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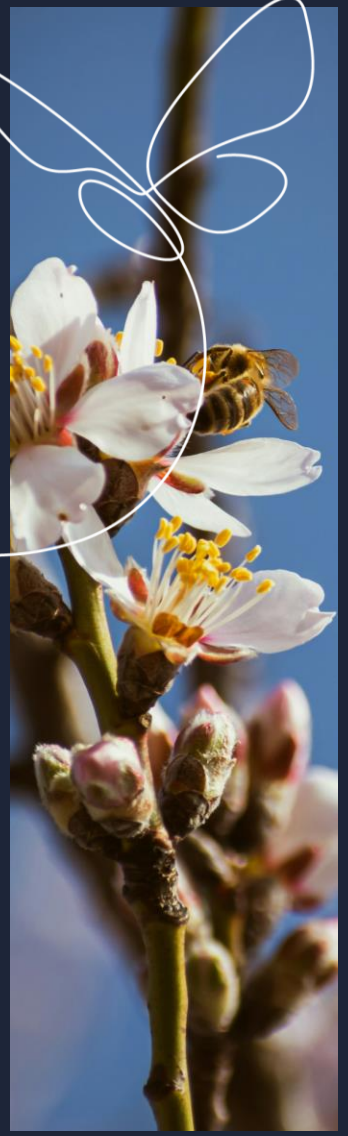

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Design, Analyze and Refine Your Pest Management Plan

Moderator: Lauren Fann (ABC)

Speakers: Justin Nay (Integral Ag.), Cameron Boomgaarden (Vann Family Orchards), Joe Coelho (American Pistachio Growers), Grower (TBA)

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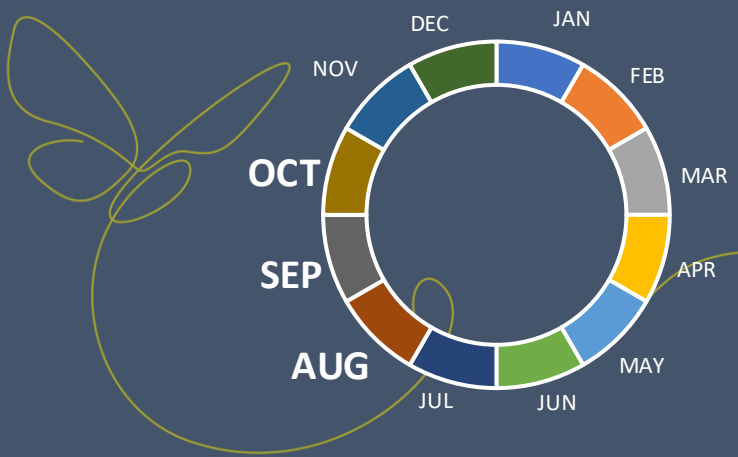
Season long approach to NOW management

Cameron Boomgaarden, Vann Bros

Justin Nay, Integral Ag., Inc.

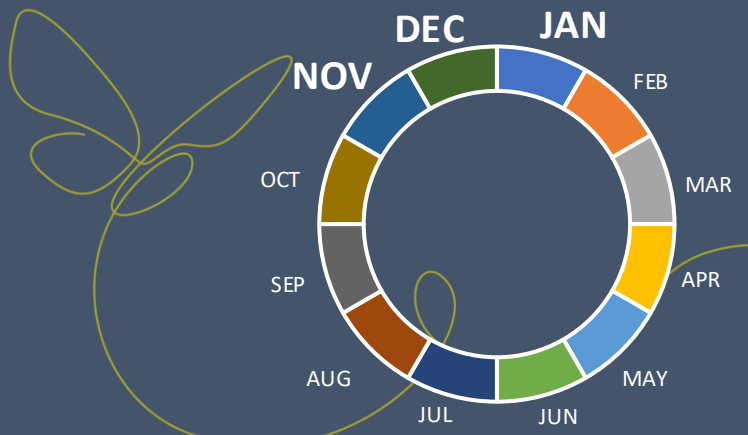
Aug / Sep / Oct

Harvest Season



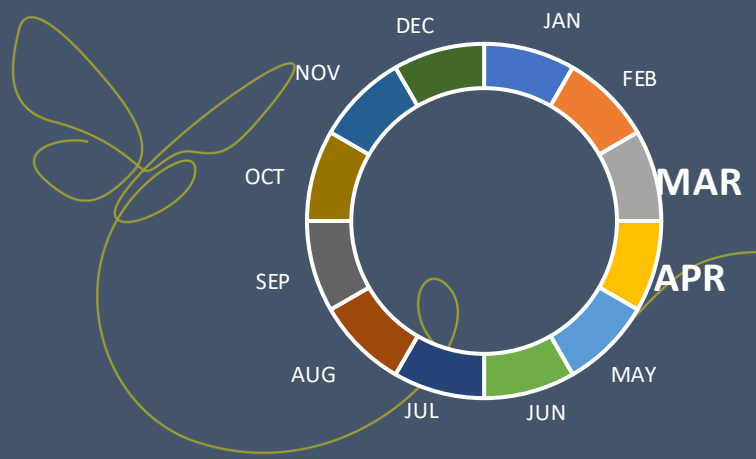
Nov / Dec / Jan

Sanitation Season



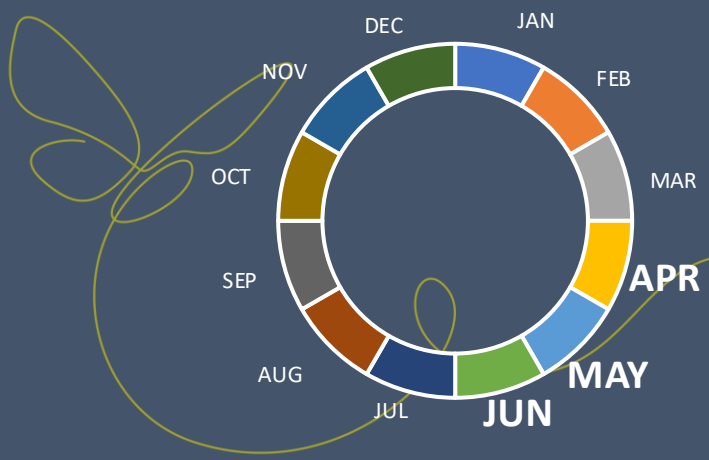
Mar / Apr

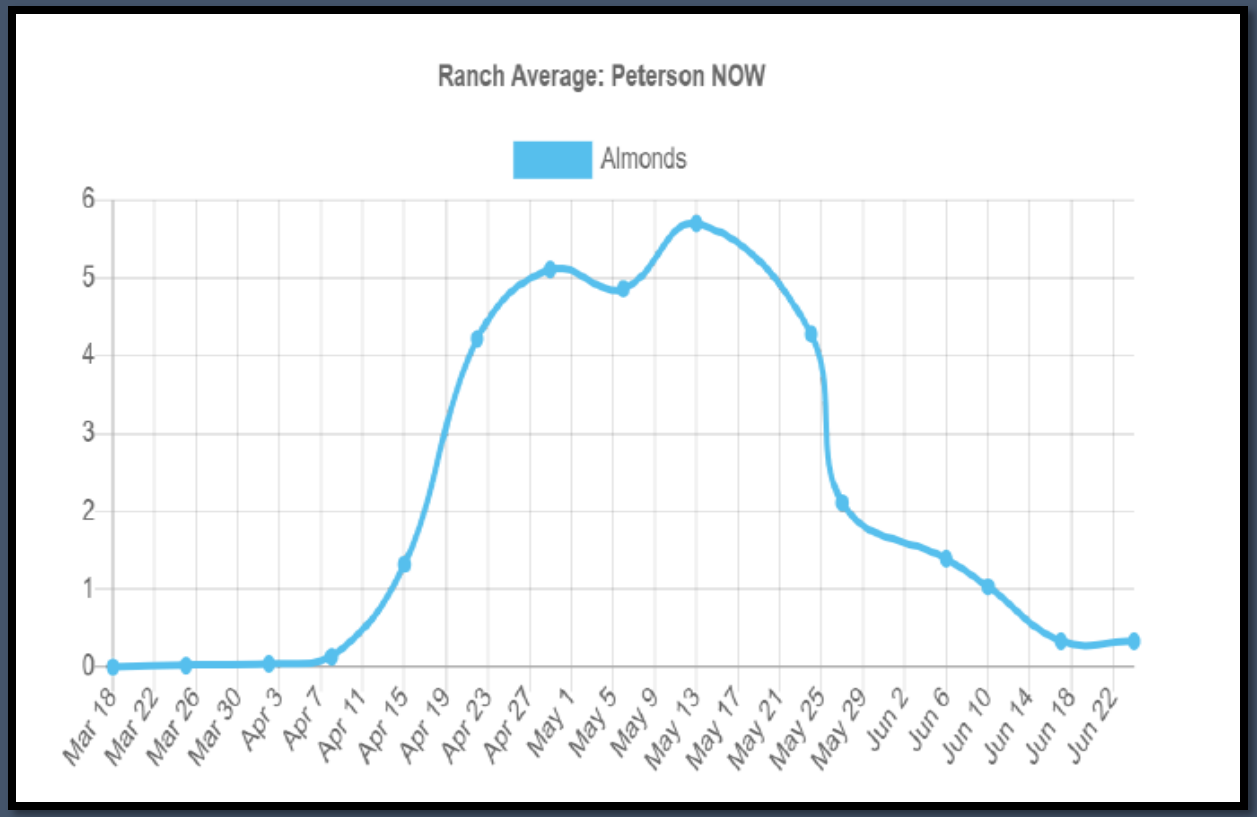
Hang Monitoring Traps, Install Mating Disruption

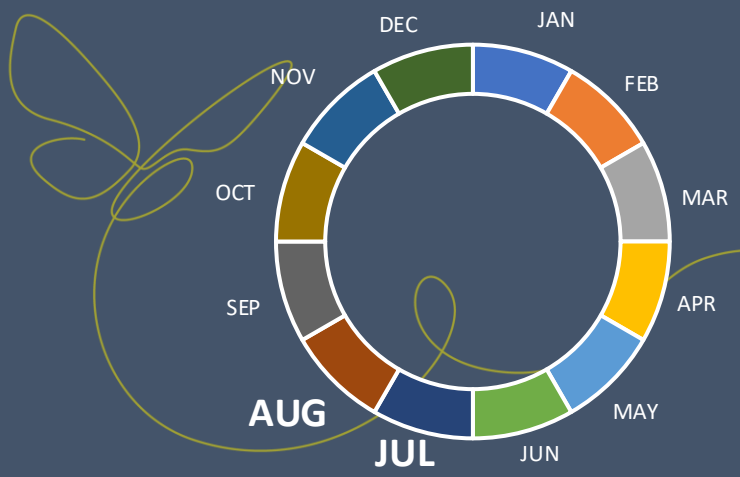


Apr / May / Jun

1st flight, May Sprays, Trap Totals

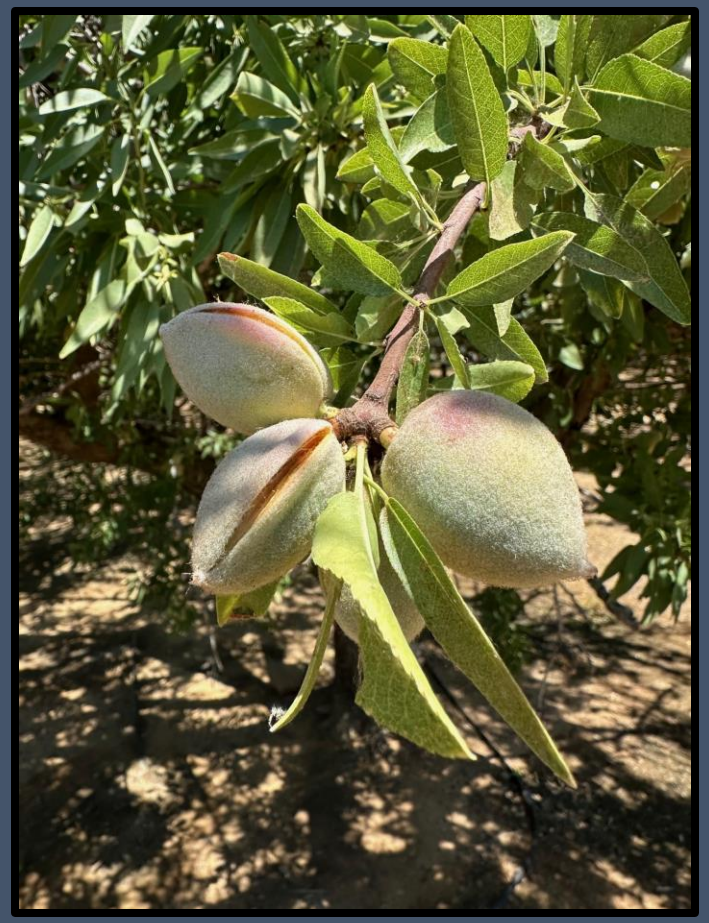






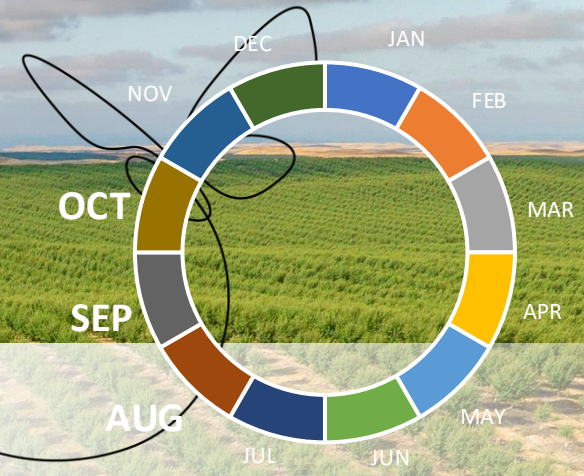
Jul / Aug

Hull split Sprays, 3rd Flight Sprays, Harvest Inspections



Aug / Sep / Oct

- 3rd & 4th flights, Back to Harvest Season



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Creating a Pest Management Budget for Almond Orchards: Strategic Planning for Effective and Sustainable Pest Control

Joe Coelho

Terra Linda Farms, American Pistachio Growers

PCA 130641

CCA 371165 NSp, SSp

Agenda

- Why Budget?
- The Pests
- The Budget Snapshot
- Discussion Scenario Assumptions
- Revenue Simulation Build-out, Highs and Lows
- Random Simulation Game

Why Prepare a Budget?

- Optimize Resource Allocation
  - Ensures financial resources are allocated efficiently, minimizing waste, maximize potential profitability
  - Prioritizes investments in cost-effective pest control methods to maximize impact
- Enhance Decision Making
  - Provides a financial overview that aids in making informed decisions about when and how to implement pest control measures.
  - Allows for flexibility in response to unexpected pest outbreaks
- Sustaining Long-term Financial Health
  - Prevents financial devastation from pest infestations, avoiding high costs of remediation

The Pests

- Weeds
- Spider mites
- Insects
- Diseases
- Rodents
- Ants

The Budget Snapshot

- High level of variability across farms
- Static Budget Categories
  - $600 Cash Overhead- office expenses, insurance, taxes, repairs, etc.
  - $1200 Custom Services- pollination, labs, pump testing, harvest, hulling, advisor fees
  - $100 Machinery- machinery fuel, lube and repairs
  - $500 Labor- equipment operator, non-machine, irrigation, and pruning labor
  - $700 Irrigation- water at $200/ac-ft, water treatment
  - $400 Fertilizer and Amendments- $150 for N, $75/ac P/K Fertilizer, $175 misc amendments
  - $400 Bees (2 hives/ac)
  - $3900/ac Static

The Budget Snapshot

- Adjustable Pest Management Costs
  - Application (assume commercial tree sprays @ $40/app)
  - Herbicide
  - Miticide
  - Insecticide
  - Fungicide
  - Ant Bait
  - Mating Disruption
  - Rodenticides
  - Adjuvants

Discussion Scenario Assumptions

- Mature almond >7th leaf, West Fresno County (dry, low precipitation) 22x18 spacing
- 4 ac-ft / ac irrigation (no additional water stress)
- 50/50 NP/Mont
- 10-20 mummies/tree
- Insect / Mite History
  - Low NOW history
  - Some spring plant bugs (LFB, SB)
  - Fire ants in summer
  - Spider mite pressure at hull split

Discussion Scenario Assumptions

- Disease history
  - Foliar blight with heavy bloom rains
  - Rust when humid
  - Drained soils, no phytophthora
- Neighbor Situation
  - Peripheral upwind almonds with high mummy counts
  - Nearby pistachios
  - Nearby pomegranates
  - Abandoned almonds 1 mile away
- Weeds: winter grass, light fleabane, jungle rice, 10’ band, 3x mow center
- Conventional

Revenue Simulation Build-out

- Gross Revenue Calculator
  - Yield estimate x price/lb

Field Varieties	Expected Yield	Gross/ac	Percentage of Field	Gross/variety	Gross adj/ac
NP	2500	6225	50%	3112.5	5875
Mont	2500	5525	50%	2762.5	

Cost for Avg Sized Kernels	
NP	2.49
Mont	2.21
Ind	2.26
Cal	2.21
BP	2.25

Revenue Simulation Build-out

Almond Pest Management Budget

Complete Budget

	High	Low
Pest Management		
Cash Overhead	$600	$600
Custom Services	$1,200	$1,200
Machinery	$100	$100
Labor	$500	$500
Irrigation	$700	$700
Bees	$400	$400
fert	$300	$300
amendments	$100	$100
Total Spend	**$3,900**	**$3,900**
Crop Receipts	**$5,875**	**$5,875**
Net Return	**$1,975**	**$1,975**

Pest Management Budget

	High	Low
application		
herbicide		
miticide		
insecticide		
adjuvants		
fungicide		
ant bait		
Mating Disruption		
rodenticides		

Total Pest. Spend

Hi/Low Agr. Diff	

Revenue Simulation Build-out

- Herbicide
  - Low-end
    - 1 x preemerge Matrix, Prowl, Goal 2XL, RUPM: $27/ac
    - 3 x burndown Rely, Clethodim, NIS $18/ac x 3 = $54/ac
    - Total $81/ac
  - High-end
    - 2 x preemerge Nov / March $54/ac
    - 4 x burndown $18 x 4 = $72/ac
    - Total $126/ac

Pest Management Budget

	High	Low
application		
herbicide	$126	$81
miticide		
insecticide		
adjuvants		
fungicide		
ant bait		
Mating Disruption		
rodenticides		
Total Pest. Spend	**$126**	**$81**
Hi/Low Agr. Diff	**$45**	

Revenue Simulation Build-out

- Miticide
  - Low-end: (oil adjuvants help this)
    - Spring Abamectin $10/ac
    - 1 x Hull Split Nealta $40/ac
    - Total $50/ac
  - High-end:
    - Spring Zeal $40/ac
    - June flare up Nealta $40/ac
    - Hull Split Onager $45/ac
    - Hull Split Late Spray Nealta $40/ac
    - Total $165/ac

Pest Management Budget

	High	Low
application		
herbicide	$126	$81
miticide	$165	$50
insecticide		
adjuvants		
fungicide		
ant bait		
Mating Disruption		
rodenticides		
Total Pest. Spend	**$291**	**$131**
Hi/Low Agr. Diff	**$160**	

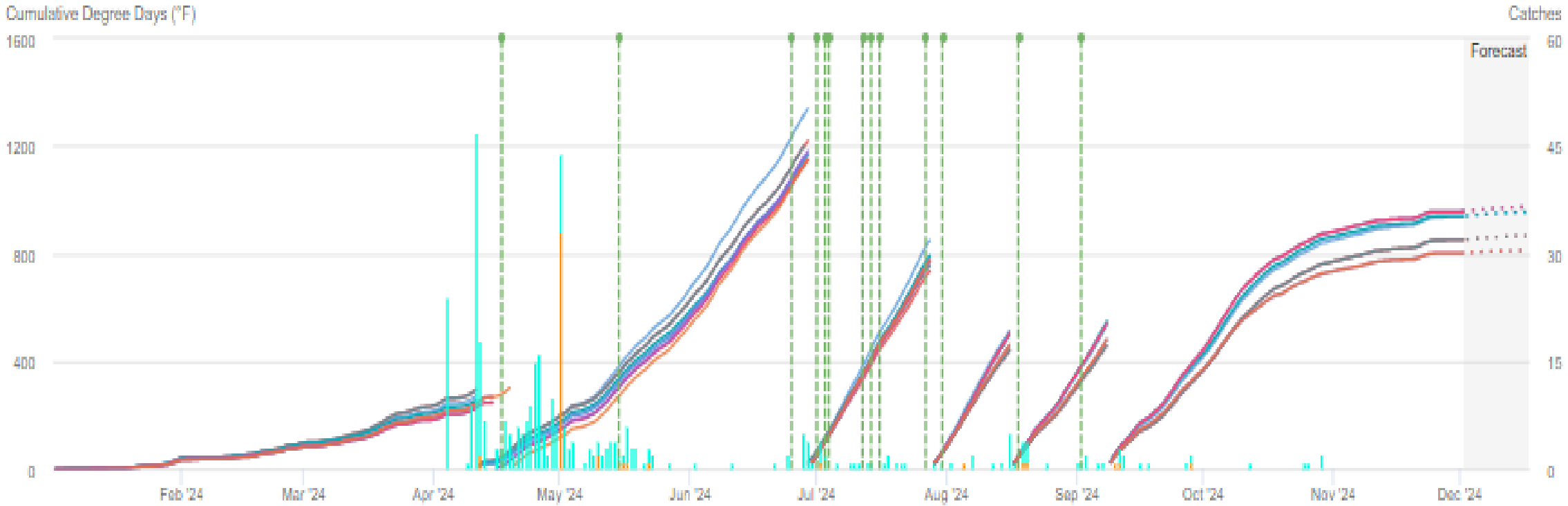
Revenue Simulation Build-out

- Insecticide
  - Low-end:
    - Spring Lambda cy $5/ac
    - Spring Flight 1 Intrepid 2F $30/ac
    - Hull Split Flight 2 2x Altacor $30 x 2 = $60/ac
    - Hull Split 2x Bifenthrin $5 x 2 = $10/ac
    - Hull Split Flight 3 Mont Only (50%) Intrepid 2F $15/ac
    - Hull Split Slight 3 Mont Only (50%) Permethrin $2/ac
    - Total $122/ac
  - High-end:
    - SJ Scale Insecticide + oil $60
    - Spring Lambda cy $5/ac
    - Spring Flight 1 Intrepid 2F $30/ac
    - Hull Split Flight 2 2x Altacor $30 x 2 = $60/ac
    - Hull Split 2x Bifenthrin $5 x 2 = $10/ac
    - Hull Split Flight 3 Intrepid 2F $30/ac
    - Hull Split Flight 3 Permethrin $4/ac
    - Hull Split Flight 3 Mont Only (50%) Intrepid 2F $15/ac
    - Hull Split Slight 3 Mont Only (50%) Permethrin $2/ac
    - Total $216/ac

Pest Management Budget

	High	Low
application		
herbicide	$126	$81
miticide	$165	$50
insecticide	$216	$122
adjuvants		
fungicide		
ant bait		
Mating Disruption		
rodenticides		
Total Pest. Spend	**$507**	**$253**
Hi/Low Agr. Diff	**$254**	

Revenue Simulation Build-out



Revenue Simulation Build-out

- Adjuvants
  - Low-end:
    - 6.5 NIS apps $26/ac
  - High-end:
    - 4 NIS apps $16/ac
    - 3.5 Citrus Oil 1 pt/100 $35/ac (mite suppression)
    - Total $51/ac

Pest Management Budget

	High	Low
application		
herbicide	$126	$81
miticide	$165	$50
insecticide	$216	$122
adjuvants	$51	$26
fungicide		
ant bait		
Mating Disruption		
rodenticides		
Total Pest. Spend	**$558**	**$279**
Hi/Low Agr. Diff	**$279**	

Revenue Simulation Build-out

- Fungicides
  - Low-end:
    - 1 Bloom Spray $25/ac
    - 1 Spring Spray $25/ac
    - Total $50/ac
  - High-end:
    - 3 Bloom Sprays $75/ac
    - 1 Spring Spray $25/ac
    - Rust Oxidate 5.0 rescue $20
    - Hull Split Spray 1 Hull Rot Spray $25
    - Total $145

Pest Management Budget

	High	Low
application		
herbicide	$126	$81
miticide	$165	$50
insecticide	$216	$122
adjuvants	$51	$26
fungicide	$145	$50
ant bait		
Mating Disruption		
rodenticides		
Total Pest. Spend	**$703**	**$329**
Hi/Low Agr. Diff	**$374**	

Revenue Simulation Build-out

- Ant Bait
  - Low-end: $0/ac
  - High End: 2 apps $20/ac

Pest Management Budget

	High	Low
application		
herbicide	$126	$81
miticide	$165	$50
insecticide	$216	$122
adjuvants	$51	$26
fungicide	$145	$50
ant bait	$20	$0
Mating Disruption		
rodenticides		
Total Pest. Spend	**$723**	**$329**
Hi/Low Agr. Diff	**$394**	

Revenue Simulation Build-out

- Mating Disruption
  - Low-end: $75/ac
  - High-end: $120/ac

Pest Management Budget

	High	Low
application		
herbicide	$126	$81
miticide	$165	$50
insecticide	$216	$122
adjuvants	$51	$26
fungicide	$145	$50
ant bait	$20	$0
Mating Disruption	$120	$75
rodenticides		
Total Pest. Spend	**$843**	**$404**
Hi/Low Agr. Diff	**$439**	

Revenue Simulation Build-out

- Applications
  - Low-end (ground):
    - 1 bloom $40
    - 1 spring $40
    - 2.5(3) Hull Split $120
    - 1 Post harvest $40
    - Total $280/ac
  - High-end (ground):
    - 1 dormant $40
    - 3 bloom $120
    - 1 Spring $40
    - 1 June $40
    - 4 Hull Split $160
    - Total $400/ac

Pest Management Budget

	High	Low
application	$400	$280
herbicide	$126	$81
miticide	$165	$50
insecticide	$216	$122
adjuvants	$51	$26
fungicide	$145	$50
ant bait	$20	$0
Mating Disruption	$120	$75
rodenticides		
Total Pest. Spend	**$1,243**	**$684**
Hi/Low Agr. Diff	**$559**	

Revenue Simulation Build-out

- Rodenticides
  - Low-end: Inverted T's $15/ac
  - High-end: T's and Gas $45/ac

Pest Management Budget

	High	Low
application	$400	$280
herbicide	$126	$81
miticide	$165	$50
insecticide	$216	$122
adjuvants	$51	$26
fungicide	$145	$50
ant bait	$20	$0
Mating Disruption	$120	$75
rodenticides	$45	$15
Total Pest. Spend	**$1,288**	**$699**
Hi/Low Agr. Diff	**$589**	

The Shake Out

Almond Pest Management Budget

Complete Budget

	High	Low
Pest Management	$1,288	$699
Cash Overhead	$600	$600
Custom Services	$1,200	$1,200
Machinery	$100	$100
Labor	$500	$500
Irrigation	$700	$700
Bees	$400	$400
fert	$300	$300
amendments	$100	$100
Total Spend	**$5,188**	**$4,599**
Crop Receipts	**$5,875**	**$5,875**
Net Return	**$687**	**$1,276**

Pest Management Budget

	High	Low
application	$400	$280
herbicide	$126	$81
miticide	$165	$50
insecticide	$216	$122
adjuvants	$51	$26
fungicide	$145	$50
ant bait	$20	$0
Mating Disruption	$120	$75
rodenticides	$45	$15
Total Pest. Spend	**$1,288**	**$699**
Hi/Low Agr. Diff	**$589**	

Random Simulation Game

Questions

Joe Coelho
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jcoelho@americanpistachios.org


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