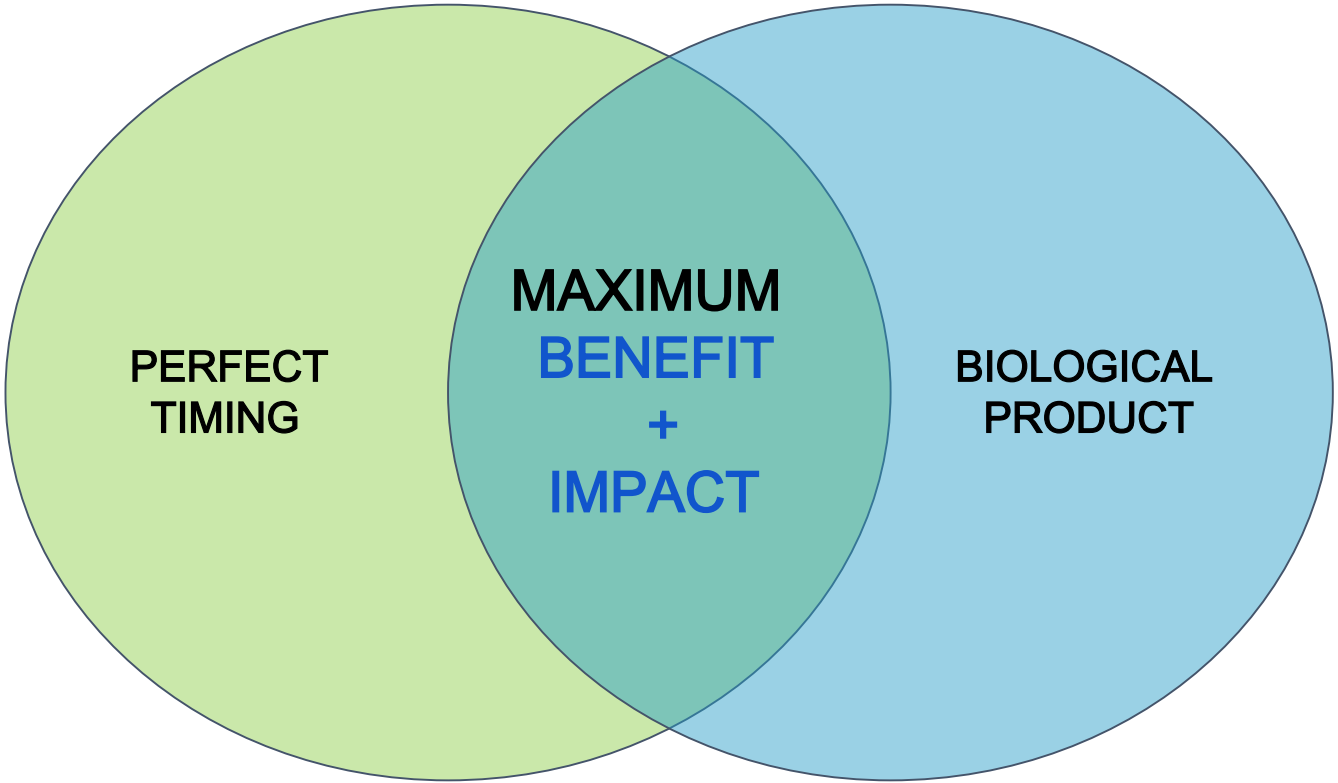
Full Crop -Cycle Management Platform: Making biologicals successful

Jordan Hazell, Research Manager

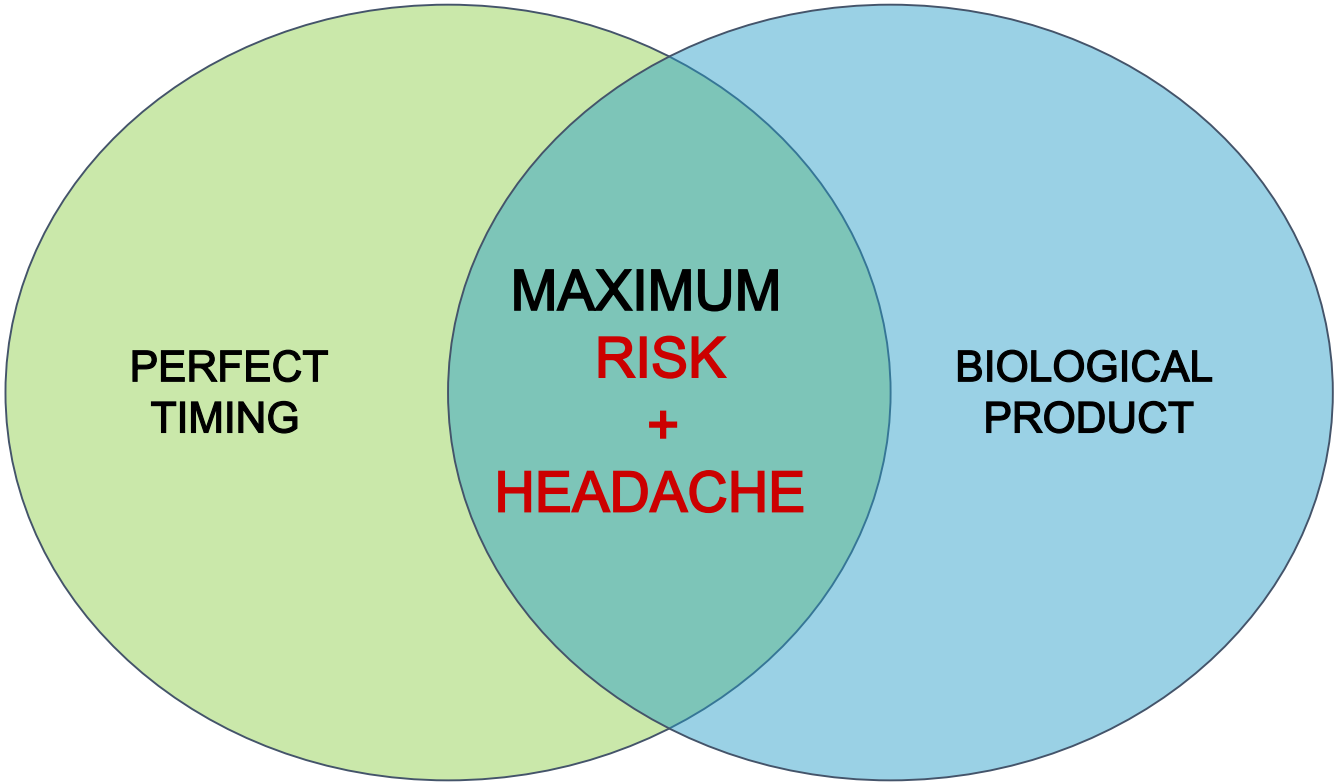
What We Are Discussing Today

- Biologicals often relies on specific manufacturer intended application timings
- Applicators require communication in the form of calls to actions
- Implementation of farm-management platforms enable applicators to identify and adhere to these timings

What a MANUFACTURER Thinks…

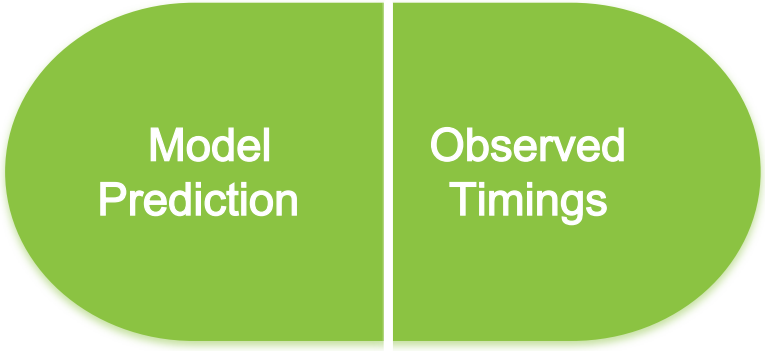


What an APPLICATOR Thinks…



Model -Observation Dilemma

- Being told to utilize models but adjust accordingly



Model -Observation Dilemma

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- Generalized models are not blindly predicting reality

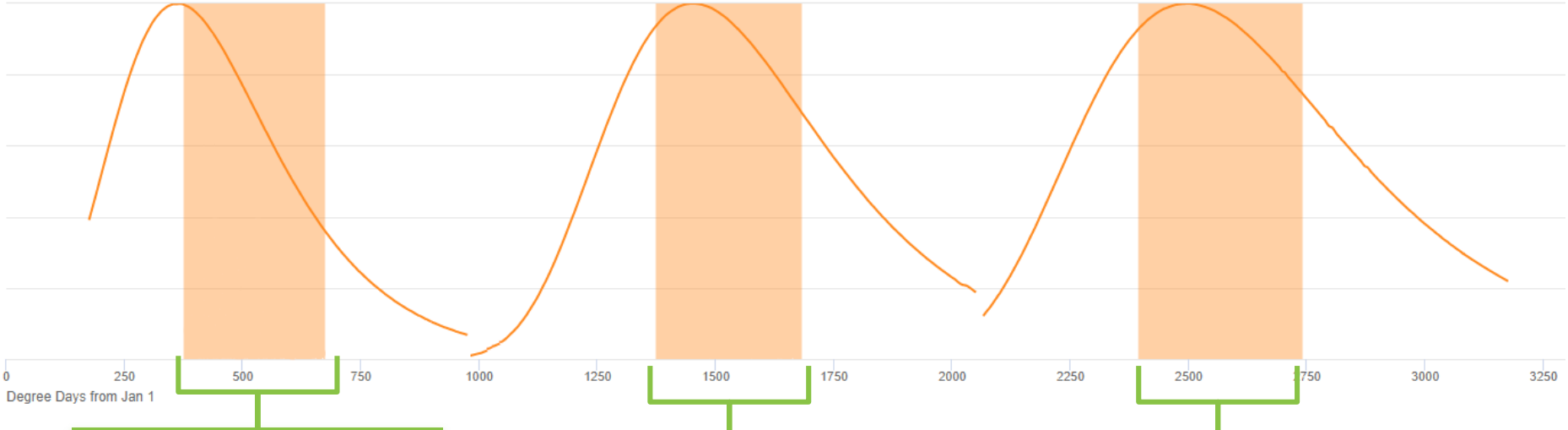
Model -Observation Dilemma

- Being told to utilize models but adjust accordingly
- Generalized models are not blindly predicting reality
- False realities, don't support effective use of a product

Predicted 1st Flight

Predicted 2nd Flight

Predicted 3rd Flight



Effective Timings

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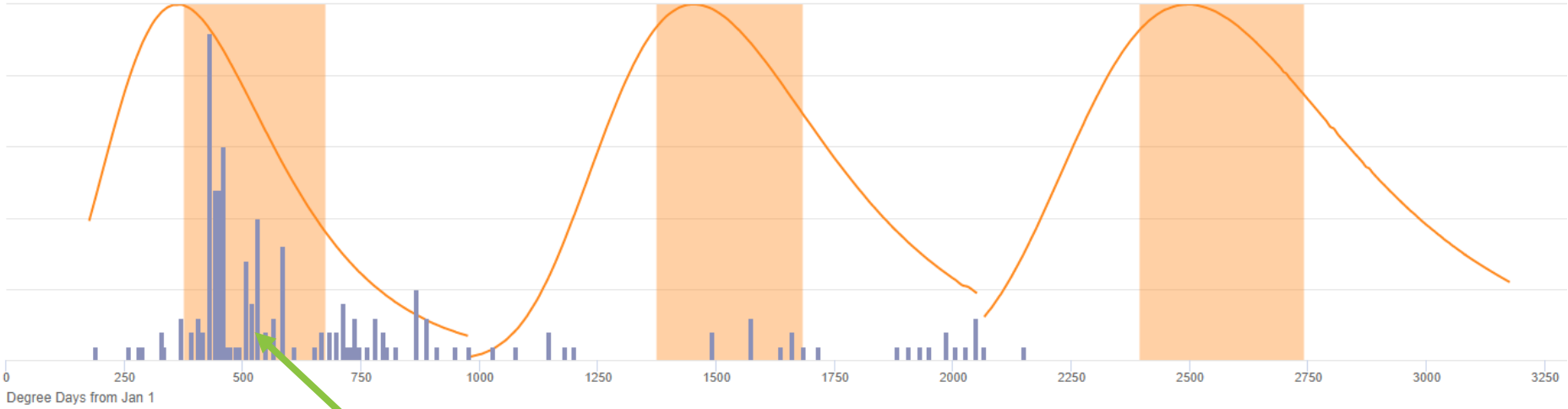
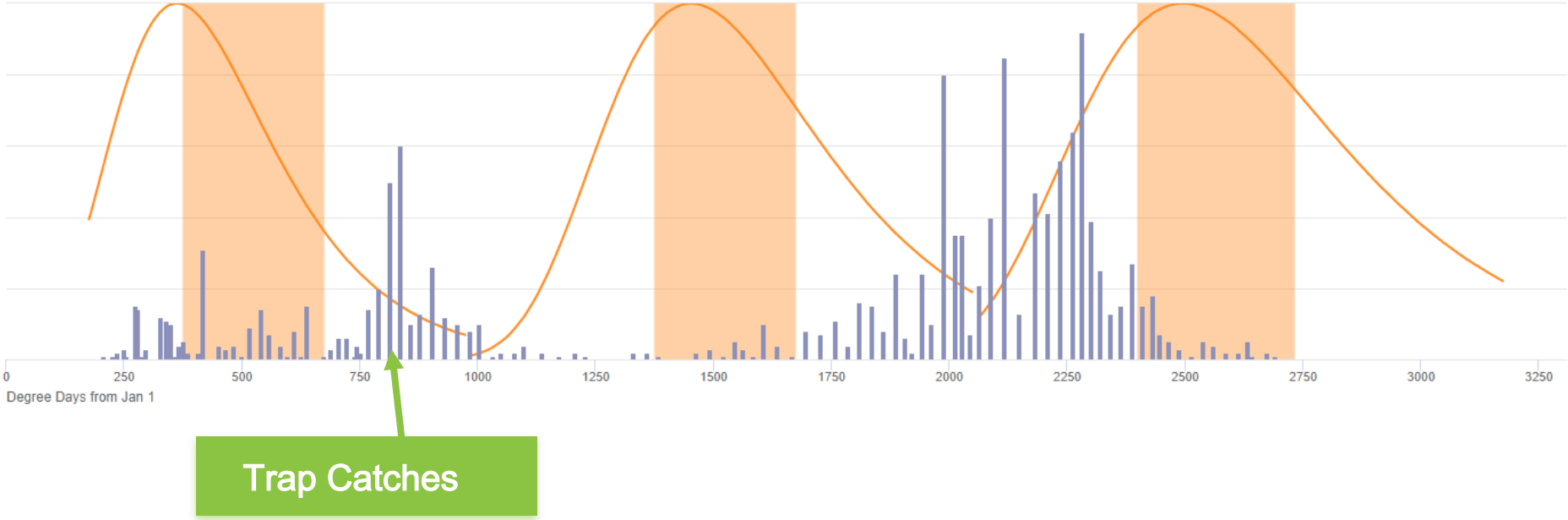
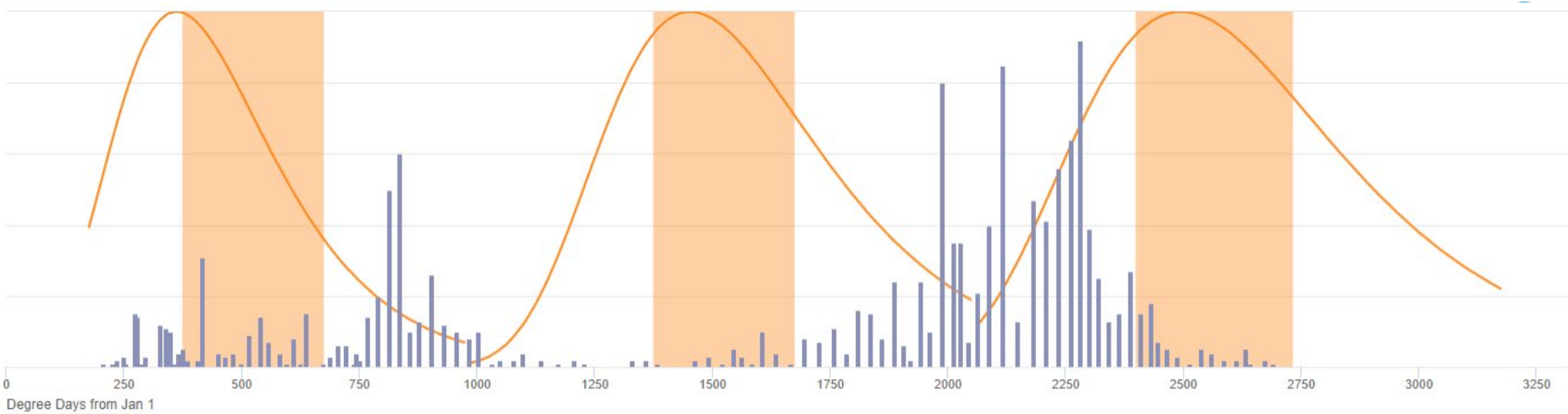
“Biologicals work great!”



“Biologicals aren’t very good!”

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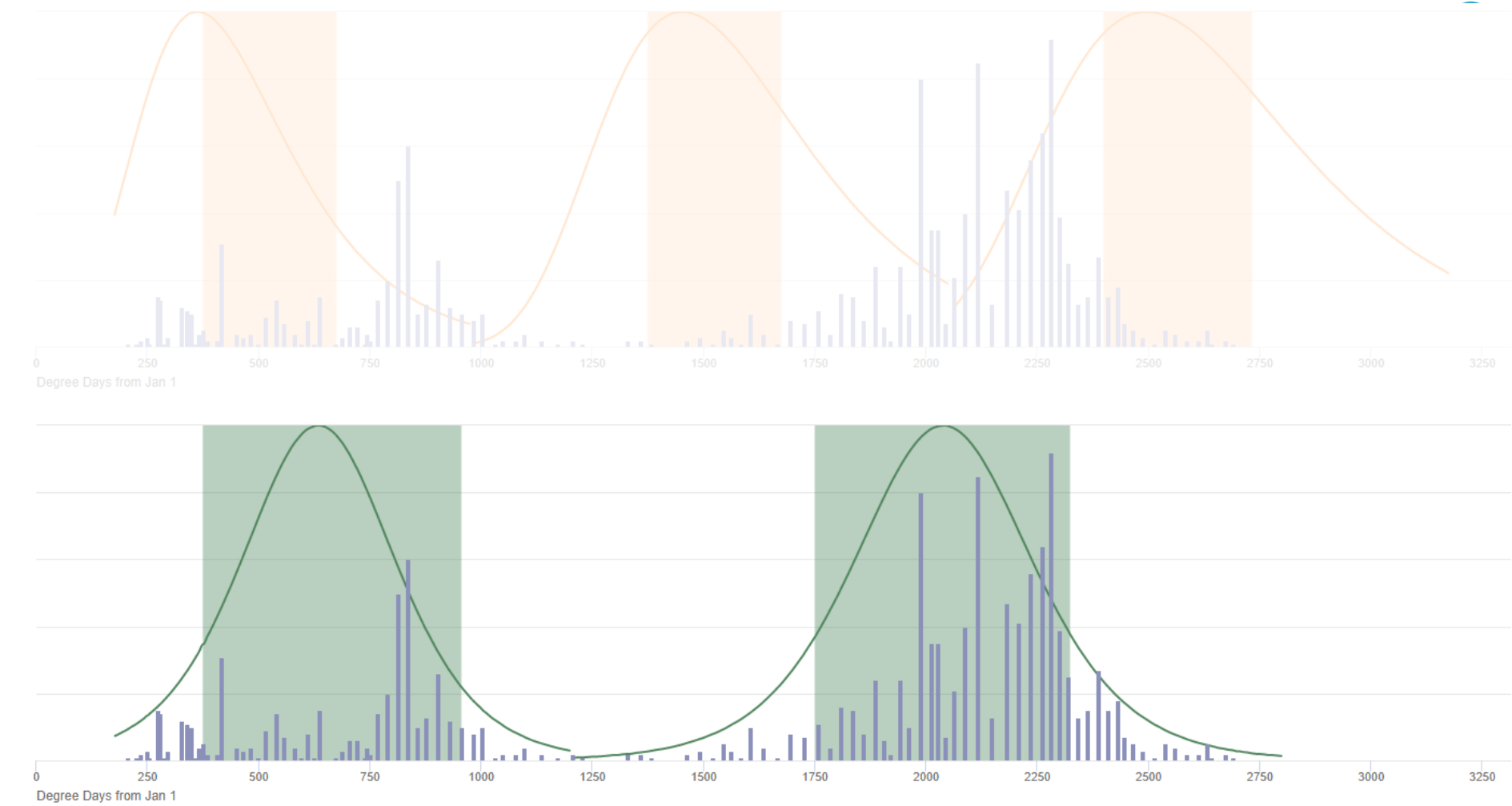
Degree Days from Jan 1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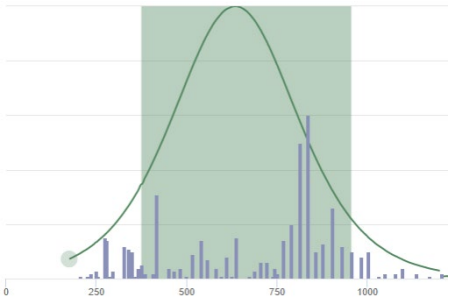
Implementing Data -Driven Decisions



Models: Set expectations

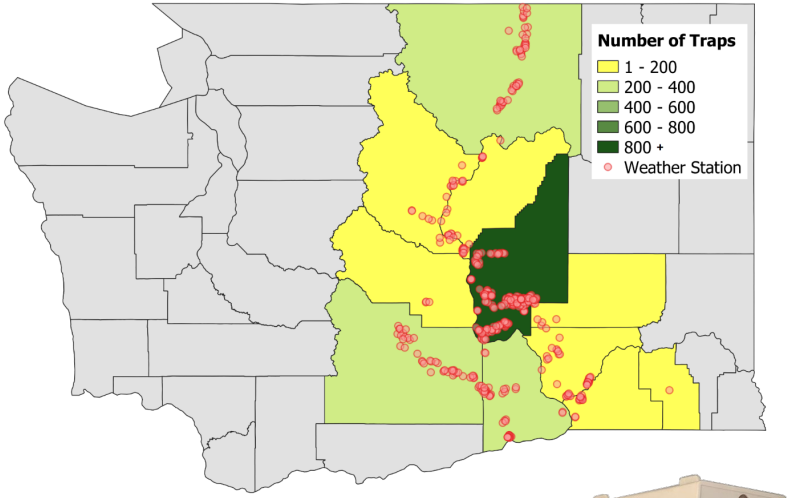
Use **models** for planning and logistics.

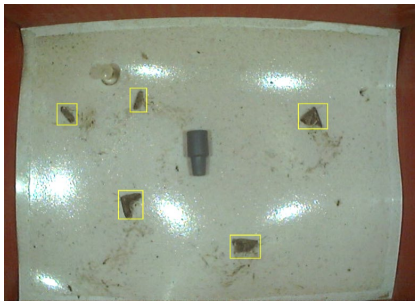
Traps: Confirm expectations

Use **trap data** alongside **models** for program implementation.

More Than Just Theory

Semios Codling Moth Trap Data	
Operating in WA Since	2013
Counties being monitored	13
CM images counted daily	>3000
Unique moths caught since 2017	>280,000
In-canopy weather stations	>400





A Case Study with a Biological - Viruses

3 replicates of 4 -acre strip plots

- Treatment 1: Commercial Program
- Treatment 2: Semios Framework

Trial sampled weekly

- 800 trees repeatedly checked for damage
- 400 trees banded weekly for larvae

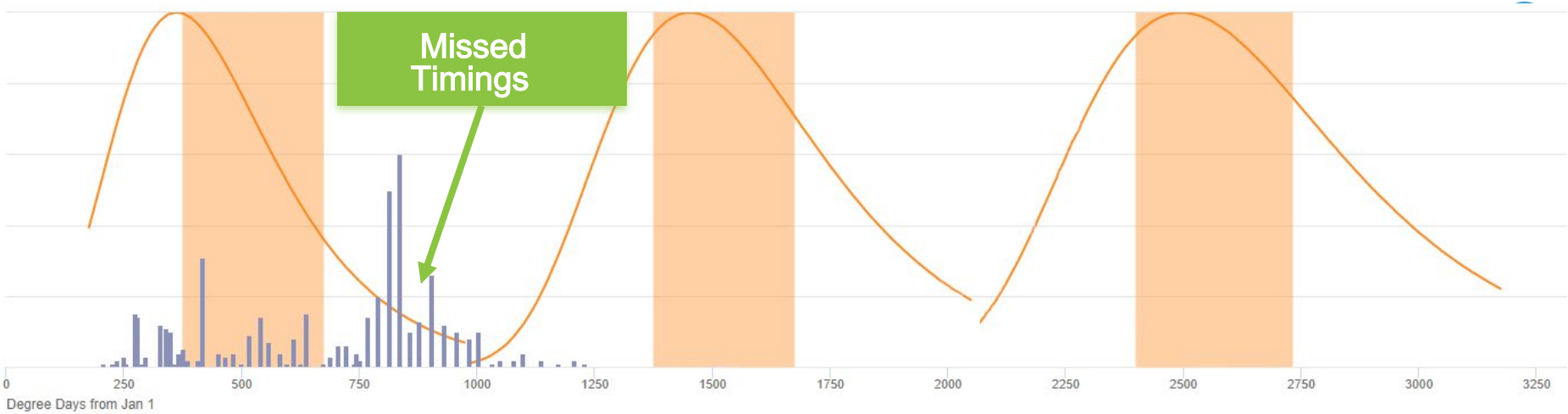
Equivalent or more intensive than peer -reviewed standards of sampling

Courtesy of Semios WA -based Field Research Team

Ensuring Execution is Ensures Success

Agworld by semios

P Plan → R Recommendation → W Work Order → A Actual


Missed Timings
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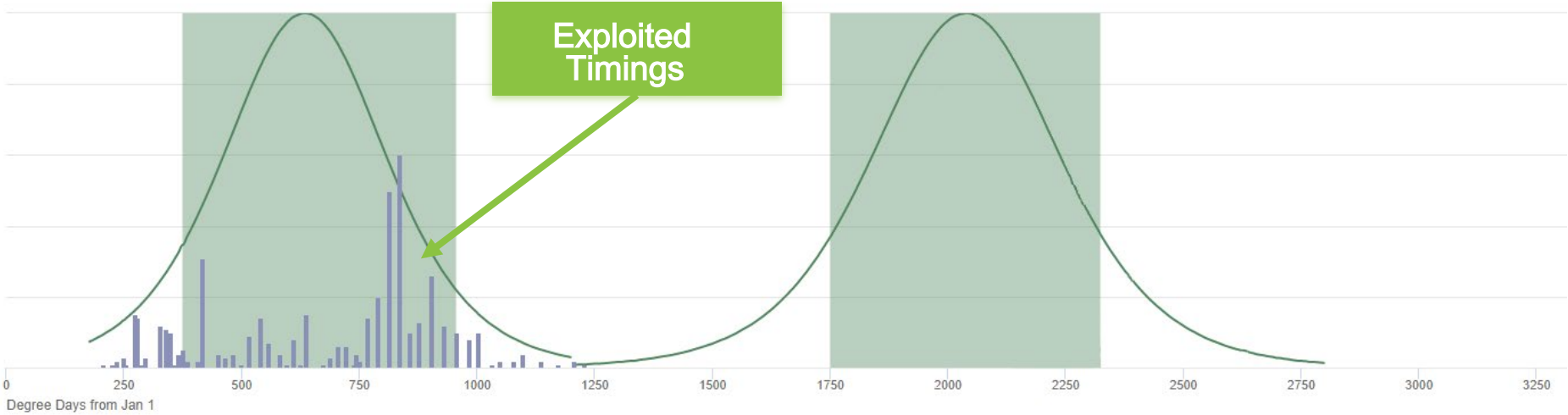
3000
3250
Degree Days from Jan 1


Exploited Timings
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3250
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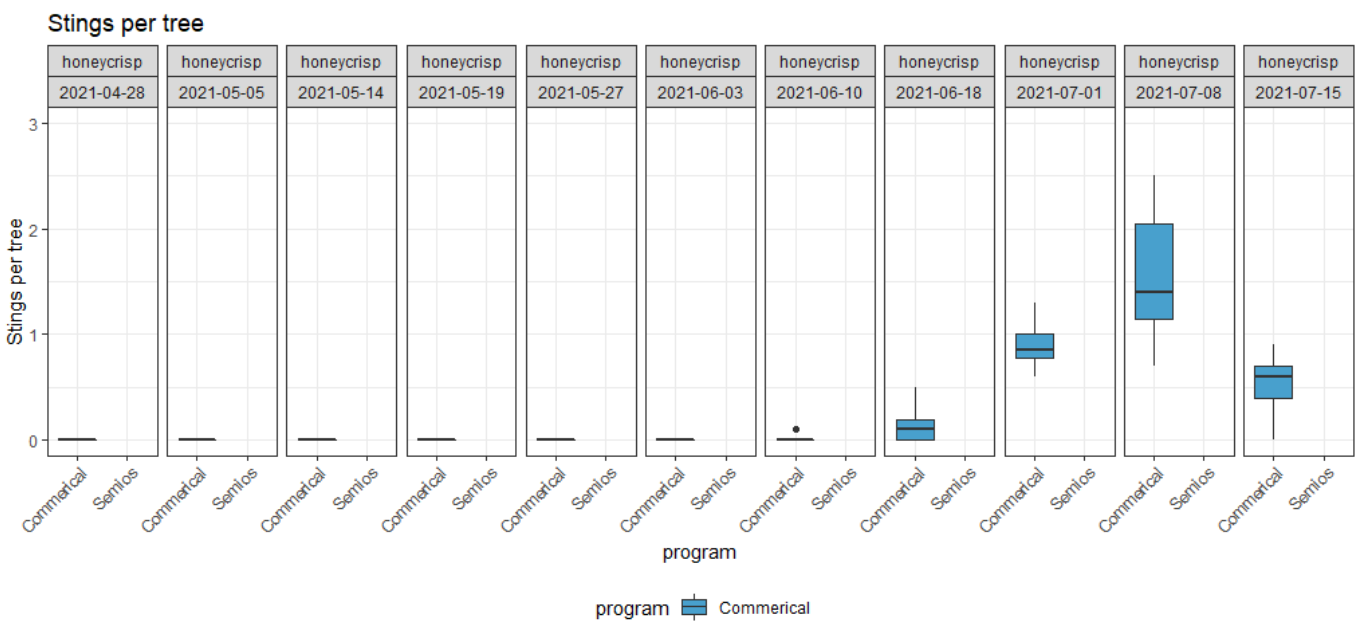
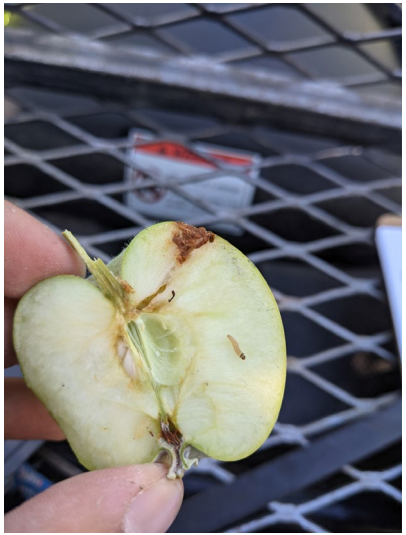
Results in Honeycrisp Apples - Stings





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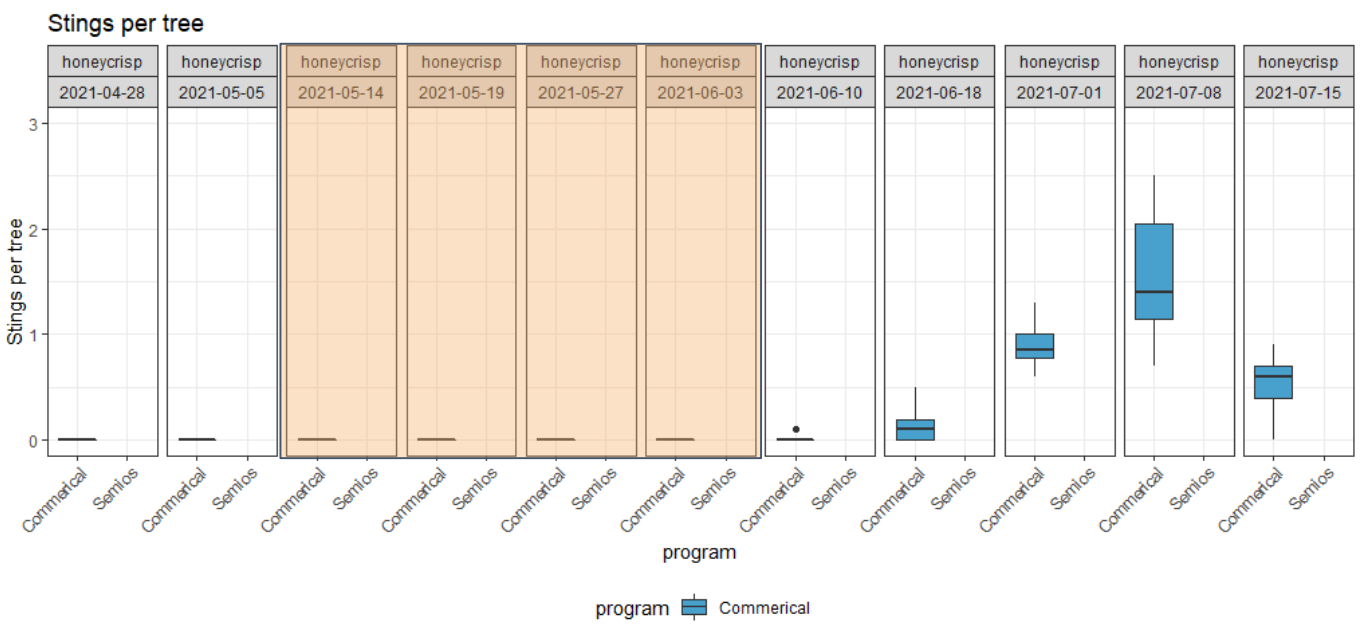

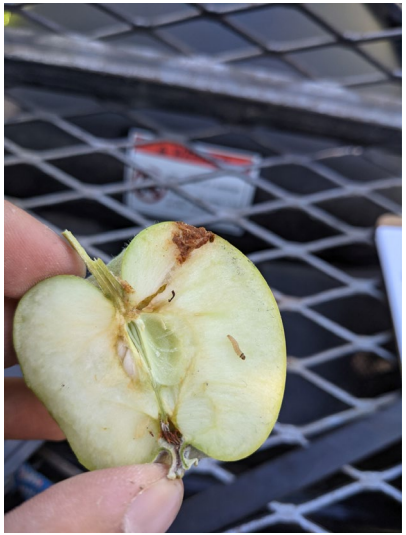

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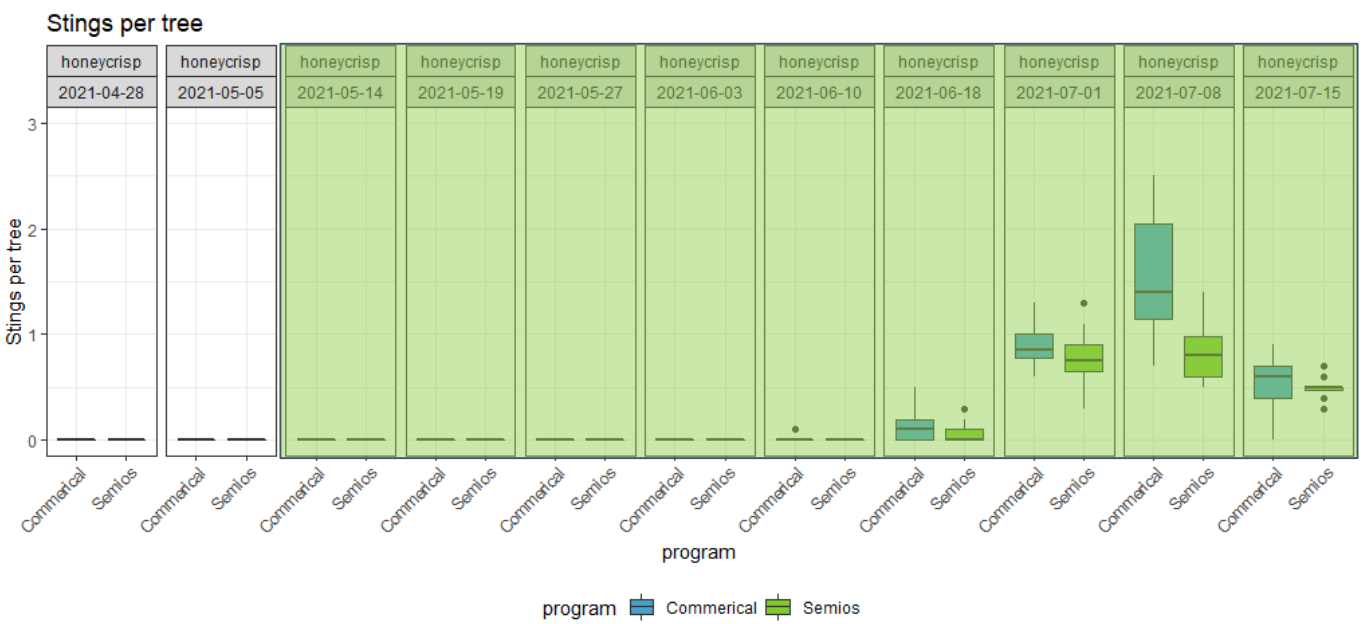

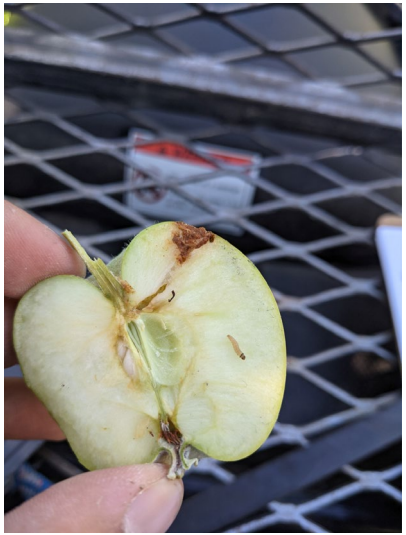

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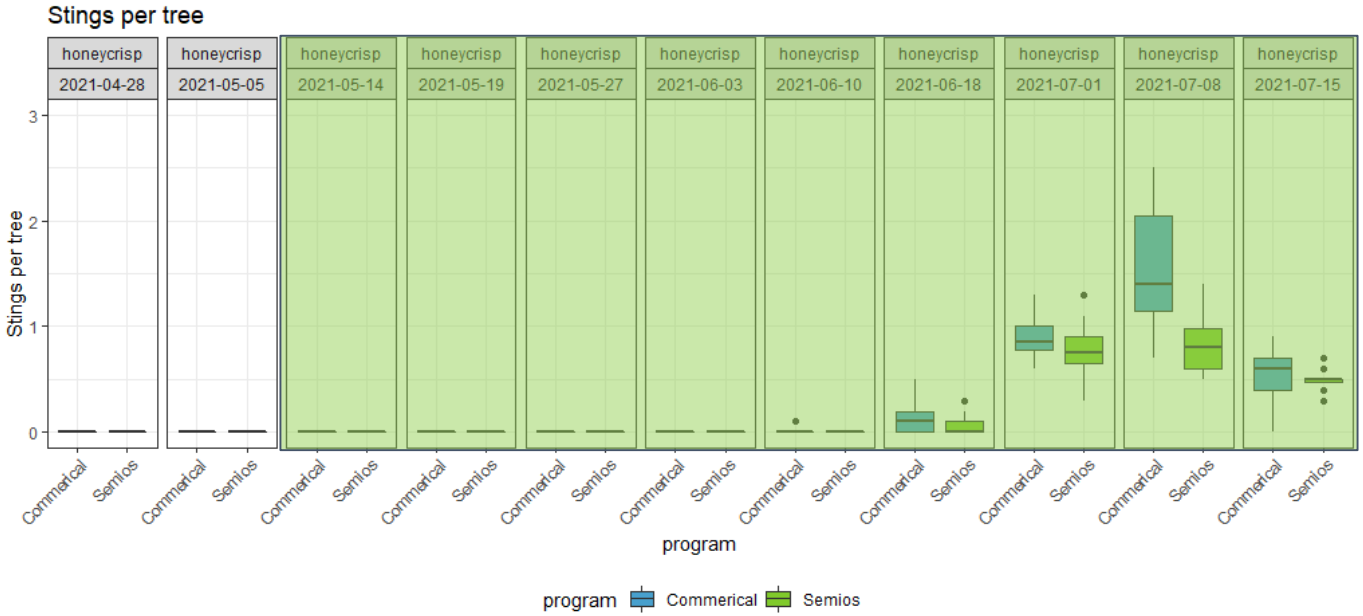

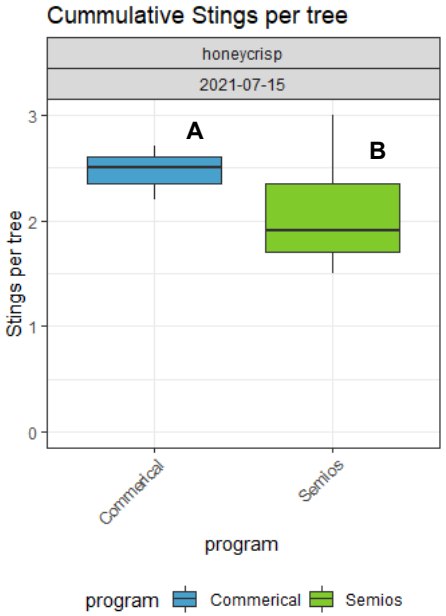

Season Long Reduction in Damage = 6.2 bins/ha = $2,480/ha

Program Comparison

$

	Commercial Program
Chemistries Used	8
Application Events	18
Frequency of Trap Counts	Weekly
Program Cost	$4,727

Program Comparison

	$	
	Commercial Program	Semios Derived Program
Chemistries Used	8	2
Application Events	18	21
Frequency of Trap Counts	Weekly	Daily
Program Cost	$4,727	$2,993

Reduction in Chemicals =

$1,734/ha

Agworld by semios

YIELD

SPRAY

INPUT RECORDS

EVIDENCE -BASED INSIGHTS

semios

ALL IN ONE DASHBOARD

PEST MONITORING

CROP PHENOLOGY

WEATHER

REMOTELY SENSED DATA SETS

Agworld by semios

YIELD
SPRAY
FERTILIZER
IMAGERY

INPUT RECORDS

EVIDENCE -BASED INSIGHTS

semios

ALL IN ONE DASHBOARD

PEST MONITORING
CROP WATER STATUS
APPLIED WATER
SOIL MOISTURE
FRUIT SIZING
CROP PHENOLOGY
DISEASE
FROST ALERTS
WEATHER

REMOTELY SENSED DATA SETS

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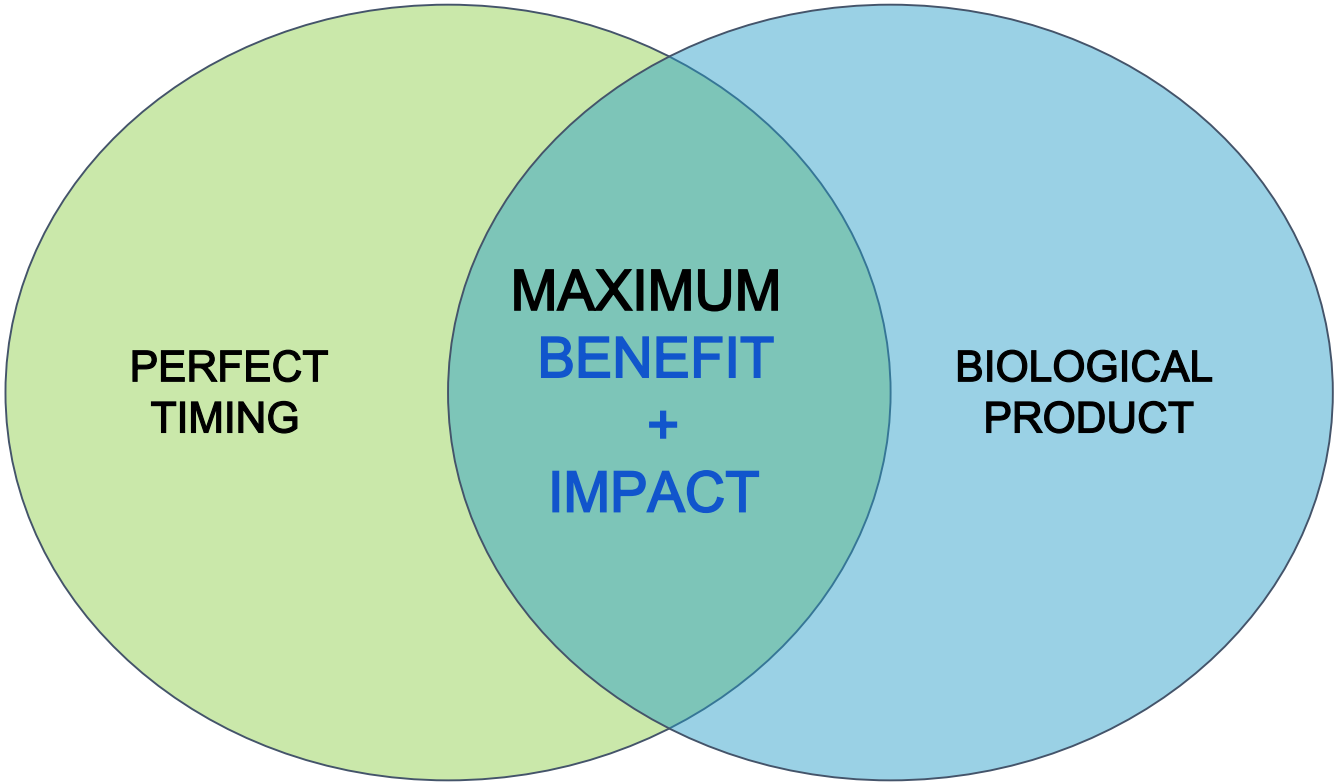
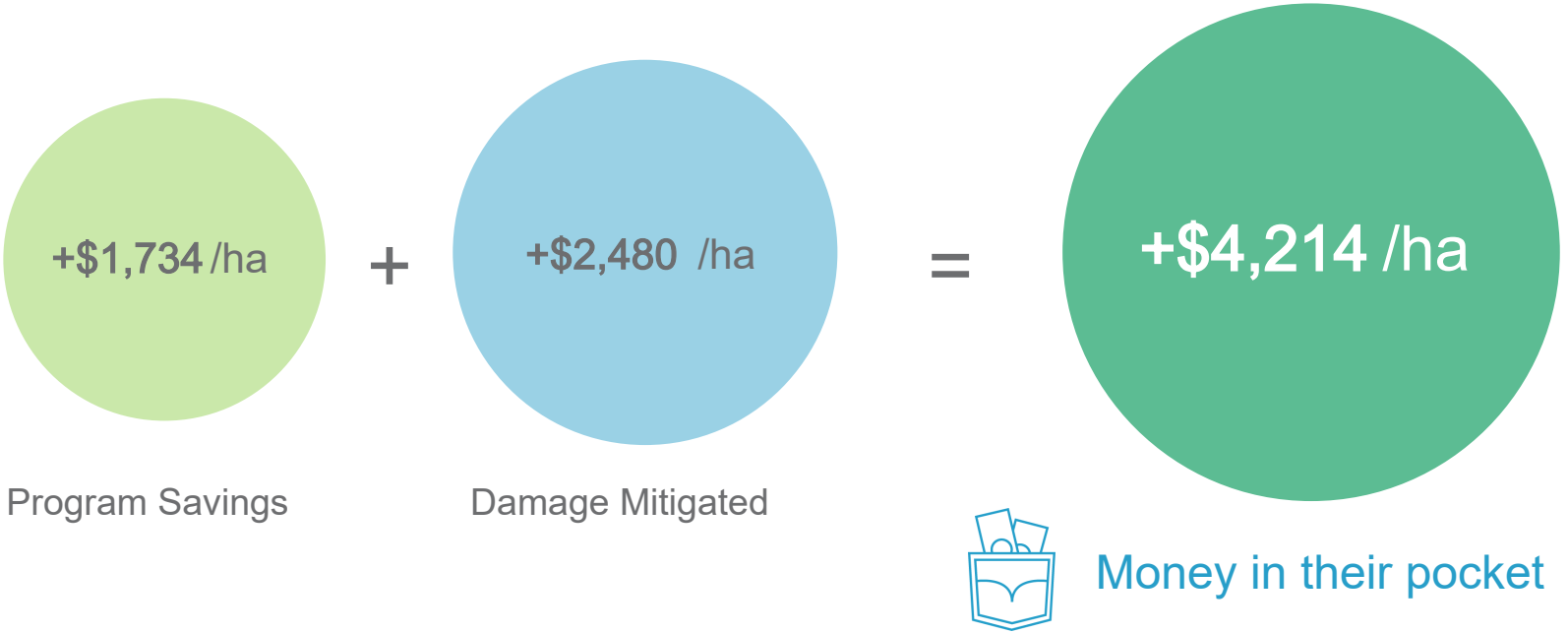
FROST FANS
IRRIGATION
VARIABLE RATE MATING DISRUPTION

SYSTEM AUTOMATION

What a MANUFACTURER thinks



How a GROWER Should Perceive Biologicals



In Summary

- Biologicals will require the support of data driven decision-making to ensure consistent performance and adoption
- Farm Management Platforms are required to consolidate information to allow applicators to
  - Plan for success
  - Identify and execute as intended
- When biologicals are implemented as manufacturers intended they make economic sense

semios