



Effect of Metconazole on Disease Control and Yield in Potatoes

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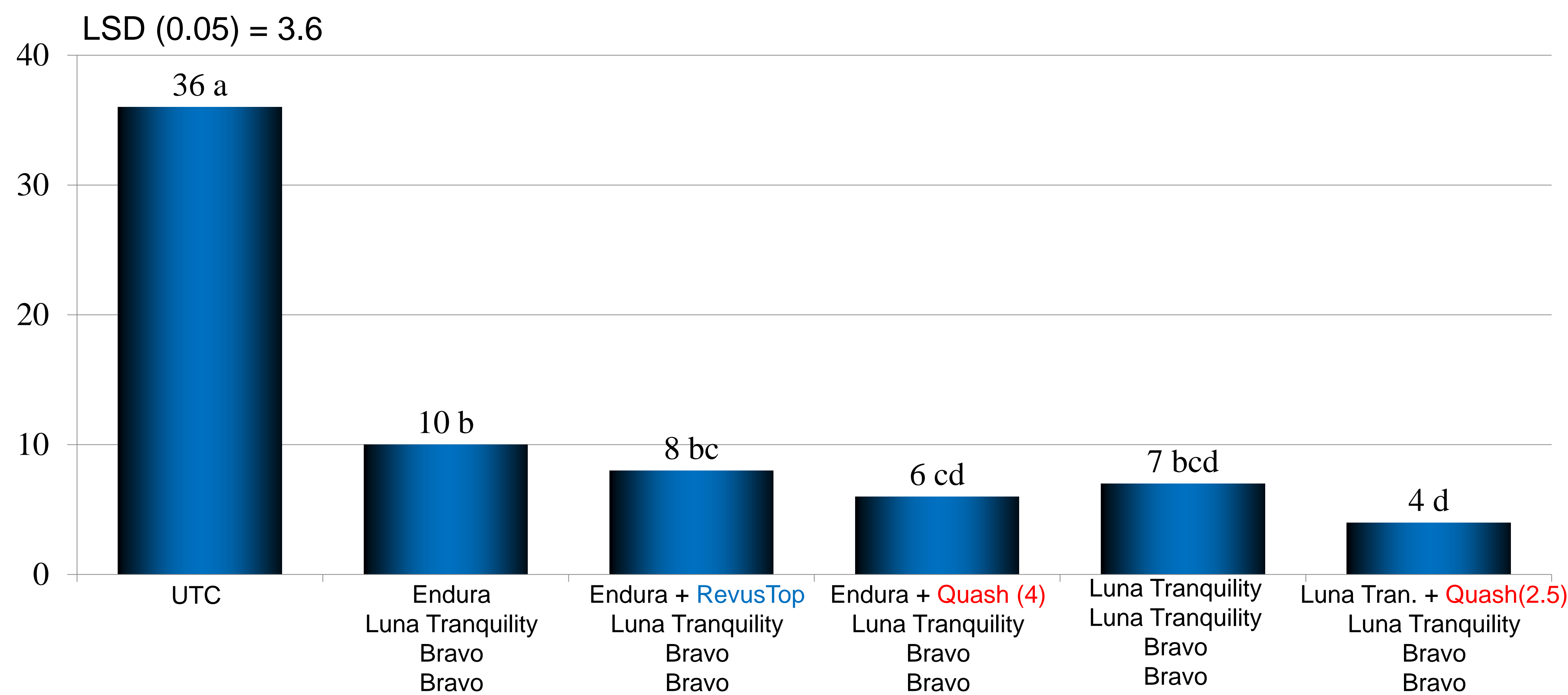


Figure 1. Effect of fungicide on early blight severity (%). Four applications on a 14-day interval.

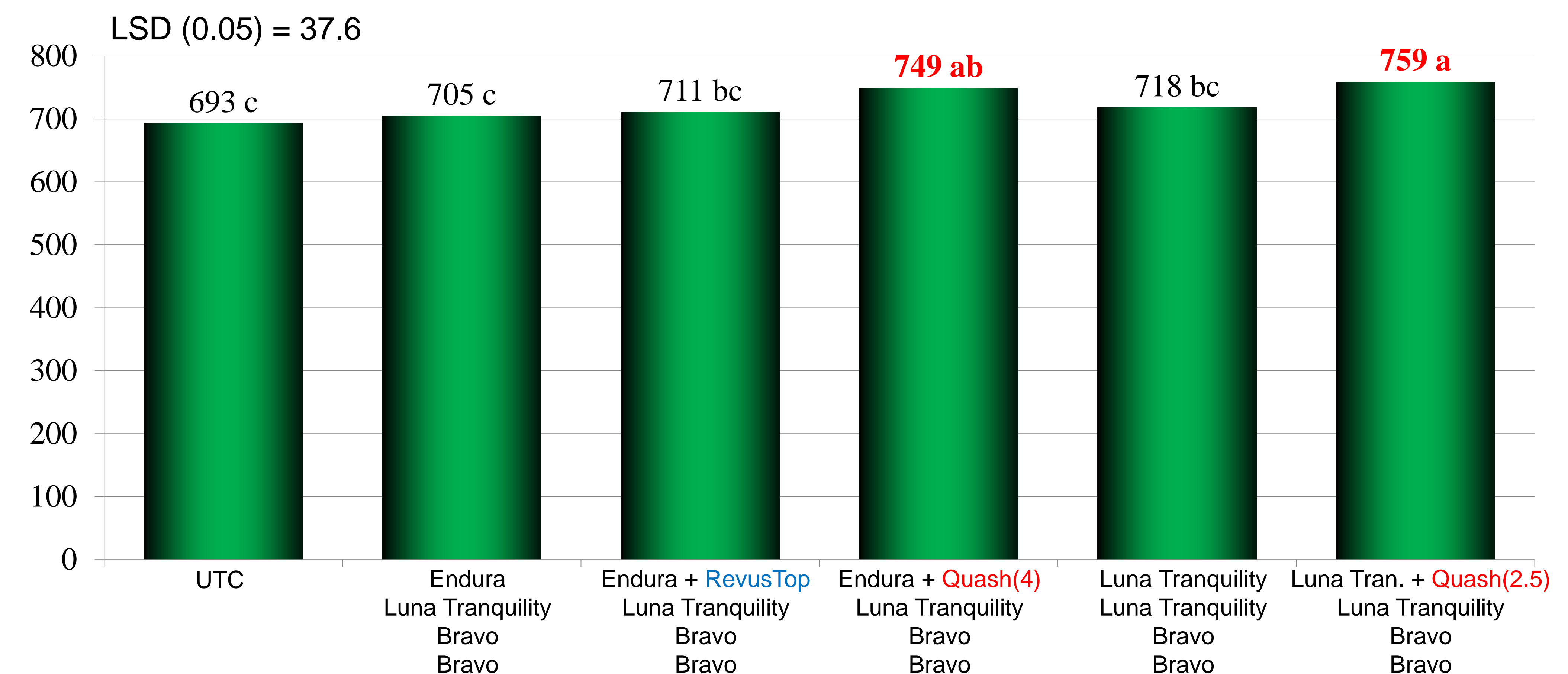


Figure 2. Effect of fungicide on total yield (cwt/acre). Four applications on a 14-day interval.

INTRODUCTION

Many potato growers in southern Idaho have relied on FRAC Group 7 fungicides (i.e. Endura and Luna Tranquility) to manage early blight (*Alternaria solani*), brown leaf spot (*A. alternata*) and white mold (*Sclerotinia sclerotiorum*). However, the use of these products has led to the development of fungicide resistance in the early blight pathogen population.^{1,2} Fungicides from other FRAC groups have not always been used in rotation or combination because they may not increase disease control efficacy and/or yield. Recent work with metconazole (i.e. Quash) showed that including Quash in a program could increase yield even though disease control was not always increased.

OBJECTIVE

The objective of this research was to evaluate the potential for Group 3 fungicides (Triazoles, such as Quash) to control early blight/brown leaf spot and white mold, and to increase yield.

MATERIALS AND METHODS

Research plots (4 rows wide, 30 feet long, cv. Russet Burbank) were established in 2015 in a field that was in a three-year rotation of dry bean/potato/sugarbeet. Rows were 36" apart and plants were 12" apart. Treatments were replicated four times and arranged according to a RCBD.

Foliar fungicide applications were made using a small self-propelled research sprayer with a spray volume of 12 gallons per acre. The first application was made just prior to row closure and subsequent applications were made every 14 days. Four applications were made in each treatment.

Early blight/brown leaf spot severity was visually estimated by two individuals as the percentage of foliage affected near the end of the season. All tubers from the center two rows of each plot were harvested and weighed for total yield.

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RESULTS AND DISCUSSION

1. The lower rate (2.5 oz) appeared to be as effective as the higher rate(4.0 oz) (Figures 1 and 2).
2. Using metconazole (Quash) at the first or second foliar application increased yield (Figure 4).
3. Differences in canopy height (data not shown) and leaf color (see photo in upper right hand corner) were observed.
4. A yield increase was not observed with difenoconazole (Figure 2).
5. Metconazole would be an effective tank-mix partner for resistance management and the increased yield will offset the cost of the added fungicide.

LITERATURE CITED

1. Fairchild KL, Miles TD, Wharton PS, 2013. Assessing fungicide resistance in populations of *Alternaria* in Idaho potato fields. *Crop Protection* 49, 31-9.
2. Miles TD, Miles LA, Fairchild KL, Wharton PS, 2014. Screening and characterization of resistance to succinate dehydrogenase inhibitors in *Alternaria solani*. *Plant Pathology* 63, 155-64.

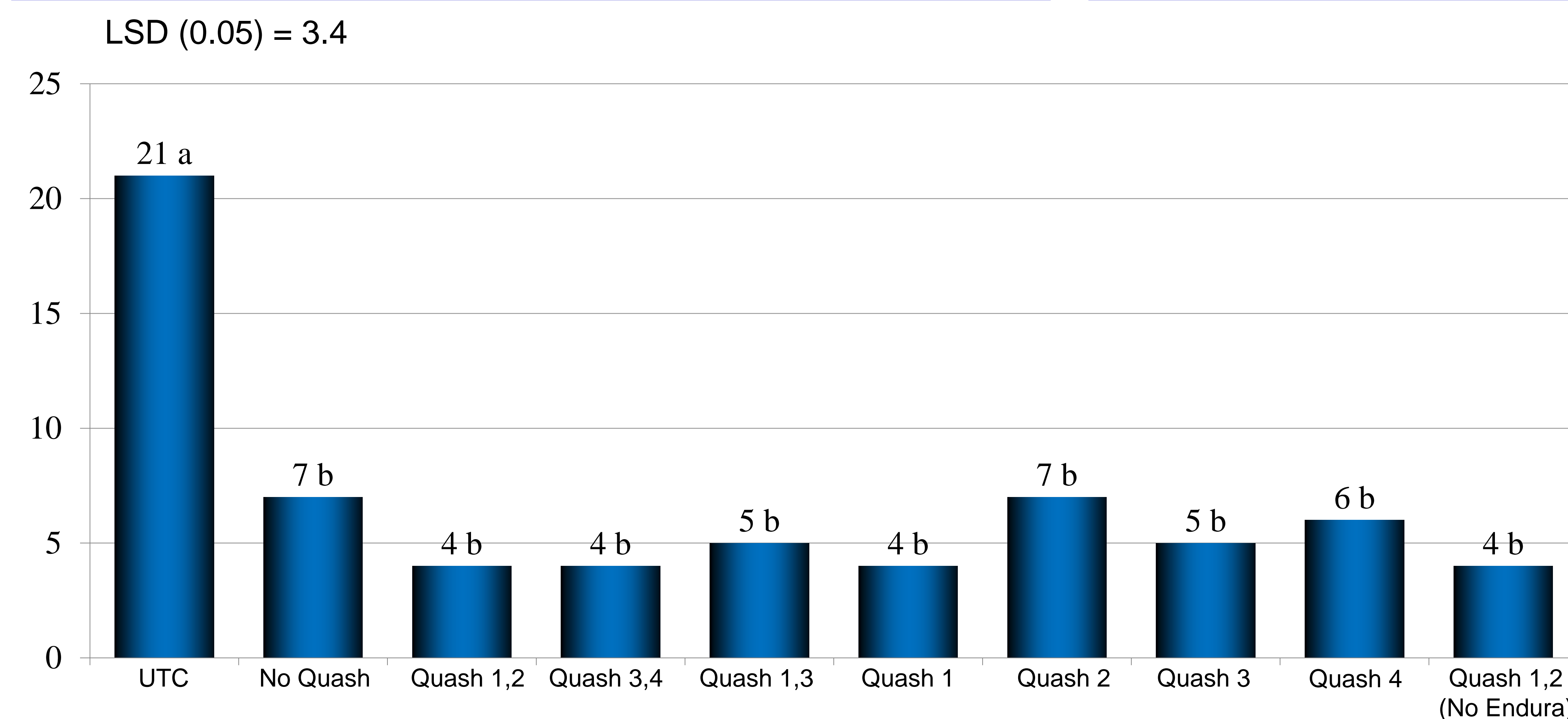


Figure 3. Effect of metconazole (Quash) on early blight/brown leaf spot severity (%). Four application program (all Quash applied at 2.5 oz., replaces Bravo when mixed with Endura):
1 and 2: Endura (5.5 oz) + Bravo (1 pt)
3 and 4: Bravo (1.5 pt)
UTC = no fungicides

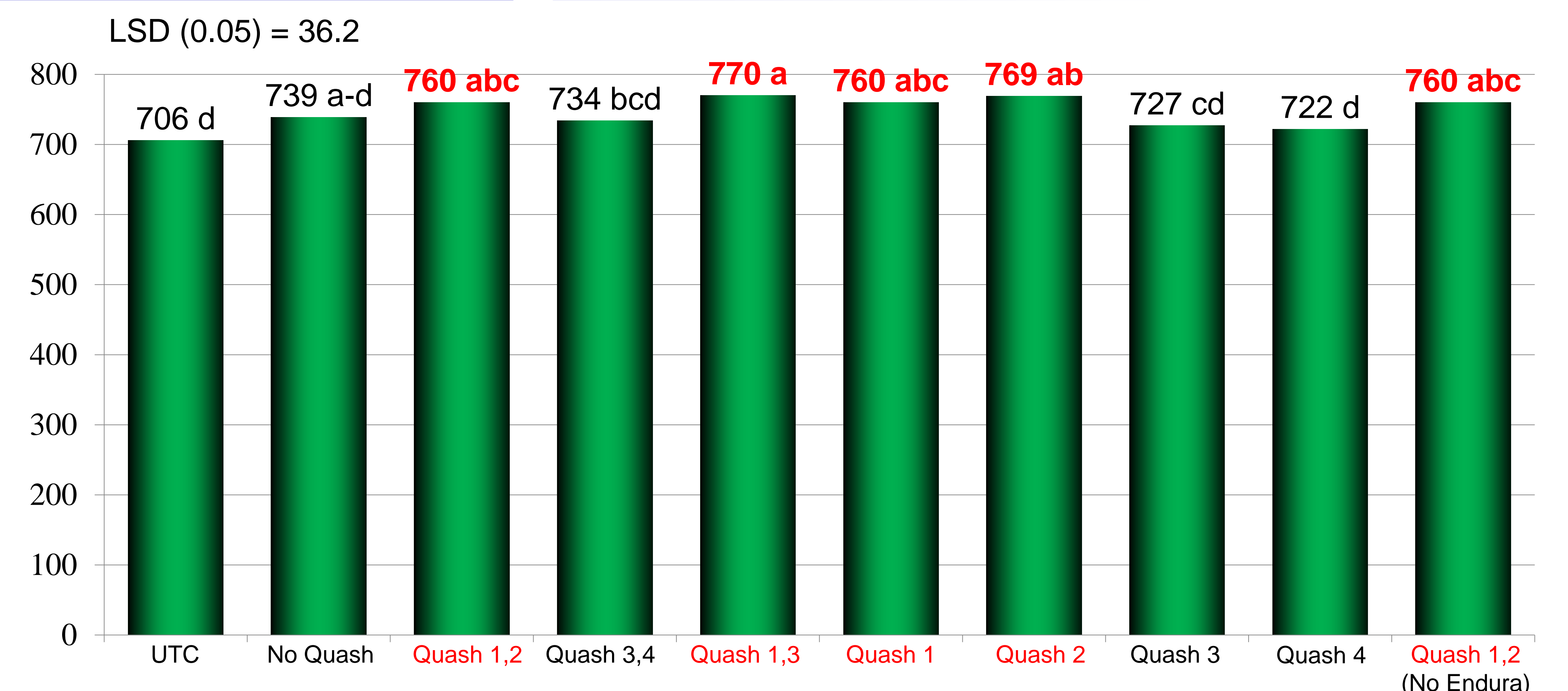


Figure 4. Effect of metconazole (Quash) on total yield (cwt/acre). Four application program, (all Quash applied at 2.5 oz., replaces Bravo when mixed with Endura):
1 and 2: Endura (5.5 oz) + Bravo (1 pt)
3 and 4: Bravo (1.5 pt)
UTC = no fungicides