

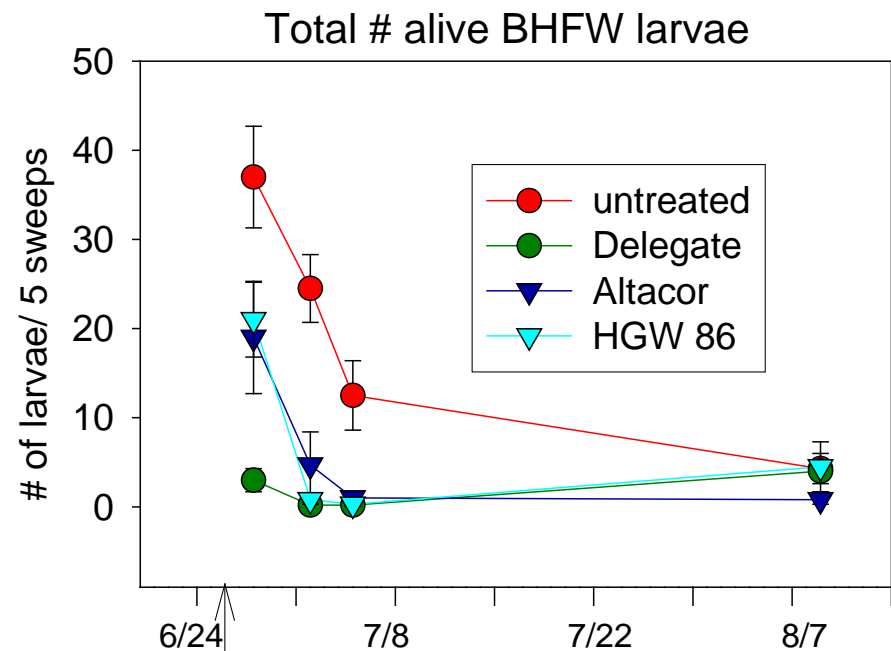
Pest Control Weed Control New Variety Trials



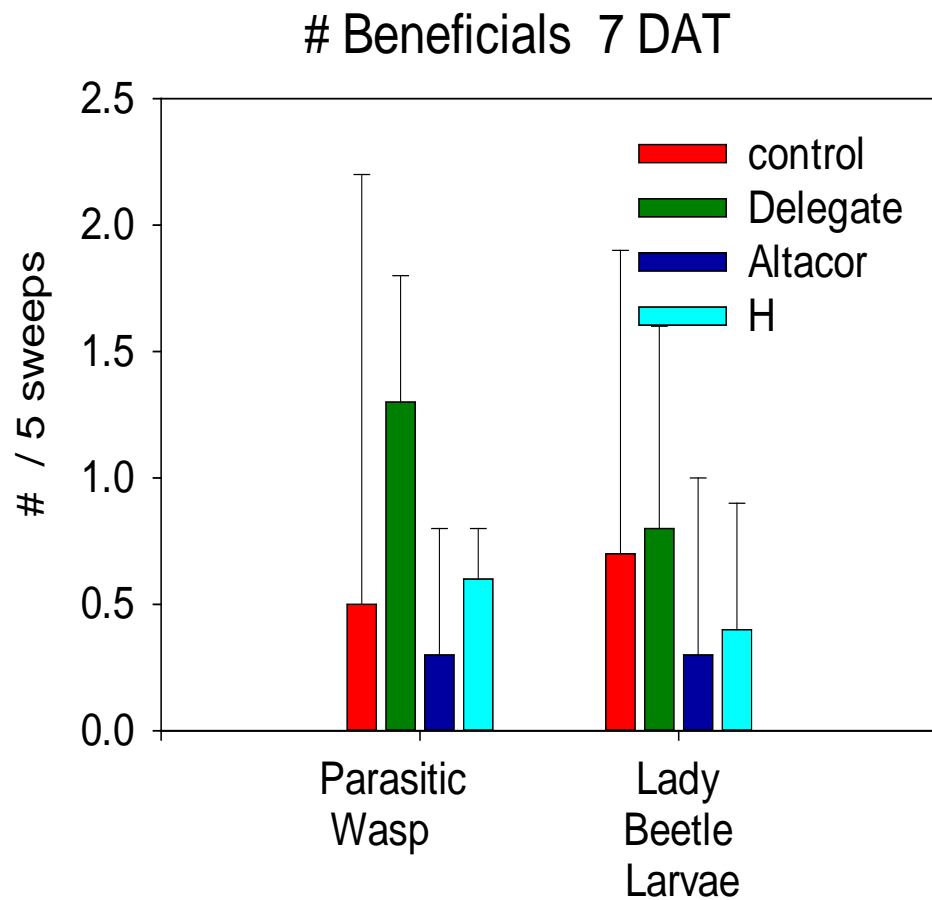
World Class. Face to Face.

Kim Patten

Blackheaded Fireworm: Management without OPs

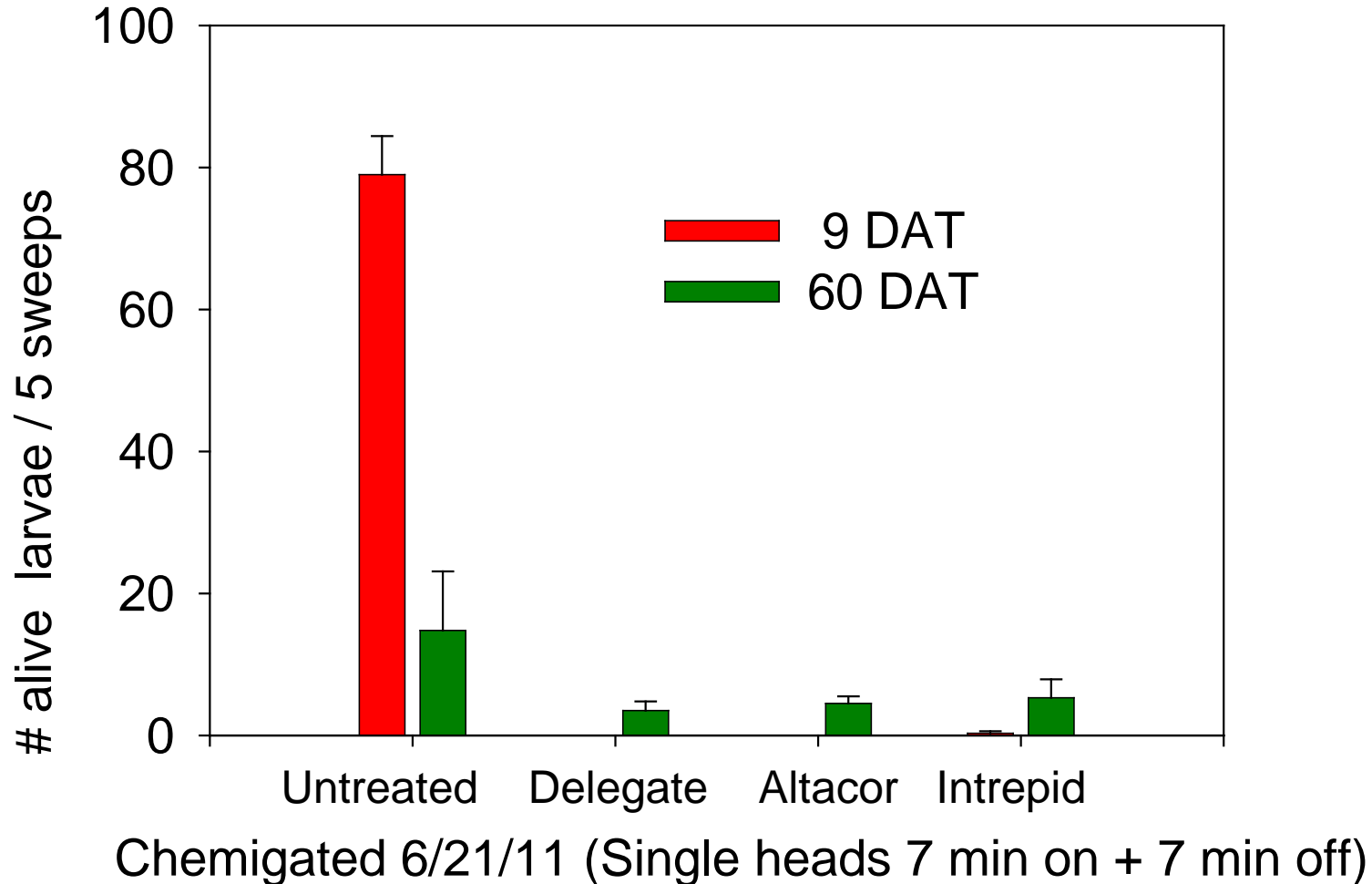


Applied 280 gpa, washoff 730 gpa
6 reps 10' x 10'



Blackheaded Fireworm: management without OPs

BHFW control with Chemigation- severe infestation - 2011

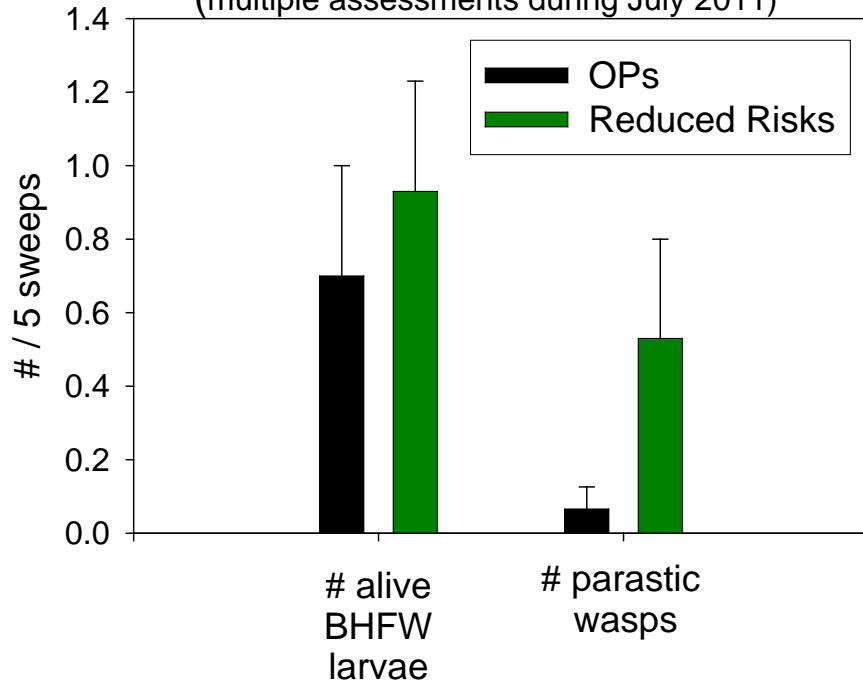


Blackheaded Fireworm: Management without OPs - Whole Farm Treatments

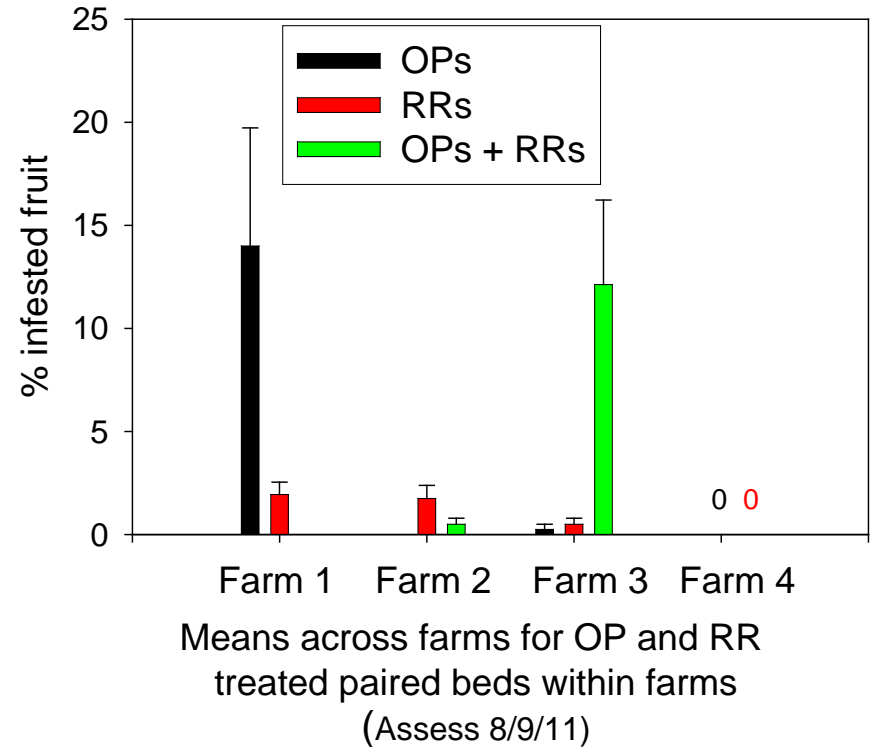
Farm #	Treatment 1st generation	#larvae/5 sweeps Pre-spray	#larvae/5 sweeps post 1st spray	#larvae/5 sweeps post 2nd spray	Peak 2nd gen. trap counts
1 Chem	Delegate 3 oz/a + Delegate 6 oz/a	21	4 DAT= 29	0	52
2 Chem	Delegate 6 oz/a	3	4 DAT =1	No spray	56
3 Chem	Delegate 3.25 oz/a Delegate 6 oz/a	31	7 DAT =31	14	65
4 Chem	Delegate 6 oz/a + Intrepid 16 oz/a	26	4 DAT =39	8	85
5 Hand Brd. 8 gpa	Entrust 3 oz/a	18	6 DAT =1	No spray	97
6 Chem	Acephate 1 lb/a	-	-	-	85
7 Chem	Diazinon	-	-	-	65
8 Chem	Diazinon 3 pt/a	-	-	-	65

Blackheaded Fireworm: Management without OPs - Whole Farm Treatments

Means across farms for OP and RR treated paired beds within farms
(multiple assessments during July 2011)



Fireworm - infested fruit

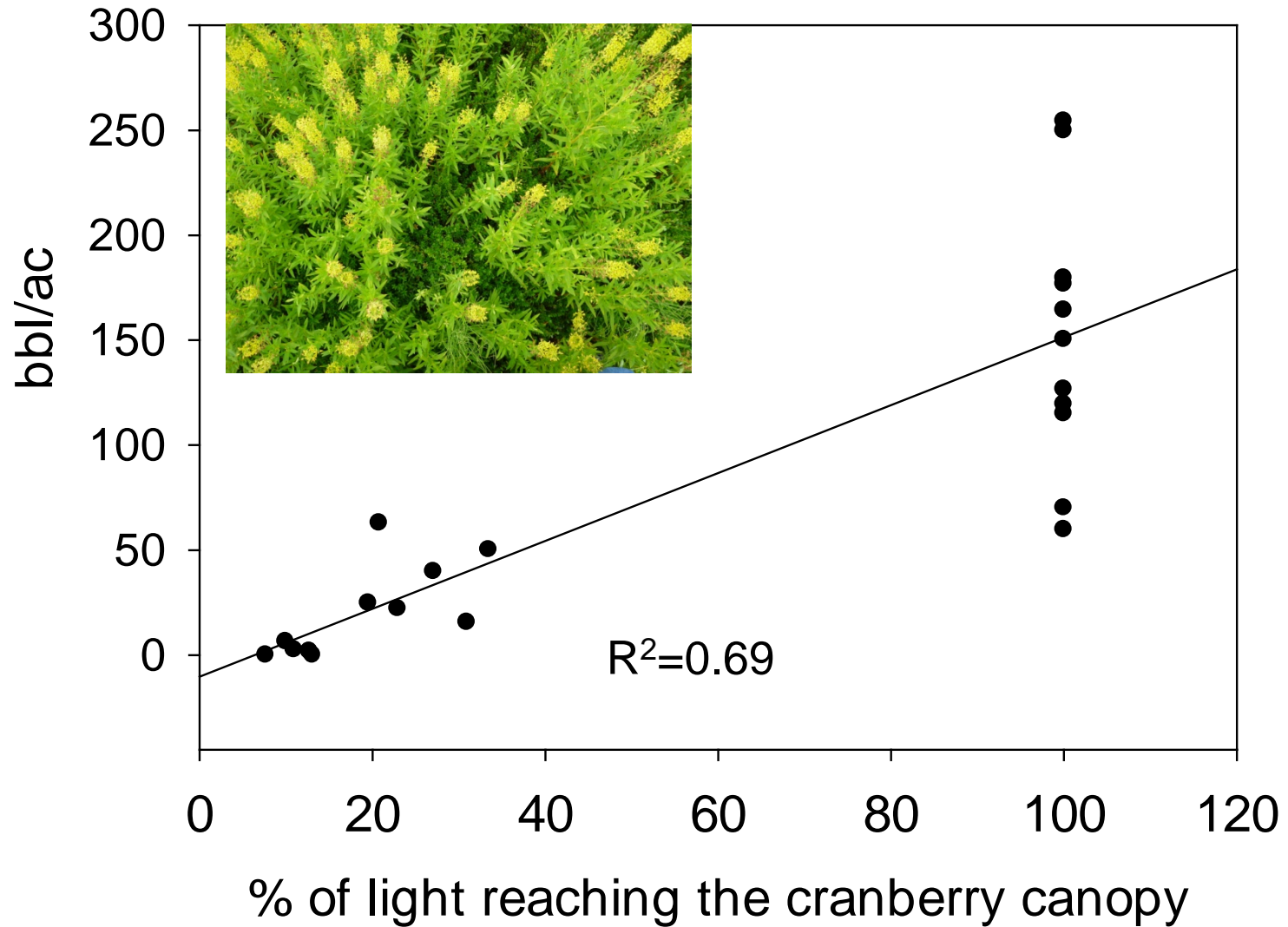


- Recommendations – fireworm control without OPs
 - Best chemistries: Delegate and Intrepid at full label rate
 - Application timing based on sweeping / instar size
 - Repeat application may or may not be necessary
 - Adjustments are needed for chemigation systems
 - Very doable and affordable
 - Not sure implications for beneficial insects or BHF_W populations

Insecticide	~Cost \$ per ac	Relative efficacy with chemigation For BHFw (1 to 10)
Lorsban	8	10
Orthene	6	10
Diazinon	18	10
Delegate	35	8-9
Intrepid	20	8-9
Avaunt	30	7-8
Assail	24	6
Success	29	7
Confirm	24	6
Altaclor	40	8
Entrust	48	6

Insecticide	Rate used (lbs/ac)	Bee Toxicity LD50 ($\mu\text{g}/\text{bee}$)	Relative risk quotient to bees (use rate/ toxicity)
Admire	0.5	0.004	125
Belay	0.4	0.014	28
Lorsban	1.5	0.06	25
Diazinon	2	0.09	22
Actara	0.04	0.005	8
Delegate	0.13	0.02	6.5
Success	0.08	0.025	3.2
Entrust	0.08	0.025	3.2
Orthene	1	1.2	0.8
Avaunt	0.03	0.18	0.2
Assail	0.05	10	0.005
Intrepid	0.25	100	0.0025
Confirm	0.25	100	0.0025
Altaclor	0.05	104	0.0004

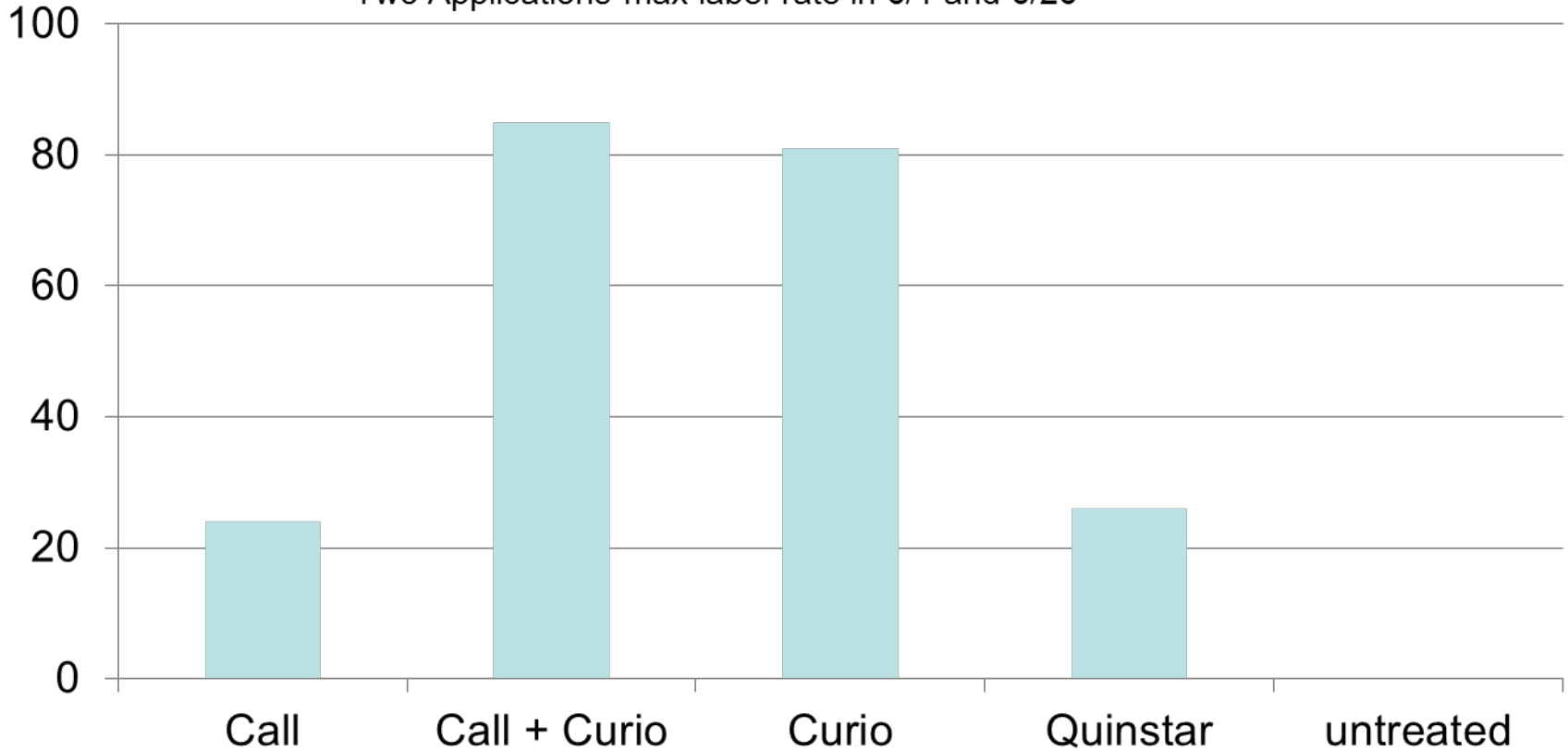
Yield (bbl/ac) of Stevens Cranberries in 2011 as affected by yellow weed coverage



Yellow Loosestrife Control: Bandon OR 2011

% control

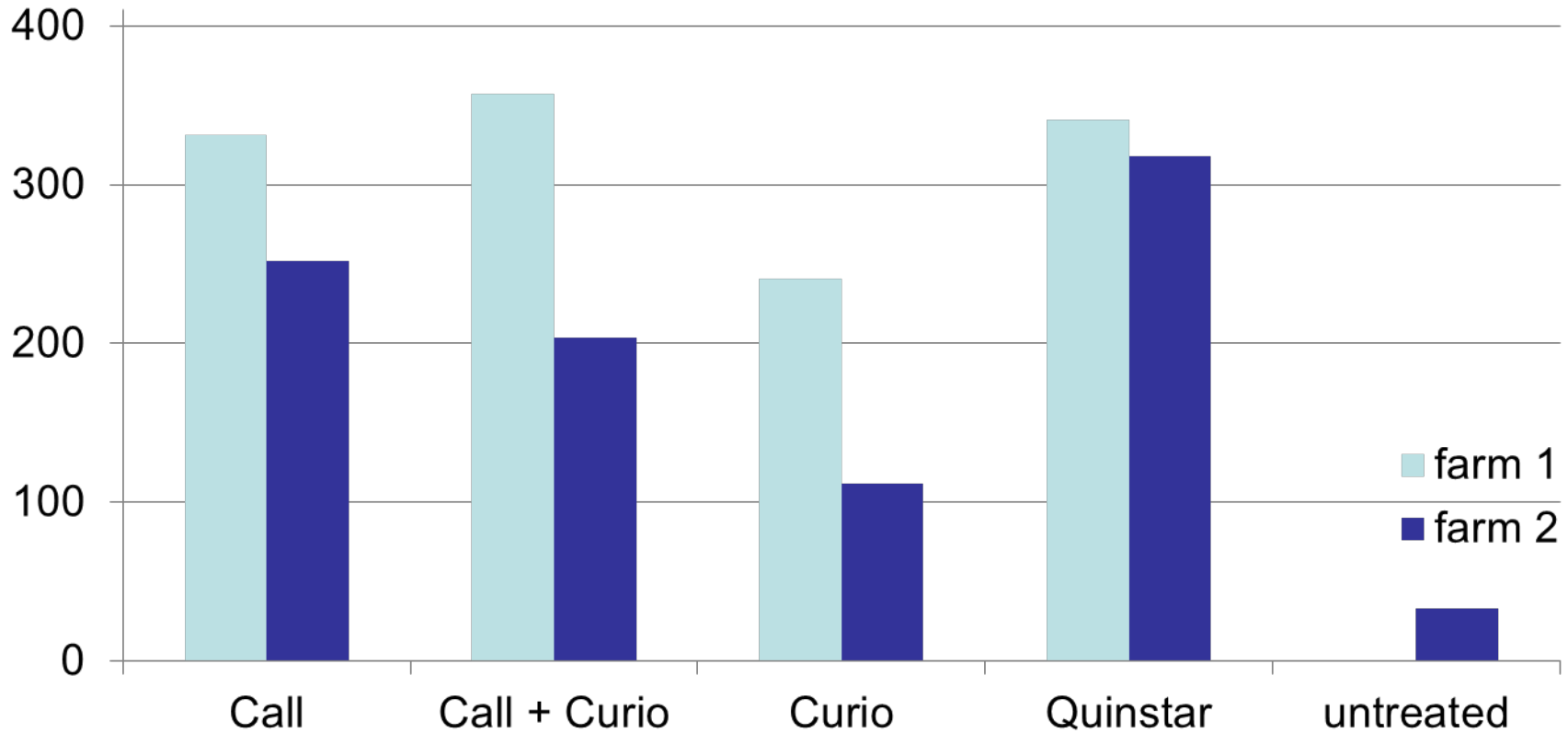
Two Applications max label rate in 6/1 and 6/26



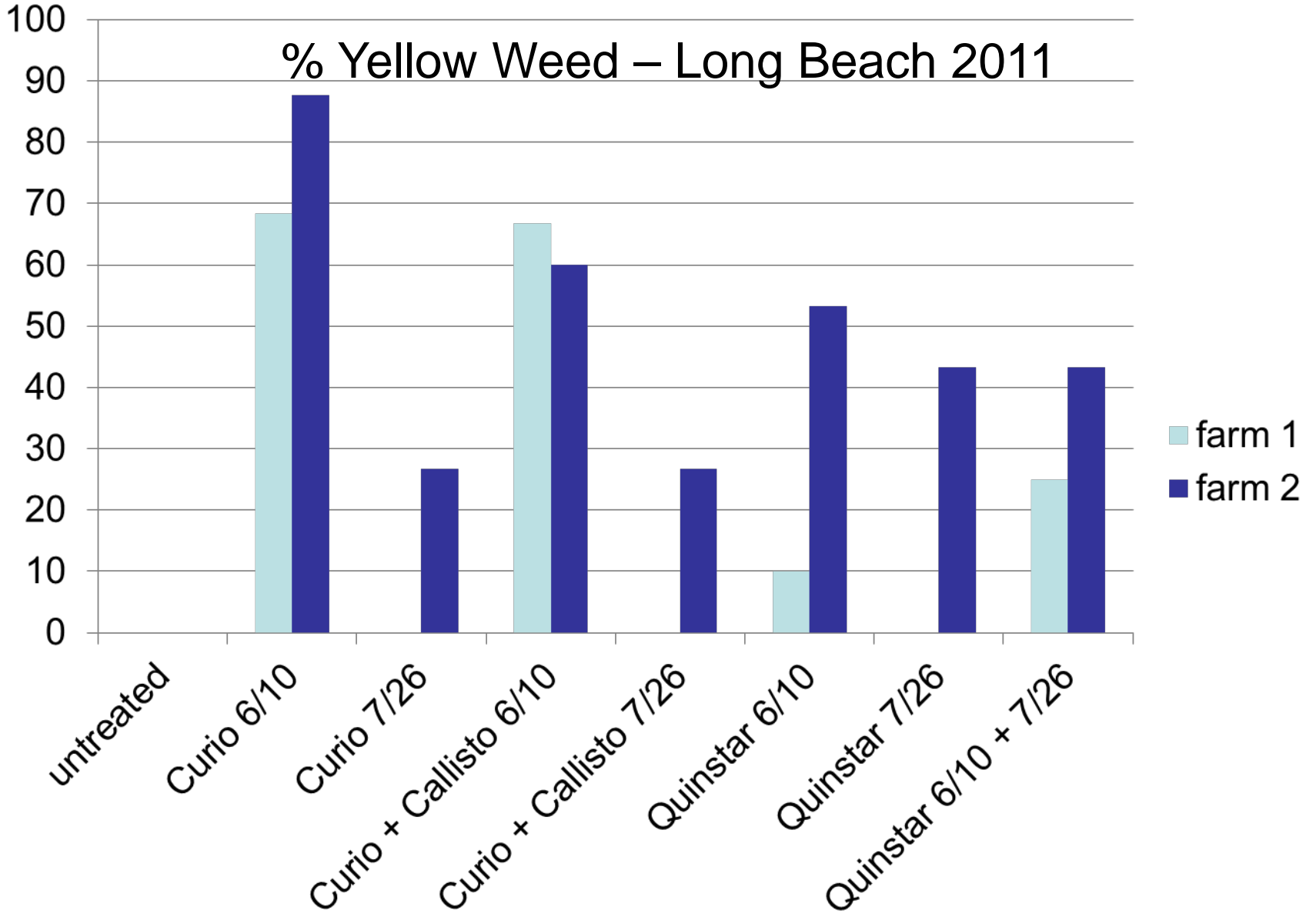
Herbicides vs Yield: Bandon OR 2011

bbt/ac

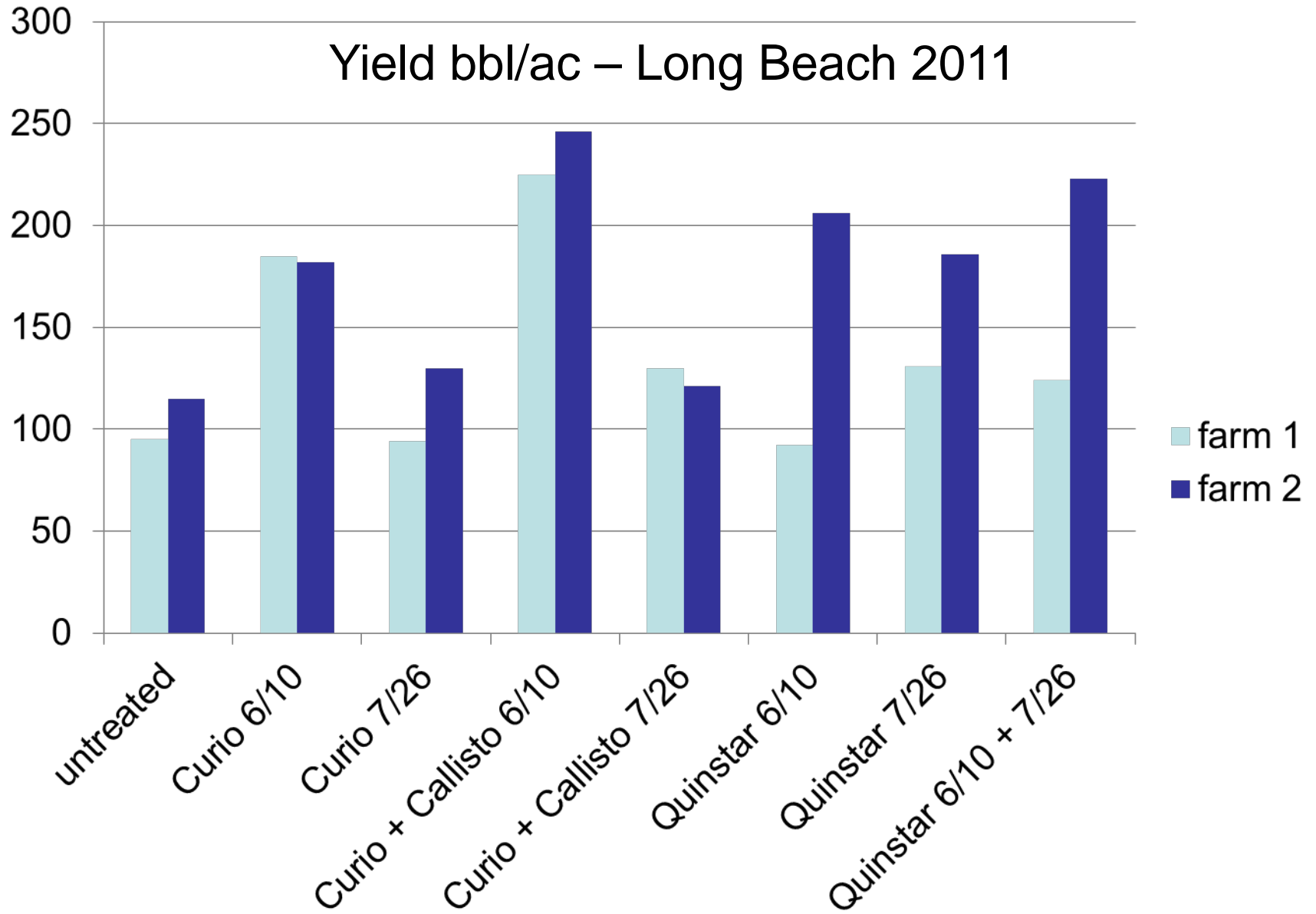
Two Applications max label rate in 6/1 and 6/26



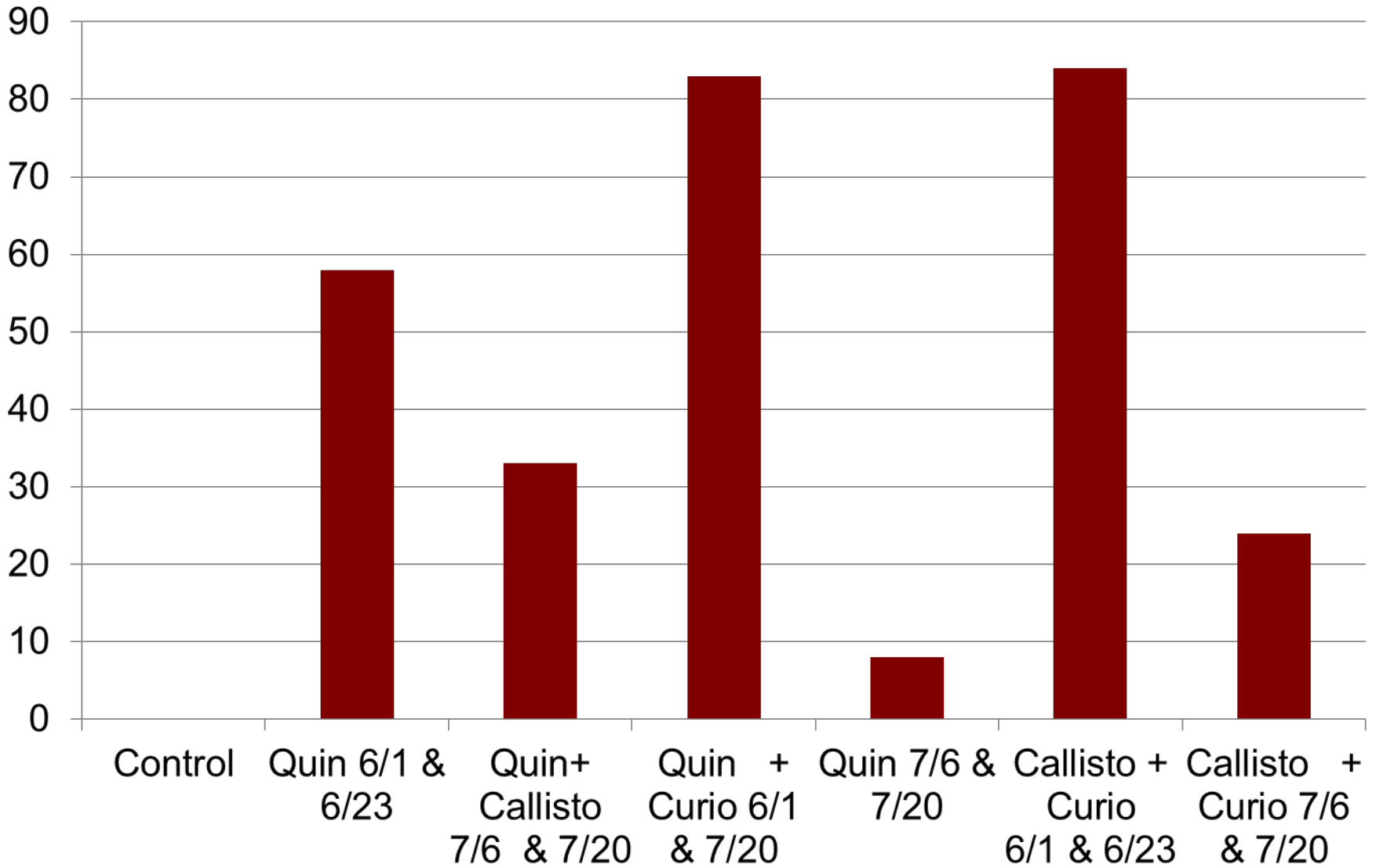
% Yellow Weed – Long Beach 2011



Yield bbl/ac – Long Beach 2011

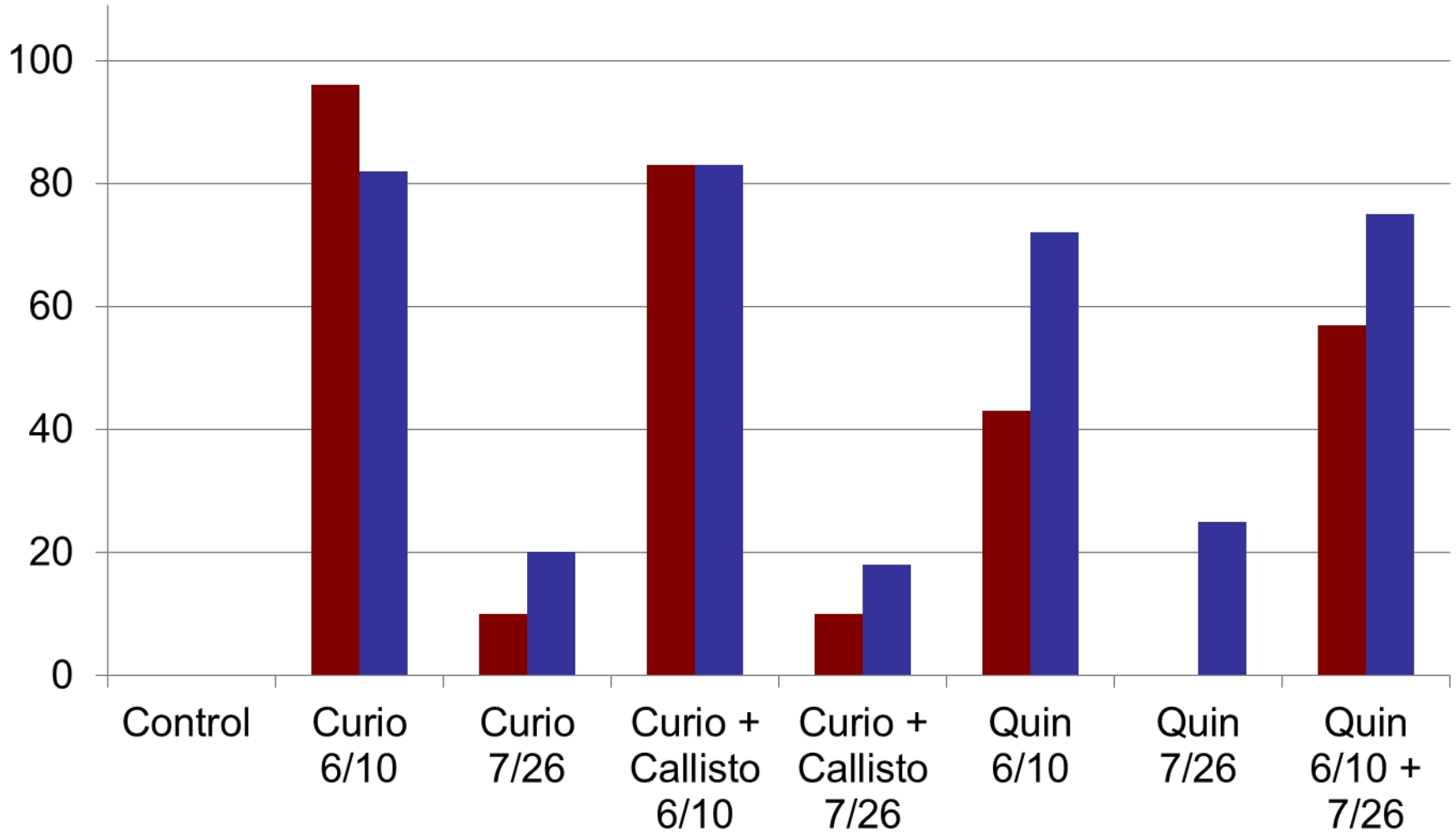


% yellow weed control 8/27/2011

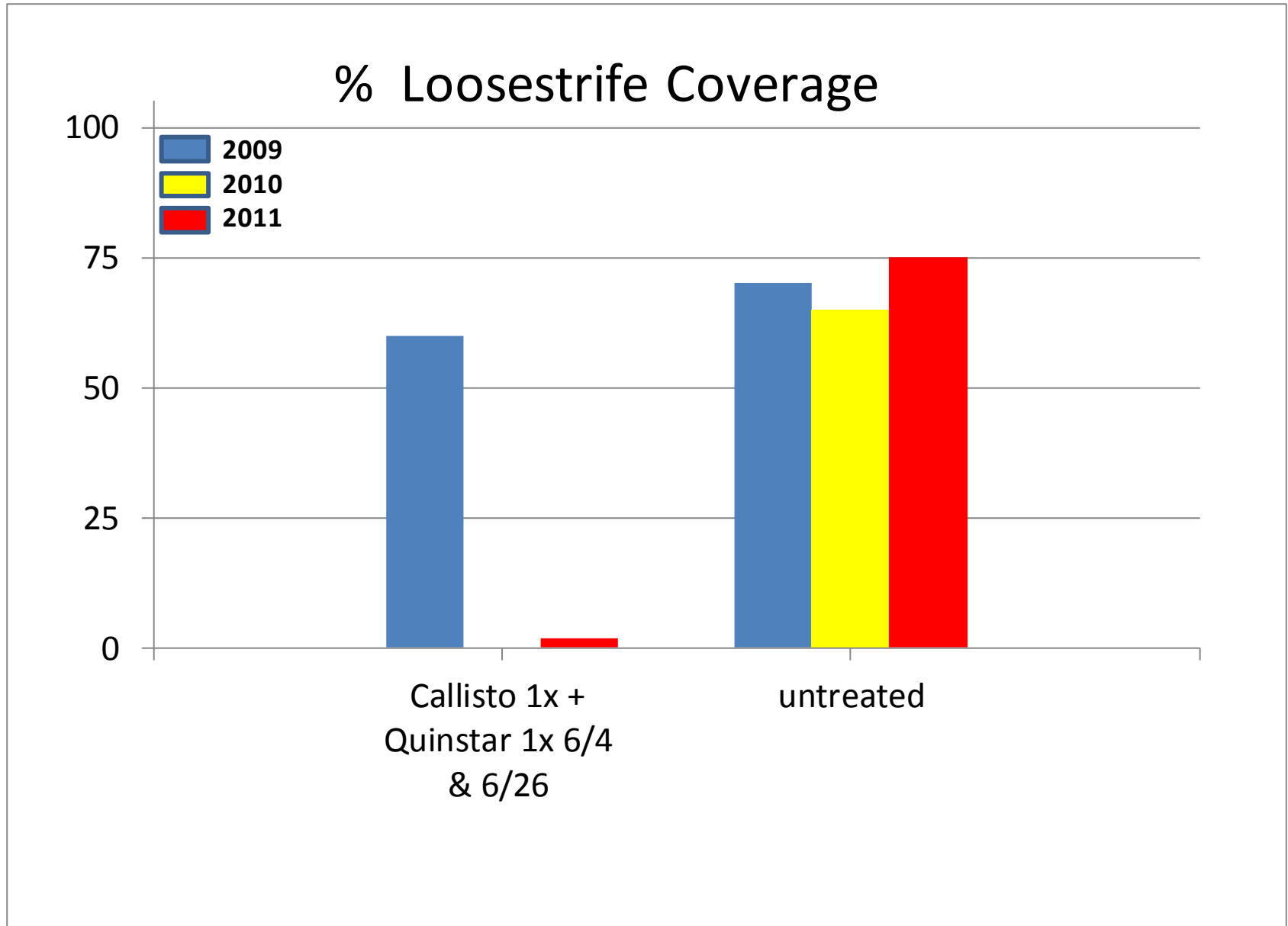


% yellow weed control August 2011

■ Farm 1 ■ Farm 2



Yellow Loosestrife Coverage: August 2009 – Long Beach, WA



Curio Primer

- It Inhibits amino acid synthesis (ALS)
- It is a systemic herbicide with plant uptake occurring through both foliage and roots.
- It is best used as an early post-emergence herbicide.
- Foliar uptake is critical for optimal control. When making post-emergence applications weeds must be thoroughly covered with spray.
- Optimum control is achieved when is applied to young actively growing weeds.
- Requires surfactant

- Recommendations – Curio
 - Buttercup (March – E. May 1 oz/a)
 - Yellow weed
 - E. May to E. June @ 1/2 oz/a (preferred)
 - Mid-July up to 60 days PHI @ 1 oz/a
 - Timing is critical for Yellowweed- too late and control is marginalized
 - Too high a rate during growth – possible yield reduction
 - Waiver of Liability – required for label
 - Not convinced of advantage of using with Callisto
 - Inexpensive
 - Requires surfactant

Quinstar Primer

- It is a post-emergence herbicide effective in controlling some grasses and some broadleaf weeds.
- It is a systemic herbicide with plant uptake occurring through both foliage and roots.
- Foliar uptake is critical for optimal control. When making post-emergence applications weeds must be thoroughly covered with spray.
- Optimum control is achieved when quinclorac is applied to actively growing weeds in the early growth stage.
- Requires surfactant

- Recommendations – Quinstar 4I (Section 18- Spring 2012)
 - Yellow Weed
 - 1st application E. May to E June @ 8 oz/ac
 - 2nd application 30 Days after 1st application @ 8 oz/ac
 - Some control year one, expect best control 1 yr after treatment
 - Potential for other weeds (early post-emergence)
 - Decent control of spike rush, louse grass yellow weed
 - Label includes: Barnyard grass, Bedstraw, clovers, Bindweed, sowthistle, Violet
 - Safe herbicide in regards to crop damage
 - MRL issue (consult your handler for implications)

Options for Yellow weed control

- Spring Casoron - suppression only, no permanent control, requires late application for best efficacy, potential crop effect with on-going use.
- Wiping Roundup - adequate for small sections, permanent control elusive, needs tall plants (not Callisto or Casoron) Good luck!
- Callisto - suppression of height and fecundity only
- Curio ½ to 1 oz rate - efficacy decent with early timing, crop suppression on some sites
- Quinstar 8 oz/ac - efficacy moderate year-one, good year-two, timing of both applications important, no crop effect, MRL issues

Untested options for Yellow weed control

- Two Quinstar application (May +June) followed by Curio Mid-July to L. Aug, serious infestations,
- Quinstar 8 oz + Curio ½ oz combination (first application) , Quinstar 8 oz 2 nd application
- Two early Quinstar application (30 days apart) followed by Curio M. June @ ½ oz
- Any Quinstar or Curio application combined with Callisto

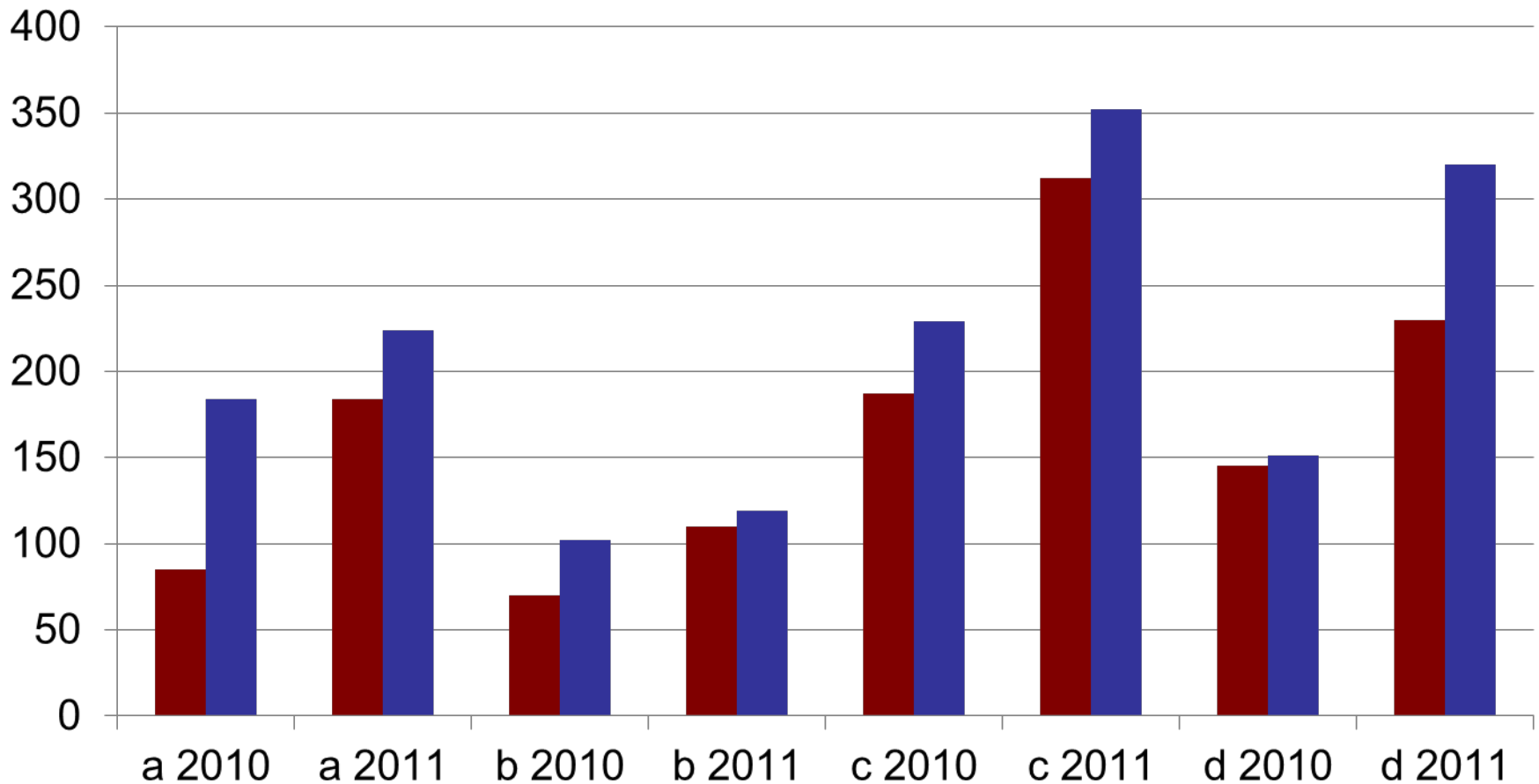
Disease control

2010 and 2011 study

Yield bbl/ac (sound berries @ harvest)

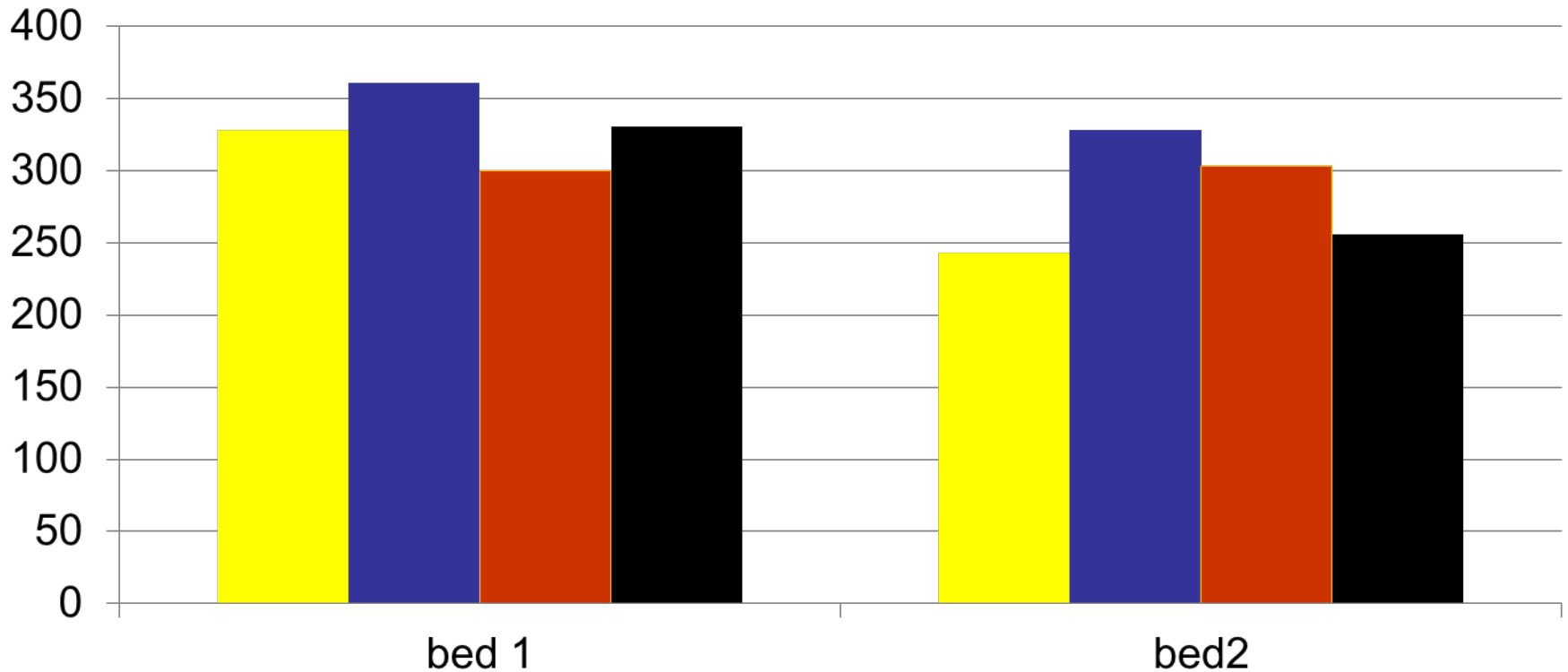
■ grower trt (Bravo + Manzate @ set)

■ Abound + Indar twice @ blm + grower trt



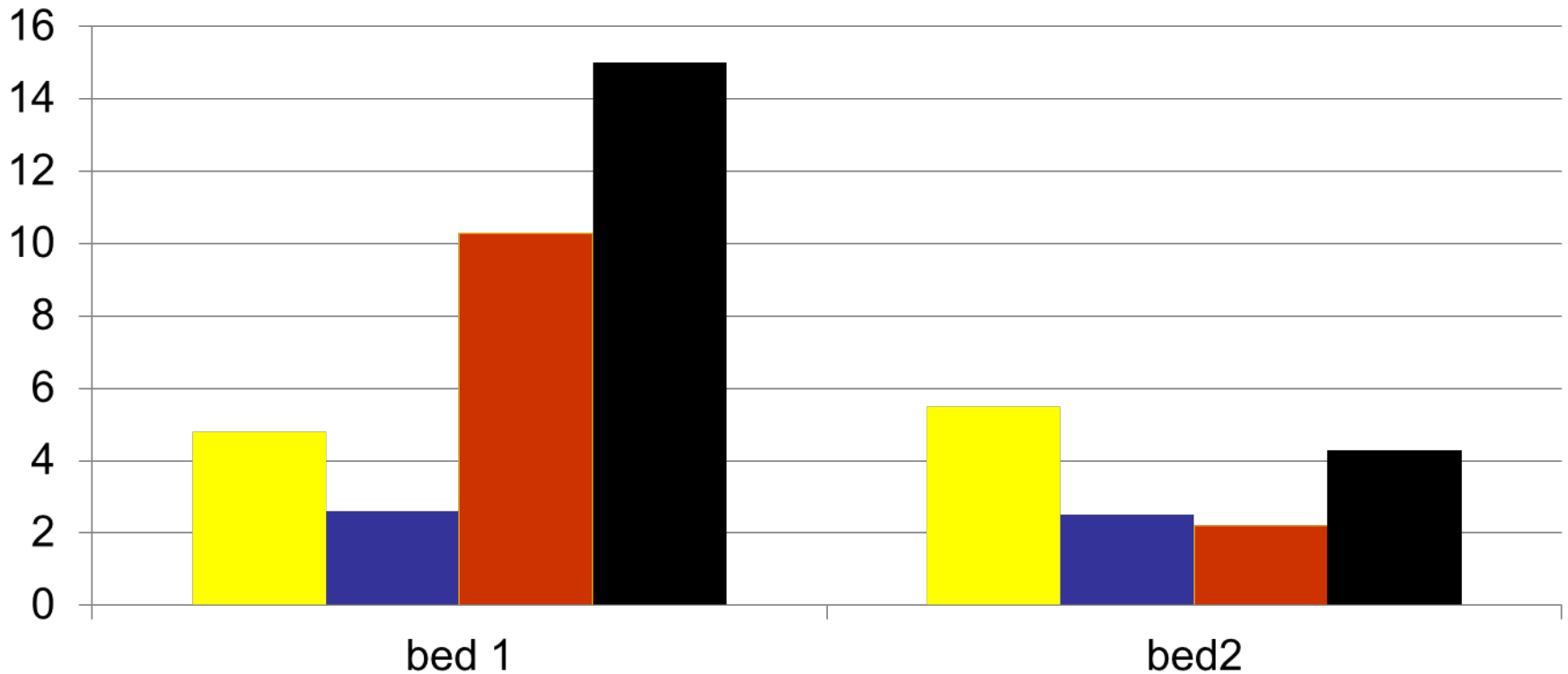
2010 and 2011 study 2011 Yield bbl/ac

- grower trt (Bravo + Manzate @ set)
- Abound + Indar twice @ blm + grower trt
- Abound + Indar twice @ blm
- untreated control



2010 and 2011 study 2011 Field rot %

- grower trt (Bravo + Manzate @ set)
- Abound + Indar twice @ blm + grower trt
- Abound + Indar twice @ blm
- untreated control2



Twig blight trial, 2001-02*

Treatment	Disease incidence	
	Rating	Uprights infected, %
UTC	3.8	59.2 a
Orbit ³	2.9	30.2 c
Dithane M-45 ³	1.7	5.8 d
Bravo ³	1.0	1.9 d
Abound ³	1.6	1.1 d
Indar ³	1.3	0.8 d
Abound ¹ , Bravo ¹ , Indar ¹	1.3	0.6 d

* 'McFarlin', Long Beach, WA

¹ = one application and ³ = three applications

First fungicide application Date when 50% of ascocarps contain mature spores + 14 days, Repeat applications every 14 days for a total of 3 applications

Applied July 6, July 20, & August 10th

Twig blight trial, 2002-03*

Treatment	Disease incidence	
	Rating	Uprights infected, %
UTC	3.2	18.0 a
Abound ¹ , Bravo ¹ , Indar ¹	1.3	2.5 bcd
Bravo ¹ , Bravo ¹ , Dithane ¹	1.4	1.9 cd
Abound ³	1.4	1.4 cd
Bravo ¹ , Abound ¹ , Indar ¹	1.3	1.1 cd
Indar ³	1.2	0.7 cd

* 'McFarlin', Long Beach, WA

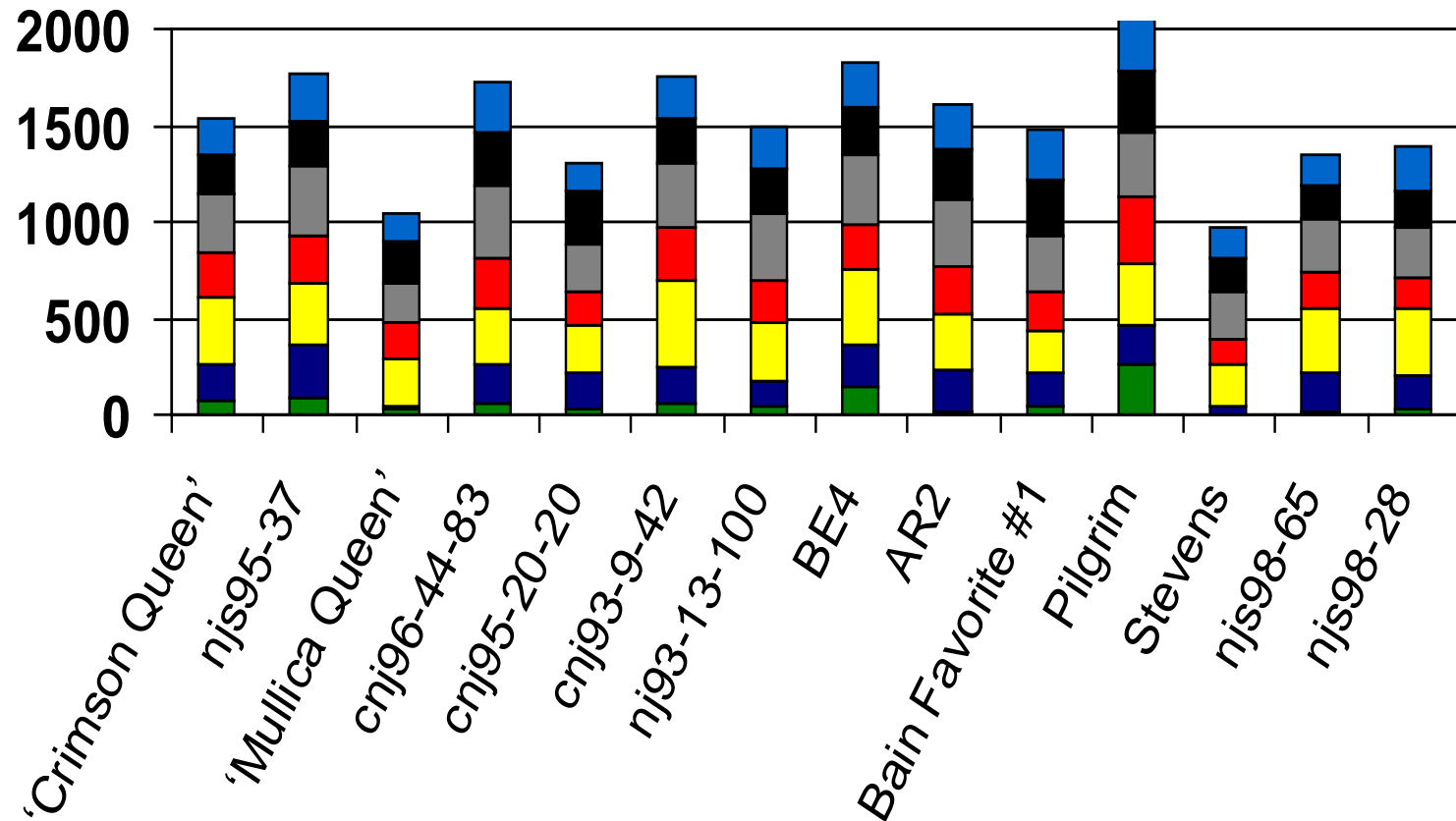
¹ = one application and ³ = three applications

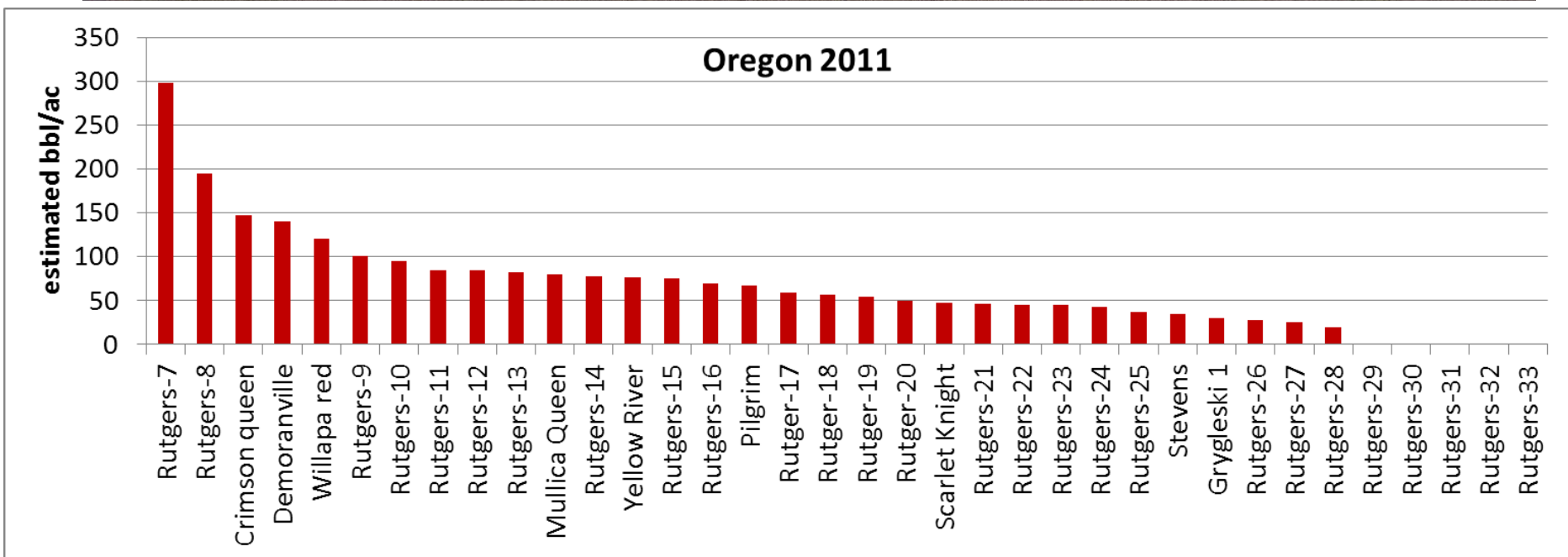
Applied July 10, July 23, & August 6th

- **Abound + Indar (mid-bloom fungicides) twice**
 - Increased yield and decreased fruit rot (mutually exclusive) noted across many trials
 - For an extra ~\$100/ac in chemical cost, we got ~20% increase in yield. For a bed that averages 120 bbl/ac that equals \$1400/ac increase in returns.
 - OK on MRLs
- **Abound or Indar post-bloom**
 - Reasonable replacement for Bravo for fruit rot and twig blight.



Cumulative yield – 6 years (bbl/ac)





3rd year yield from un-rooted sticks planted Feb 2009 1' spacing in Bandon OR

Two new selections from Rutgers – 2013 or 2014 release – worth waiting and planning for.