

Effects of Several Herbicides Applied to Young Blueberry

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Blueberry Herbicide Trial

2015-16



Young Blueberry Herbicide Trial

- Many herbicides are registered to use in **established blueberry**, but few are registered in **newly-planted blueberry**
- Could we develop a database for some of the “**newer**” herbicides in **young blueberry**?
 - Potential label changes?
- The plan was to test **over-the-top and directed spray** applications on newly-transplanted blueberry

Young Blueberry Herbicide Trial

- Conducted in 2015 in **Lynden** and **NWREC**, and also in **Ektopia** in 2016
 - 2015: 2-yr-old 'Liberty', 1-yr-old 'Duke', and newly-planted 'Bluecrop'
 - 2016: 2-yr-old 'Duke', and 1-yr-old 'Bluecrop', 'Elliott', and 'Draper'

Blueberry Herbicide Trial

- Dormant-season treatments were applied in February/March
- Post-budbreak treatments were applied in May
- Plants at NWREC were **not irrigated**
- **Non-registered** herbicides were **Alion** (indaziflam, 5 fl.oz/a), **Linex** (linuron, 1 qt/a), and **Treevix** (saflufenacil, 1 oz/a)
- US-registered treatments were **Callisto** (6 fl.oz/a), **Matrix** (4 oz/a), **Stinger** (5.3 fl.oz/a), and **Sandea** (2 oz/a in 2015, 1 oz/a in 2016)

Product	Currently registered?	Labelled application details	Labelled rate	Minimum age
Callisto	Yes	Pre-bloom, post-directed	6 fl.oz	No restriction
Matrix	Yes	PRE or early POST, directed spray under blueberry bushes. Avoid contact with blueberry leaves.	4 oz	1-yr-old
Sandea	Yes	PRE or POST, directed spray under blueberry bushes. Avoid contact with blueberry leaves.	0.5 to 0.67 oz for 1- to 4-yr-old bushes	1-yr-old
Stinger	Yes	Do not apply from one week prior to bloom until one week after bloom. After bloom, apply up until 30 days prior to harvest or after harvest.	4 to 5.3 fl.oz	No restriction
Alion	No	---	---	---
Linex	No	---	---	---
Treevix	No	---	---	---

Most Injurious Treatments

- Sandea
 - Over-the-top (OTT) treatments in 2015 (2 oz/a) were damaging, particularly to non-dormant blueberry plants (up to 80% injury in June)
 - A lower rate (1 oz/a) in 2016 caused considerably less injury, although OTT to leafed out plants still resulted in 26% injury
 - Sandea is still best used as per label (1/2 to 2/3 oz/a only when blueberry plants are at least 1-yr-old)

1-yr-old Duke in August



Over-the-top Sandea
to non-dormant
plants in May

2-yr-old Liberty in August



Somewhat Injurious Treatments

- Matrix

- Over-the-top (OTT) treatments to non-dormant blueberry plants caused 15 to 17% injury (2016 and 2015)
- By August both years, all injury was < 10%

- Stinger

- Only newly-planted Bluecrop (2015) was injured >10% by these treatments
- 2 to 17% injury from OTT and directed sprays by August (2015), plants with curled leaves

Somewhat Injurious Treatments

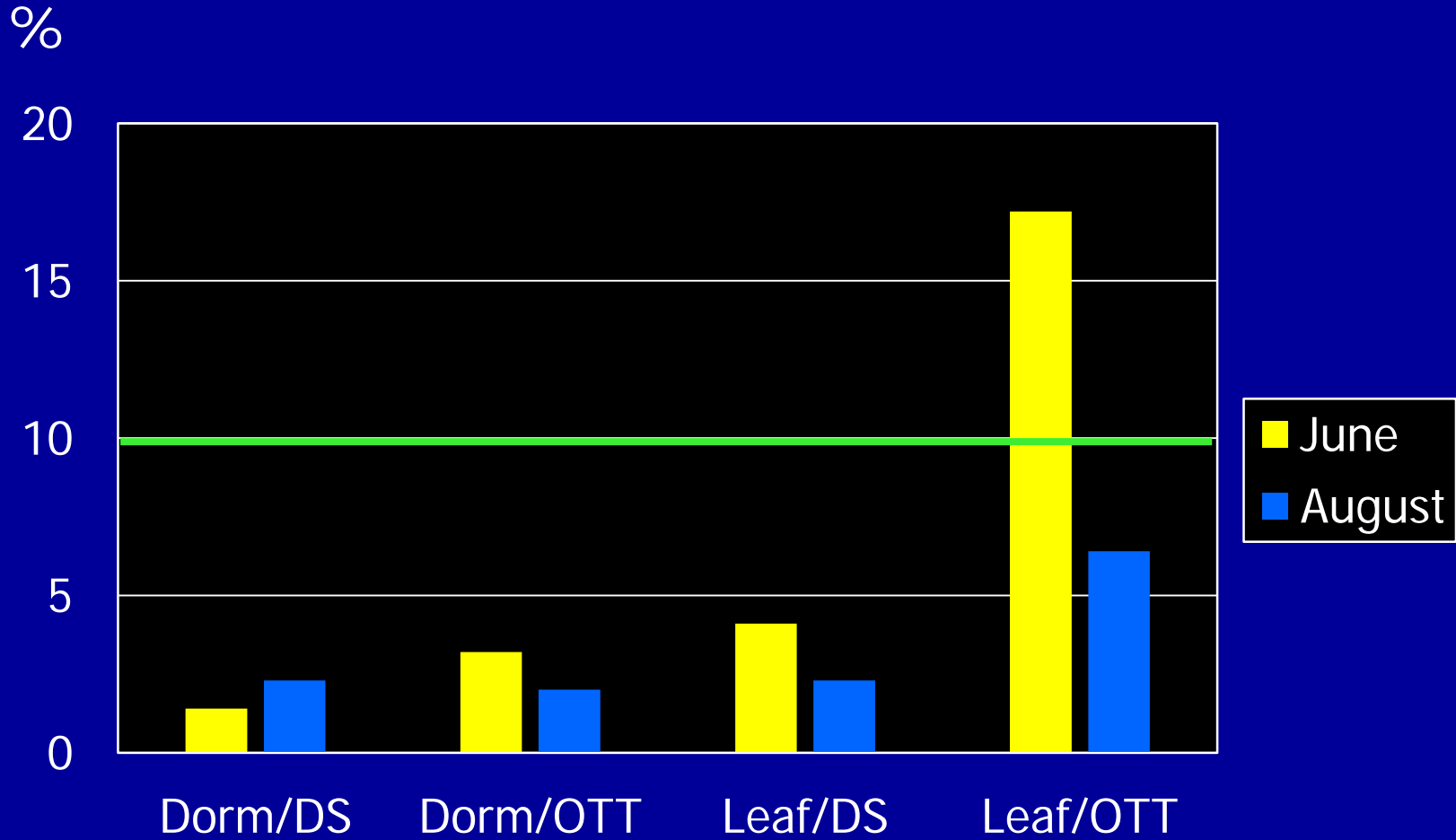
- Callisto

- This product was not damaging to 1- or 2-year-old blueberry plants in either year, whether plants were dormant or non-dormant or by directed sprays or OTT
- Newly-planted Bluecrop was damaged by directed sprays or OTT treatments (20 to 60% by August, 2015)
 - This result might reflect excess herbicide activity on young blueberry plants, on Bluecrop plants, or on non-irrigated blueberry plants (or it could be just a random effect due to small sample size)

Potential Problems

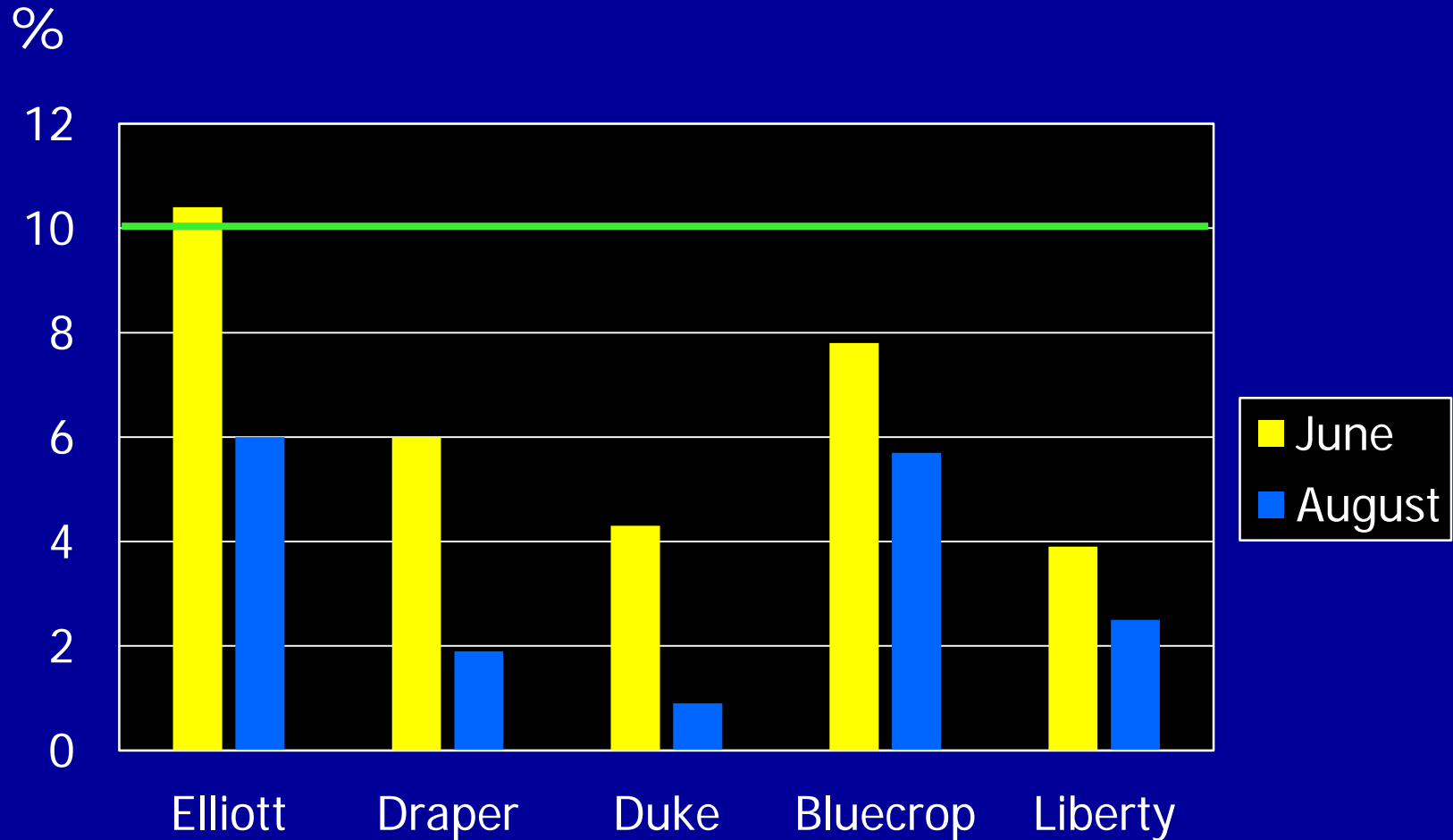
- Not-yet-registered products:
 - **Alion** OTT to non-dormant blueberry caused **brief injury** to 1-and 2-yr-old plants; injury (12 to 13% in both years) lasted until August only for newly-planted blueberry
 - Both **Linex** and **Treevix** OTT to non-dormant plants caused **substantial, but transitory, leaf burn** (up to 53% in May, 2015; <10% by August)
 - Worst on **newly-planted** stock (**directed spray to non-dormant plants** also caused brief damage)

Timing/Application Response Injury in June and August, 2015-16



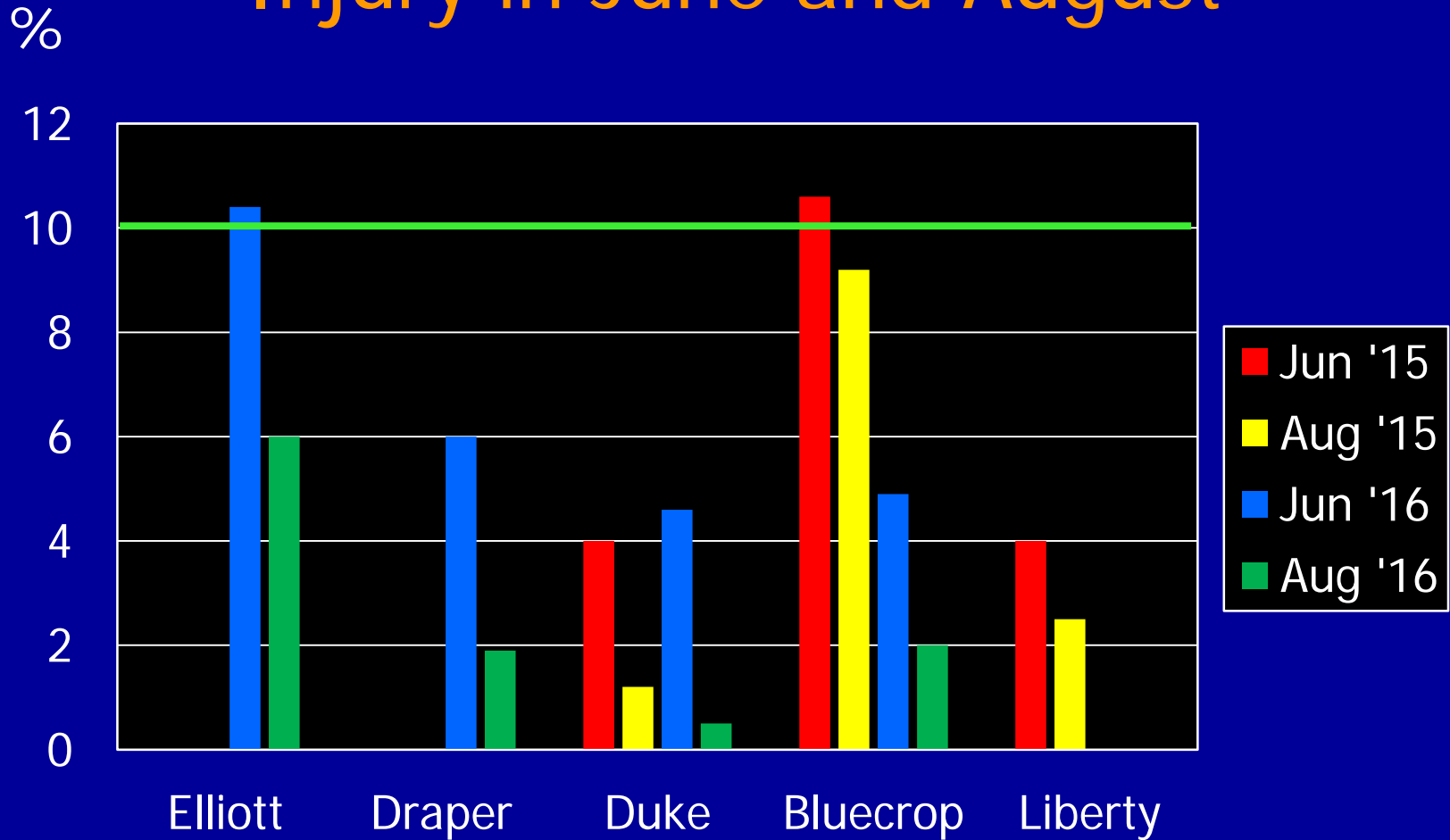
Cultivar Response

Injury in June and August, 2015-16



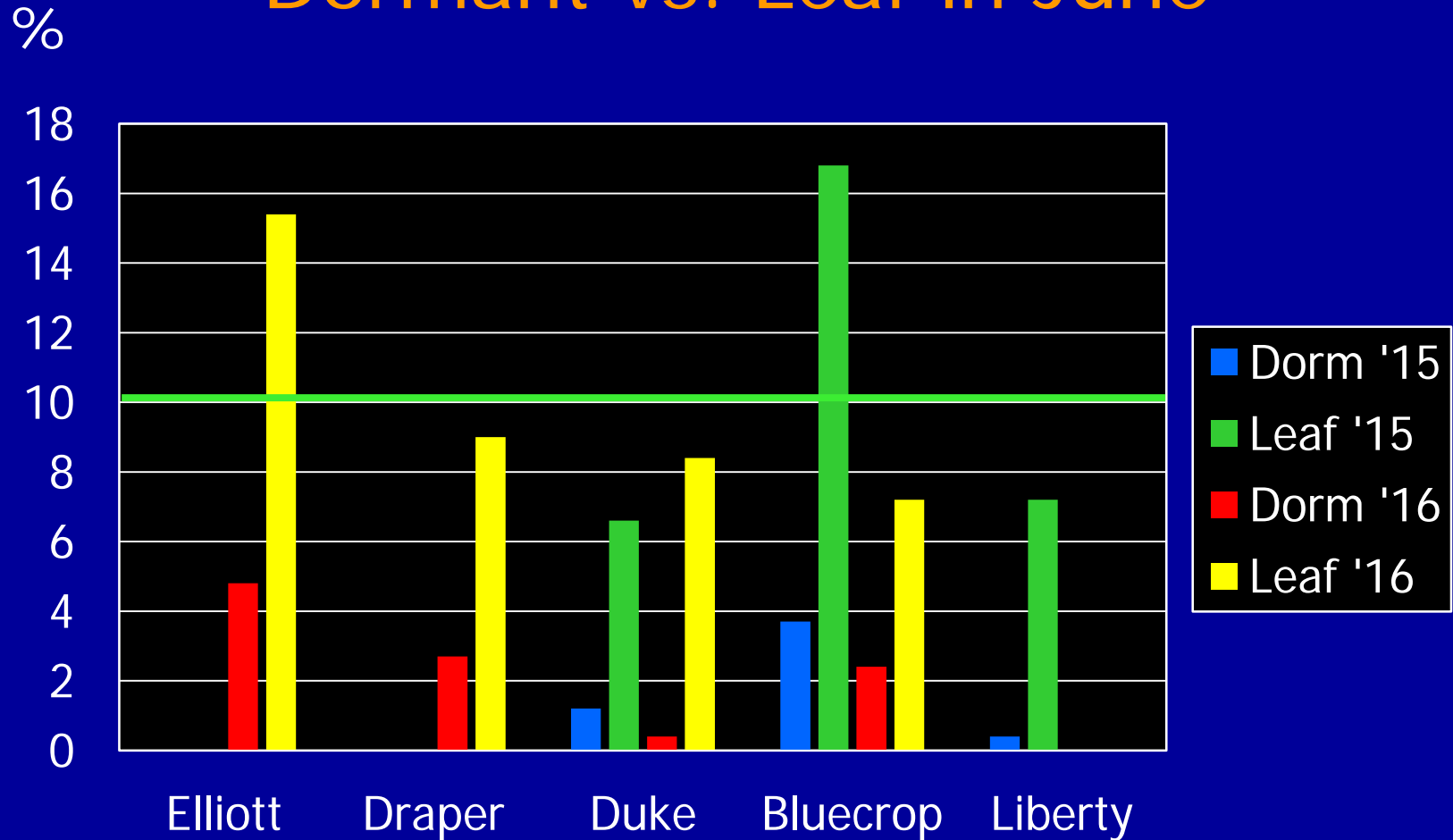
Cultivar Response

Injury in June and August



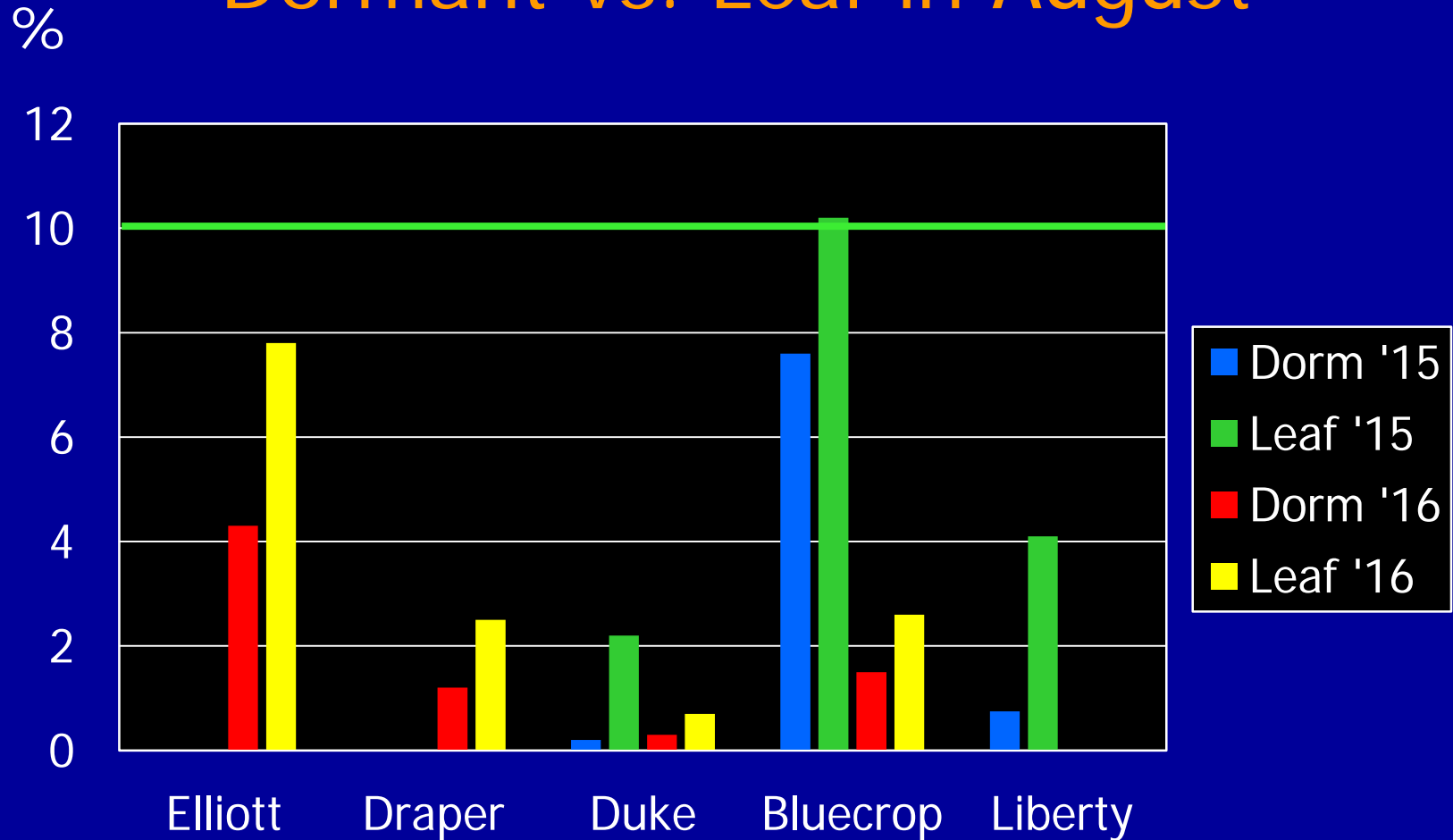
Cultivar x Timing Response

Dormant vs. Leaf in June



Cultivar x Timing Response

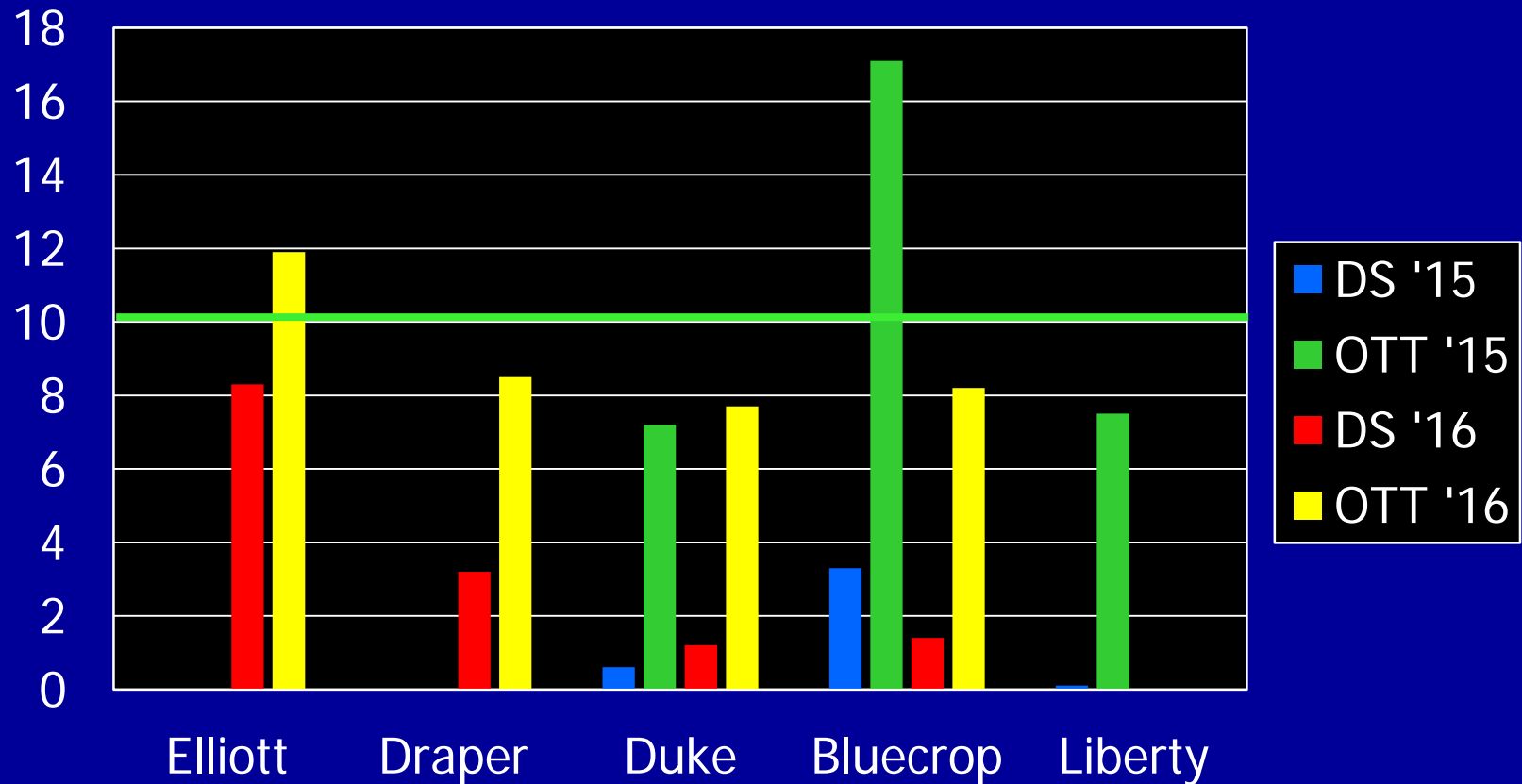
Dormant vs. Leaf in August



Cultivar x Method Response

Direct Spray vs. Over-The-Top in June

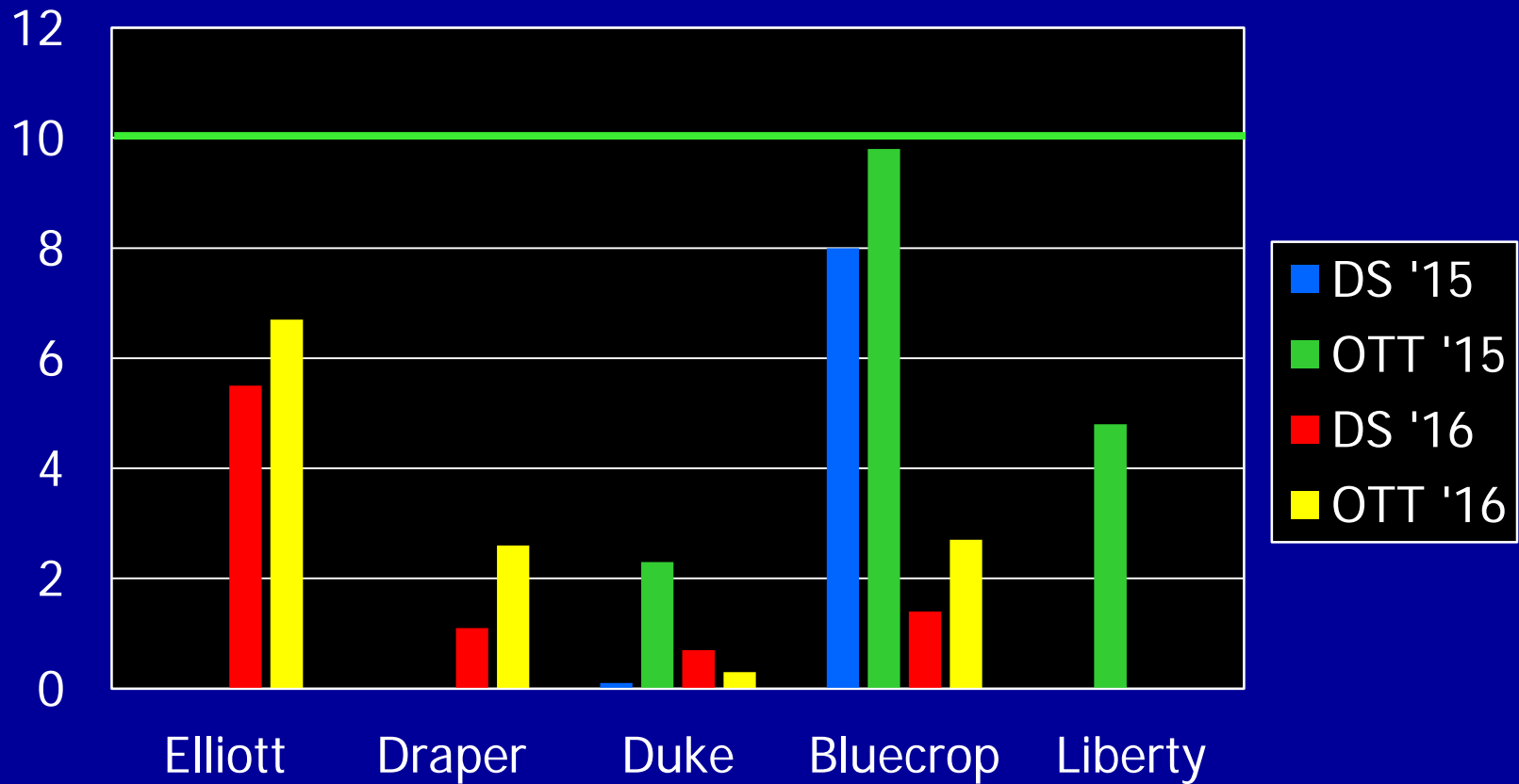
%



Cultivar x Method Response

Direct Spray vs. Over-The-Top in August

%



Young Blueberry Conclusions

- Dormant-season applications were safe for all cultivars, herbicides, and timings
 - Newly-planted Bluecrop were most sensitive
- OTT to non-dormant plants should be avoided
- Callisto, Matrix, and Stinger quite safe
- Alion, Linex, and Treevix remain good candidates for dormant applications

Many Thanks

- **Funding** for all my berry trials was provided by:
 - Washington **Blueberry, Red Raspberry** and **Strawberry** Commissions
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- **Cooperators** and **herbicide manufacturers**
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