



Colorado Science and Engineering Fair

2024 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: Does Organic Material Influence Nitrogen Levels in Soil

Finalist's Name: Harley Vaughn

School and City: Liberty School

Sponsor's Name: Ms. Linda Fogale

Category: Earth & Environmental Sciences (EAEV)

Division: Junior (6th - 8th grades)

Abstract (250 words or less):

The purpose of this project was to determine if adding organic material to soil would increase the amount of nitrogen in the soil. The hypothesis was that when organic material in the form of corn stalks is added to the soil, then the nitrogen content would increase, because plant material actually stores nitrogen compounds.

To test this, soil and corn stalks were collected. The control was soil without added organic material. Sample 1 was soil plus 25 g of corn stalks. Sample 2 contained 50 g and sample 3 had 75 g. The corn stalks were mixed into the soil. Every week for four weeks, the amount of available nitrogen in each soil sample found using the Hach soil test kit. Based on the data collected, an increase in organic matter of 1.28% resulted in 22.5% more available nitrogen, an increase of 2.56% inorganic matter produced 29.2% more available nitrogen and increasing the organic matter by 3.85% resulted in 47.5% more available nitrogen. A linear relationship between the amount of added corn stalks (as percent mass) and the increase in available nitrogen in the soil was established. The calculated R2 value indicates that 96% of the variability in the percent of nitrogen content can be explained by this linear relationship with the percent of organic material in the soil.

The data collected did support the hypothesis that added organic material will increase the amount of nitrogen in the soil.

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: *Harley Vaughn*

Date: *3/4/2024*

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.