# The Fungicidal Impact of Detrimental Weeds on Soybeans

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PURPOSE: To determine the effects of natural extracts and agricultural fungicides on the growth and aggregate quality of soybeans. Secondly, to compare fungicidal attributes of natural extracts to those of agricultural fungicides on Sclerotinia sclerotiorum. PROCEDURES: Collected three types of weed flowers (Curly Cup Gumweed, Dames Rocket, Wormwood) and three chemical fungicides (Proline, Endura, Topsin). Prepared 1:70 dilutions of natural extracts and utilized field application rates for the fungicides. TEST PLOT STUDY: Soybean Test Plots: Observed the effect of the three natural extracts and three commercial fungicides on the growth and development of soybeans in different locations. KIRBY BAUER: Ascertained the inhibitory properties of the natural extracts at different dilutions and with different chemicals and also the commercial fungicides on the growth of Sclerotinia sclerotiorum. FUNGAL APPLICATION TEST: Sought the solutions' inhibitory properties on white mold placed on the soybean plant. SCLEROTINIA ASSAY: Observed the effect of Sclerotinia directly on soybean leaves dipped in the different solutions. CONCLUSION: In the Test Plot Study, Curly Cup Gumweed was found to be most beneficial to soybeans. From Kirby Bauer, Curly Cup Gumweed most effectively inhibited the growth of pathogenic fungi. In the Fungal Application Test, Curly Cup Gumweed inhibited the growth of the mold the best over 14 days. In the Sclerotinia Assay test, Curly Cup Gumweed provided the most resilience against the Sclerotinia. Overall, I feel that natural extracts, especially Curly Cup Gumweed, could potentially have a revolutionary impact on the soybean industry.

**Awards Won:**

Fourth Award of $500