

Weed Management in Berry Crops

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Today's Class

- **Blueberry**
 - Herbicide Programs in Blueberry
- **Red Raspberry**
 - Current-Season Effects of Raspberry Cane Burning Programs
 - Cane Burning Herbicides on Young Raspberry Plugs

Blueberry Herbicide Trial 2017



Blueberry Herbicide Trial

- Testing of eight different herbicide programs
- Each program consisted of three applications: **dormant** (late March), **post-bloom** (early June), and **fall** (late September)
- Herbicide programs were evaluated for crop safety and weed control during the course of the season

Cultivars and Locations

- 'Duke' and 'Draper' in Lynden
 - Craig Ford, cooperator
- 'Reka' in Burlington
 - Richard Sakuma, cooperator
- 'Draper' and 'Elliott' in Eltopia
 - Alan Schreiber, cooperator

Herbicide Programs

1. (Alion + Treevix) fb
(Stinger + Gramoxone) fb
(Sandea + Aim)
2. (Chateau + Treevix) fb
(Stinger + Gramoxone) fb
(Matrix + Aim)
3. (Karmex + Sandea + Treevix) fb
(Stinger + Gramoxone) fb
(Callisto + Aim)
4. (Karmex + Matrix + Treevix) fb
(Stinger + Gramoxone) fb
(Callisto + Aim)

Herbicide Programs

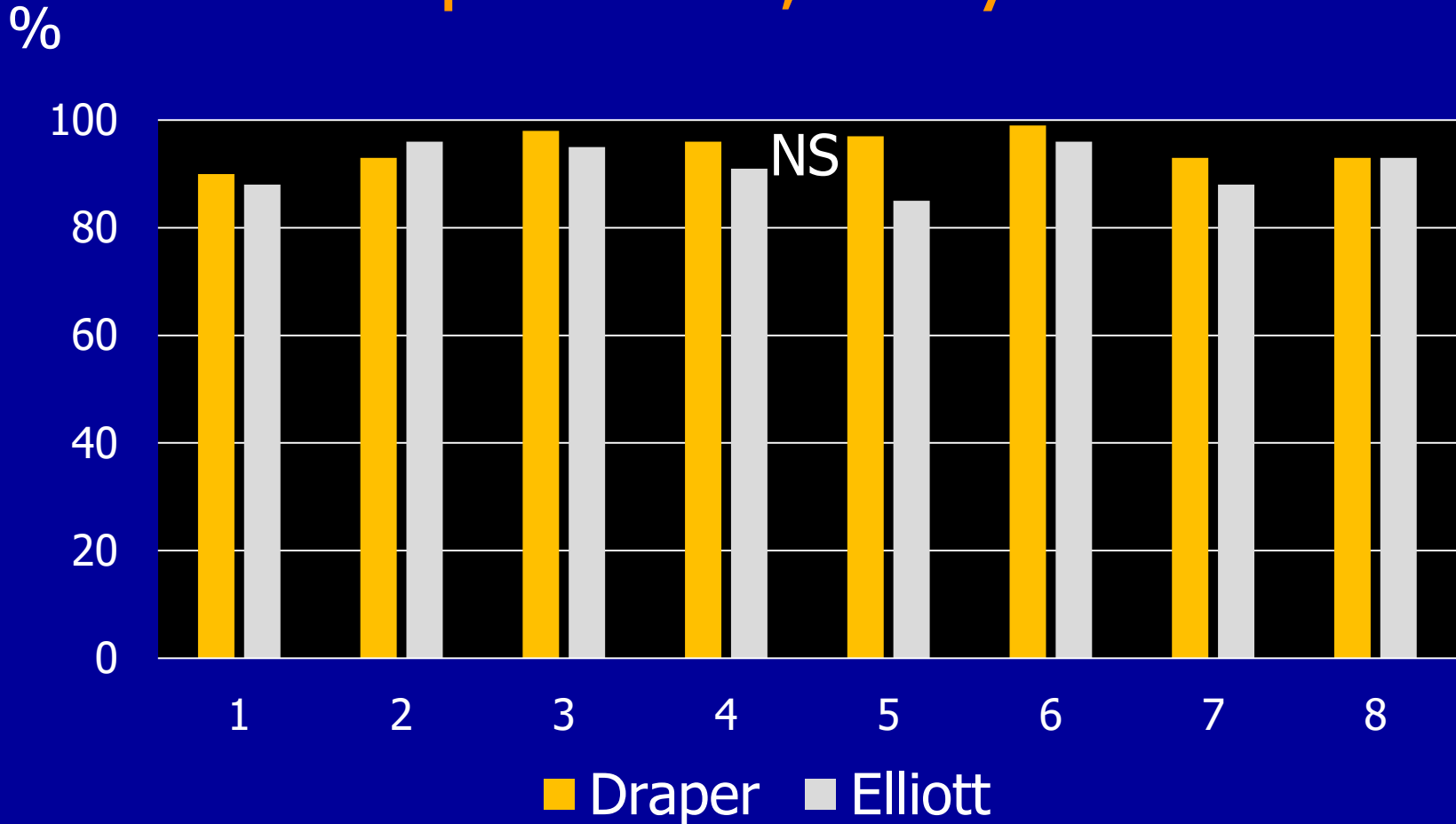
5. (Linex + Aim) fb
(Callisto + Gramoxone) fb
(Sanda + Treevix)
6. (Sinbar + Aim) fb
(Callisto + Gramoxone) fb
(Matrix Treevix)
7. (Casoron + Aim) fb
(Callisto + Gramoxone) fb
(Sanda + Treevix)
8. Zeus Prime fb
(Callisto + Gramoxone) fb
(Matrix + Treevix)

Weed Control

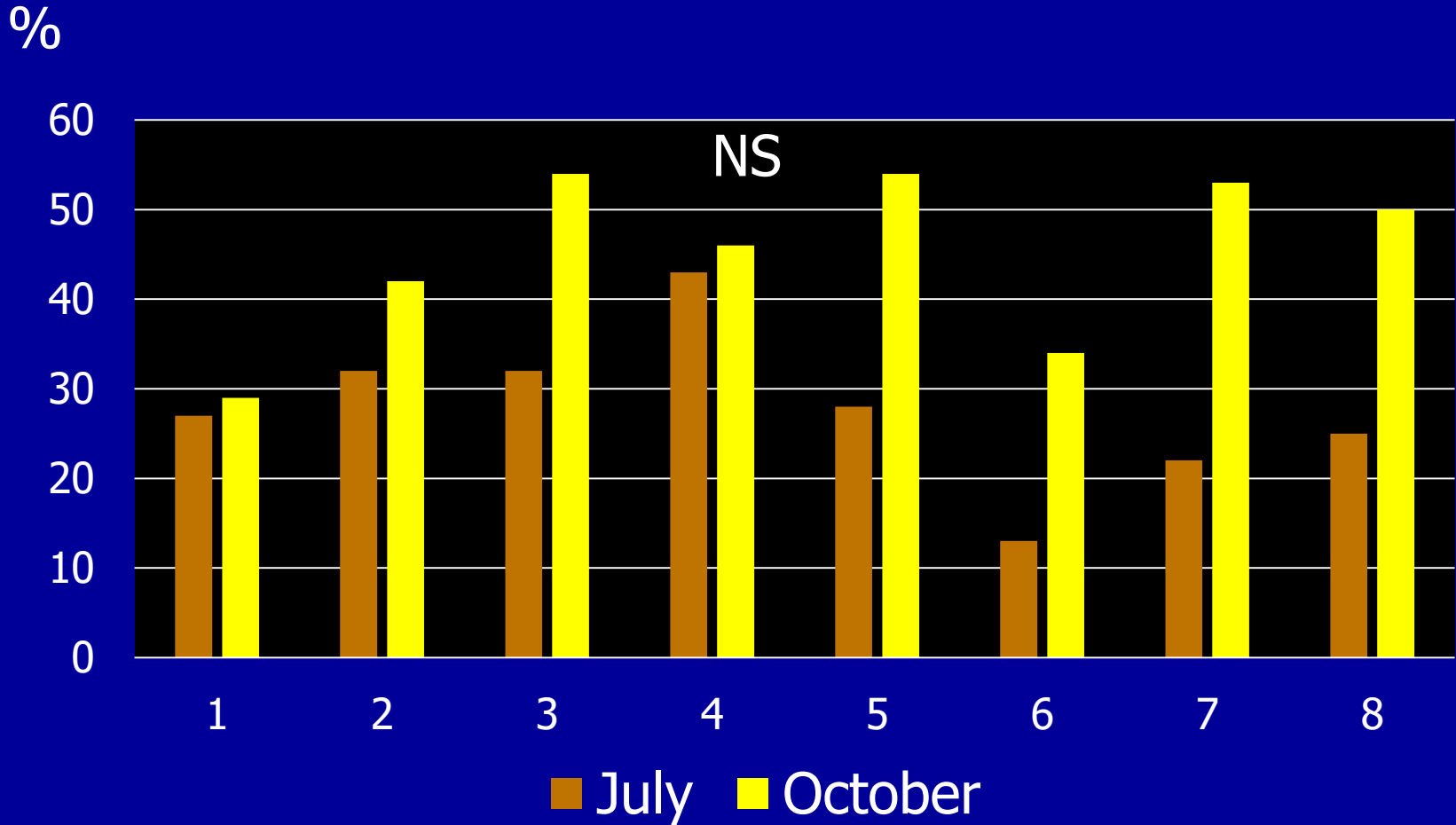
- Control was excellent for all treatments in 'Duke', both 'Draper' trials, and 'Elliott' through the season (few weeds were present at the time of the last application in September, either from herbicide or handweeding)
- 'Reka' plots contained a large population of yellow nutsedge and wild buckwheat

General Weed Control

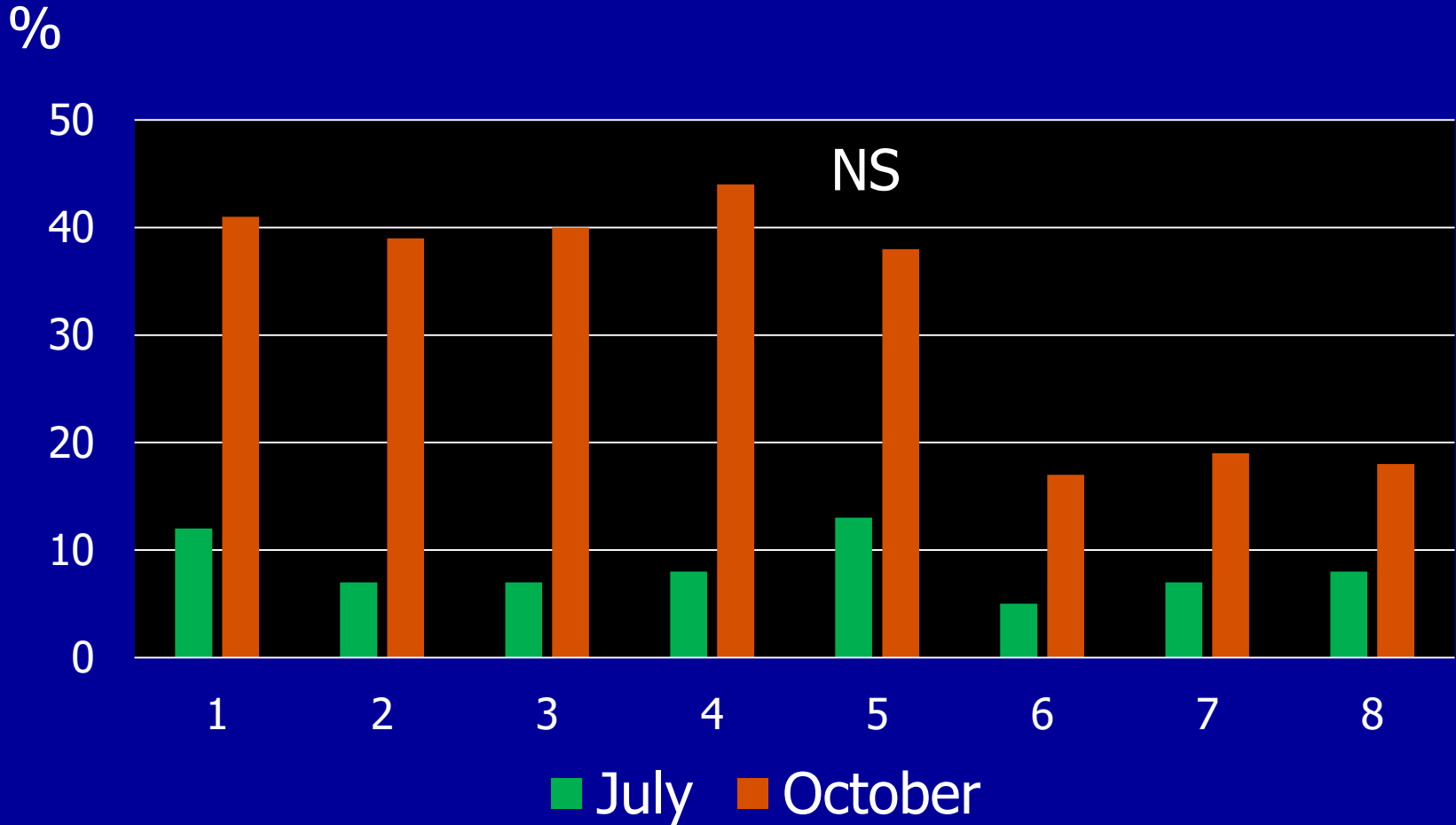
Etopia Trials, Early June



Yellow Nutsedge Cover 'Reka' Trial

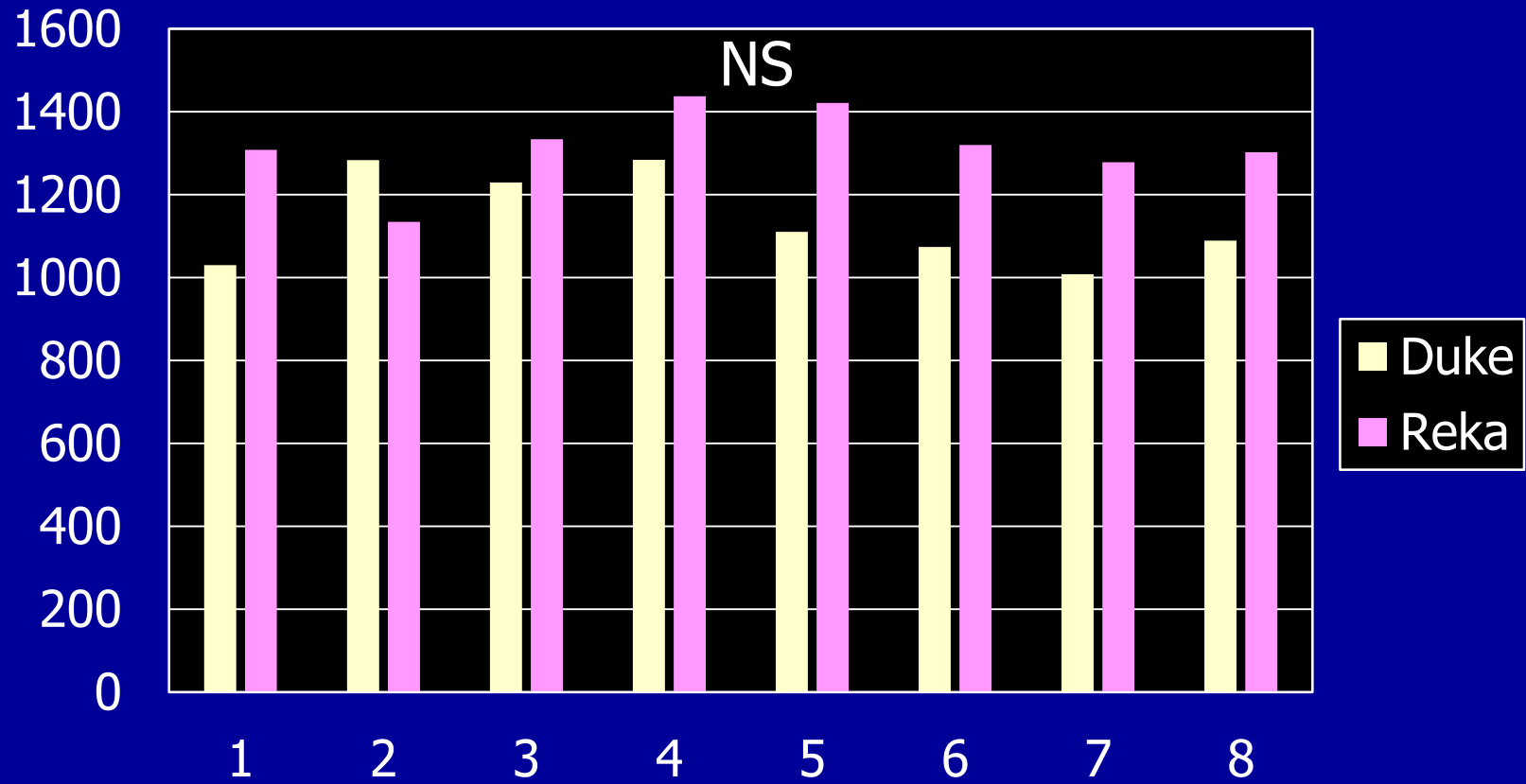


Wild Buckwheat Cover 'Reka' Trial



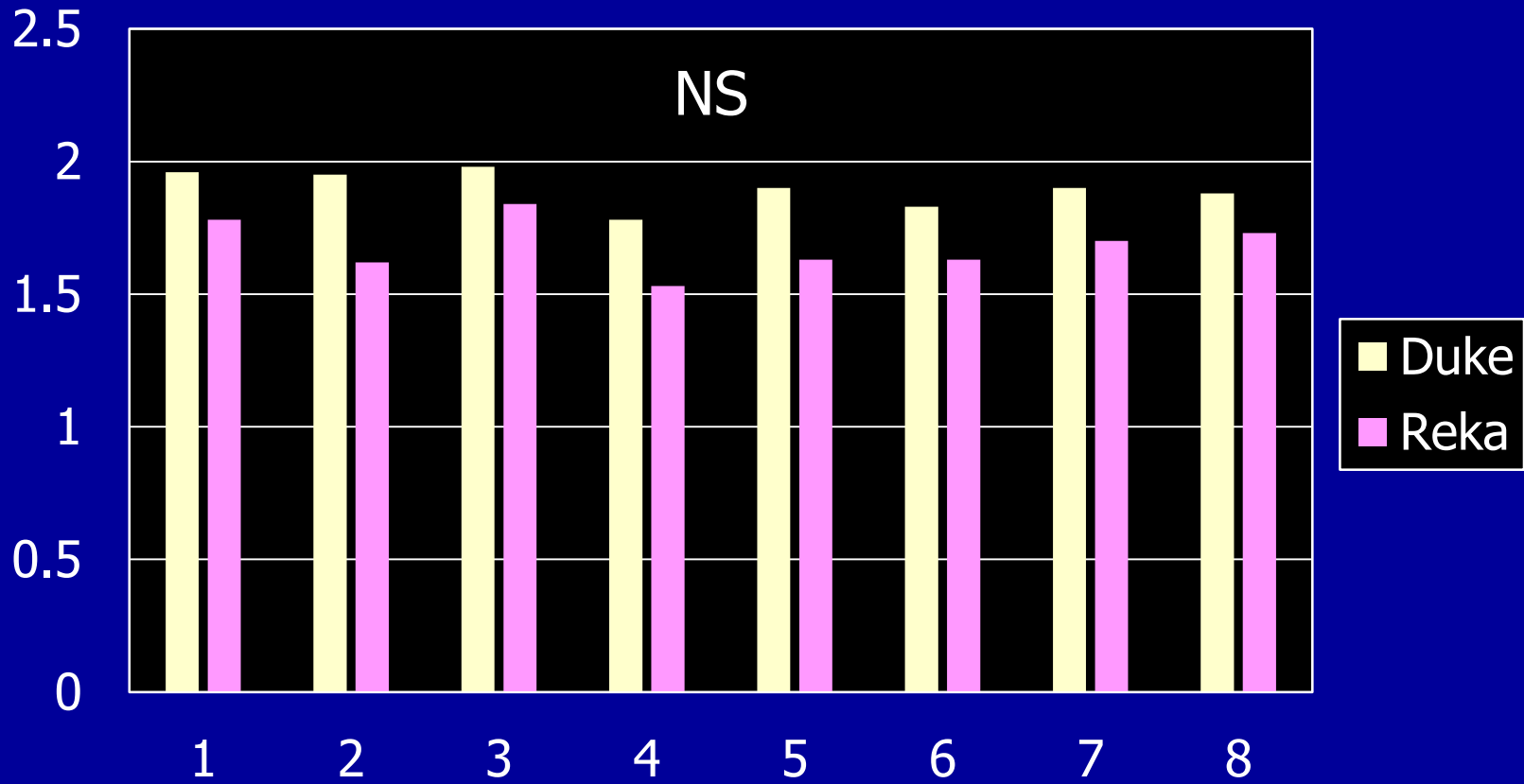
Berry Yield

g/m



Fifty-berry Weight

g/berry



2018 Plan

- Continuation of sequential herbicide programs on weed control and productivity in blueberry



Raspberry Cane Burning Trial

2017



Raspberry Cane Burning

- Let's say a raspberry field has been in production for four or five years, and you're noticing some loss of vigor

Raspberry Cane Burning

- Let's say a raspberry field has been in production for four or five years, and you're noticing some loss of vigor
- **Question:** Should you cane burn or not?

Raspberry Cane Burning

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- **Question:** Should you cane burn or not?
- **Answer:** Ask a Weed Scientist!



Raspberry Cane Burning

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- **Question:** Should you cane burn or not?
- **Answer:** Ask a Weed Scientist!

Extra Credit:
Which one is
Miller?



Raspberry Cane Burning Trial

2017



Raspberry Cane Burning Trial

- The objective is to determine how floricanne vigor may influence the effects of cane burning treatments and potentially affect stand longevity
- The 2017 trial was established at Lynden (**Randy Honcoop**, cooperator)
- Two ends of the same 'Meeker' field (planted 2010) were marked
 - "Low Vigor" section
 - "High Vigor" section
 - Both received identical cane burning treatments

Cane Burning Treatments

1. No in-row treatments; late treatment with **Aim** to sides of the bed (**max rate of Aim at 6.4 fl.oz/a**)
2. Early treatment with **Aim** to full bed; no late treatment to sides of the bed
3. Standard treatment with **Aim** to full bed; no late treatment to sides of the bed

Cane Burning Treatments

4. Early treatment with **Aim** to full bed; late treatment with **Aim** to sides of the bed

5. Standard treatment with **Aim** to full bed; late treatment with **Aim** to sides of the bed

Cane Burning Treatments

6. No in-row treatments; late treatment with **Goal** to sides of the bed (**max rate of Goal at 2 pt/a**)

7. Early treatment with **Goal** to full bed; no late treatment to sides of the bed

8. Standard treatment with **Goal** to full bed; no late treatment to sides of the bed

Cane Burning Treatments

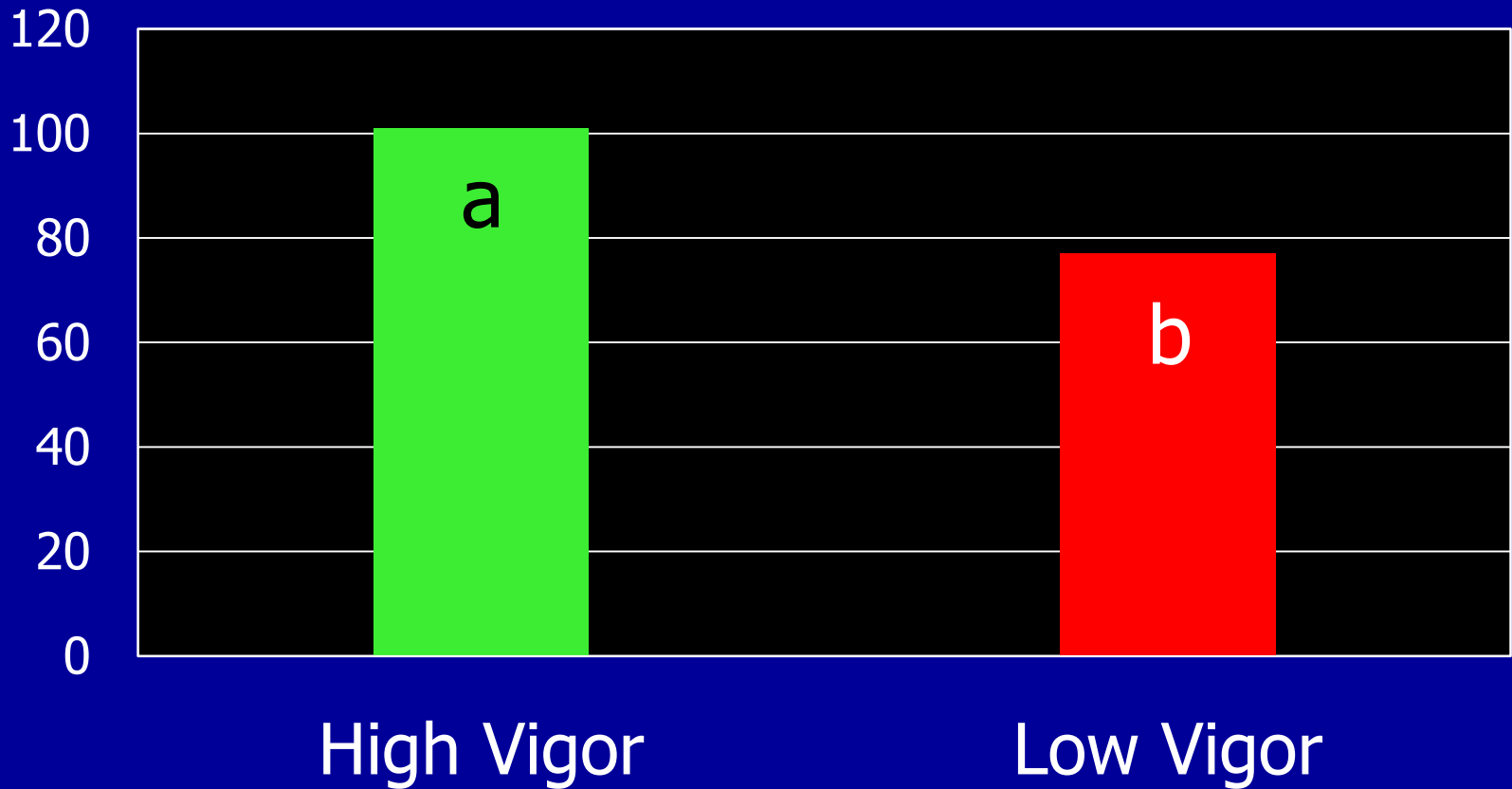
9. Early treatment with **Goal** to full bed; late treatment with **Aim** to sides of the bed
10. Standard treatment with **Goal** to full bed; late treatment with **Aim** to sides of the bed
11. No cane burning (nontreated check)

2017 Treatment Dates

- Early, when first primocanes are **less than 2-inches tall** (March 31)
- Standard, when first primocanes were **4-to 6-inches tall** (April 14)
- Late (only to **sides of the bed** using a shielded sprayer so primocanes in the row weren't treated)
 - If full bed was not previously treated (April 25)
 - If full bed was previously treated at the early timing (May 19)
 - If full bed was previously treated at the standard timing (May 25)

Initial Floricane Counts

canes/25 ft



Initial Floricane Counts

canes/25 ft

Nontreated

120

100

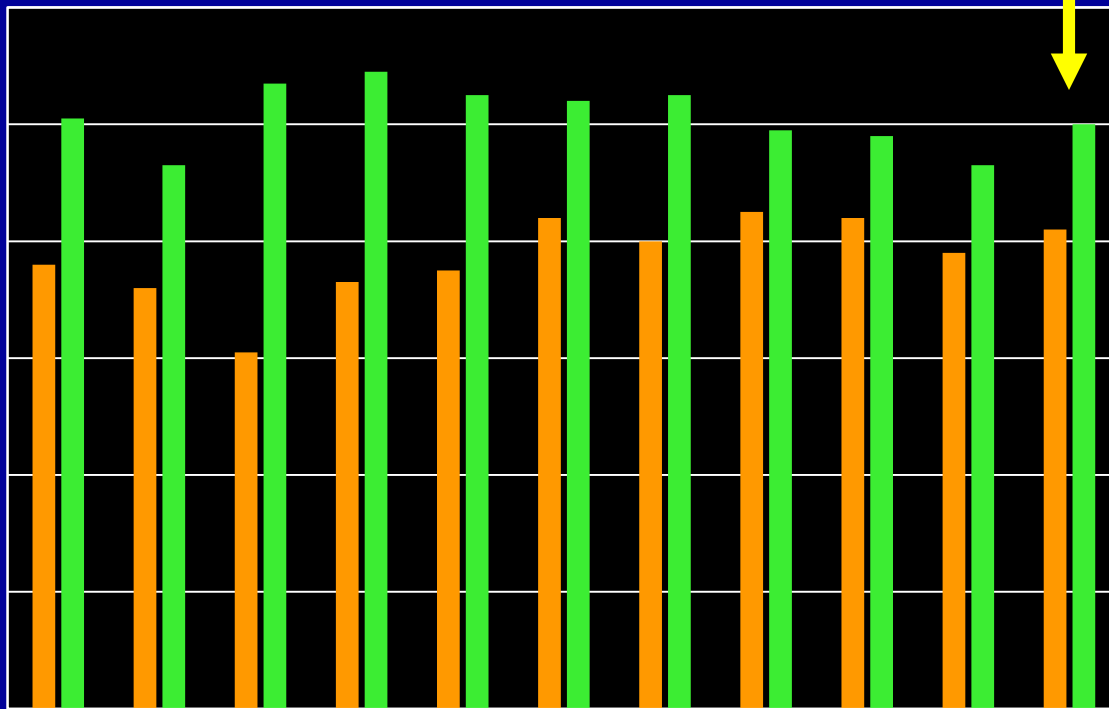
80

60

40

20

0



1

2

3

4

5

6

7

8

9

10

11

Treatment Number

Low Vigor
High Vigor

Berry Sampling Yield

g/m

330

320

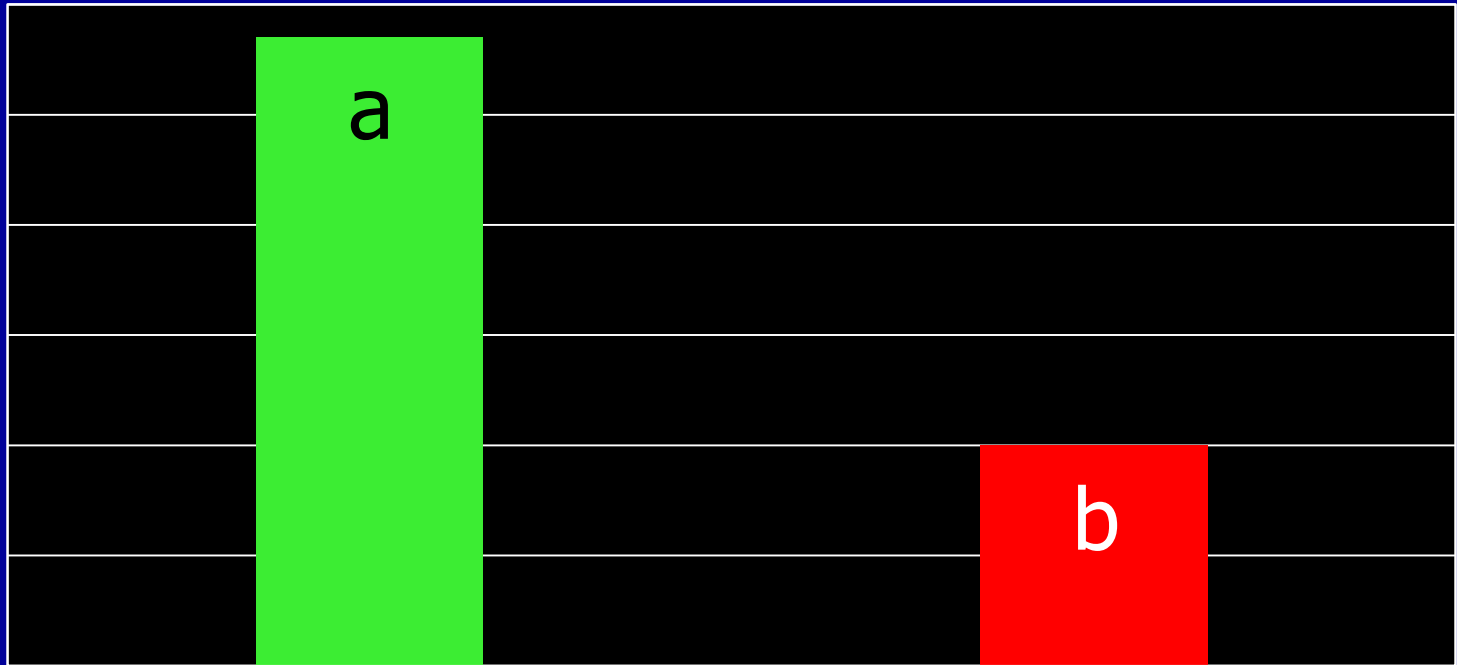
310

300

290

280

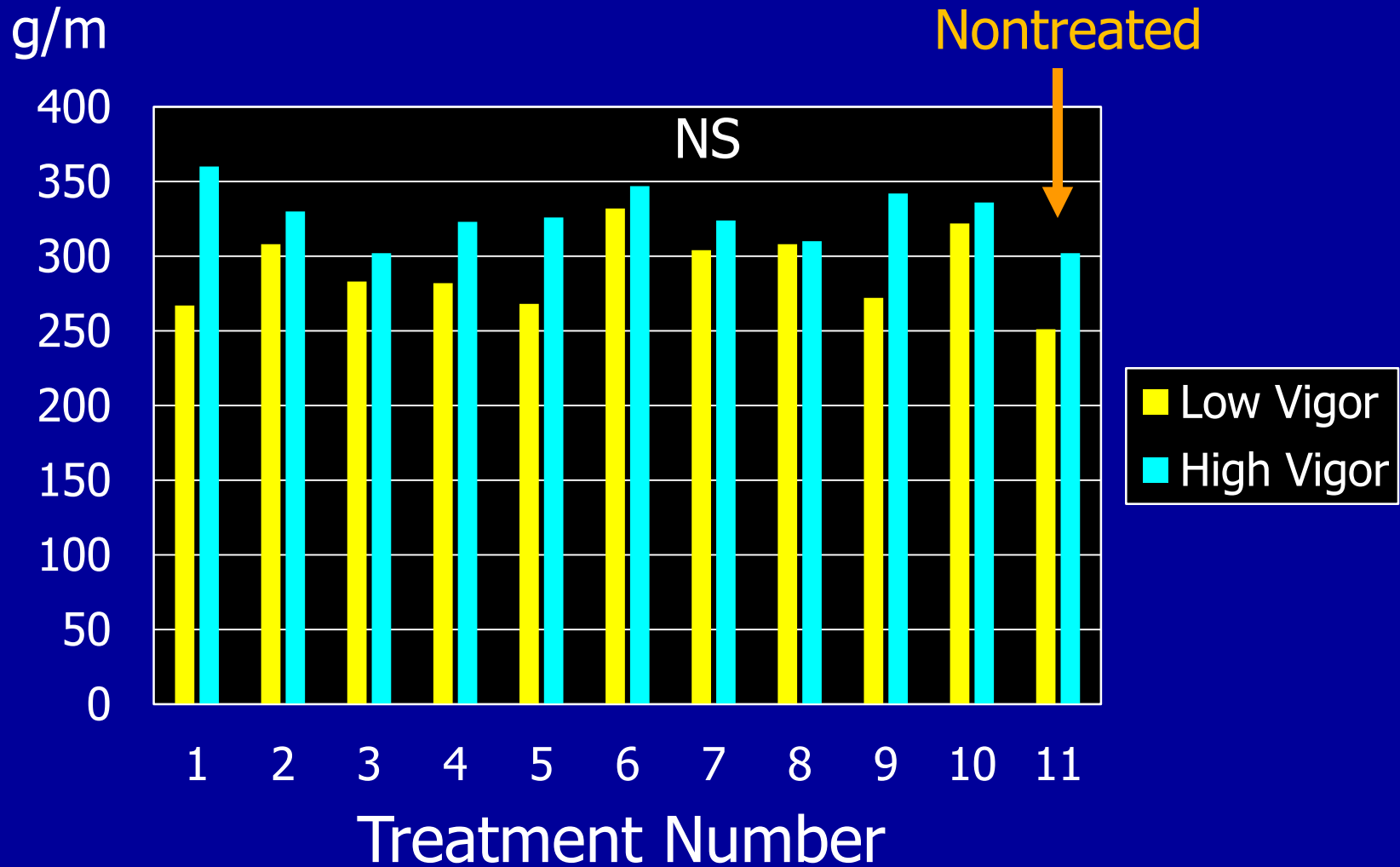
270



High Vigor

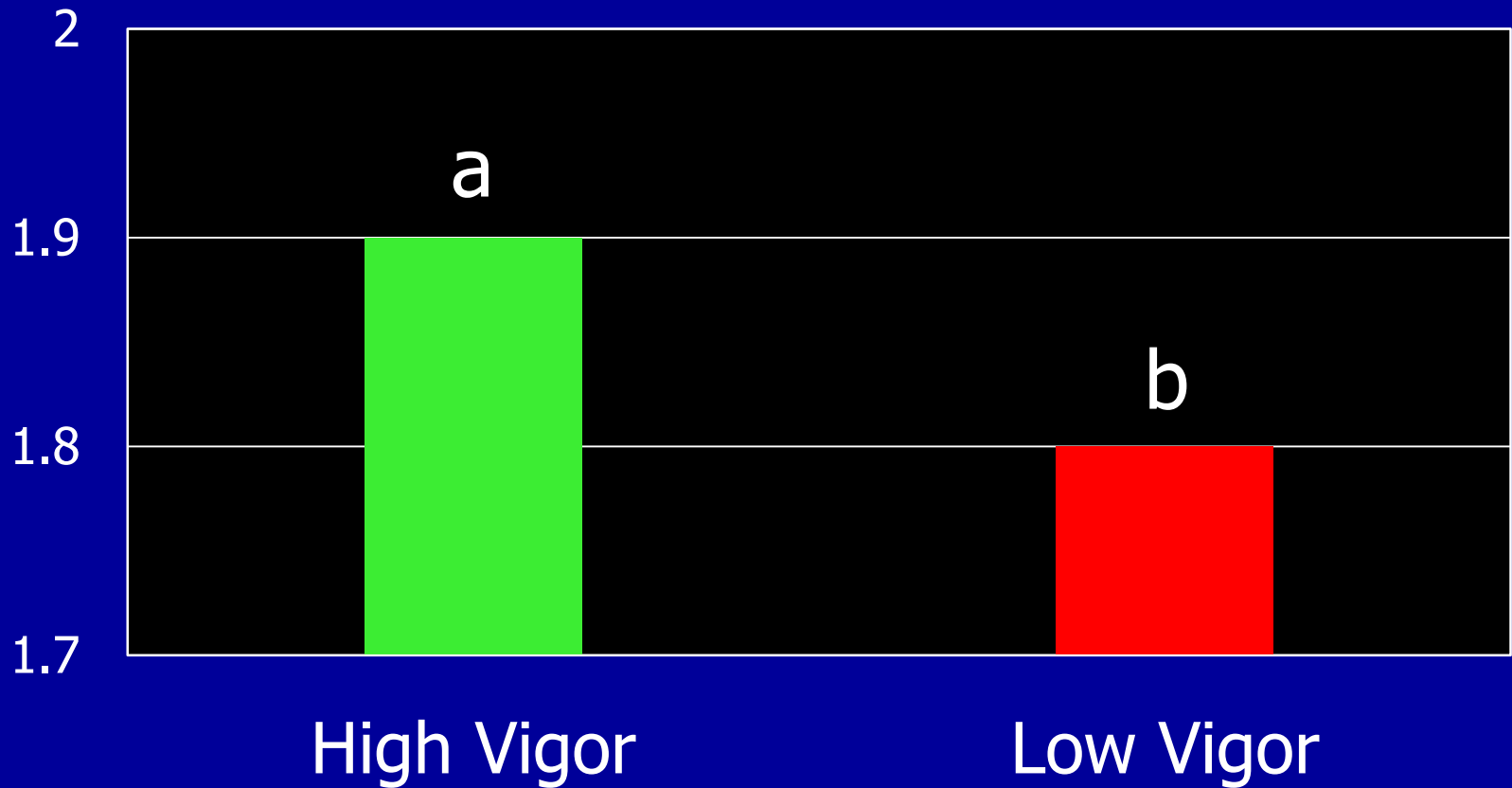
Low Vigor

Berry Sampling Yield

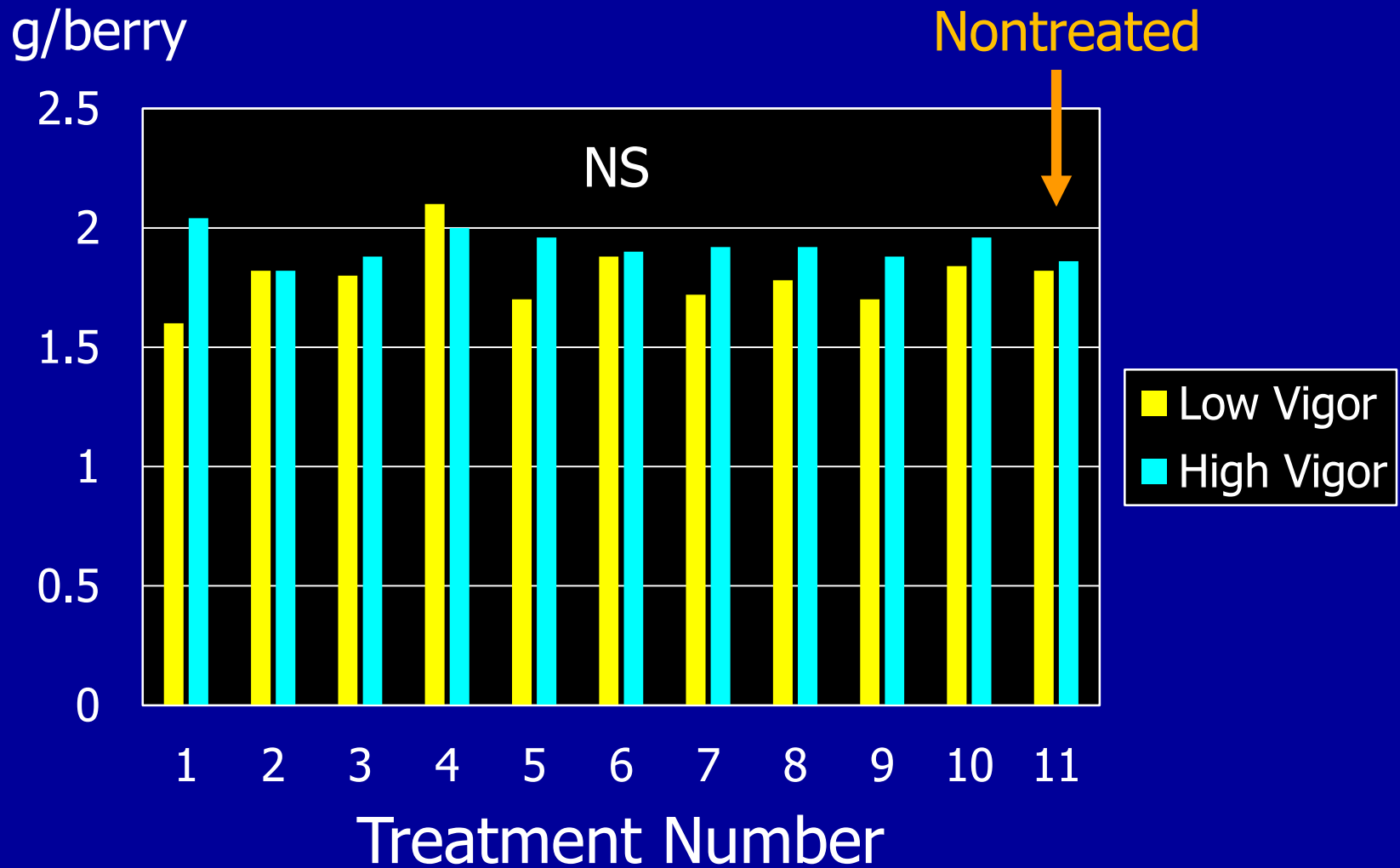


Sampling 50-Berry Weight

g/m



Sampling Fifty-Berry Weight



2018 Plan

- Continue the 2017 project to determine final floriculture counts going into the 2018 season
- Repeat cane burning treatments on low and high vigor 'Meeker' (2nd year of data)
- One more site?

Baby Raspberry Trial

2016-2017

- Raspberry plugs were transplanted at NWREC
 - ‘Cascade Harvest’, ‘Meeker’, ‘Squamish’, and ‘Wakefield’ in 2016
 - ‘Meeker’, ‘Squamish’, and ‘Wakefield’ in 2017
- Herbicides applied PRE or POST transplant

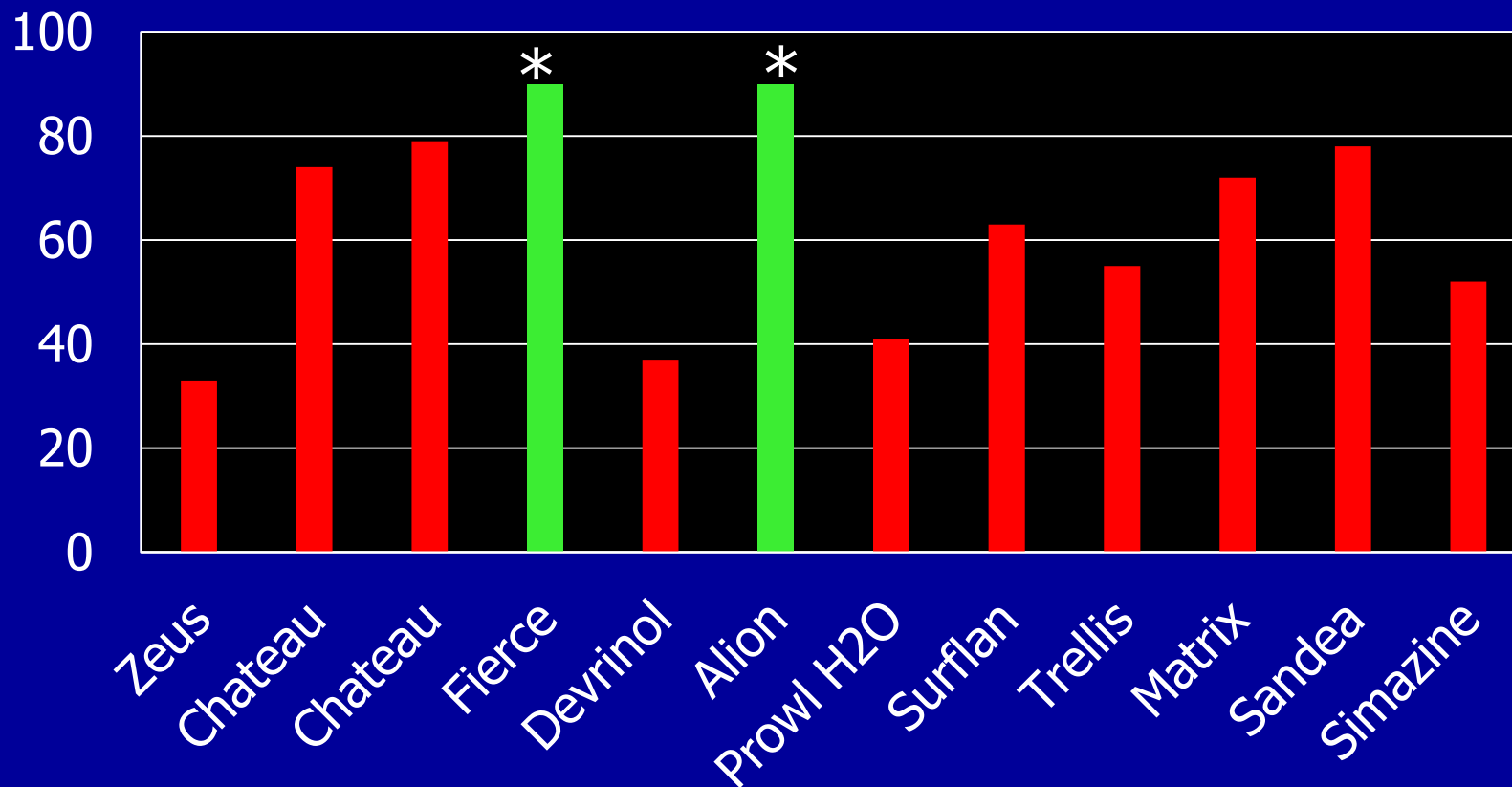
Baby Raspberry Trial

2016-2017

- In 2016, all tested herbicides were POSTR:
 - Zeus, Chateau, Fierce, Devrinol, Prowl H2O, Surflan, Trellis, Matrix, Sandea, or Simazine
- In 2017, all treatments were the same applied POSTR, except:
 - Chateau and Fierce applied PRETR, due to excessive leaf injury in 2016
 - Devrinol replaced with Alion (POSTR)
- All plots handweeded in July

Weed Control in Baby Raspberry

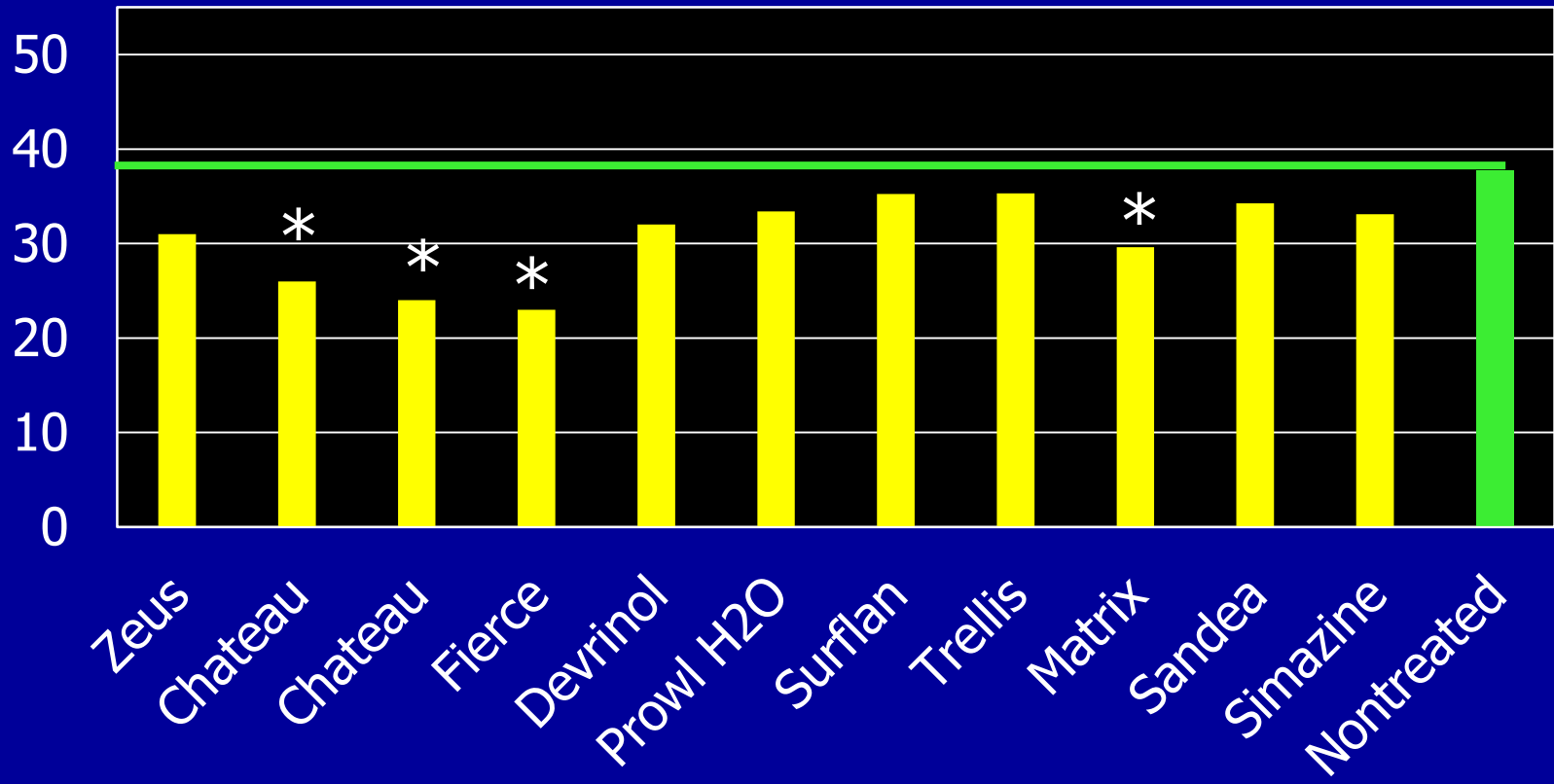
% September-October, 2016-2017



Longest Raspberry Primocane

September, 2016

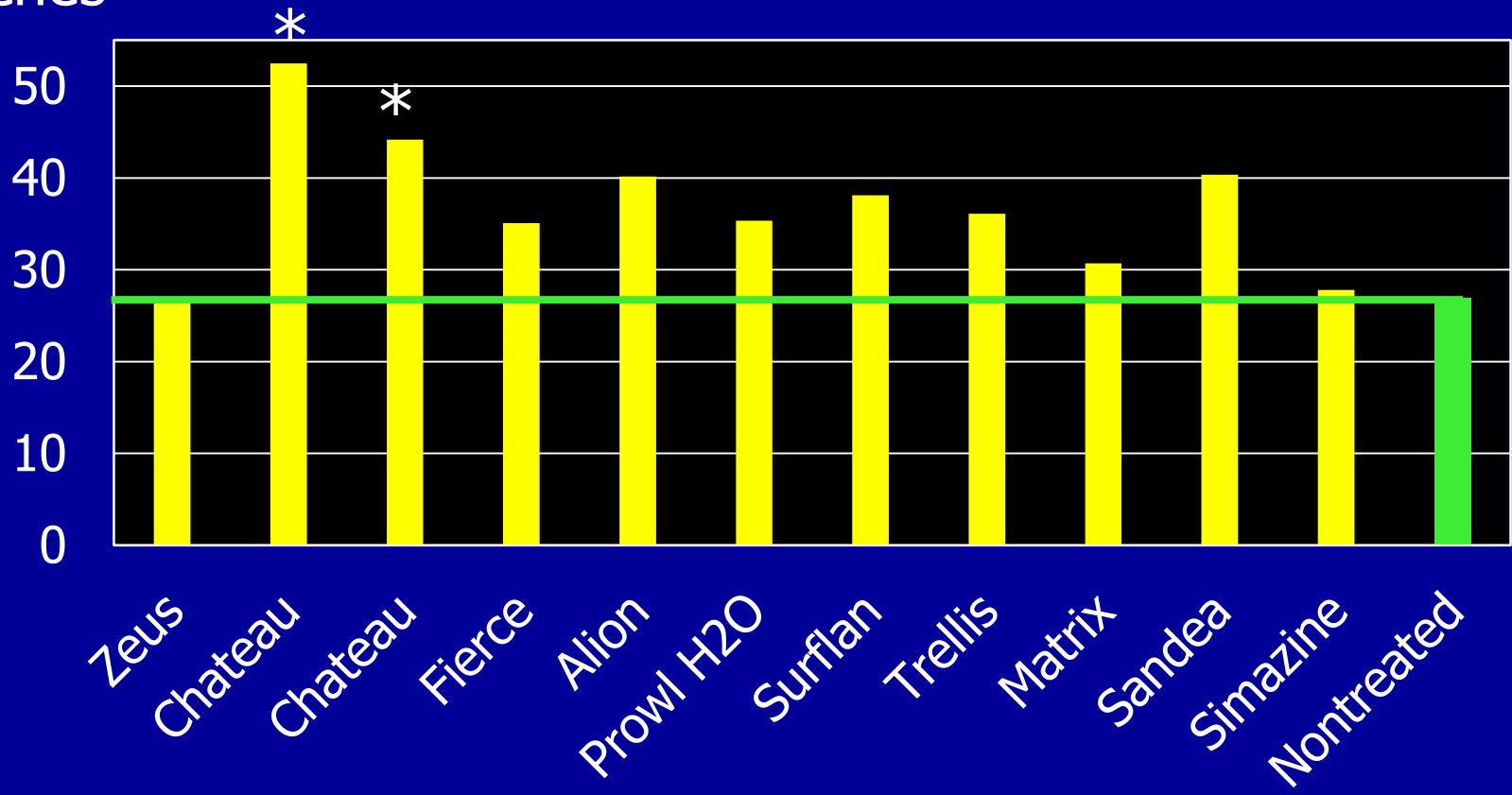
inches



Longest Raspberry Primocane

October, 2017

inches



2018 Plan

- Final treatments applied during raspberry dormancy in early 2018
- Repeat the trial one more time...
- Label modifications to allow for use on raspberry plugs?



Many Thanks

- **Funding** for all my berry trials has been provided by:
 - Washington **Blueberry, Red Raspberry** and **Strawberry** Commissions
 - BC Raspberry Industry Development Council
 - Washington State Commission for **Pesticide Registration**
- **Norcal Nursery** and **Northwest Plant Company** for plant material
- **Cooperators** and **herbicide manufacturers**
- **Carl Libbey, Steve Seefeldt, Yushan Duan, Wiharti Purba,** and the gang at WSU Mount Vernon NWREC



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