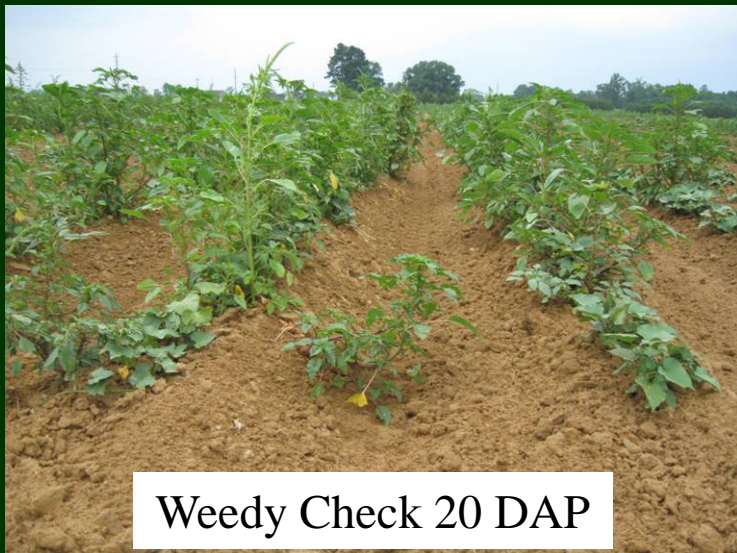


‘Covington’ Sweetpotato Tolerance to Dual Magnum Applications Followed by Simulated Rainfall

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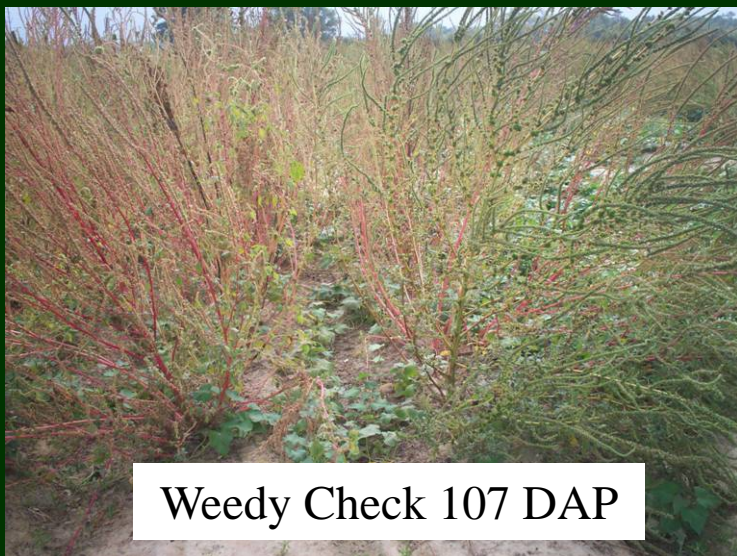
Palmer Amaranth Control



Weedy Check 20 DAP



S-metolachlor 0.75 pt/A 20 DAP

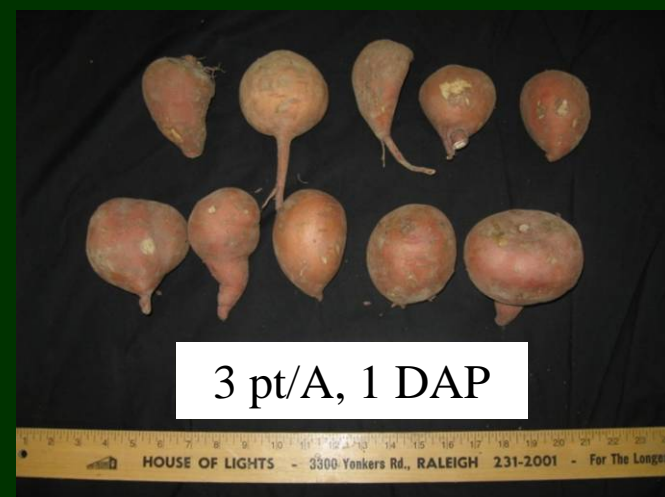
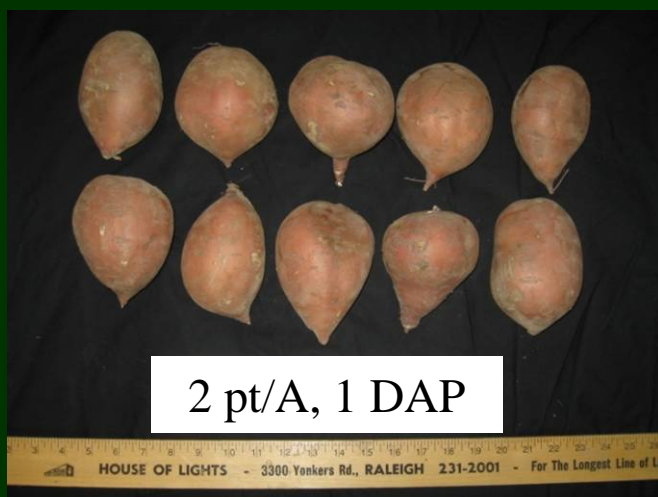


Weedy Check 107 DAP

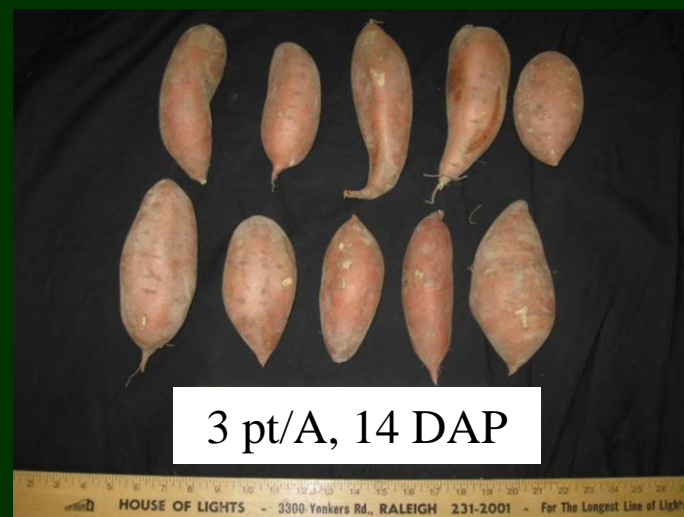
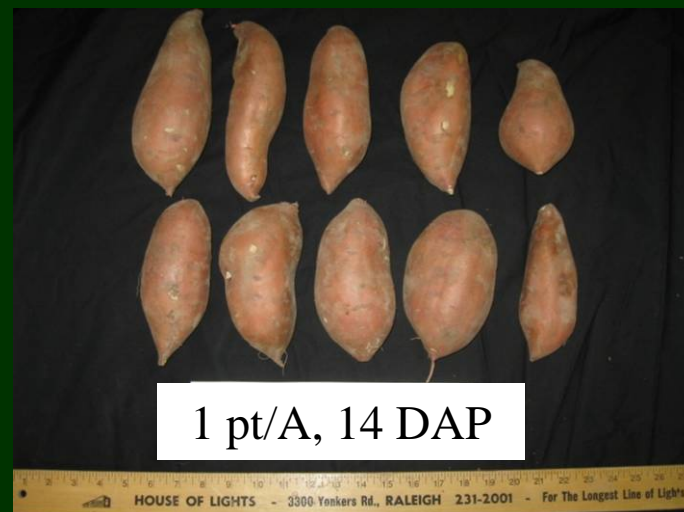


S-metolachlor 0.75 pt/A 107 DAP

‘Covington’ Length to Width Ratio



'Covington' Length to Width Ratio



Objective

- Determine the response of ‘Covington’ sweetpotato to *S*-metolachlor rate and application time- when application is followed by a simulated rainfall event.
 - What happens between “immediately after transplanting” and 14 days after transplanting?

Materials and Methods

- Horticultural Crops Research Station
Clinton, NC
 - sandy loam
 - <1% OM, pH 5.8-6.0
 - 2011 and 2012
- Variety
 - ‘Covington’



Materials and Methods

- Plot size: 2 rows 18' long, 42" apart
- Planted: June 15, 2011; June 13, 2012
- RCBD with 4 replications
- Application information:
 - 8003 XR nozzles
 - 20 gal/a 18 psi



Materials and Methods

- Treatments:
 - 4 x 6 factorial
 - Four Dual Magnum rates: 0, 1, 2, 3 pt/a
 - Six application times: 0, 2, 5, 7, 9, 14 DAP
 - Immediately following application individual treated plots received 0.75” of simulated rainfall.
 - Plots maintained weed free by hand removing emerged weeds weekly.

Rainfall Simulator



Data Collection

- Crop injury
 - 0 (no injury) to 100% (crop death)
- Yield
 - Jumbo, no.1, and canner (USDA 2005)
 - Total marketable = sum of jumbo, no. 1, and canner
- No. 1 root length to width ratio
 - 20 No. 1 roots per plot

Sweetpotato Root Length to Width Ratio

- Length
 - “The dimension of the sweetpotato, measured in a straight line between points at or near each end of the sweetpotato where it is at least three-eighths inch in diameter.”
- Width
 - “The greatest dimension of the sweetpotato, measured at right angles to the longitudinal axis.”

-USDA 2005



Results



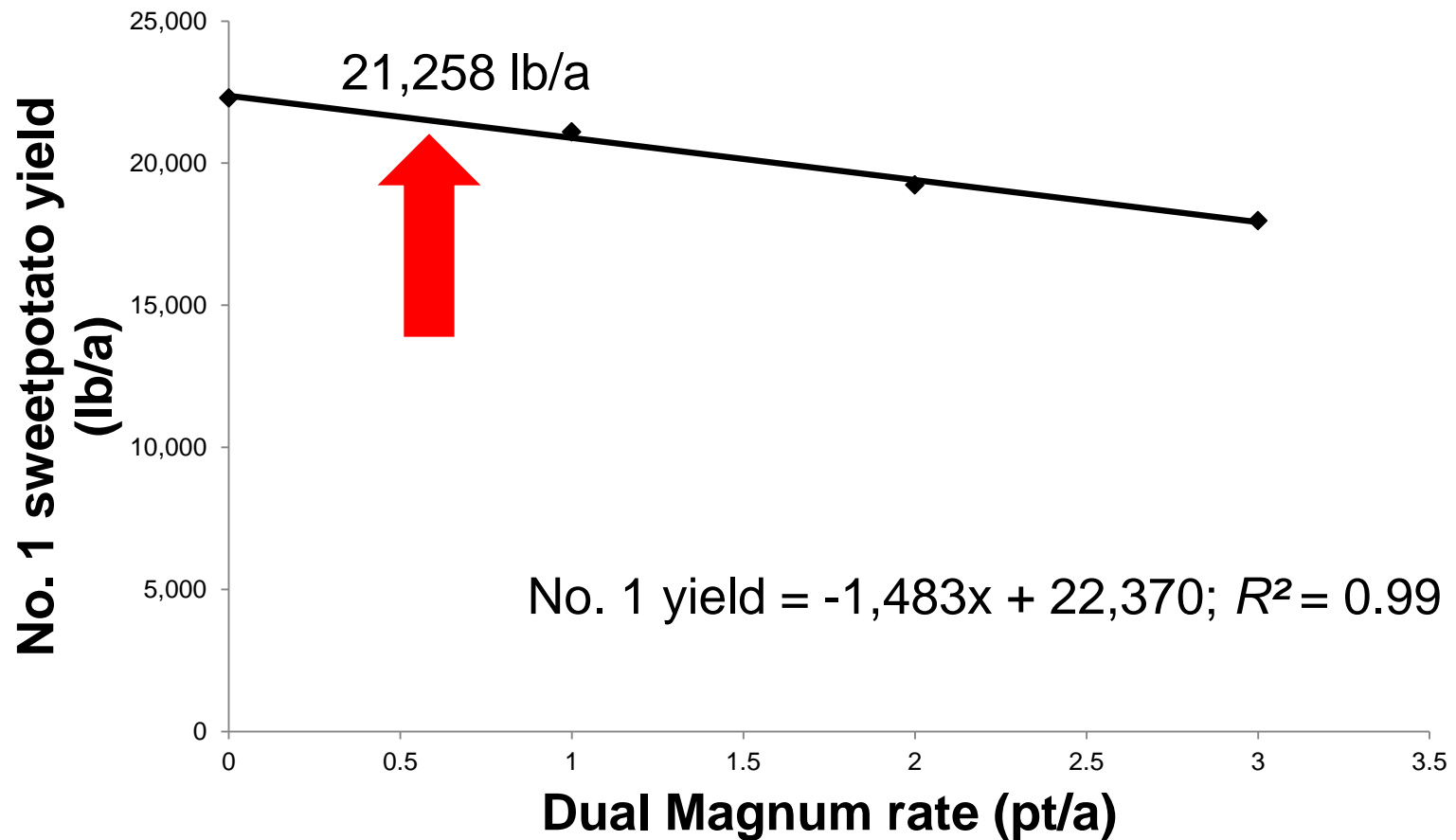
Foliar Sweetpotato Injury

- Injury was limited to minimal stunting ($\leq 10\%$) .
- Transient and 0% by 27 DAP.

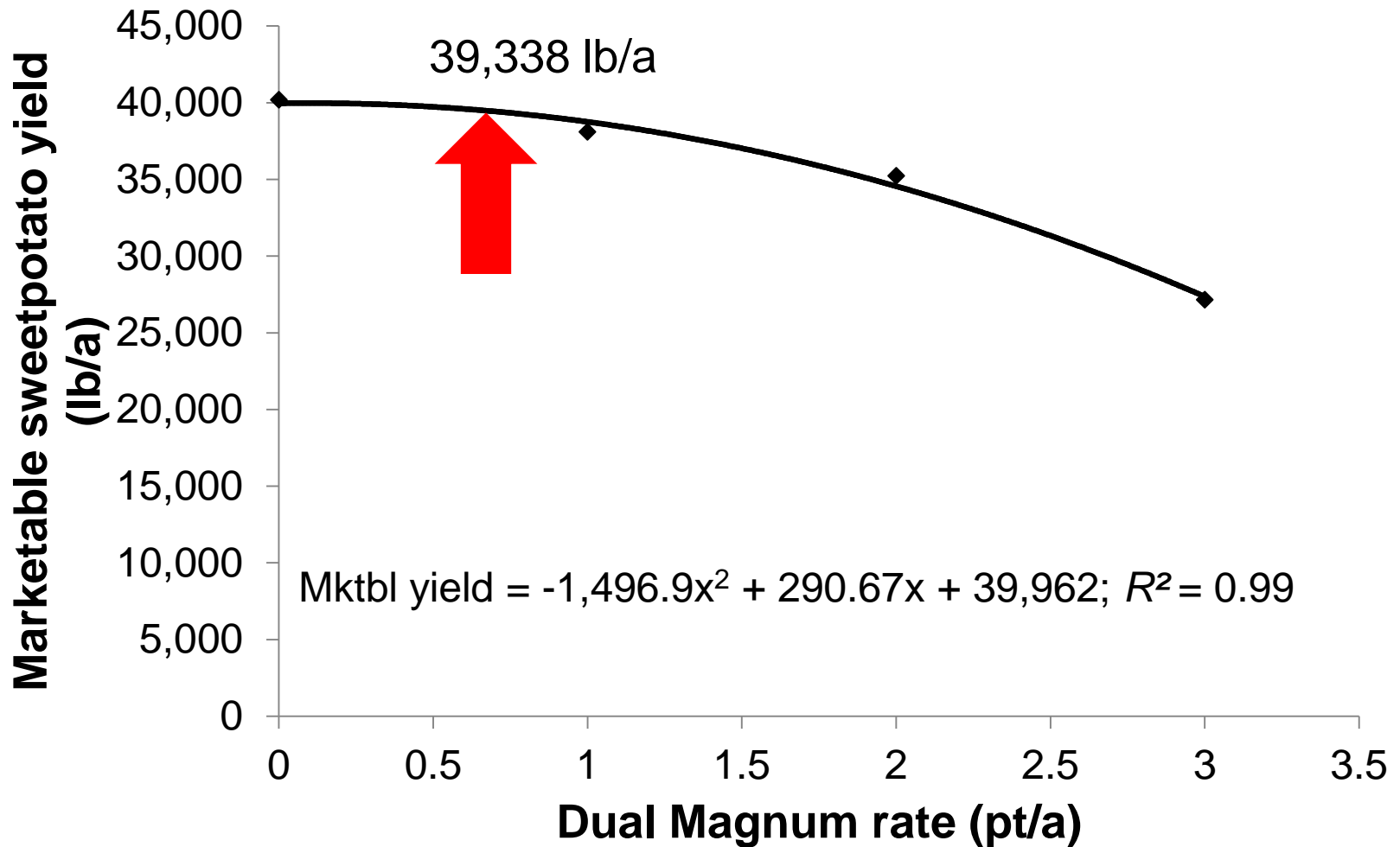
Sweetpotato Yield



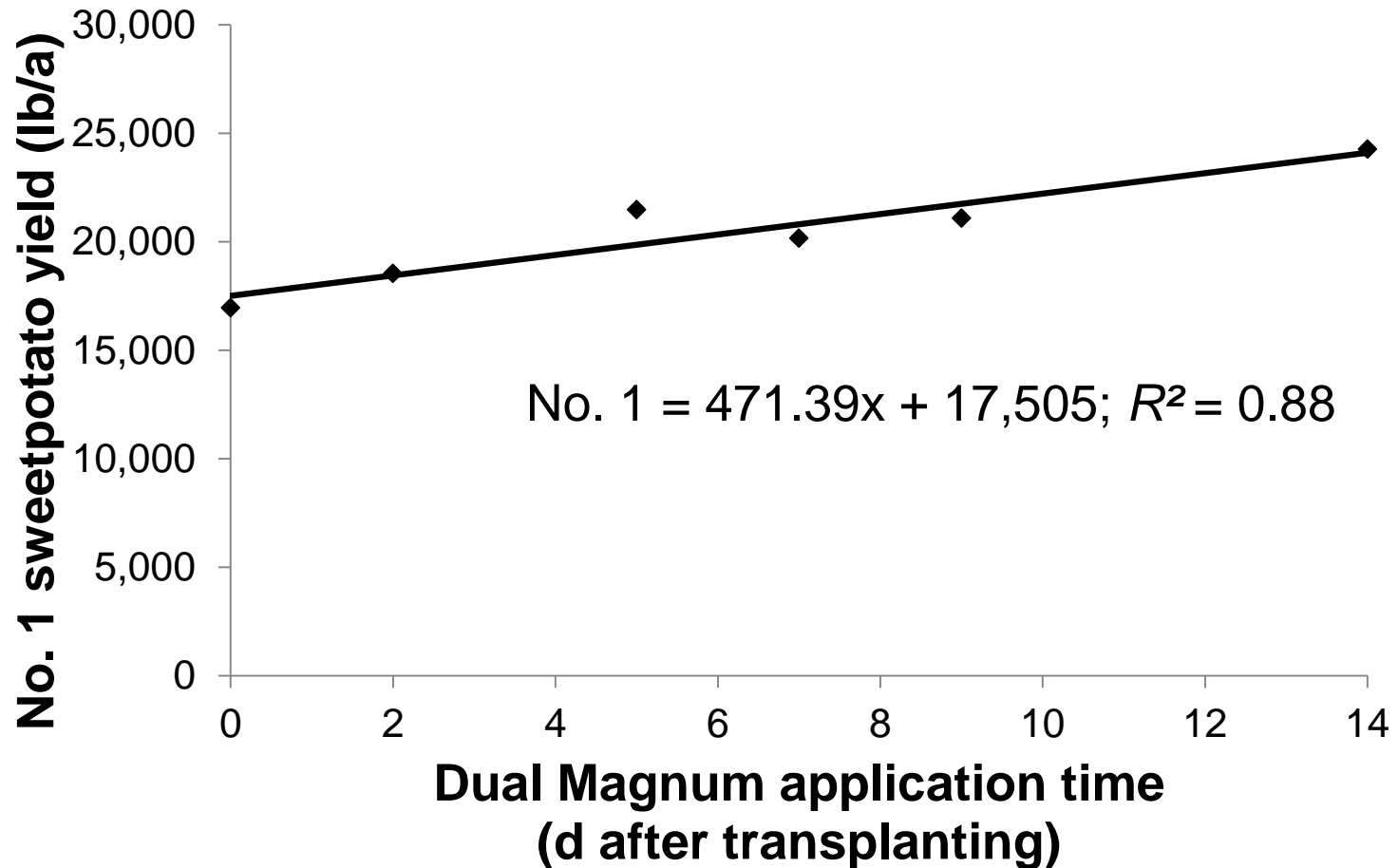
Influence of Dual Magnum Rate on No. 1 Sweetpotato Yield



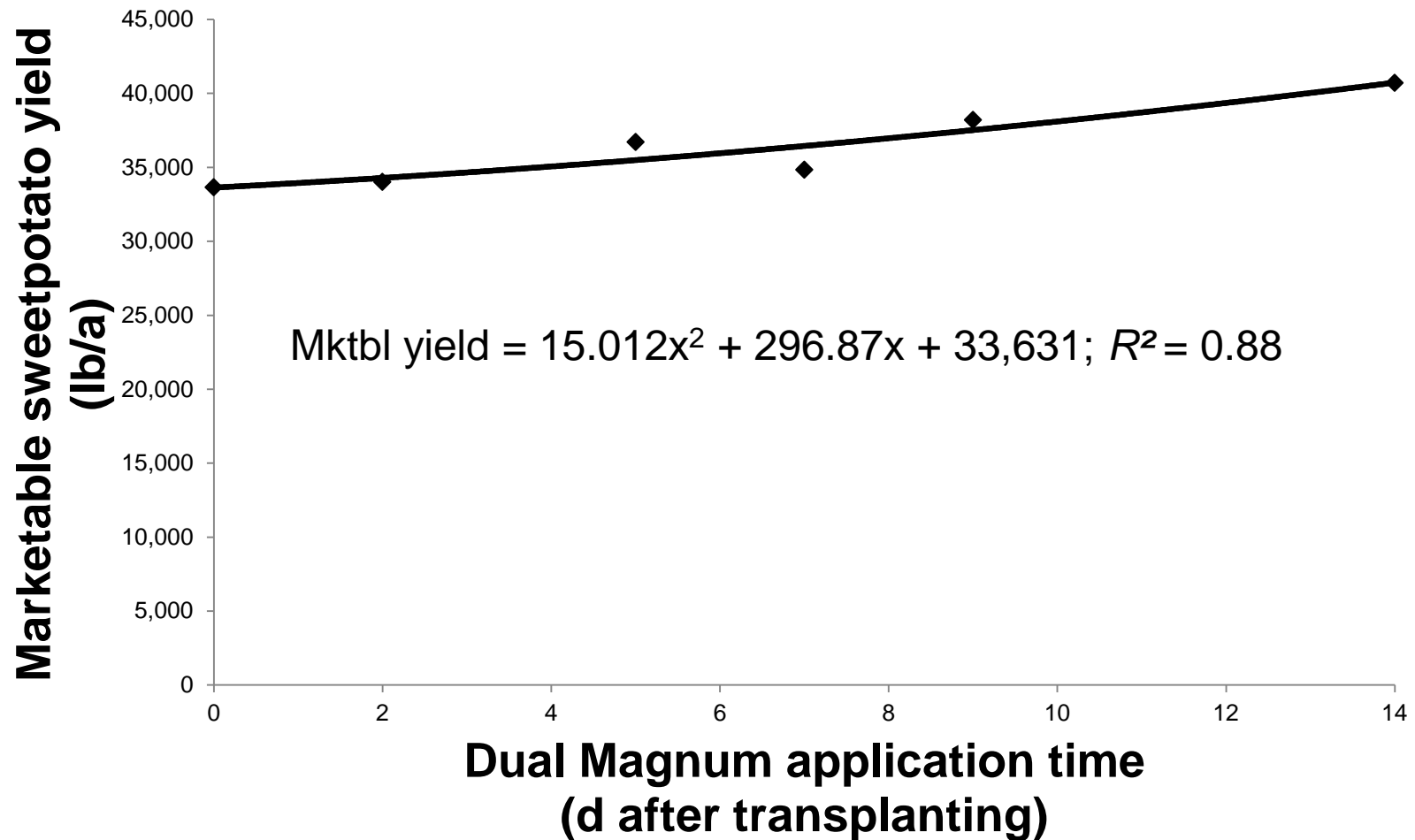
Influence of Dual Magnum Rate on Total Marketable Yield



Influence of Dual Magnum Time on No. 1 Sweetpotato Yield



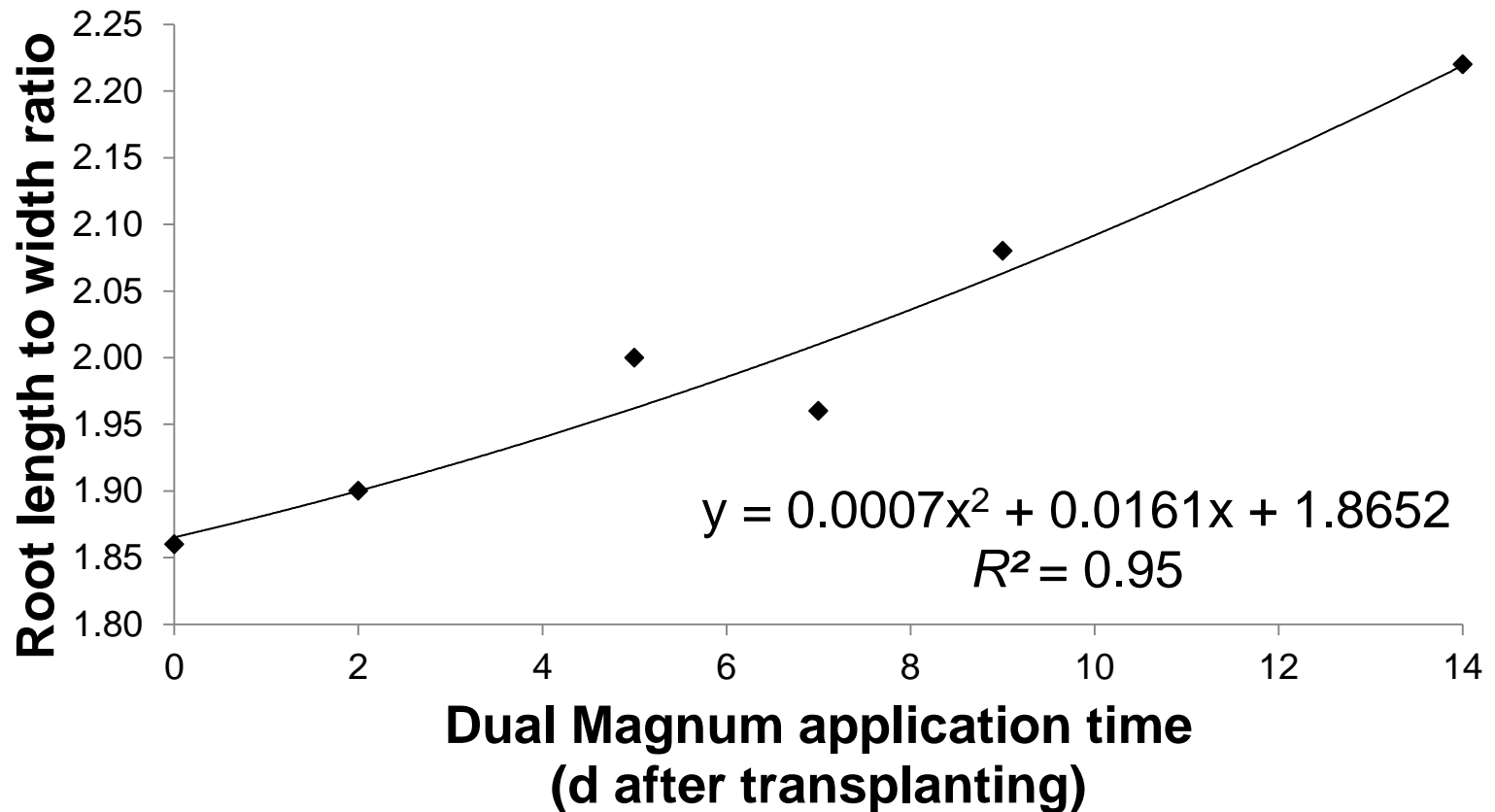
Influence of Dual Magnum Time on Total Marketable Yield



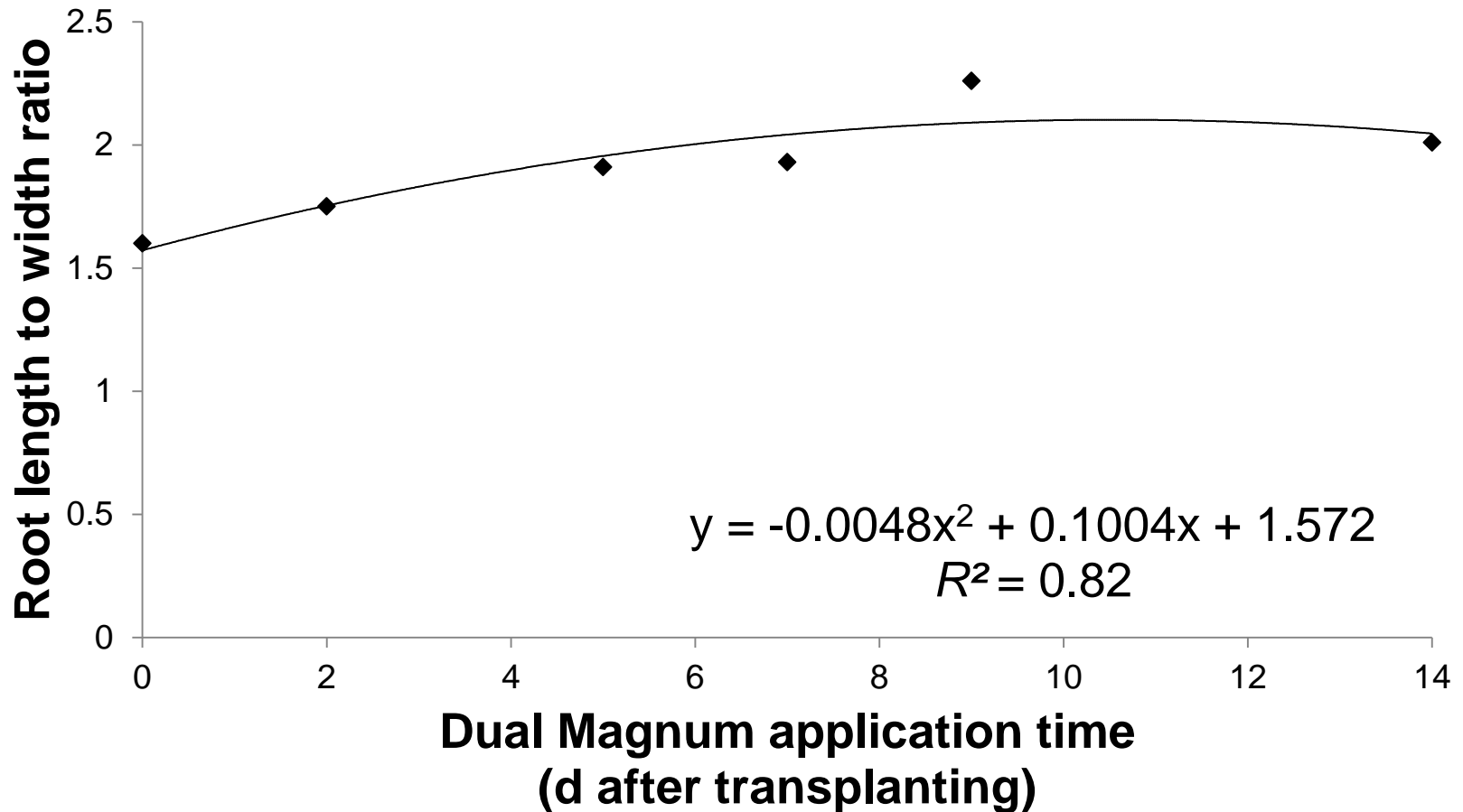
Storage Root Length to Width Ratio



Influence of Dual Magnum Time on Root Length to Width Ratio (1 pt/a)



Influence of Dual Magnum Time on Root Length to Width Ratio (2 pt/a)



Dual Magnum 1 pt (0 DAP)



Dual Magnum 1 pt (2 DAP)



Dual Magnum 1 pt (5 DAP)



Dual Magnum 1 pt (7 DAP)



Dual Magnum 1 pt (9DAP)



Dual Magnum 1 pt (14 DAP)



Summary

- No. 1 and total sweetpotato yields
 - decreased as Dual Magnum rate increased from 0 to 3 pt/a and
 - increased as application time increased from 0 to 14 days after transplanting.
- Jumbo and canner yields did not correspond to treatment.

Summary Continued

- Generally, sweetpotato storage root length to width ratio increased when Dual Magnum applications were delayed.
 - Length:width reached 2.0- 6 to 7 days after transplanting.

Conclusions

- Predicted yield losses were minimal when Dual Magnum was applied at the recommended rate of 0.75 pt/a.
 - Injury would likely be negated by weed control provided by the herbicide. (This study was hand-weeded.)
- Delaying a Dual Magnum application reduces the risk of crop injury and misshapen storage roots.

Questions

