Nealy Nuessner wins 2021 Arkansas Soybean Science Challenge Junior Division Award at the Northwest Arkansas Regional Science and Engineering Fair

Nealy Nuessner, age 12, a 7th grader at Bergman Middle School in Bergman, won the Soybean Science Challenge Junior Division award at the 2021 Northwest Arkansas Regional Science and Engineering Fair held virtually at the University of Arkansas-Fayetteville on March 6.

Nuessner received a $200 cash award provided by the Arkansas Soybean Promotion Board. Her science project was titled "Using pigment to determine the amount of sunlight needed for house plants."

Stacy Williams, Nuessner's teacher, won the $100 Soybean Science Challenge Junior Division Teacher-Mentor Award. Williams stated that the Soybean Science Challenge is a great way to learn about agriculture. "As Nealy worked through the online course she would ask me questions if she didn't understand something, so I had the opportunity to learn from the course as well. Basically, Nealy's participation in the Soybean Science Challenge was a learning experience for me also," she replied.

Nuessner was thrilled to win the 2021 Junior Division Soybean Science Challenge. "I was very excited to see I had been chosen to receive the SSC Award," she stated.

Lori Gilley, Nealy's mother, was very happy to see her receive the award. "I was very proud to know that all her hard work paid off," she responded.

Williams feels that the Soybean Science Challenge is a great program for students. "Science Fair is not an easy thing for teachers; it is time consuming and frustrating, especially when students choose not to work. The value of science fair (and the Soybean Science Challenge) cannot be denied. They learn to apply content to real-world problems," she explained.

"The Soybean Science Challenge provides an opportunity for Arkansas Junior High and High School students to participate in scientific research that can impact the State of Arkansas as well as the world. Soybean Science Challenge student researchers learn about this important commodity crop and its many uses including feeding the world, development of biofuels and sustainable products. The Soybean Science Challenge helps students develop an understanding

of the challenges and complexities of modern farming," said Dr. Julie Robinson, Associate Professor and director of the program.

"The goal of the Arkansas Soybean Science Challenge is to engage students in "real-world" education to support soybean production and agricultural sustainability," said Gary Sitzer, a former member of the Arkansas Soybean Promotion Board. "The program also rewards scientific inquiry and discovery that supports the Arkansas Soybean Industry."

The Arkansas Soybean Science Challenge was launched in January 2014 to 9-12th grade science students. Students who successfully completed the online course were eligible to have their original soybean-related research projects judged at the 2021 ISEF-affiliated Arkansas Science and Engineering Fairs.

Information on the 2021-2022 Arkansas Soybean Science Challenge will be available in summer 2021. For more information, contact Dr. Julie Robinson at jrobinson@uada.edu or Diedre Young at dyoung@uada.edu.

The Cooperative Extension Service is part of the University of Arkansas System Division of Agriculture.

Nealy Nuessner, Bergman Middle School, Bergman, Arkansas; Teacher, Stacy Williams

Category: Plant Sciences

Title: Using pigment to determine the amount of sunlight needed for house plants.

Abstract: The purpose of this project was to use chromatography to determine the amount of sunlight house plants need to survive. I used color rankings of the pigments and chromatography to tell the amount of chlorophyll in the plant to see if each plant needed a more sunlit area. I put the leaves I numbered into the rubbing alcohol to let sit. After that, I extracted the chlorophyll from the beaker and placed the pigment onto the chromatography paper. When the paper dried, I observed the amount of chlorophyll that had shown up on the piece of paper. I ranked the pieces of paper based on how much pigment had shown up. Then I researched the amount of sunlight recommended for each individual house plant. With that information, I determined the percentage of correct guesses of amount of sunlight needed to compare to the amount of sunlight recommended by botanists. The data showed that the amount of sunlight needed for each houseplant can be determined by the amount of chlorophyll in it. 75% of my predictions were correct and 25% were incorrect based on the results of my experiment.

Both the claims I made were supported based on the experiment I conducted. I made the predictions based on what I assumed for the right amount of sunlight needed for the plant's survival compared to what botanists suggested. My predictions were based on the color extraction from the leaves and chromatography. From the results of my data, I believe that chromatography can be used to separate the pigments of different plants and to determine how much sunlight is needed for each plant.