

Sugarcane Genotype Response to Flooding soon after Planting



Barry Glaz
Canal Point, FL

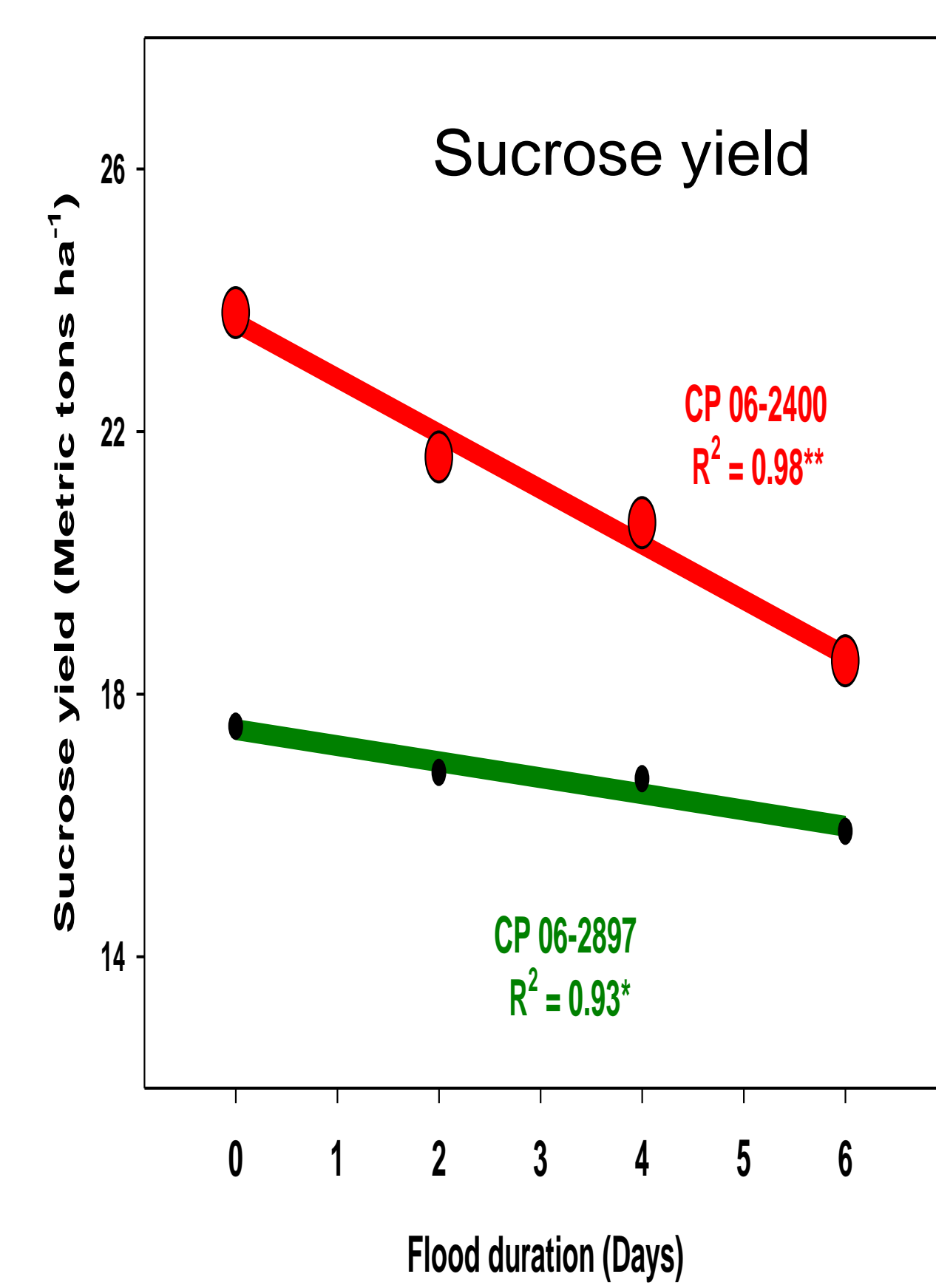
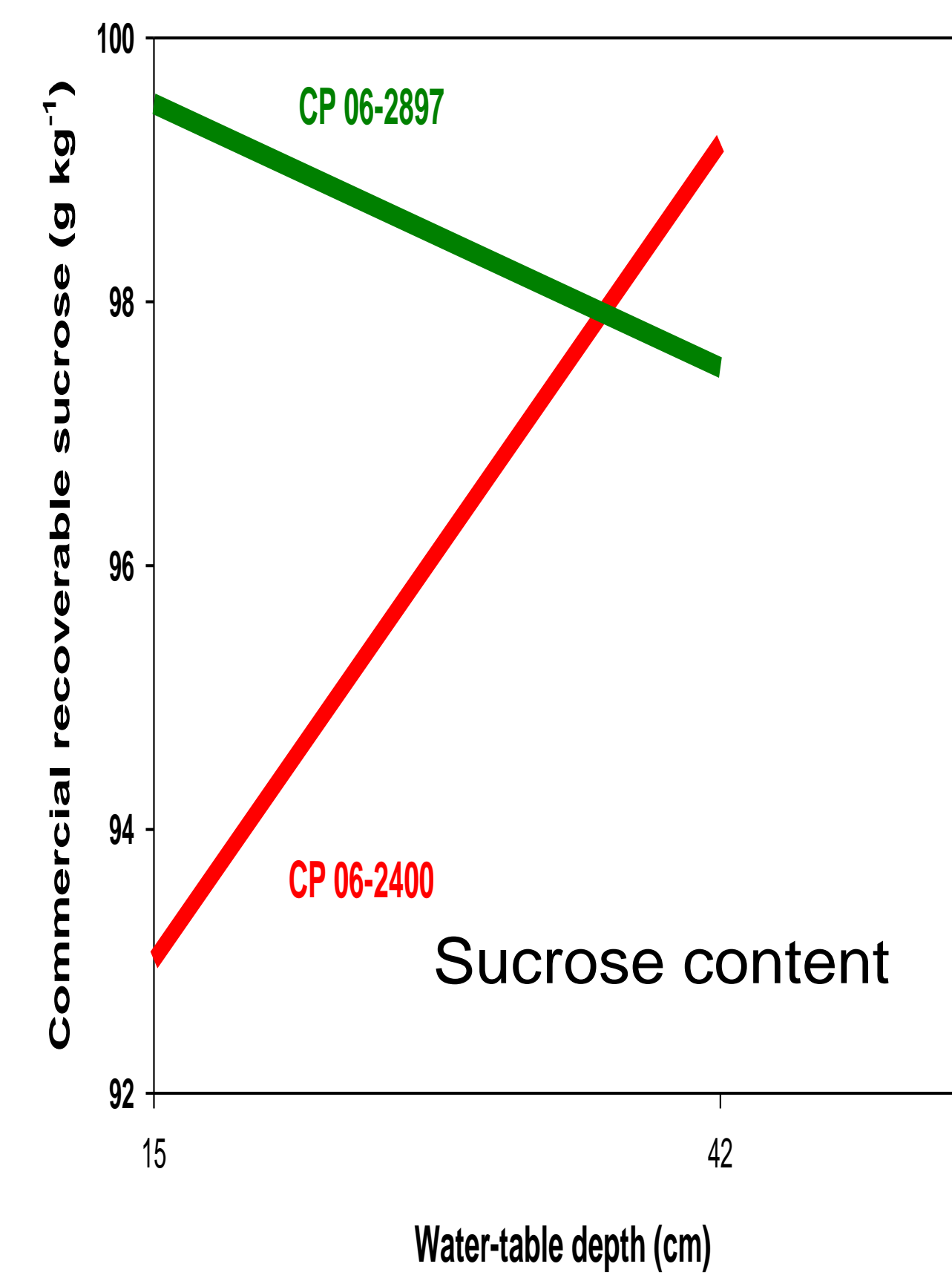
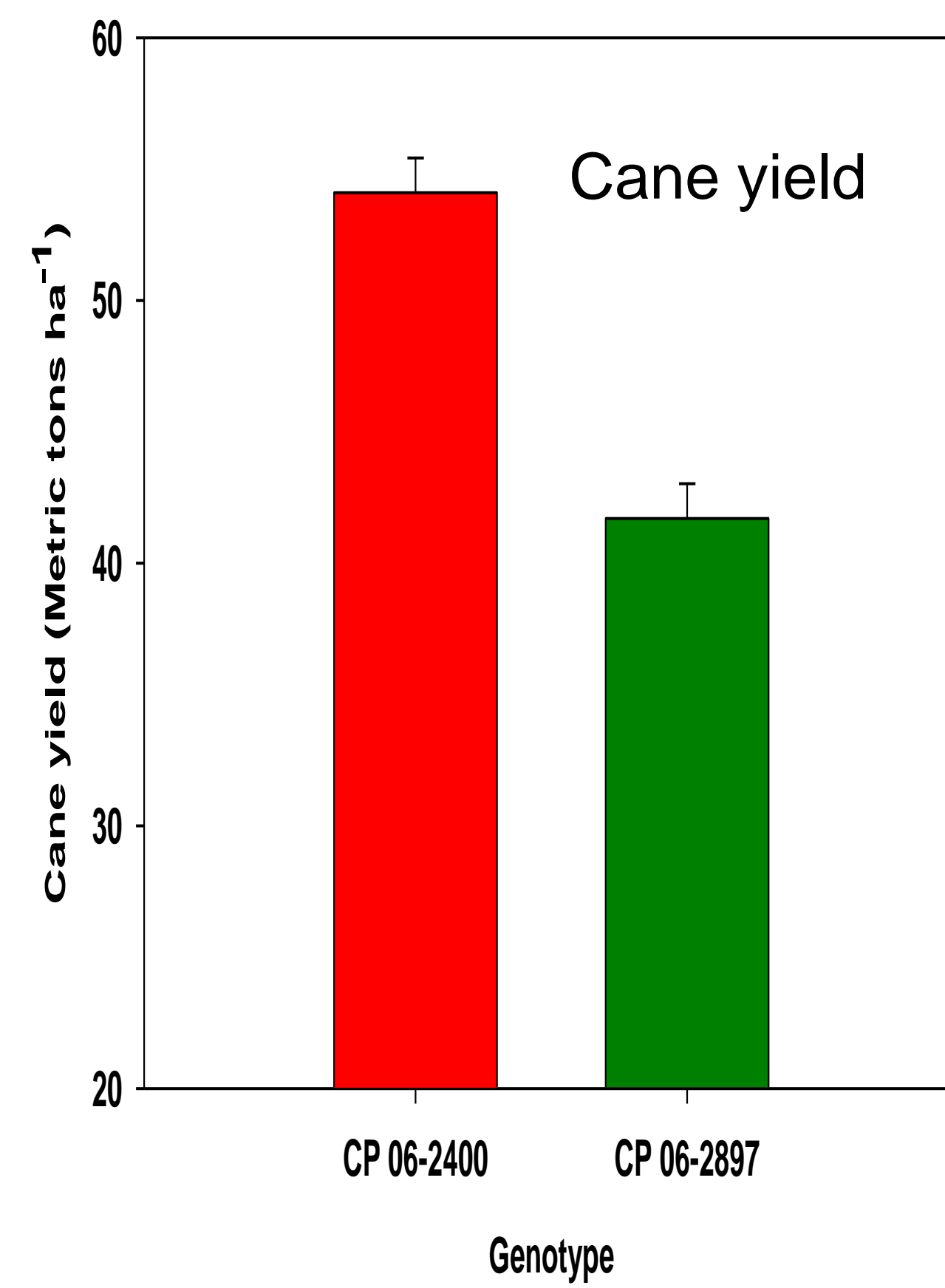
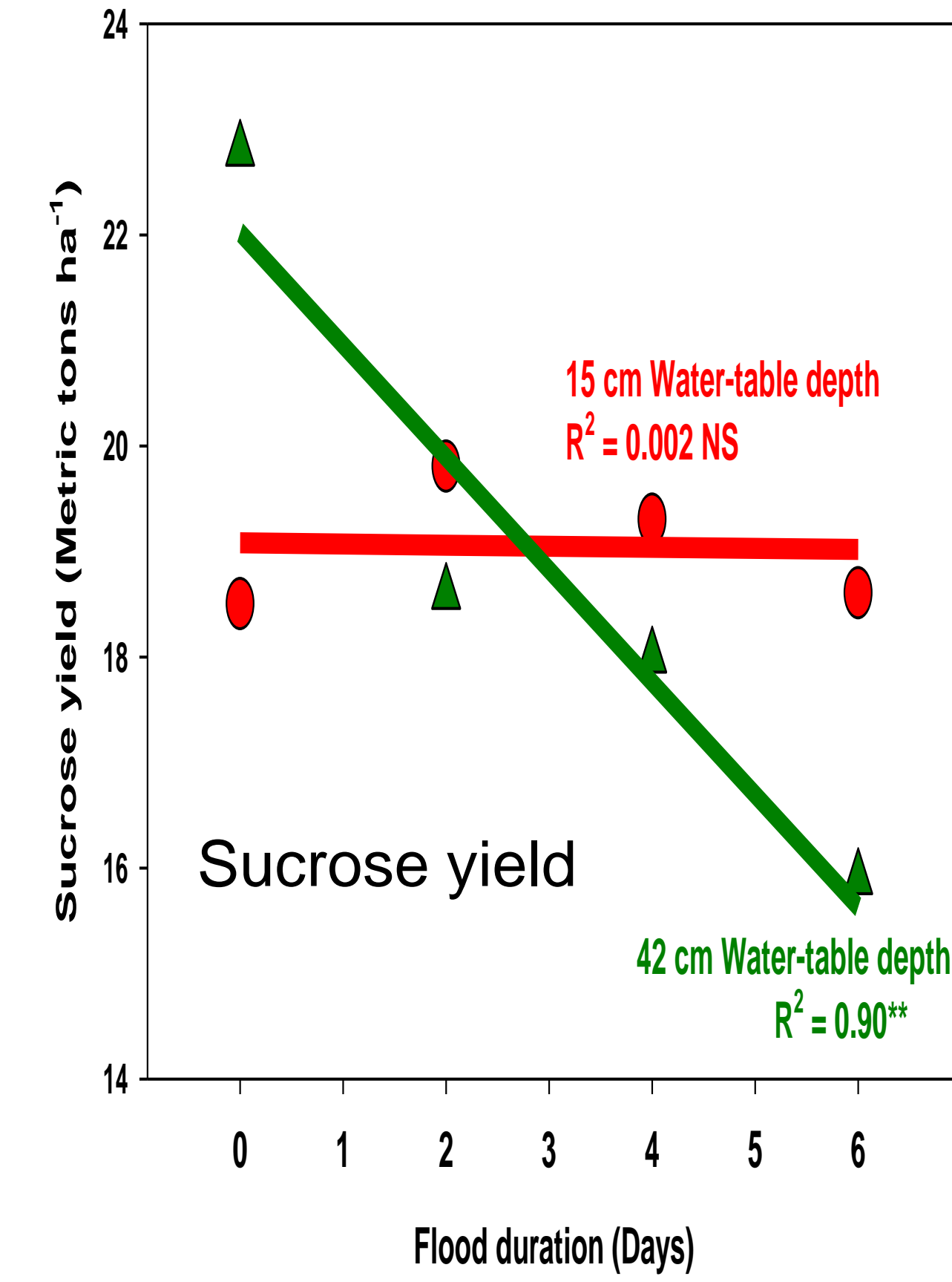
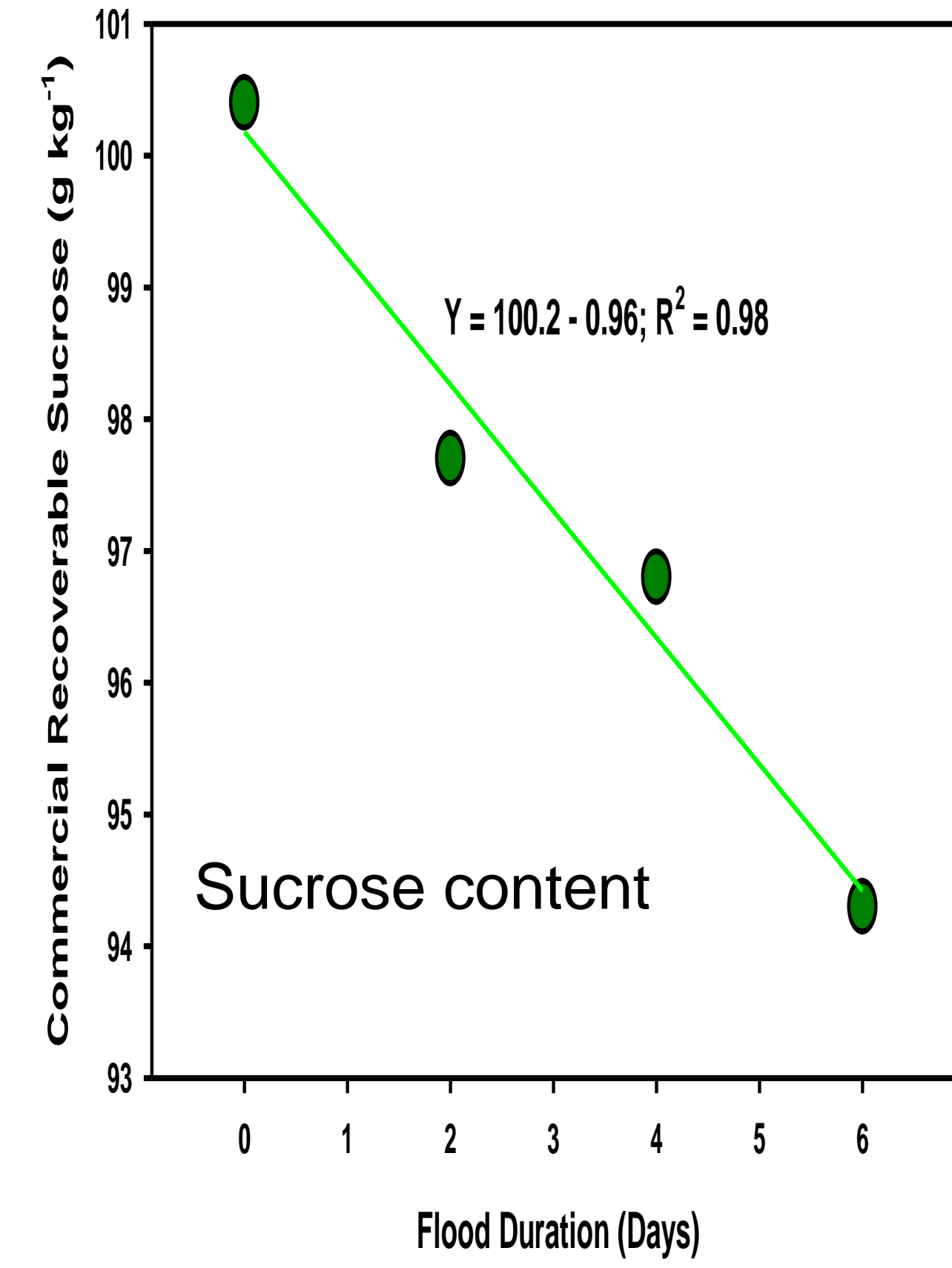
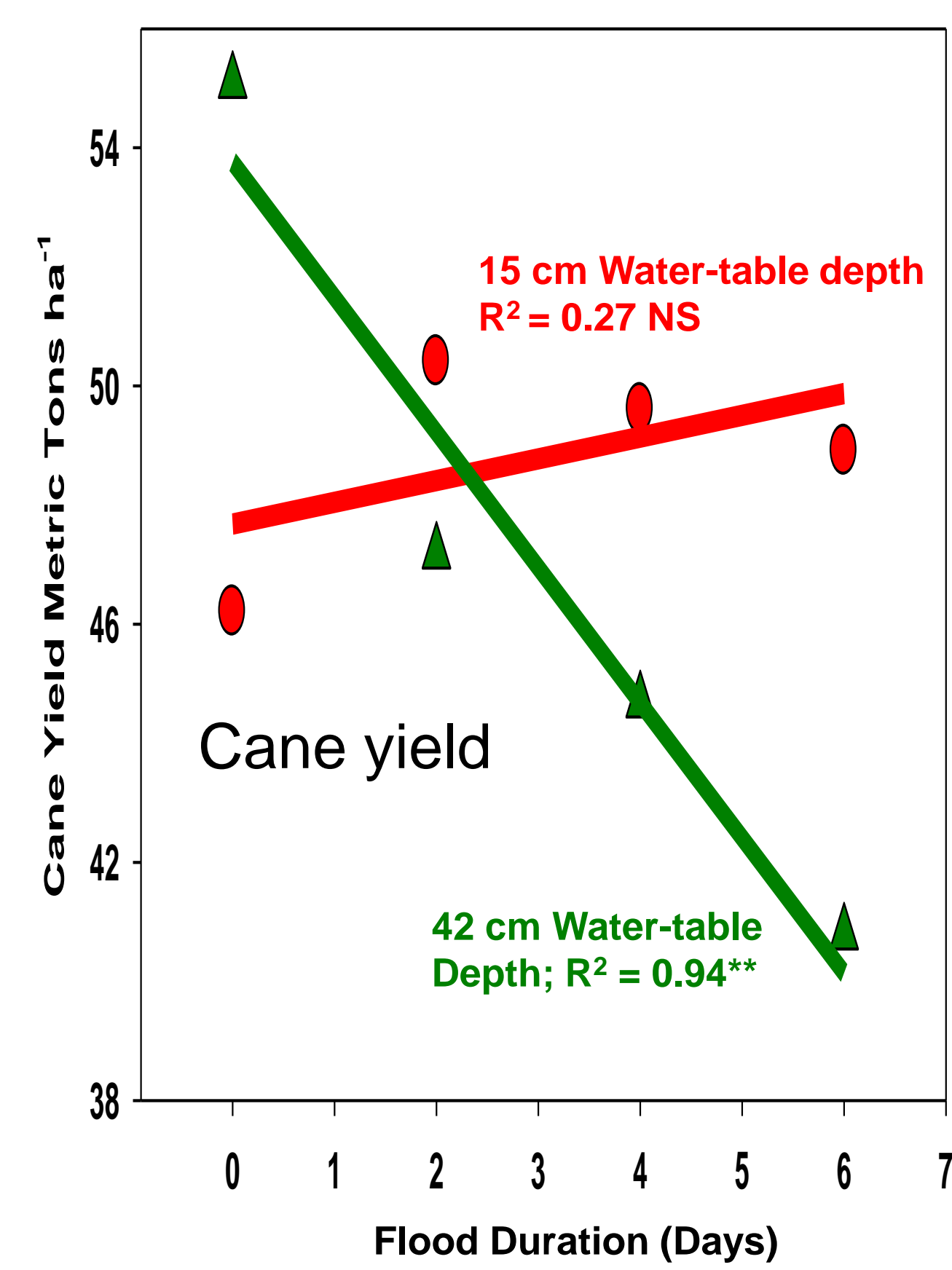


Abstract

Sugarcane tolerance to short-duration flooding is an important agronomic issue in Florida due to the need to maintain BMPs for control of P discharge to the Everglades. In a lysimeter test, 2 sugarcane genotypes were planted as subplots with water treatment as main plots. Water treatments were drainage depth (15 vs. 42 cm) x flood duration (0, 2, 4, and 6 d). This report is of 1 year of data. Cane and sucrose yields were highest with 0 d flooding and at a 42 cm drainage depth. However, for treatments that were flooded for ≥ 2 d, cane and sucrose yields were greater when lysimeters were drained to 15 rather than 42 cm. These results indicate that young sugarcane is more susceptible to periodic flooding than well established sugarcane and that water tables need to be closer to the soil surface after flooding for younger than for well established sugarcane.

Conclusions

- Recently planted sugarcane is more susceptible to short-duration flooding than well established sugarcane.
- As flood duration increased from 0 to 6 days, cane tonnage and sucrose content losses were linear with increasing flood duration. One genotype had severe losses in sucrose content with a drainage depth of 15 cm whereas the other genotype had moderately higher sucrose content with a drainage depth of 15 cm.
- For sugarcane not exposed to flood, the optimum drainage depth was 42 cm.
- For sugarcane exposed to flood, the optimum drainage depth was 15 cm. This contrasts with well established sugarcane which has an optimum drainage depth of 42 cm.
- Based on the two sugarcane genotypes in this study, it appears that high yielding sugarcane genotypes in Florida may react differently to flooding and water-table depth when recently planted, particularly in sucrose content.



Issue

Rapidly growing sugarcane (*Saccharum* spp.) tolerates short-duration flooding well during the summer in Florida. However, little is known about the reaction of recently planted sugarcane.

Objective

Test the yields of two recently planted sugarcane genotypes exposed repeatedly to different flood durations and drainage depths.

Materials and Methods

Water treatment (factorial, fixed effect) is main plot
 2 water-table depths: 15 and 42 cm
 4 flood durations: 0, 2, 4, and 6 days
 Two genotypes are sub plots (fixed effect):
 CP 06-2400 and CP 06-2897

Water treatments applied from March-May. All Lysimeters then maintained at constant 42 cm water-table depth until harvest in September.

4 Replications

Sugarcane exposed to constant 42 cm drainage depth.



Sugarcane exposed to constant 42 cm drainage depth.



Sugarcane exposed to 3 cycles of 4-d floods + 1-wk drainage at 42 cm.



Sugarcane exposed to 3 cycles of 6-d floods + 1-wk drainage at 42 cm.

