

Effect of low lignin genes (COMT and CCOMT) on alfalfa forage quality

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Introduction

... and allows the plant vascular system to ... lignin increases with advanced maturity in ... binds with cellulose – reducing fiber ... lignin content should increase fiber ... harvest timing.

Objective

... forage quality change of reduced lignin

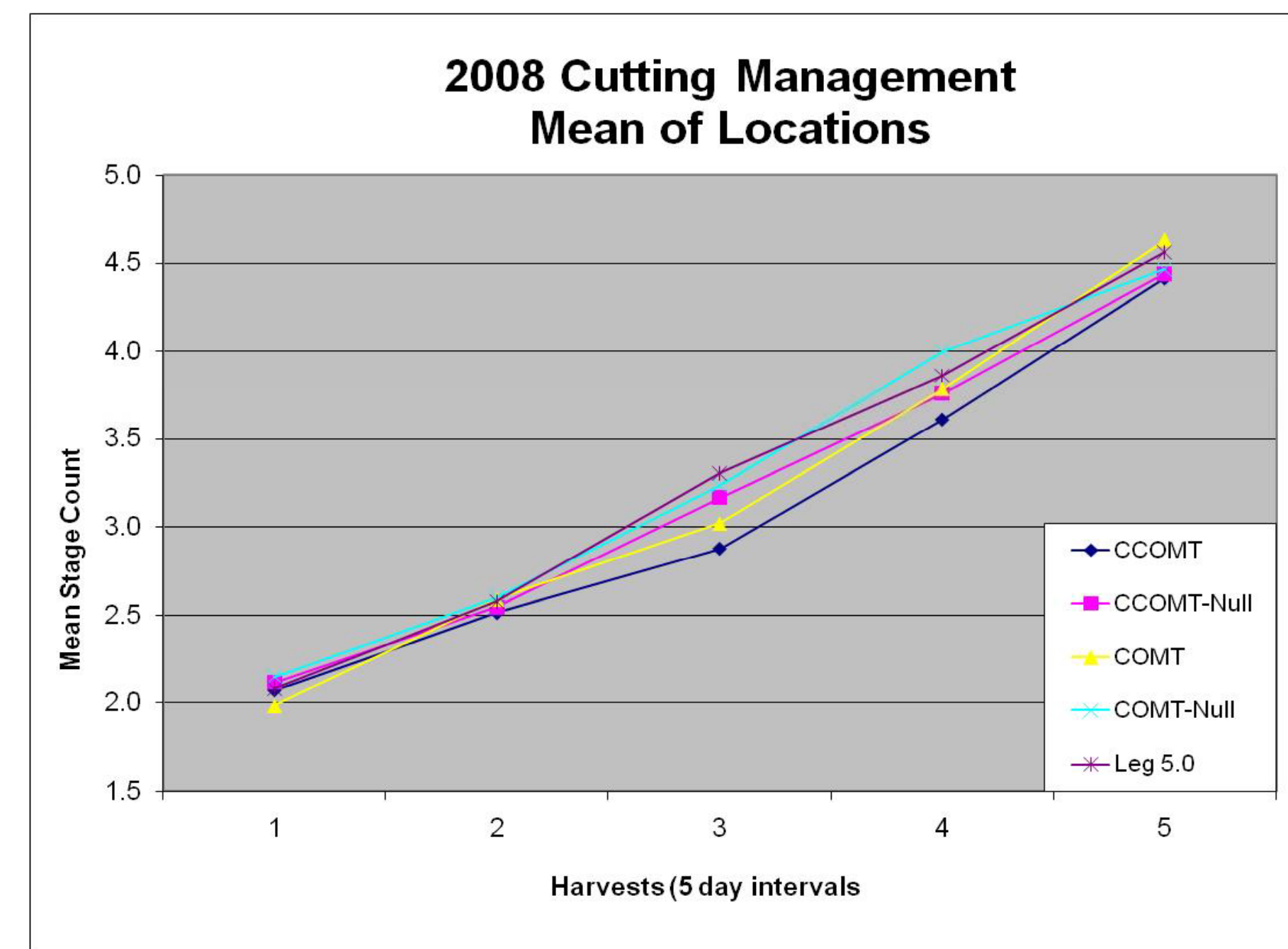
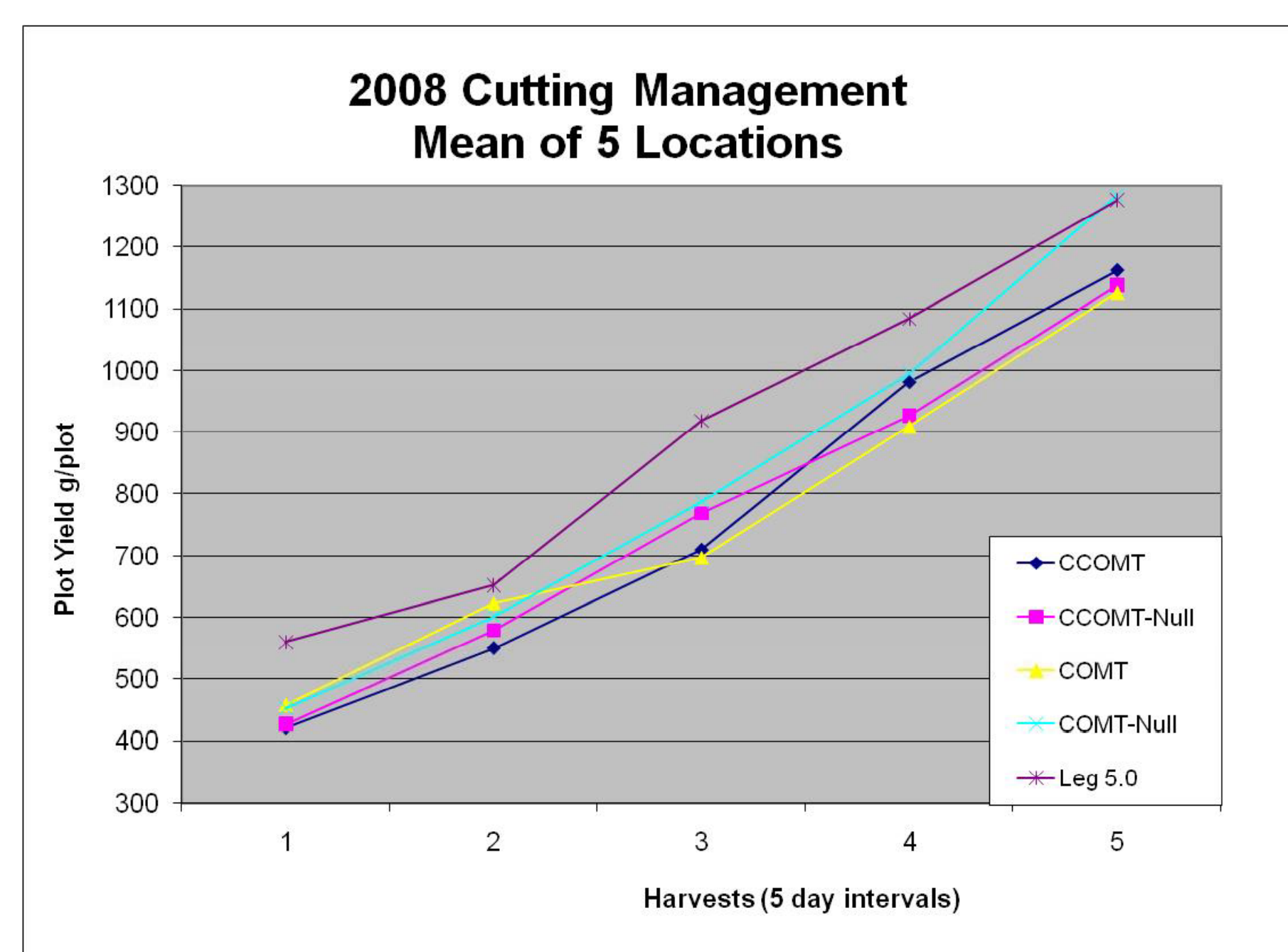
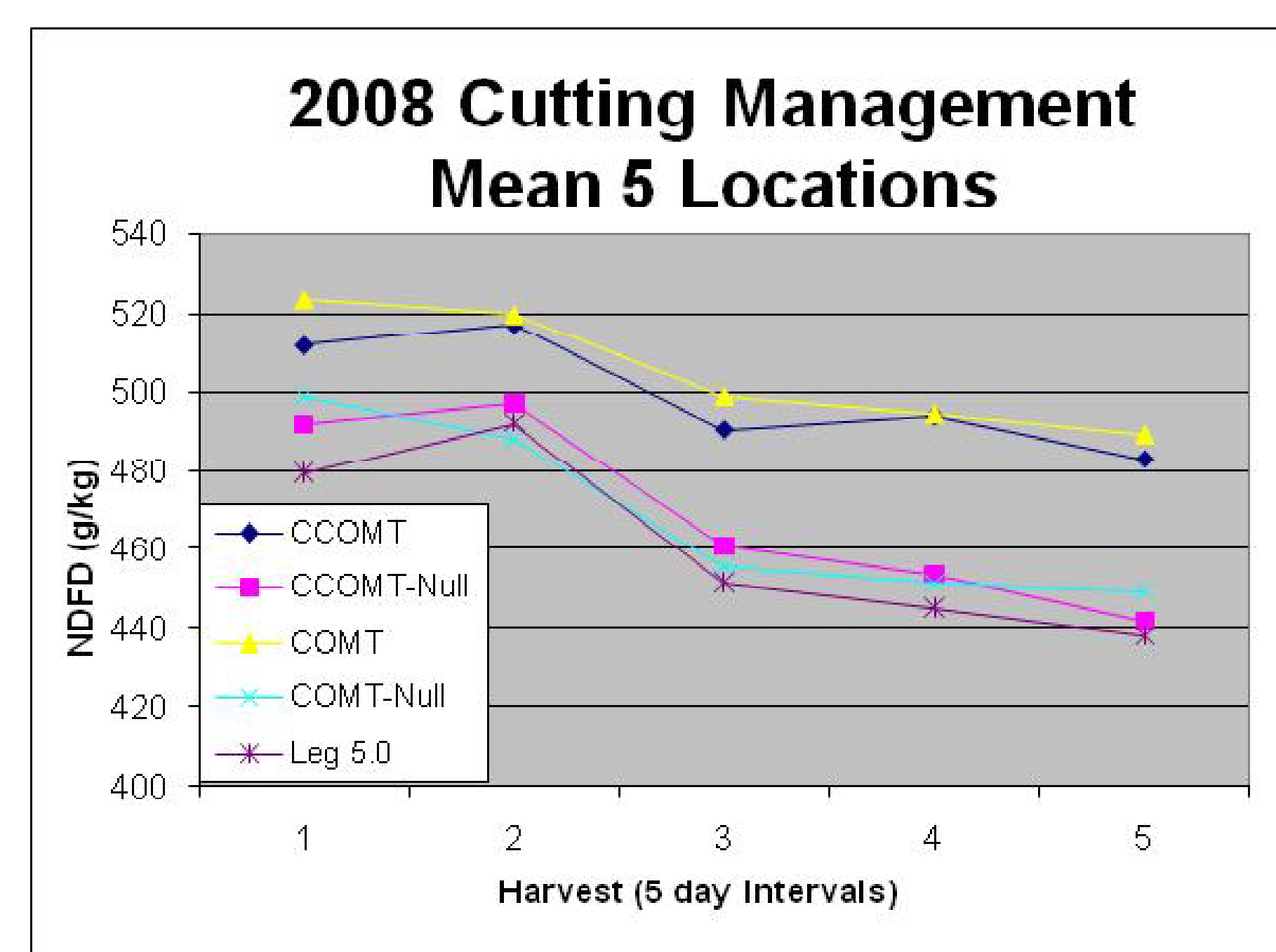
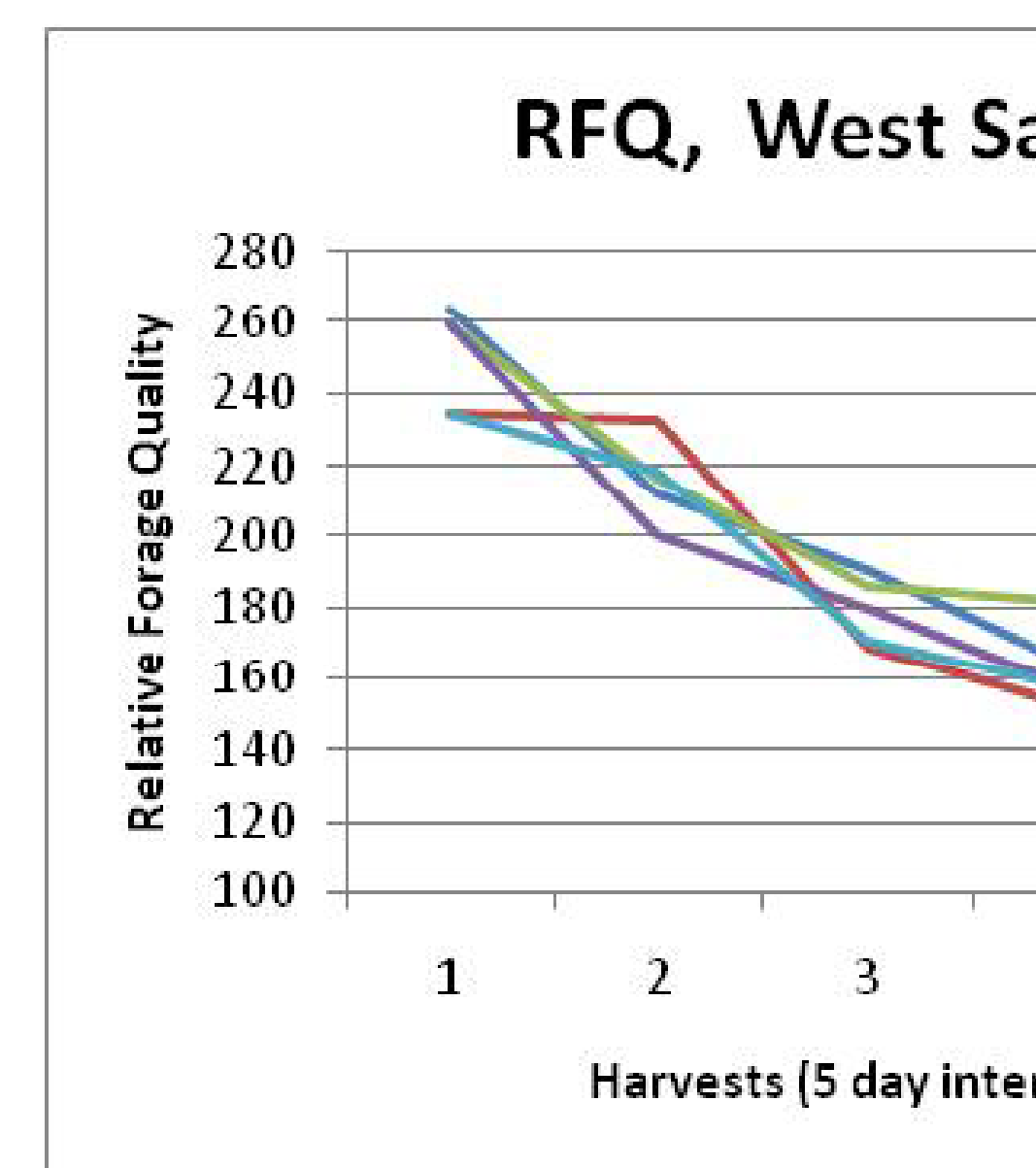
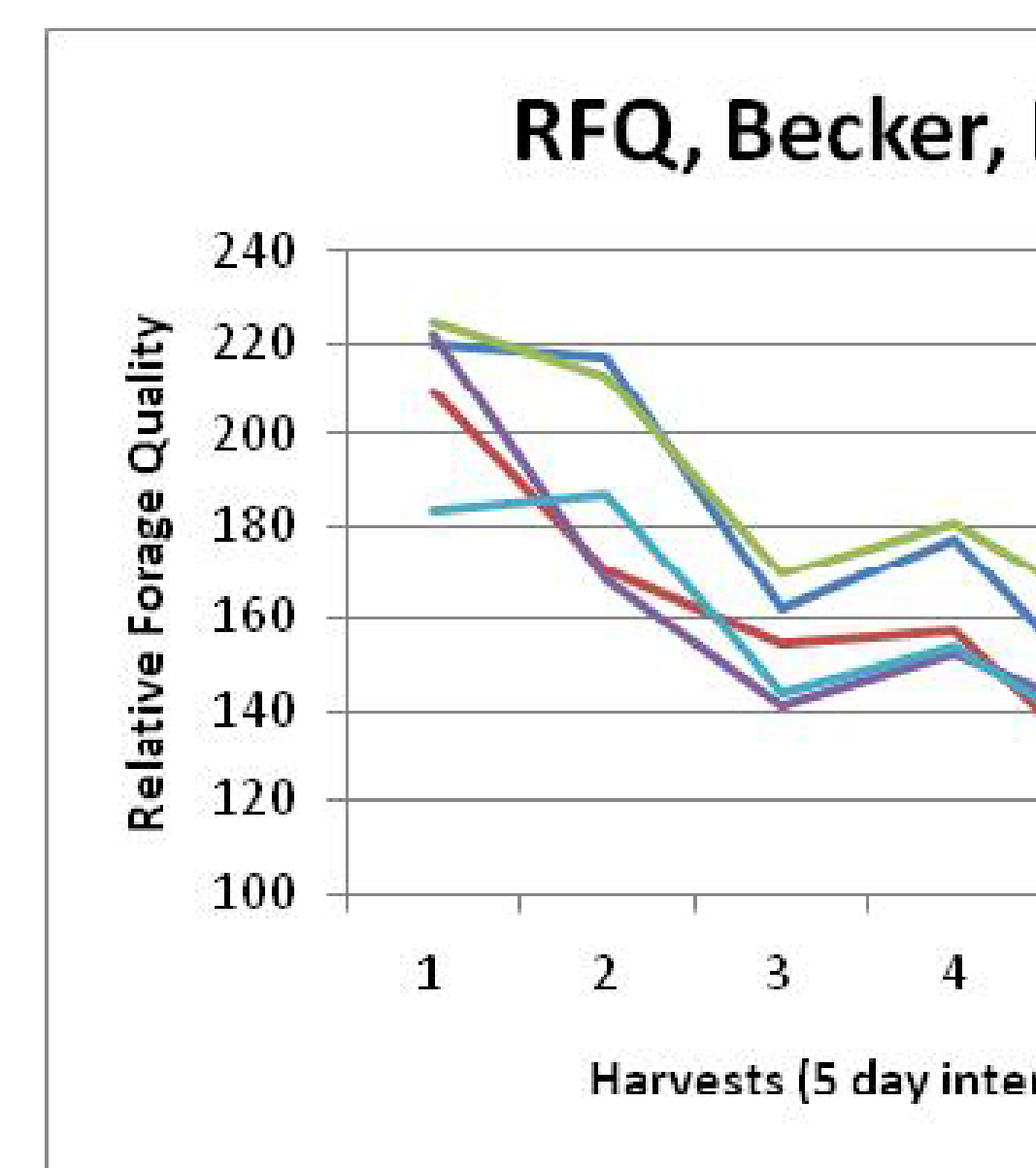
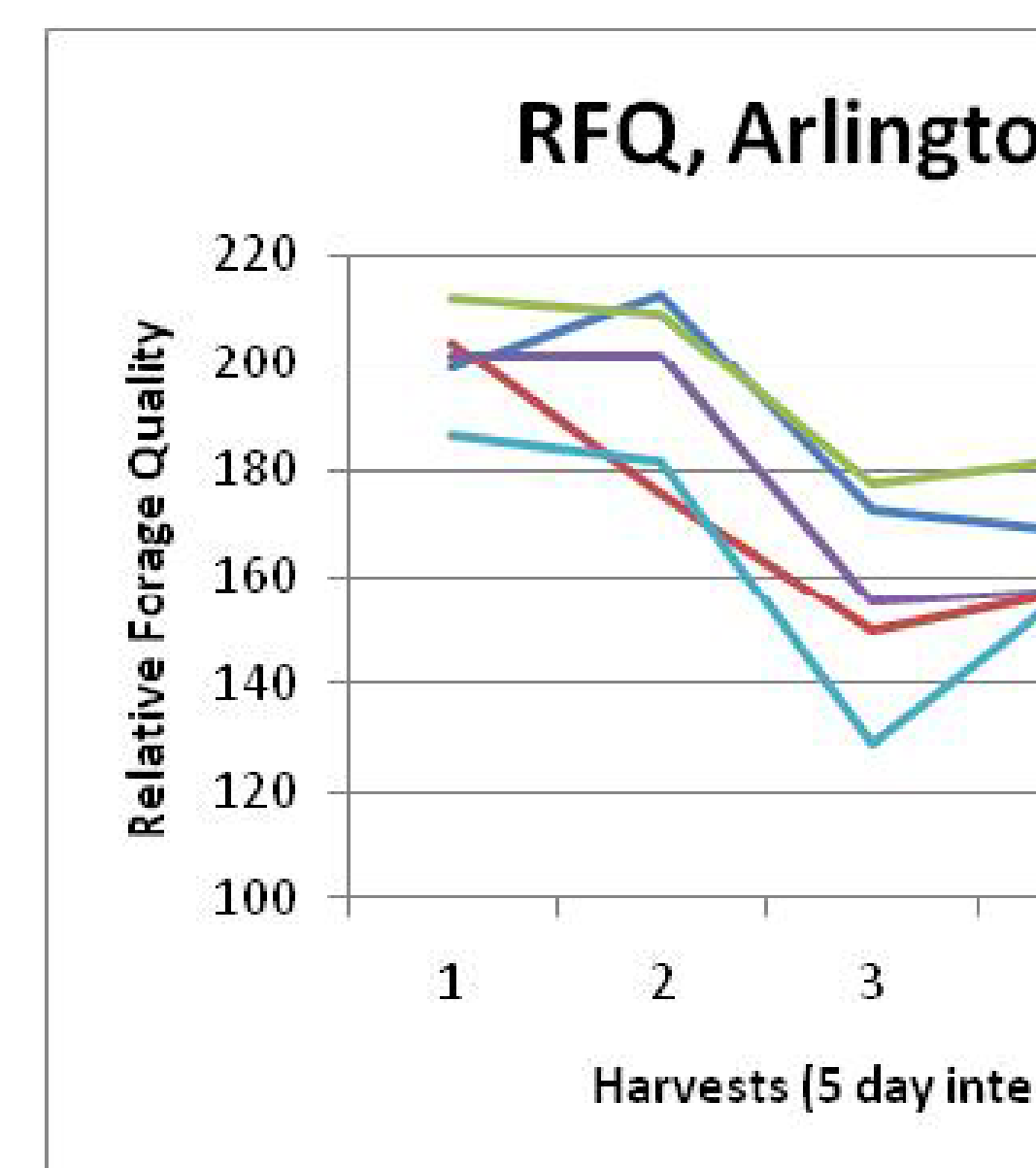
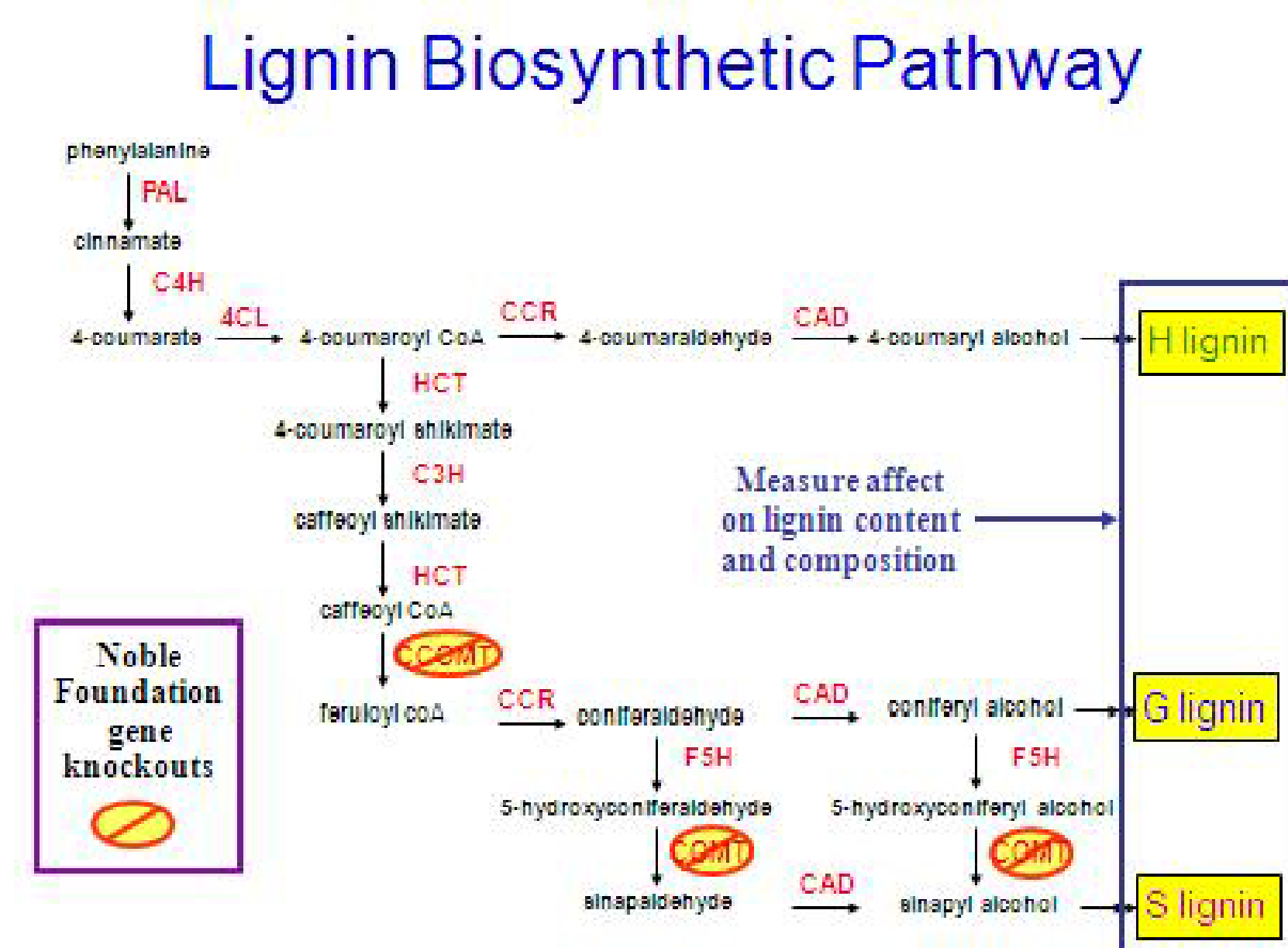
Procedure

... forage quality of two reduced lignin ... populations, compared to null lines ... grown in diverse environments.

... consisted of transgenic alfalfa lines ... biosynthetic genes (caffeic acid 3-O- ... CoA 3-O-methyltransferase (CCOMT), ... variety (LegenDairy 5.0). Seed was ... West Salem, WI. Crosses were made of ... events to elite FD4 conventional clones ... nurseries. The seed was shipped in ... and planted in the greenhouse. Plants ... CCOMT Null, CCOMT and CCOMT Null. ... four experimental populations (two test ...):

... split plot with harvest dates as whole ... study was planted at 5 locations: Becker, ... WI, Davis, CA and Tulelake, CA. In spring ... transplanted into the field spaced 30 cm ... rows. Each plot consisted of three ... of the middle row were harvested for ... Harvests were taken beginning at late ... day intervals for 5 total harvests. The 7 ... of each plot were hand clipped and ... performed on samples from each plot

... was collected and dried at 50C. Forage ... protein, neutral detergent fiber (NDF), ... neutral detergent fiber digestibility (NDFD).



Summary and

The CCOMT line averaged ... the null and had 102g/kg m ... averaged 37g/kg less ADL ... 140g/kg more NDFD. The C ... 19 and 14 points more Rel ... than the nulls of each ... composition in the COM ... explanation for the increas ... to lignin content. In this st ... CCOMT lines had the sam ... commercial check harvest ... Producers using this trait ma ... while maintaining forage qua ... one or more annual harvests ... to 30%.