



## 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: Avant-Garde Agriculture: Indole-3-Acetic Acid and Growth in Tomatoes

Finalist's Name: Bennett Esterday

School and City: Animas High School Durango

Sponsor's Name: Dr. Lee Ann Harbison

Category: Plant Sciences

Division: Senior (grades 9 - 12)

Abstract (250 words or less):

Indole-3 Acetic-Acid Hetero Auxin is a newer topic in Botany (circa 2018), and could be the next big step in gaining insight over plant growth through an external addition of growth hormones. This study explores the question, "Can a treatment of auxin in Roma tomatoes lead to a change in growth?" and seeks to elaborate on this hormone's role in plant growth. The following study suggests there may be an impact of both cell elongation and thickening from exposure to liquid auxin. The methods for this study included growing tomatoes in highly controlled conditions, dividing into four experimental groups, applying liquid auxin in various areas of the stem in the three treatment groups, and observing differences in growth that occurred. After 4 weeks of treatments, multiple data points were collected. The study's findings show that auxin treatment in Roma tomato plants encouraged growth to the light in an accelerated manner. It also caused changes to the diameter of the stem, and overall plant height was also affected. Agricultural innovation is more relevant now than ever before, as climate change affects where crops are able to grow, the time span in which they can do so, and the feasibility for farmers to produce food for billions of people. This acts as a step towards understanding growth mechanics of plants, and developing how to grow food in the 21st century.

*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.**