

Cobra Herbicide: Impacts on Soybean Yield and Quality When Applied at Early Bloom in the Absence of Significant White Mold Pressure

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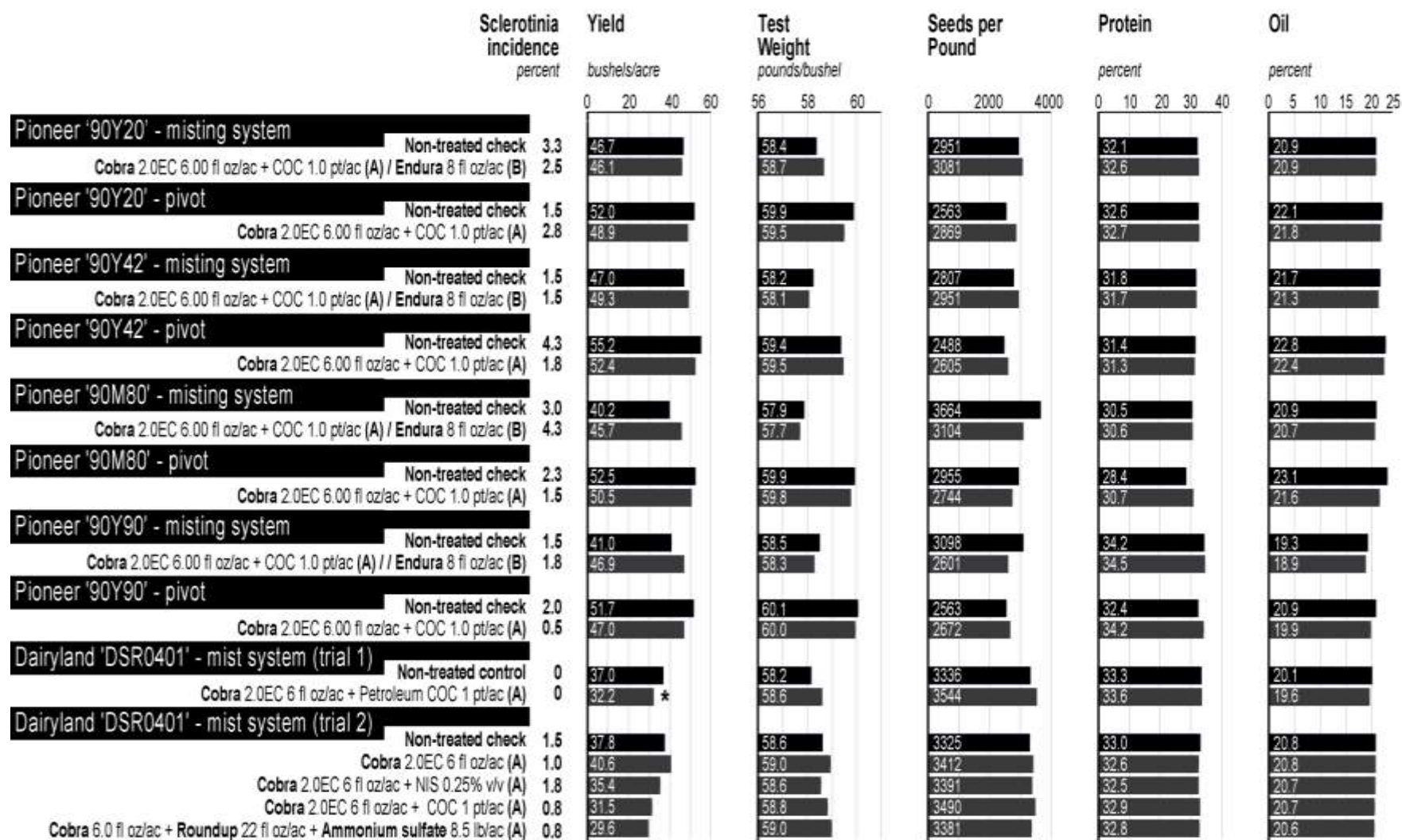
When applied to soybean at bloom initiation (R1 growth stage) or just prior to bloom initiation, the herbicide Cobra has efficacy against white mold. In addition to opening up the soybean canopy, it turns on an immune system response in the soybeans; after Cobra is applied, soybean plants produce a flush of plant defense compounds which help the plants defend themselves against *Sclerotinia sclerotiorum*, the cause of white mold. In university field trials conducted in Michigan, Wisconsin, Illinois, and North Dakota, Cobra has consistently reduced white mold relative to the control.

However, the use of Cobra to control white mold does not always increase soybean yield. In Michigan and Wisconsin, Cobra consistently resulted in statistically significant yield increases when white mold pressure was severe (at least 40% to 55% white mold incidence in the non-treated check). At lower levels of white mold pressure, it had either no effect on yield or a negative impact on yield.

Due to a severe hail storm that opened the soybean canopy shortly after bloom initiation, only low levels of white mold developed in fungicide trials conducted at the NDSU Carrington Research Center's *Sclerotinia* misting nurseries in 2011. The levels of disease were too low to assess fungicide efficacy, but they provided an opportunity to evaluate the effects of applying Cobra at early bloom in the absence of significant white mold pressure. Cobra was tested on five different soybean varieties; on each soybean variety, it was tested in two different field trials.

Relative to the non-treated check, Cobra significantly reduced soybean yield in one of the ten times that it was tested in 2011 ($P < 0.05$); in the remaining nine times that it was tested, it had no statistically significant effect on yield. No differences in seed quality were detected.

However, the results should be treated cautiously. Because the hail storm occurred shortly after Cobra was applied, the non-treated checks also suffered severe defoliation in this trial. In addition, Cobra was only tested under irrigated production; in order to promote disease pressure, the trials were aggressively irrigated in the three weeks subsequent to Cobra applications. The impact of Cobra on soybean yield may be different under dryland production.



APPLICATION TIMING: A = bloom initiation (R1 growth stage), B = mid-bloom (R3 growth stage)

Figure 1. Effects of Cobra on soybean yield and quality under irrigated production. Within-column means followed by asterisks are significantly different from the corresponding non-treated check ($P < 0.05$).