



Colorado Science and Engineering Fair

2025 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Do Endophytes Affect the Growth of Lolium perenne?

Finalist's Name: Lola L. Sondrol

School and City: Monte Vista On-Line Academy, Monte Vista, CO

Sponsor's Name: Dirk Oden

Category: Plant Sciences

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

The goal of this experiment was to determine if endophytes could be used as a cost-effective, eco-friendly, long term solution to increase plant health, biomass, and enhance crop production. Endophytes are proving to be an ideal symbiotic adaptogen, strengthening as the colony matures and plant genetics are passed down; a beneficial evolution for all plant life to thrive under increasingly harsher conditions. It was found in my study that endophytes did increase the overall biomass of the Lolium perenne grown in the potting soil samples significantly, yet the height wasn't drastically changed, instead a long root connection was observed which added to the biomass. The average biomass of Lolium perenne grown in the potting soil with endophytes was 0.063 grams compared to the other biomasses ranging from 0.001 grams to 0.048 grams. This data shows that the endophytes drastically increased the biomass of the Lolium perenne (winter ryegrass) and proved my hypothesis correct. Expanding the study of endophytes could prove critical for the future of agriculture, conservation, and sustainable farming.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**