Both day length and ambient temperature influences the rate of buckwheat maturity, thus affect the timetable of honeybees in the field blossoms.
- It was observed that different plants attract honeybees at different time on the day. For example, population on honeybees on Sun Hemp, *Crotolaria juncea*, is the highest around 3:00 p.m.. Therefore it will be an ideal pollinator attractant for crops that are receptive to pollinators in the afternoon and not for cucurbit that is receptive for pollination in the morning.



AM and  
PM  
Blossoms



