

APPLICATION and TIMING

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USDA does NOT recommend

- Specific names, products given for informational purposes only



**USDA
SCIENCE
AND
RESEARCH
STRATEGY,
2023 - 2026:
Cultivating
Scientific Innovation**

Strategic relevance of NOW research at ARS-Parlier including sterile insect technique (SIT)

Priority 1: Accelerating Innovative Technologies & Practices
Inclusive Innovation Culture

Priority 4: Cultivating Resilient Ecosystems
Genomics and Genome Editing
Infectious Diseases and Pests

Priority 5: Translating Research Into Action
Data Assets

**Partnerships are Fundamental to Achieve
Research Priorities**

Ongoing research by ARS-Parlier & Partners
addresses critical stakeholder needs

- Optimize operations of NOW SIT Pilot Program

For Each

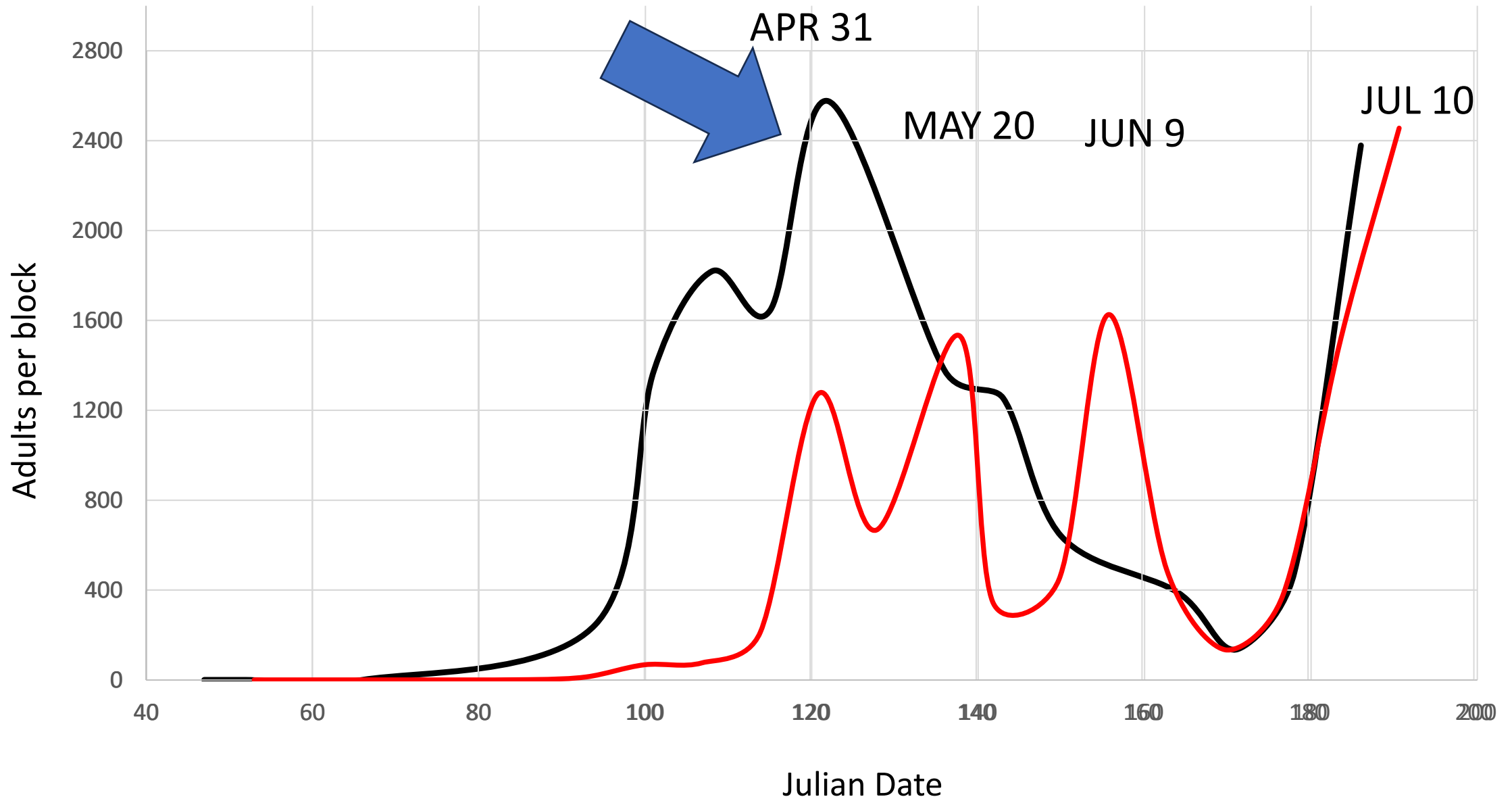
Generation/Flight:

Win, Lose or Draw

Timing

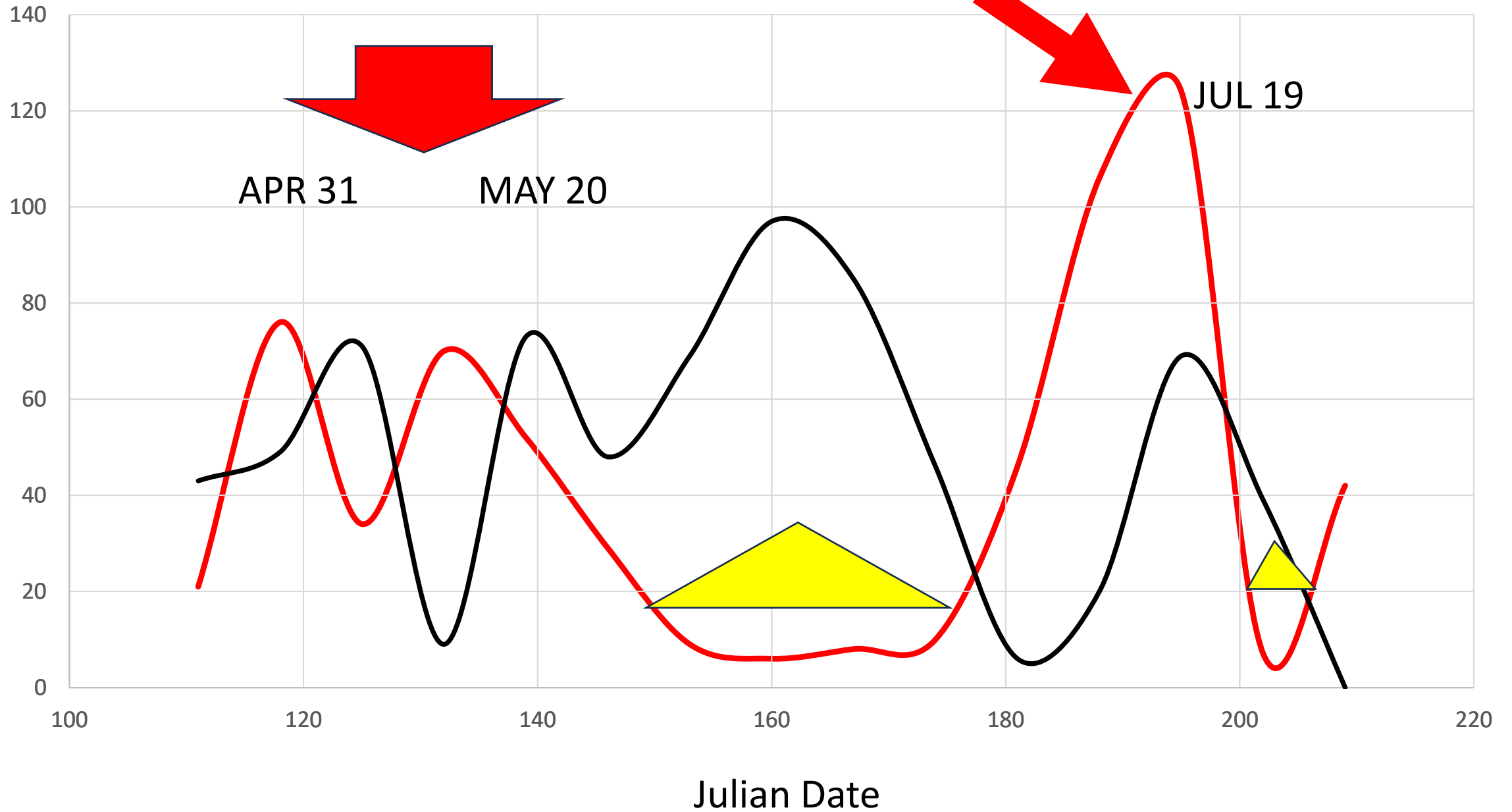
WIN

Fresno County Almonds



WIN

Madera County



**Use Calendar for
Winter+Spring flight and
switch to degree days for
timing NOW peak around
hull split**

But
Nut Trumps
Everything

Application

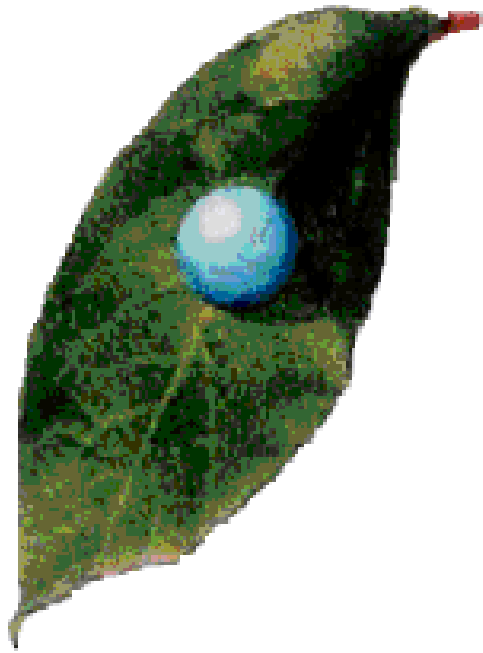
Failure is from
the top down

Not dumping

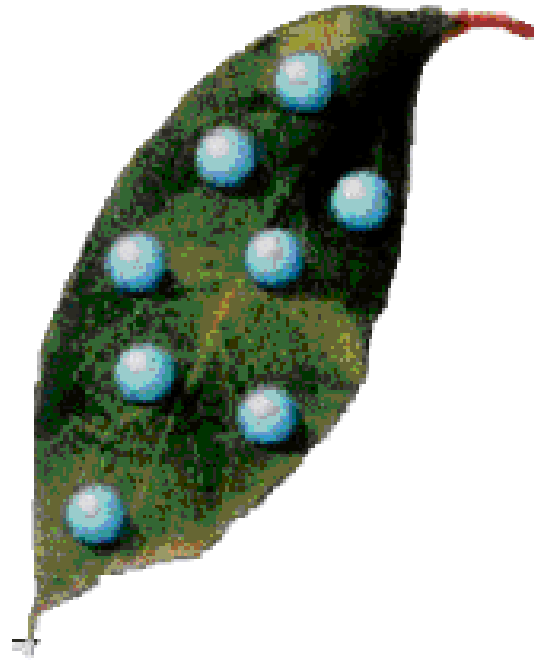
water:

displacing air

Droplet size and number



1 500 μm droplet



8 250 μm droplets



64 125 μm droplets

Same total volume contained in each combination

1. Droplet Size Matters

2. Adjuvant makes a difference

3. Spray Volume matters

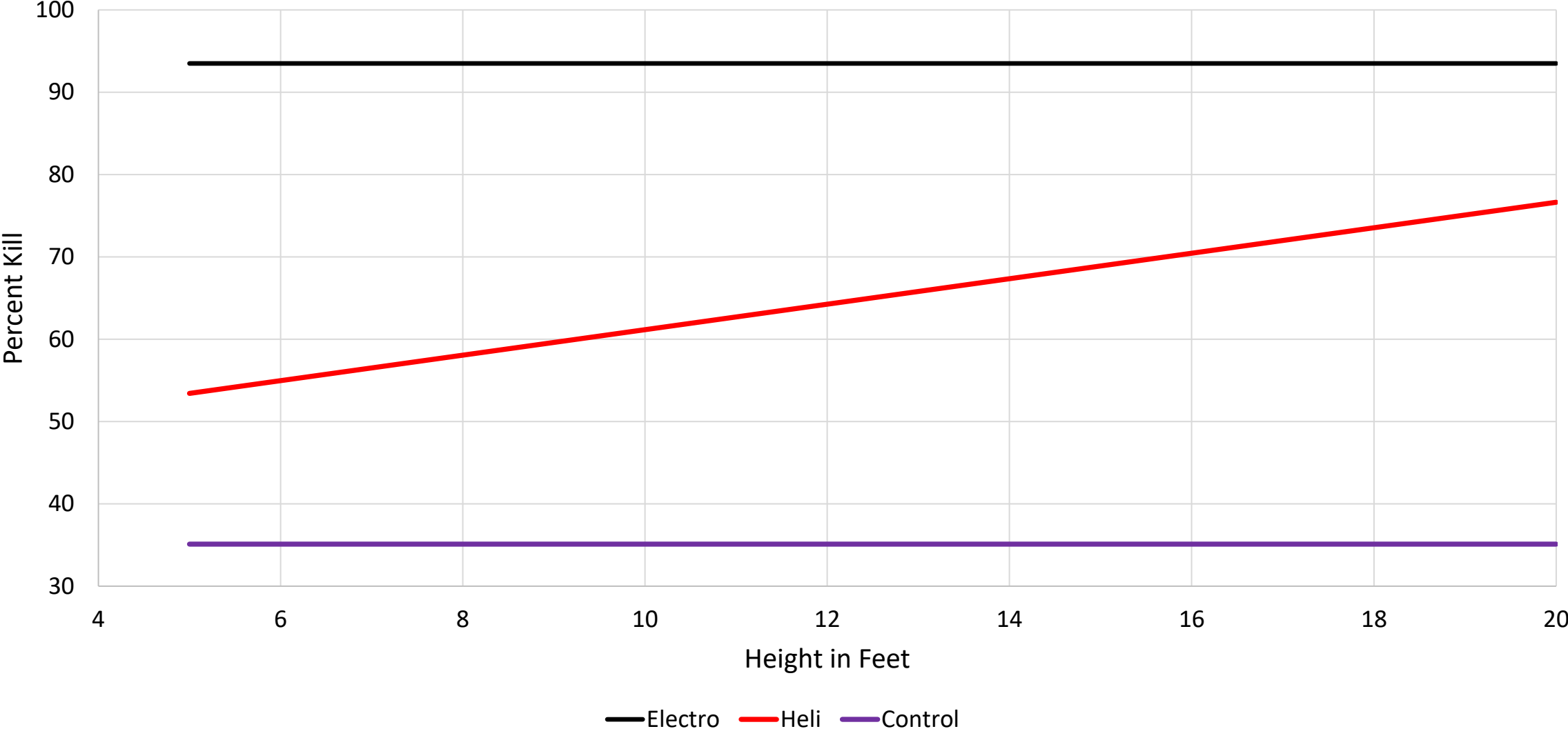
depending on nozzle and
adjuvant choice

Ground vs Air?

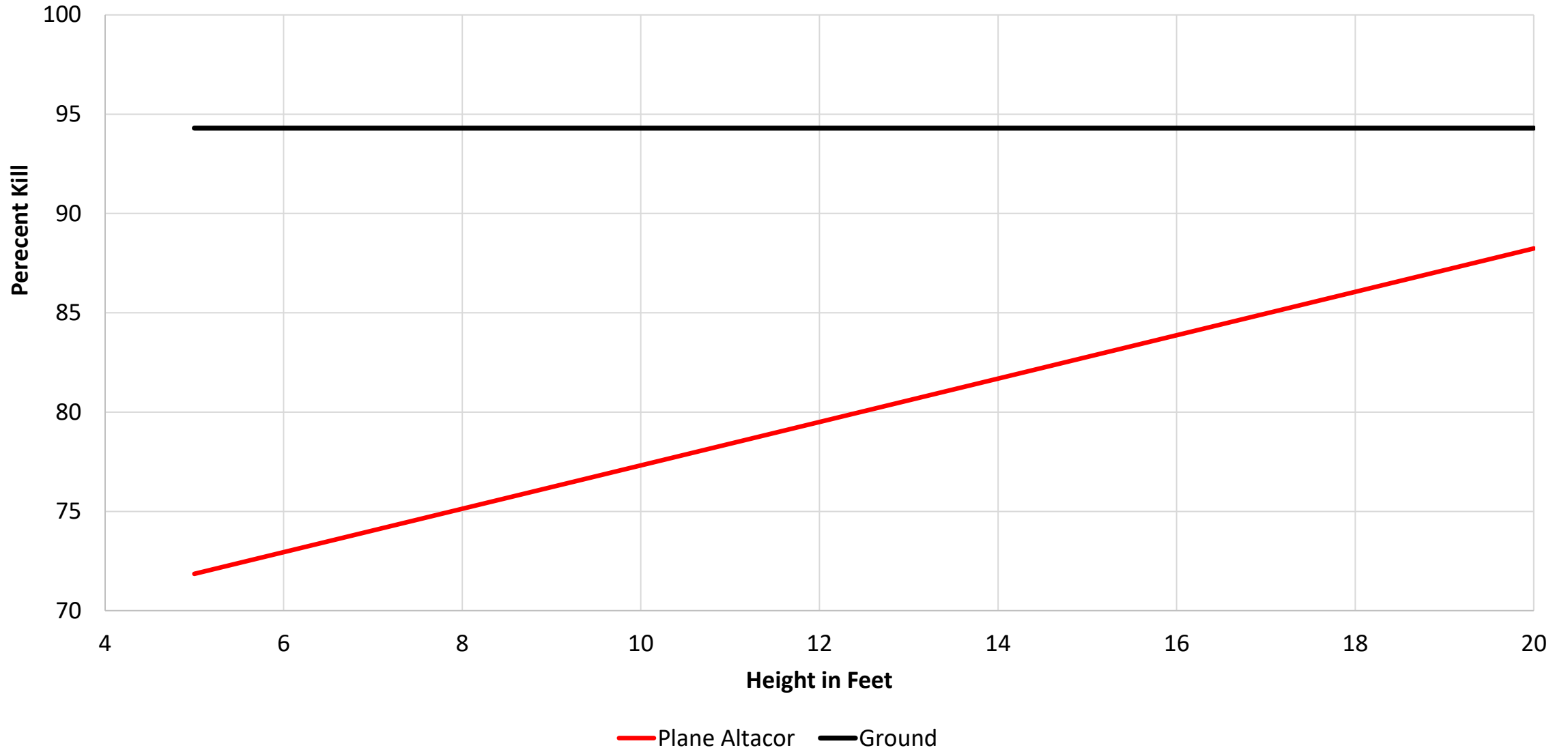
Tradeoffs

Treatment	Percent Kill Interior 12-14 FEET
Intrepid Edge PTO 100 GPA Kinetic	96.9
Intrepid Edge Plane 15 GPA Kinetic	78.2
Altacor + Mustang PTO 100 GPA Kinetic	91.9
Altacor + Mustang Plane 100 GPA Kinetic	64.5
Intrepid Edge Electrostatic 35 GPA DyneAmic	89.8
Intrepid Edge Copter 10 GPA DyneAmic	60.3

Vierra Pistachio, Intrepid Edge at 18 oz/ac by electrostatic ground rig and by helicopter



Pistachios, Plane vs PTO, Altacor+Mustang, Kinetic



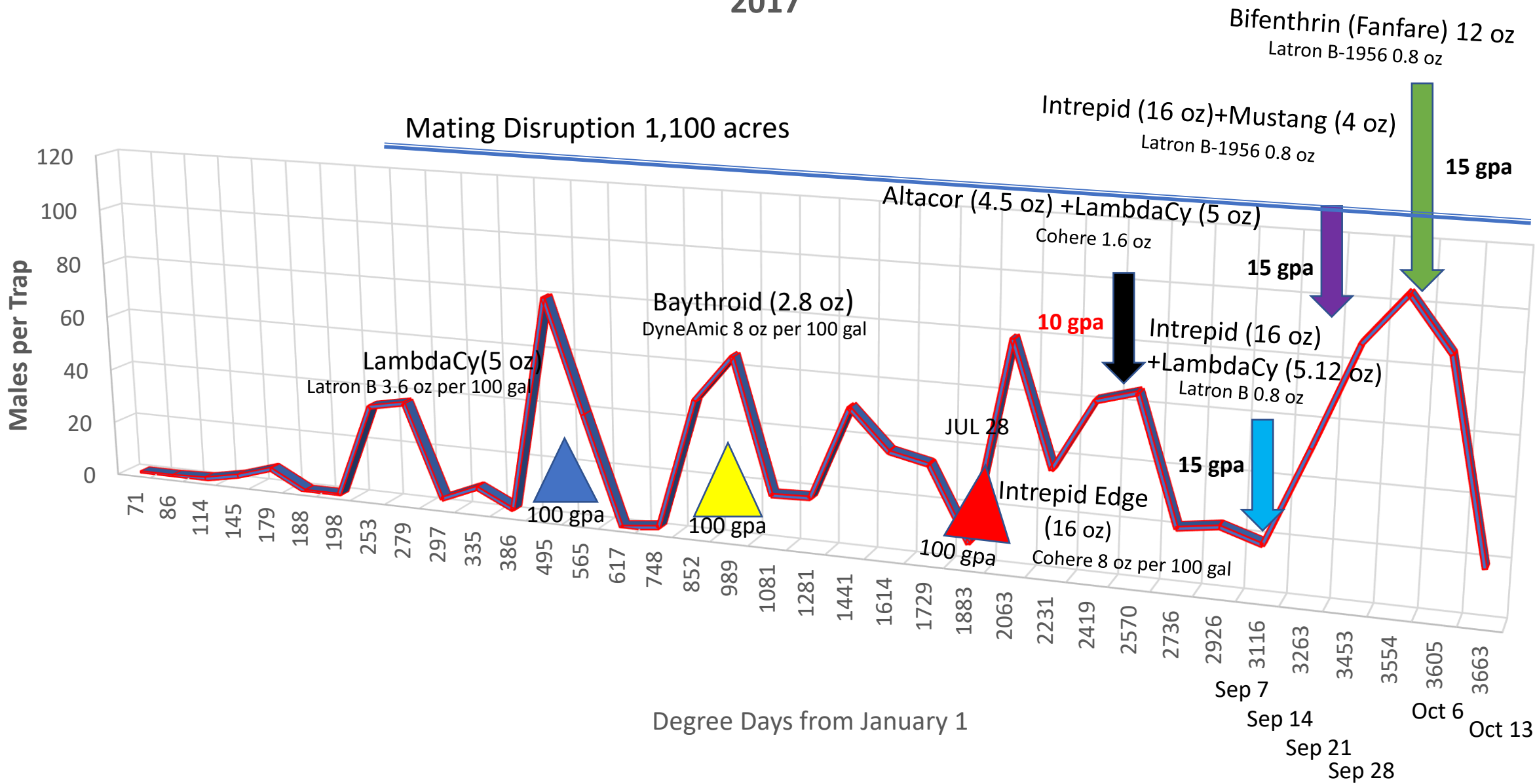
**What does it take to succeed
during high pressure?**

Obviously, Mating Disruption is
NOT Salvation in a can

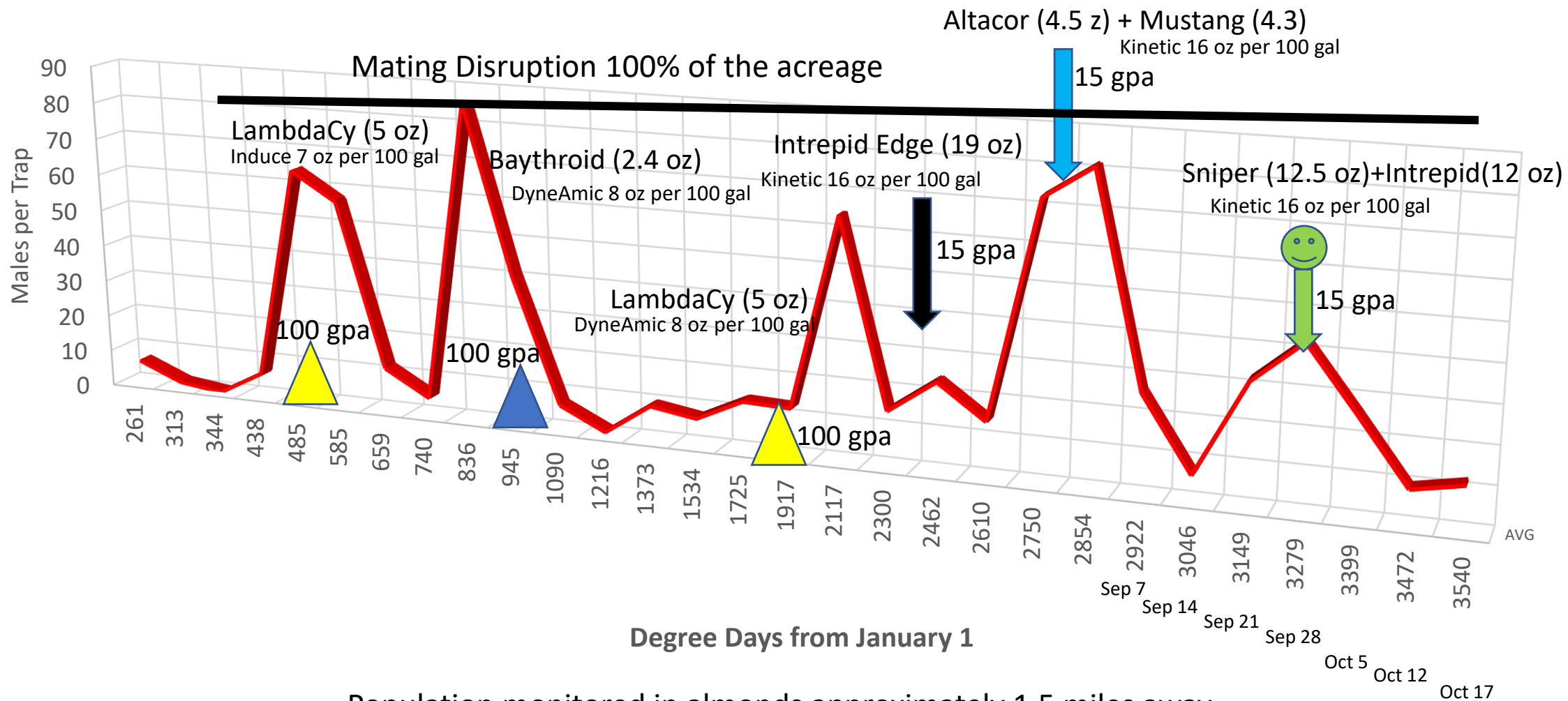
But....



2017



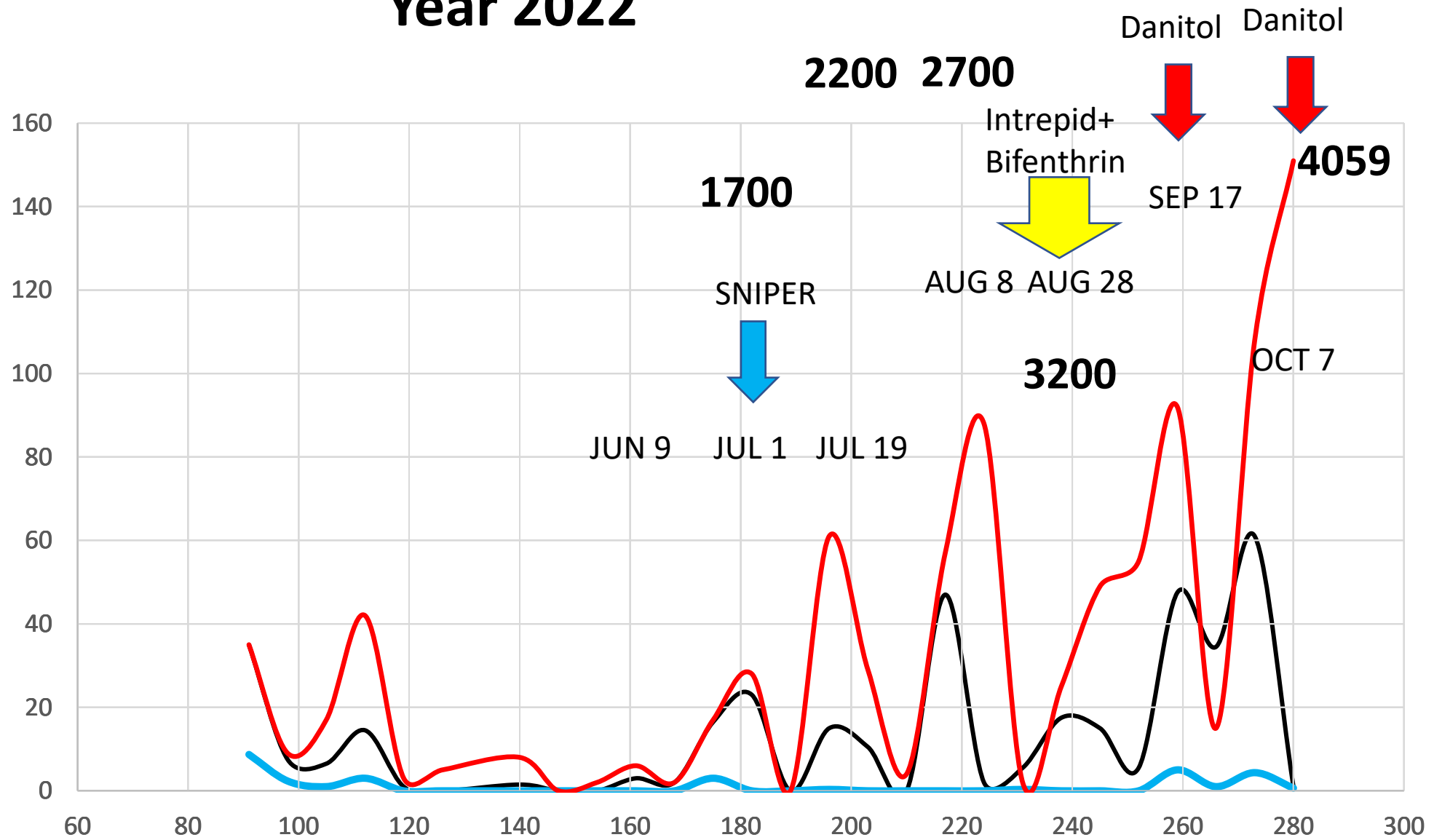
2018



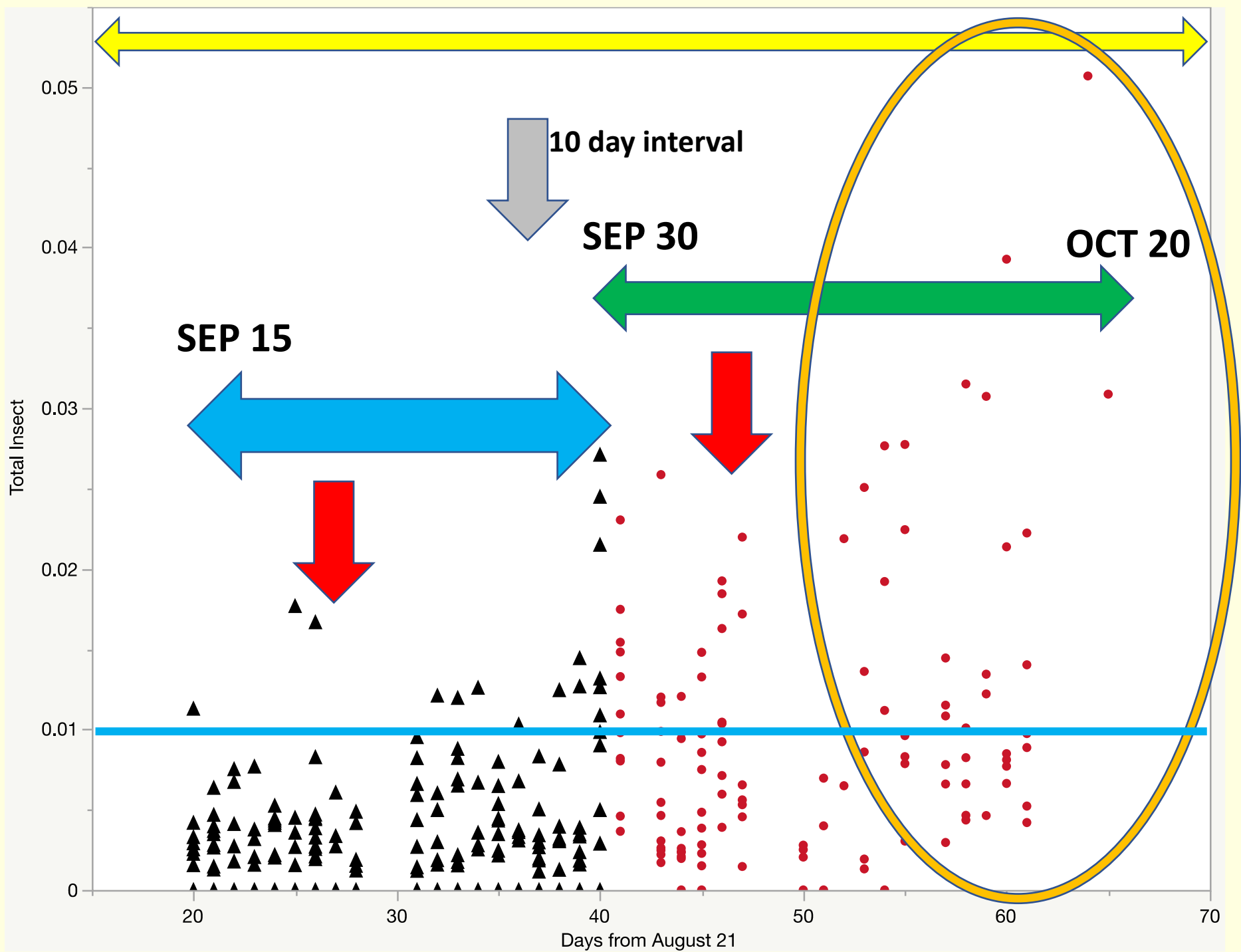
Population monitored in almonds approximately 1.5 miles away

**Proactive is better
than Reactive**

Year 2022



Mating Disruption



HANGING OVER EVERYTHING



Our Tree Nut Stakeholders and Collaborators

- Almond Board of California
- American Pistachio Growers
- Pistachio Research Board
- Walnut Board
- CDFA
- USDA-APHIS
- USDA-FAS
- University of California
- University of California Cooperative Extension
- Various Agrochemical companies
- Various Growers and Processors





THANK YOU