

Growth Control of *Euphorbia pulcherrima* Willd. ex Klotzsch

‘Sonora Jingle’ and ‘Sonora White’ Using Ethephon



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Poinsettia

- Widely used as Christmas decorations
- Grown in all 50 states, \$220 million annually
- More than 100 poinsettia varieties available
- Sonora Jingle and Sonora White are new cultivars



Euphorbia pulcherrima
'Sonora Jingle'

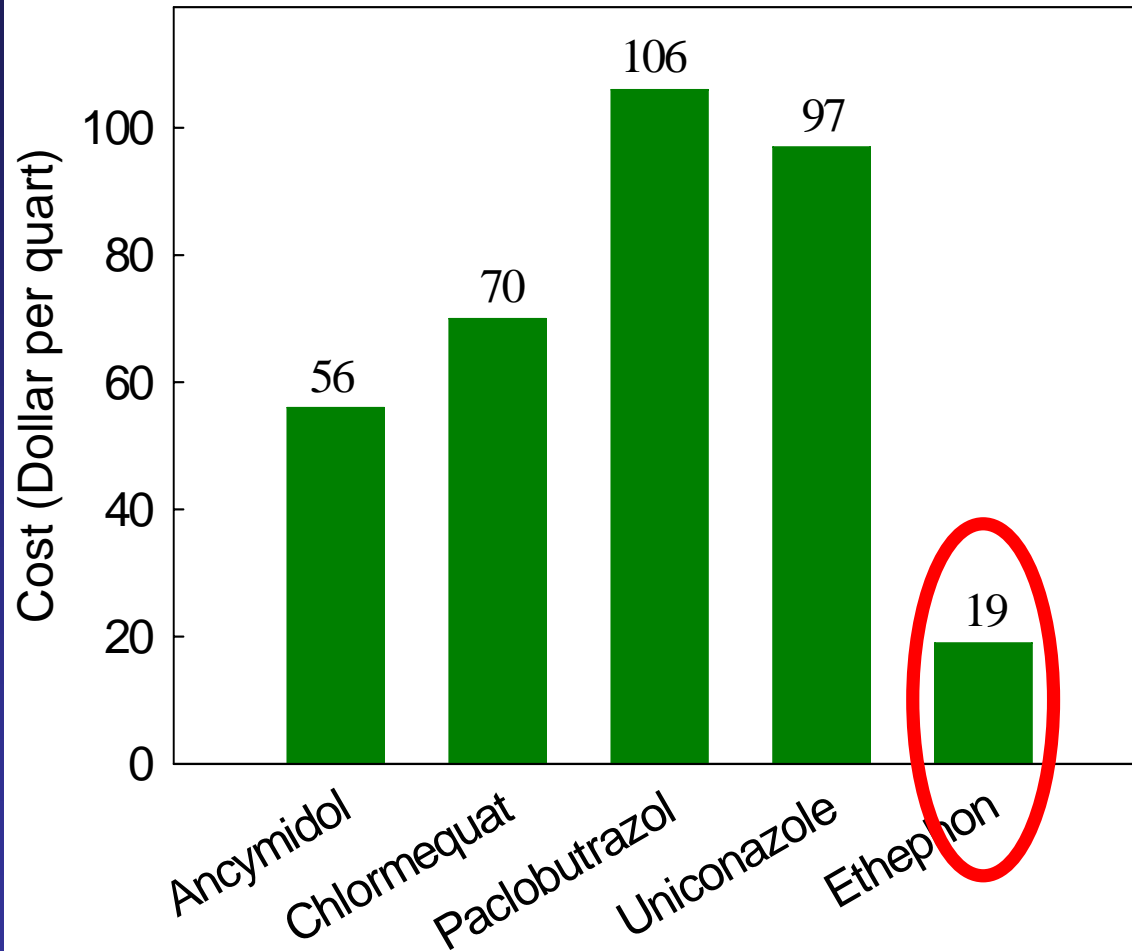


Euphorbia pulcherrima
'Sonora White'

Literature Review

- Too tall and leggy for potted plants
- Height control:
 - Photoslective filters (Clifford et al., 2004)
 - Irradiance control (Bailey and Miller, 1991)
 - Plant growth retardants, such as Ancymidol, Chlormequa, Paclobutrazol, Uniconazole, and etc. (Bailey and Whipker, 1998; Ecke et al., 1990)

Problem?



Source: Latimer, 2001

Objectives

- To assess the effect of foliar spray of Ethephon on stem elongation of poinsettia
- Response of Sonora Jingle and Sonora White to Ethephon application

Experimental Design

- Completely randomized block design (4 blocks, 4 replications, 2 Pseudo-replications)
- Treatments

Treatment	Application Date in 2005 (days after transplanting)		
	Aug.29 (30)	Sep. 20 (52)	Oct.13 (75)
(A) 0 ppm (Control)	No	No	No
(B) 700 ppm	Yes	Yes	Yes
(C) 500 ppm	Yes	No	Yes
(D) 700 ppm	Yes	No	Yes
(E) 300 ppm	Yes	Yes	Yes
(F) 500 ppm	Yes	Yes	Yes

Experimental Design continued

➤ Data Collection:

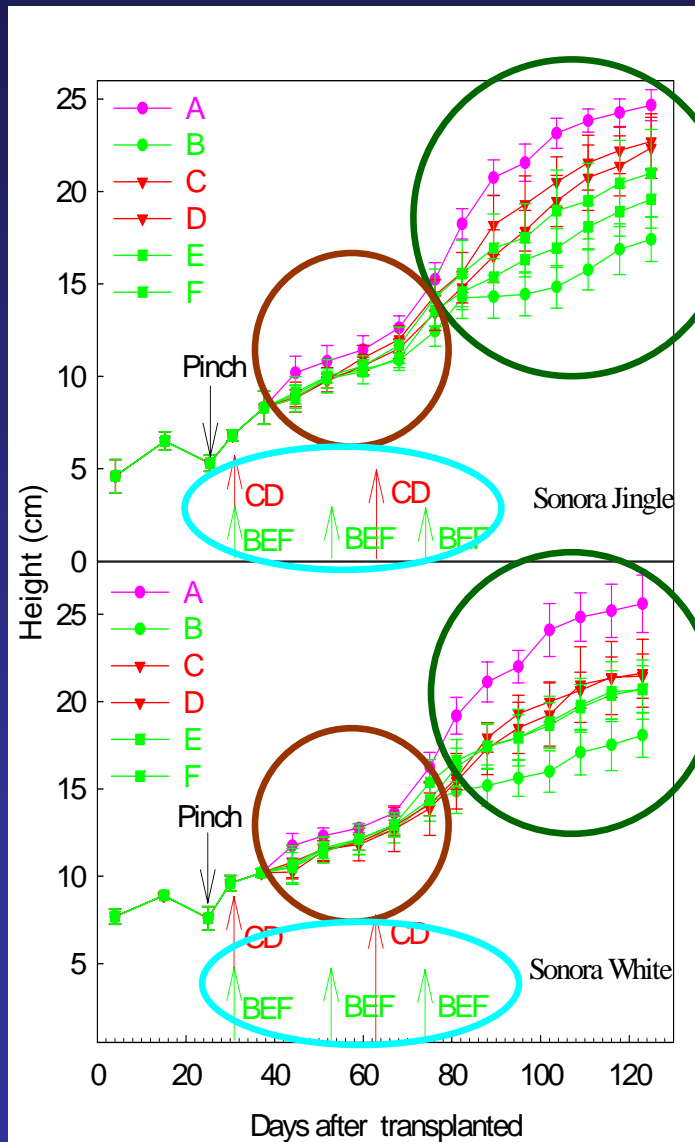
- Plant height and bract coloration were recorded weekly
- Dry weight (aboveground portion), canopy and bract size, node number, and length were measured on 11 November 2005

➤ Data Analysis:

- Statistical analysis and LSD test with $P < 0.05$ were conducted using Proc GLM in SAS

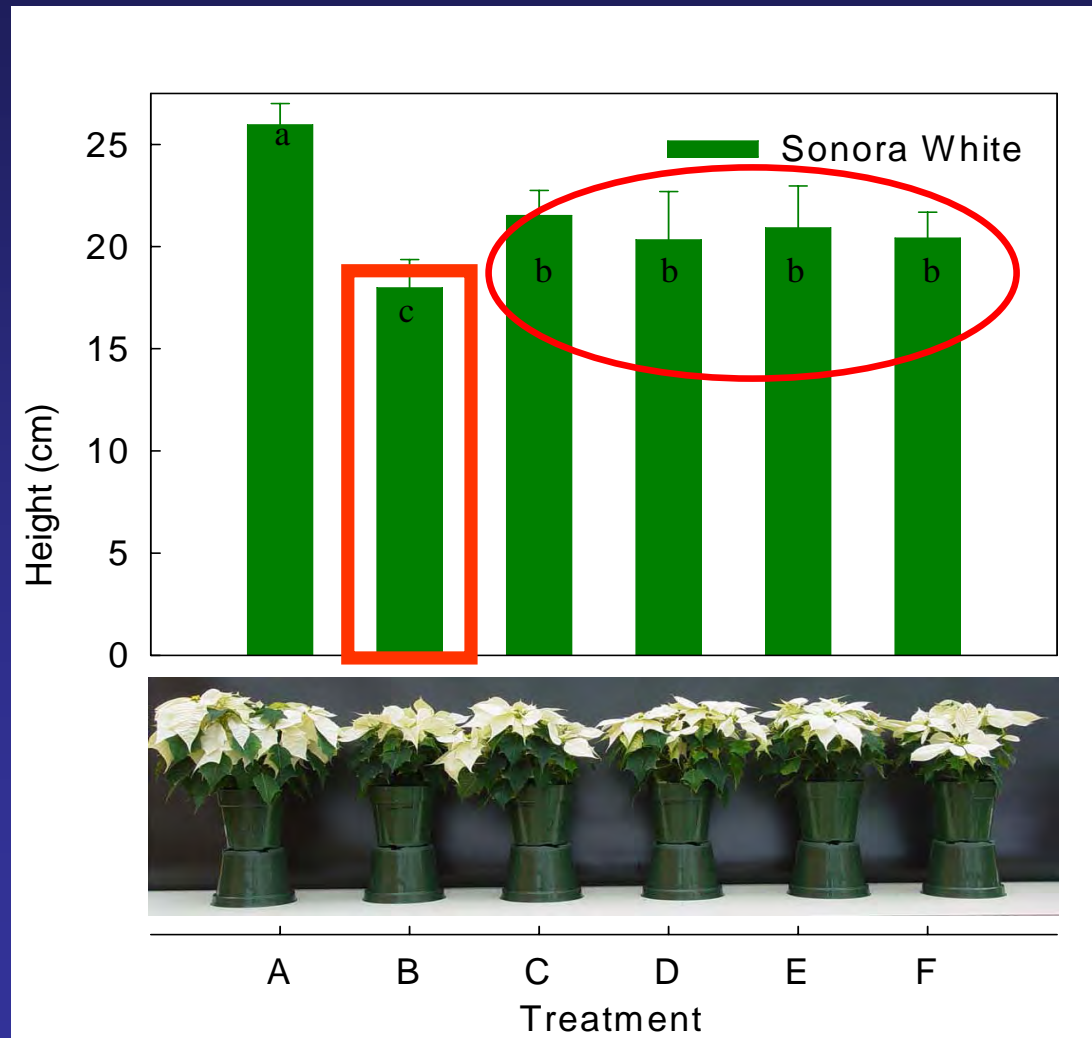
Effects of Ethephon on Stem Elongation of Poinsettia

Height until 17 weeks



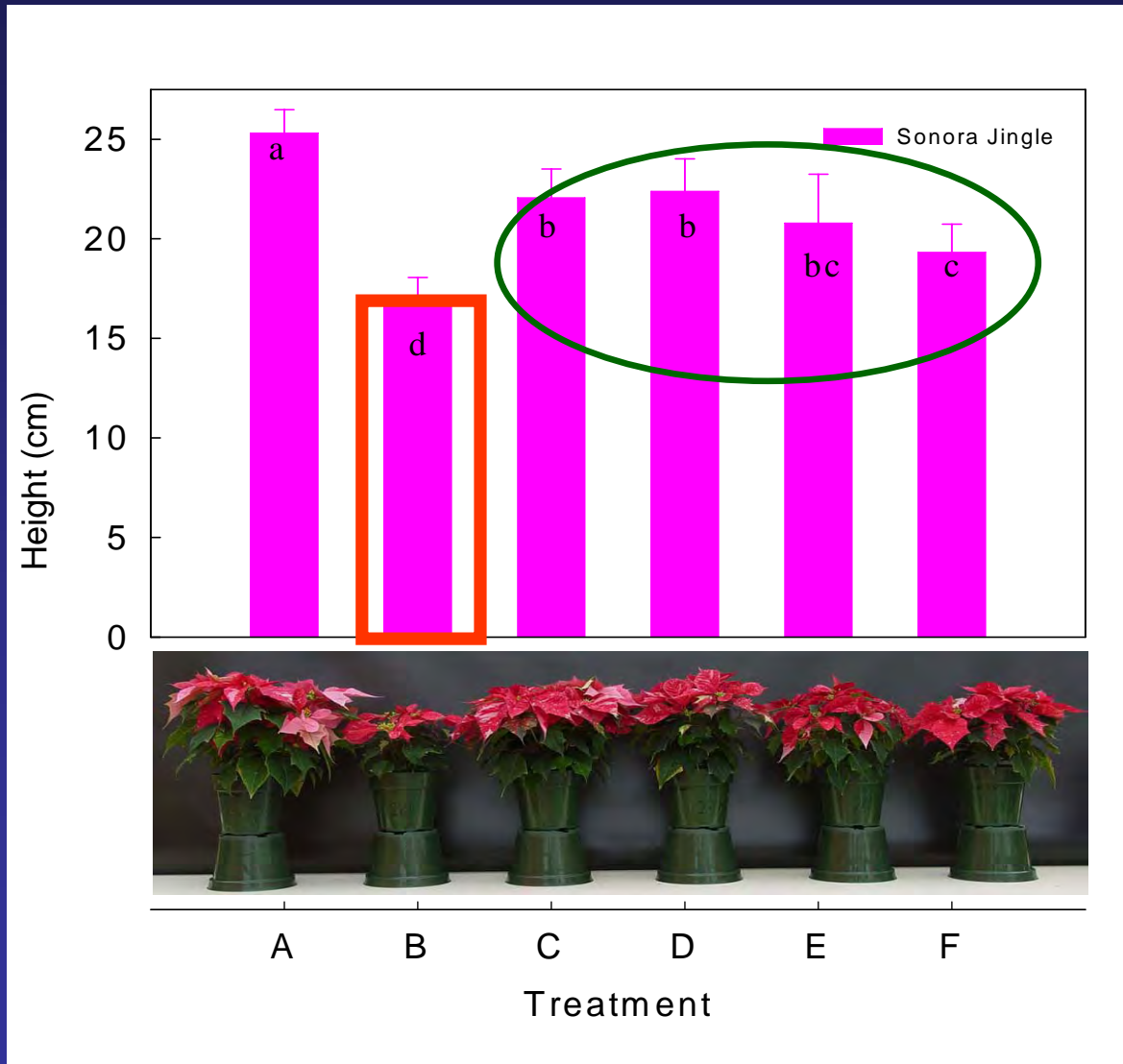
Effects of Ethephon on Stem Elongation of Sonora White

Height until 17 weeks



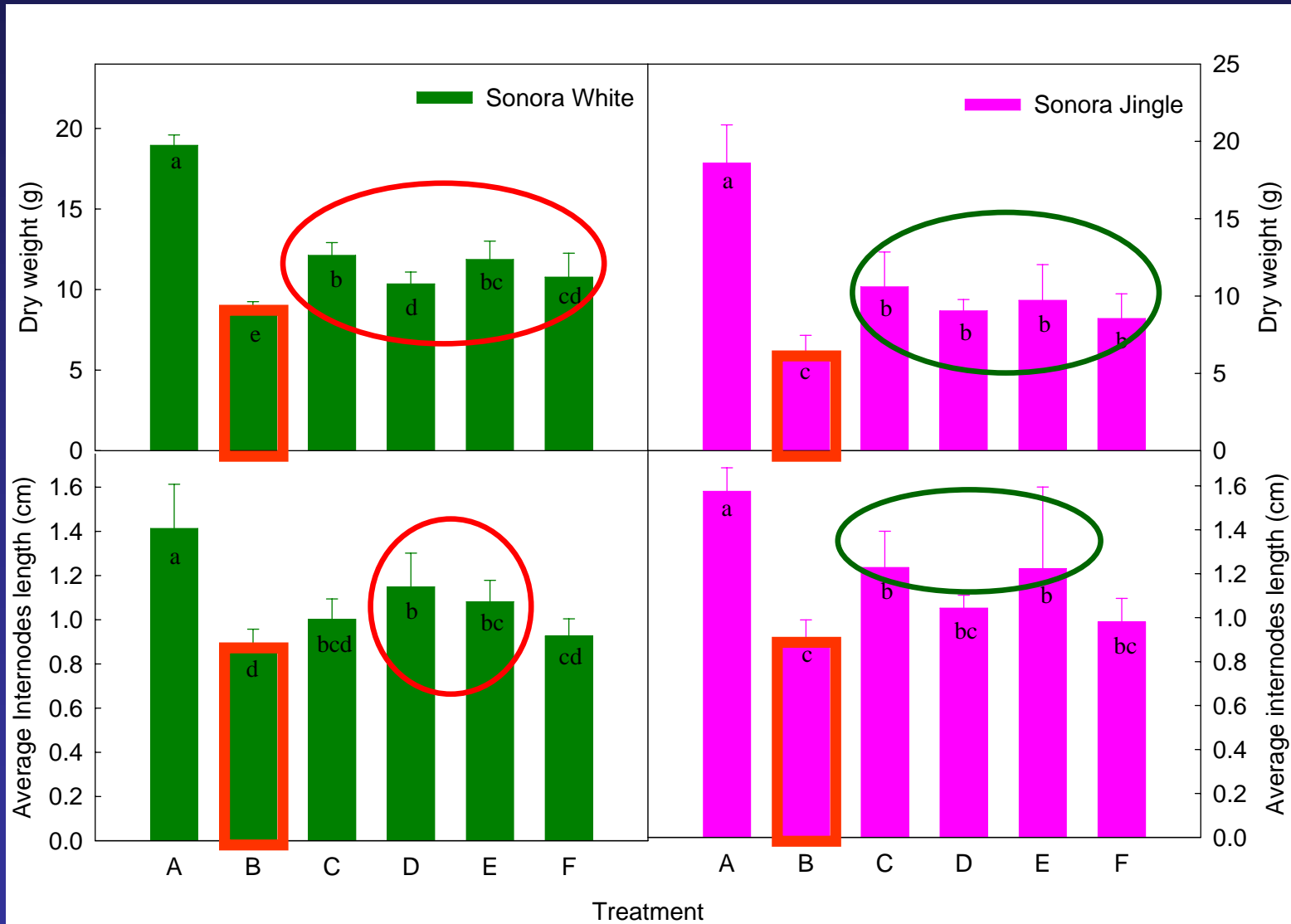
Effects of Ethephon on Stem Elongation of Sonora Jingle

Height



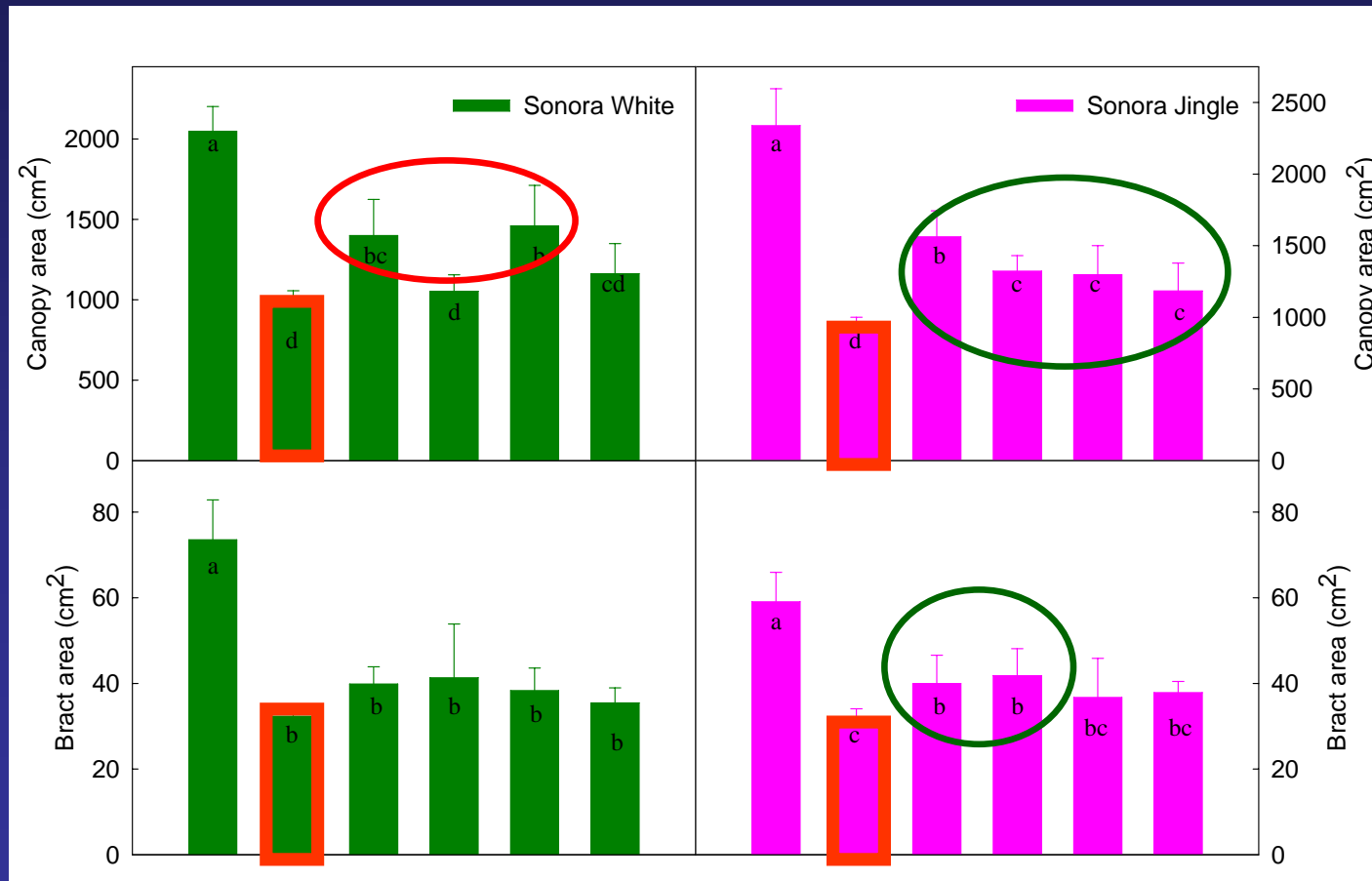
Effects of Ethephon on Dry Weight, Average Internodes Length of Poinsettia

Average Internodes Length
 Dry Weight



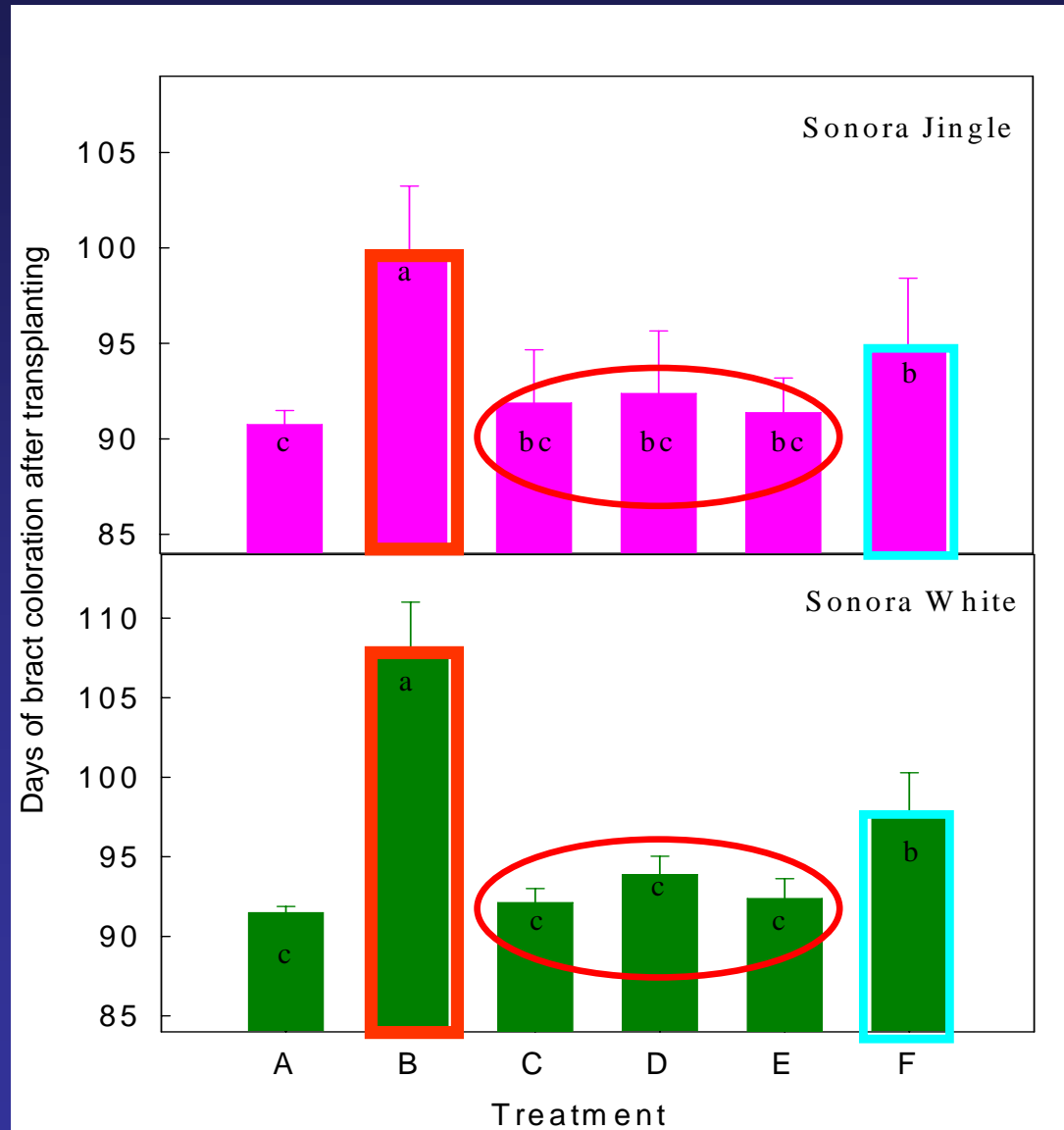
Effects of Ethephon on Canopy and Bract Area of Poinsettia

Bract Area Canopy Area

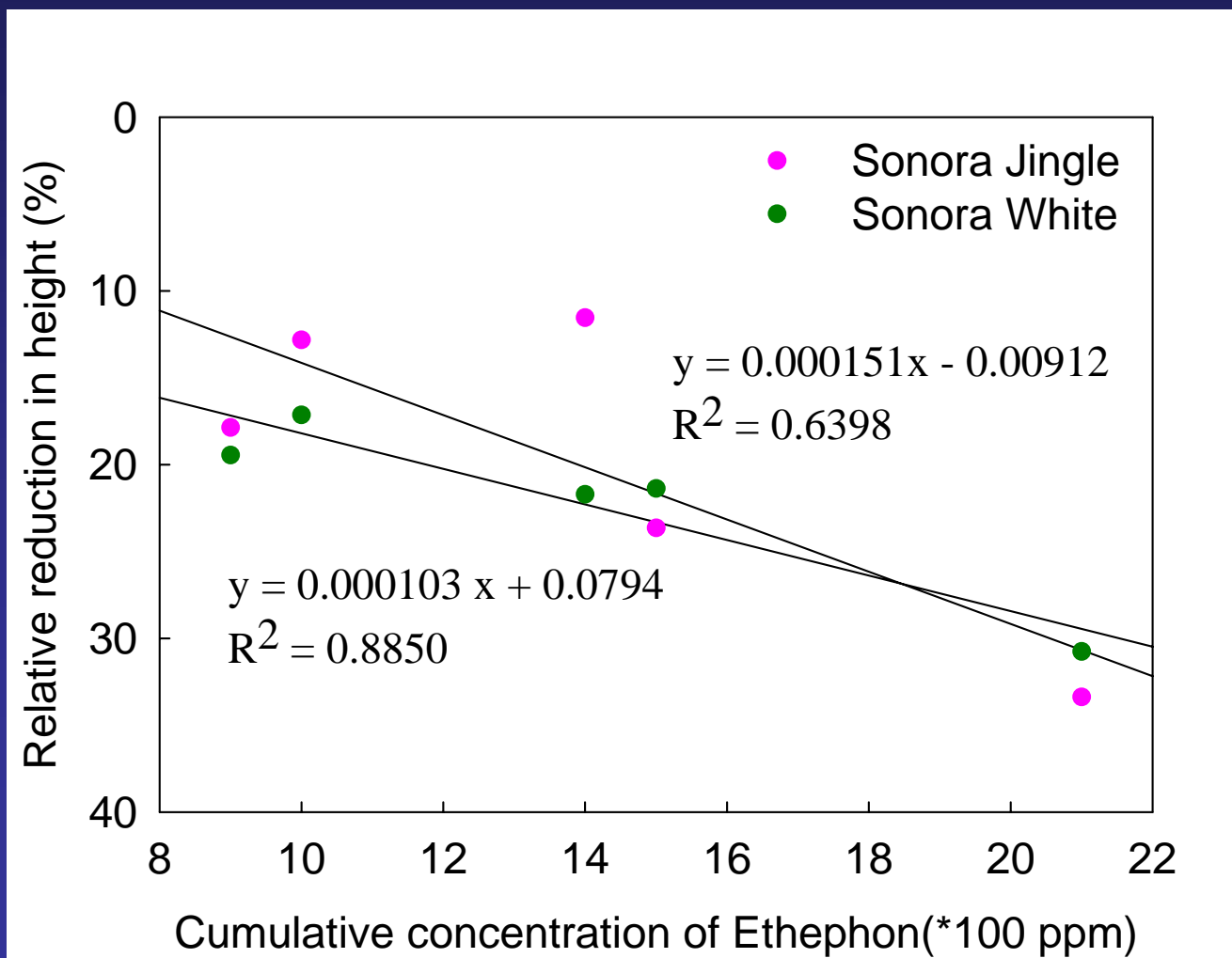


Effects of Ethephon on Bract Coloration of Poinsettia

Days until Bract Coloration



Relationship between Cumulative Concentration of Ethephon and Relative Reduction in Height



Conclusions

- Ethephon is a feasible way to
 - control height of poinsettia
 - produce compact potted poinsettia
- Growing poinsettia scheduled accordingly

Acknowledgements



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Questions?

