Soybean science challenge™

Our Soy Checkoff™
Progress Powered by U.S. Farmers

2024
SOYBEAN SCHOLARS

UofA DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

ARKANSAS SOYBEAN PROMOTION BOARD

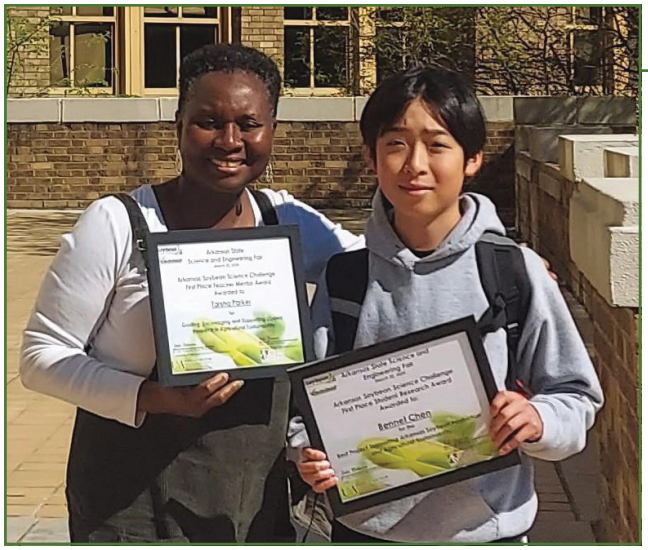
Meet Your 2024 Soy Scholars

The Soybean Science Challenge is a farmer-funded, statewide, junior and senior high school education program that seeks to increase student knowledge about the value of Arkansas soybeans to the Arkansas economy, to the labor force, and ultimately to feed and fuel the world.

The Challenge is co-sponsored by the Arkansas Soybean Promotion Board and the University of Arkansas System, Division of Agriculture, Cooperative Extension Service.

The Challenge has reached thousands of students and teachers through real-time and on-line education, in-service training, Virtual Field Trips, virtual mini-lessons, classroom lab instruction, Arkansas-based educational publications, mentoring, and awards for independent student research.

Photo: James Baltz, Unsplash



Bennet Chen

Arkansas State Science and Engineering Fair First Place winner – University of Central Arkansas, Conway, AR., and Central Arkansas Regional Science Fair winner, University of Arkansas at Little Rock, AR.

Teacher-Mentor: Tarsha Parker
Category: Environmental Science
School: Little Rock Central High School, Little Rock

Project Title: Forecasting the future: a predictive modeling approach to deciphering climate change's impact on county level soybean yields.

Abstract:
Given climate change's widespread impact on weather, it is vital to determine its effects on soybeans, a versatile crop, through yield predictions, to help tackle America's food insecurity problem. This study aimed to compare weather and fertilizer factors against US soybean yields to determine if and which factors contributed to better yields, and to create a predictive model to forecast soybean yields. The hypothesis was that there would be a statistically significant correlation between at least one weather variable and soybean yields. This study separated NOAA weather data and USDA fertilizer data into 7 variable categories and grouped those variables into high, midrange, and low yield scenarios to compare against each other through ANOVA tests. The statistically significant variables (p-value<0.05), which included all temperature and fertilizer variables, were made into a multiple linear regression model comparing against soybean yields. Then, a new model was created with the variables which contributed to the yield's variance, which were days over 32.22° Celsius, potash usage, and phosphate usage. This model yielded an r^2 value of 0.365 when predicting county-level yields and 0.665 for yearly overall yields. Over time, the model proved remarkably accurate, with the trendline of averaged predicted yields versus averaged actual yields within decimals away from $y=x$($y=0.999x+0.05$). Using this model, the government and farmers can forecast future yields for better preparation. Overall, this project highlighted the significance of fertilizer usage and rising temperatures on the amount of soybean yields.

"Through the Soybean Science Challenge, I learned how valuable soybeans are to help us sustain life. It has been eye opening." – Tarsha Parker

Jana Abuelem

Arkansas State Science and Engineering Fair Second Place winner – University of Central Arkansas, Conway, AR.

Teacher-Mentor: Katie Parson
Category: Plant Sciences
School: Pulaski Academy, Little Rock

Project Title: Effects of caffeine on Glycine max proteogenomics

Abstract:
Glycine max (soybeans) hold significant agricultural and economic value in Arkansas and around the globe. Although caffeine is proven to be a soil fertilizer, it could inflict the opposite effect on the seed, hindering the plant's overall growth. This study evaluated the effects of caffeine on Glycine max radicle growth (measuring its fresh and dry weight, water content, and color) and on its proteogenomics. It was hypothesized that if soybeans are exposed to higher concentrations of caffeine when irrigated, then its protein levels and DNA transcription will increase due to greater stress on the seed itself. An experimental design was used to split 364 seeds into four groups of 91 seeds and irrigate with caffeine solutions of 0.0, 0.2, 0.4 or 0.8 mg/ml. After nine days, germinated seeds were studied morphologically and proteogenomically. The morphological data for the radicle color rejected the null hypothesis (p=NaN). The morphological data for the water content also rejected the null hypothesis.

"Soybeans are a critical crop not just for the state of Arkansas but for the United States. The support students receive from the Soybean Science Challenge helps them learn how to ask and answer scientific questions and how to use science to help those who rely on soybeans as their crop and income. Applying what we have learned through research is a key part of the scientific method" – Katie Parsons

Sulli Schaffer

Arkansas State Science and Engineering Fair Honorable Mention Winner – University of Central Arkansas, Conway, AR.

Teacher Mentor: Alison Schaffer
Category: Plant Sciences
School: Gravette High School, Gravette

Project Title: Does radiation affect soybean growth?

Abstract:

Soybeans are a major crop in Arkansas. There is an increasing need for soybeans each year, which means that farmers need to figure out the best ways to get the best growth from the soybeans. This study aimed to test the hypothesis that exposing soybean seeds to X-ray radiation would result in taller growth compared to those that were not exposed. Three types of soybeans, including roundup-ready, food-grade tofu, and conventional provided by the Arkansas Soybean Challenge were used in the study. The seeds were exposed to X-ray radiation for 0, 0.25, 0.5, 0.75, and 1 second. After the exposure, the seeds were planted in identical soil with controlled sunlight, temperature, and water. The growth of each soybean was measured for 15 days. The results showed that every soybean exposed to any radiation grew taller than the control seeds that were not exposed. On average, between .5 and .75 seconds of X-ray exposure was ideal for soybean growth. The highest growth was seen in the food-grade soybean with an overall height of 15 inches at .5 and .75 seconds of X-ray exposure. This research suggests that brief exposure of soybean seeds to X-ray radiation could be an effective method to improve soybean cultivation. In Arkansas, there are 3.5 million acres of soybeans harvested each year and that amount could be increased by 10% according to these results.

"I really do think that student research could contribute to farmers in the field. There is a level of creativity and imagination that these students bring to the table that is inspiring and impactful." – Alison Schaffer

Alice Dong

West Central Arkansas Regional Science Fair – Hot Springs, AR

Teacher-Mentor: Dr. Lindsey Waddell
Category: Plant Sciences
School: Arkansas School for Mathematics, Sciences and the Arts, Hot Springs

Project Title: Effects of ALAN on soybean phenology and chlorophyll levels

Abstract:

Research question: How does artificial light at night affect (ALAN) soybean growth and chlorophyll content?

Hypothesis: Soybeans exposed to ALAN treatment since planting will demonstrate higher chlorophyll levels, and delayed phenological development compared to soybeans not exposed to ALAN.

Methods: Soybeans are grown from seeds and exposed to natural sunlight. Samples were exposed to ALAN under two LED shop lights from 1800 to 0600 hours. Controlled samples were covered during that time. Phenological changes were recorded. At the end of the trial, final height and areas of leaves were measured. Vacuum filtration and spectrophotometer were used to measure chlorophyll levels.

Conclusion: The hypothesis was not supported.

"An external recognition like that provided by the Soybean Science Challenge can be very important in motivating students to stay involved in research and to take on something even more challenging."
– Dr. Lindsey Waddell

Suleyman Acikgoz

Central Arkansas Junior Regional Science and Engineering Fair – University of Arkansas at Little Rock, AR.

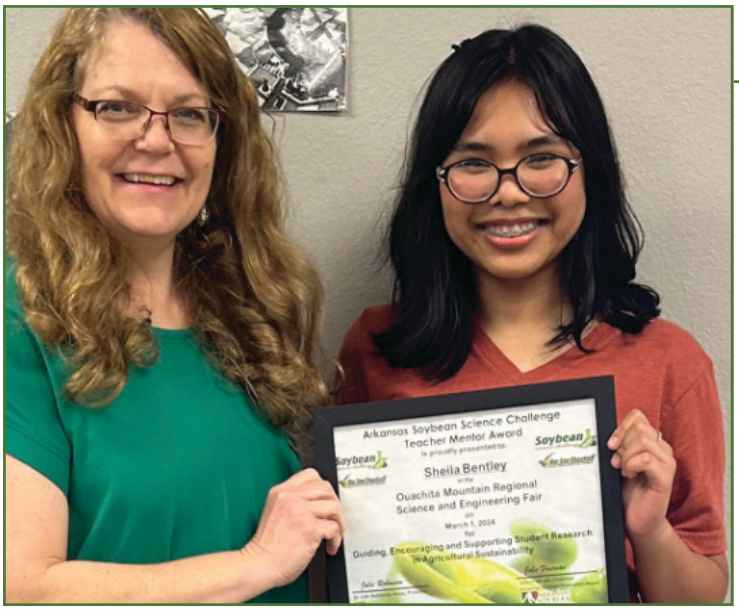
Teacher-Mentor: Sevcan Acikgoz
Category: Environmental Science
School: Lisa Academy West Middle School, Little Rock

Project Title: What is the Effect of Magnetic Fields on the Germination and Water Absorption of Soybeans?

Abstract:
The aim of this project was to determine the growth and water absorption parameters of soybean plants affected by a magnetic field and to test whether different magnetic forces have a positive or negative effect on soybean growth. The way I did my project was by having 100 grams worth of soybeans in 3 containers each, with 2 magnets (1 strong, 1 weak) in two and no magnet in one to compare them later. Then I tested their water absorption by soaking them in water and waiting 24 hours and measuring their weight again to find their water absorption. Afterwards, I measured their germination and growth.

By measuring the percentage of germinated soybean seeds by counting and dividing by the original number. The results I found were the strong magnet had the largest growth out of all in general as well as the best water absorption. In conclusion, my hypothesis was indeed correct, and the results of my research proved that magnetic fields help boost soybean growth, germination time, and water absorption of soybeans.

"The Soybean Science Challenge offers students a chance to learn about soybeans, which is a miracle crop in Arkansas. It prepares them for their future academic opportunities in science and agriculture."
– Sevan Acikgoz



Kacylyn Reupta

Ouachita Mountains Regional Science and Engineering Fair – Hot Springs, AR.

Teacher-Mentor: Sheila Bentley
Category: Plant Sciences
School: Genoa Central High School, Texarkana

Project Title: Will different varieties of soybeans grow at the same rate?

Abstract:

Purpose: Germinate three different types of soybean seeds, Tofu, Conventional, and Round-Up Ready using the same method to see if the three varieties of seeds would germinate and grow at the same rate.

Procedure: Place a row of 3 seeds and a column of 8 seeds totaling 24 seeds of each variety, Tofu, Conventional, and Round-Up Ready. Place the seeds into a sectioned glass container that will contain one variety of seed each. Spray the paper towel that covers the seeds entirely with water. Press down the dampened paper towel making it so that there are no air pockets in between the seeds. Put the lid on the container. Leave an air gap to allow oxygen to be present. Collect data every 2 days and have it all gathered in a week.

Results: Compare the three seeds: Tofu germinated the longest and fastest in the span of a week. Tofu seeds germinated twice as many seeds compared to the Round-Up Ready and 3 times as many as the Conventional seeds. Tofu seeds had longer sprouts, between 1cm and 5 cm each in length. Tofu seeds had healthier sprouts: All of the seeds that were used to experiment did not have any black spots on it, identifying the seeds to be spoiled.

Conclusion: Different varieties of soybean seeds displayed different germination results. Tofu variety met the germination conditions. Conventional and Round-Up Ready germinated less. The Tofu had a more successful germination rate. Tofu variety seeds germinated better under dark conditions and a high moisture level.

"I learned that the Soybean Science Challenge offers many opportunities for student research that may apply to each individual student."– Sheila Bentley

Zane Morris

Ouachita Mountains Junior Regional Science Fair – Hot Springs, AR.

Teacher-Mentor: Rita Martin
Category: Environmental Science
School: Albert J. Murphy Jr. High School, Texarkana

Project Title: Best brown for beans

Abstract:
In my experiment, I was investigating what animal manure was the best fertilizer for bean plants. I live by farm fields, and we constantly drive by the fields and see the farmers planting, cultivating, fertilizing, or harvesting their crops. I believe that my project's results could be useful for farmers. My results could show them what manure is the best fertilizer. This information could help their crops grow taller, faster, and healthier. For my procedure, I first planted the seeds and watered them. I watered them with 7 squirts of water every day. Once the seeds had germinated and were growing, I applied the manure tea. Each plant was assigned a specific manure. I experimented with pig, horse, cow, chicken, and rabbit manure. One cup was left as a control. I predicted the rabbit manure plant would grow the tallest. I then measured their heights. I continued to apply the manure tea and measured their heights every 3 days.

After I had collected several measurements, I subtracted the first measurement from the last measurement to find the total growth. My results showed that the pig manure was the best fertilizer, with a total growth of 8 inches. This proves my hypothesis wrong. Even though my hypothesis was incorrect, I still completed my objective, which was to find the best manure for bean plants.

"I really appreciate the monetary award that goes with this program because it allows students to see that their hard work can have tangible results. The more other students see that the hard work of their peers on their science projects pays off, the more likely they are to choose an agricultural project, and more specifically soybeans for their project next year." – Rita Martin

Sydney Fuller

Southeast Arkansas Regional Science Fair – University of Arkansas – Monticello, AR.

Teacher-Mentor: Katherine Yancey
Category: Environmental Science
School: Stuttgart High School, Stuttgart

Project Title: Effects of soil nutrients on plant growth

Abstract:
The experiment sought to determine whether plants can grow with less soil and cheaper substances, in this case, pine saw dust. The purpose of this project was to try and provide information about how certain soil characteristics, especially soil nutrient composition affects plant growth. Miracle Grow potting soil and pine sawdust were mixed into five separate treatments with different amounts of soil and sawdust, 0%-100% for two separate experiments.
The plant growth was measured in centimeters and watered as needed. The soil nutrient composition was measured at the beginning and at the end of the experiment with commercial LaMotte NPK test kit, following the testing instructions.
The plant growth results in the two trials were very different as shown in the graphs and tables. The nutrients in the soil decreased from 100% treatment to 0% treatment. The nutrients in the soil were also different from beginning to end in both experiments, showing that the plants were taking the nutrients from the soil.

"Through Sydney's involvement in the soybean science project, she has gained insight into the importance of agriculture and environmental science. She has developed a greater appreciation for these fields, and it may have even sparked an interest in her pursuing related career paths in the future." – Katherine Yancey



Sydney Wolf and Anna Leslie

Northeast Arkansas Regional Science Fair – Arkansas State University, Jonesboro, AR.

Teacher-Mentor: Allyson Goodin
Category: Environmental Science
School: The Academies at Jonesboro High School, Jonesboro

Project Title: How effective is Green Filtering

Abstract:

The purpose of this experiment is to examine whether taproots or fibrous roots filter chemically infused water more efficiently. The initial idea was to prove that a green filter is beneficial to the agriculture community by preventing chemicals in the runoff caused by human pollution from affecting the fields. Similarly, the hypothesis would be that if the roots of plants could filter water to a degree, then the deeper the root system, such as in taproot plants, would be able to naturally filter runoff better compared to fibrous roots. The students predict that the taproot will be able to naturally filter more water, due to the length of the root. The null hypothesis would therefore be that the fibrous roots due to their amount of root spurts would be able to naturally filter water better compared to taproot plants.

To investigate this idea, the students gathered 18 plants of both Medicago sativa, alfalfa, and Heuchera sanguinea, coral bells. The alfalfa simulated the taproot root system, while coral bells simulated the fibrous root system. The students created a zinc solution and a lead solution to imitate chemical runoff caused by human pollution. Two samples of each plant species were labeled as controls and given only the control water. Then starting the trials, eight plants of each type were given water mixed with lead nitrate solution. The last eight plants of alfalfa and coral bells were given water mixed with zinc nitrate solution. The excess runoff from each plant was collected and sent to be analyzed to determine the amount of lead and zinc in the water of each sample by the USDA Extension Office. After the experiment, each plant was measured for the root length as well as replanted in new soil. The soil samples from every plant used in the experiment were also sent to the USDA Extension Office to examine the amount of lead and zinc in each sample. The independent variable was the type of root system and the type of soil used. The dependent variable was the lead or zinc amount in the runoff water sample and soil sample. The controlled variables were the dilution of the solutions given, the sunlight exposure, and the type of water used.

After data analysis, it was found that the alfalfa with the taproot root system could naturally filter the chemically infused water. The alfalfa plant trials had similar lead and zinc amounts in both the soil and water samples as the alfalfa control that were only given water. On the other hand, the coral bells had higher amounts of lead and zinc in both the soil and water samples compared to the coral bell control. In comparison, the coral bell plants left an exponentially greater amount of the chemicals introduced through the water in the soil than the alfalfa plants. The alfalfa plants also seemed to thrive after being given the lead solution, despite the prediction that the chemicals would harm the plant.

In conclusion, the students were able to accept the alternative hypothesis and reject the null hypothesis. The alternative hypothesis concluded that the taproot root system would best naturally filter the chemically infused water. This allows farmers to implement the use of alfalfa in the technique of green filtering to not only protect their crops from outside chemicals, but also keep the desired chemicals within the alfalfa barrier of the field.

"The SSC is a great program that allows the students to learn at their own pace. It is full of amazing information about our state agriculture and the wonderful impact of soybeans." – Allyson Goodin

Me'Shelle Hinson

Northeast Arkansas Junior Regional Science Fair – Arkansas State University, Jonesboro, AR.

Teacher-Mentor: Jennifer Langston
Category: Environmental Science
School: Paragould Junior High School, Paragould

Project Title: Water Filtration

Abstract:
Some countries do not have access to clean water; they need to use water filtration systems. I used two types of water filters to filter dirty water. I then checked the pH level. The results showed the macaroni filter worked the best.

"Introducing students to challenges such as the Soybean Challenge is beneficial for several reasons. Engaging students in real-world challenges provides them with practical, hands-on learning experiences. This type of learning can better their understanding of scientific concepts and agricultural practices. Challenges can spark student interest in agriculture and inspire them to pursue careers in STEM. By participating, students can gain exposure to real-world applications of their learning. Students are more motivated and engaged when they have a real-world context for their learning. Successfully completing a challenge can boost students' confidence in their abilities." – Jennnifer Langston

Duyen Do

Northwest Arkansas Regional Science and Engineering Fair – University of Arkansas, Fayetteville, AR.

Teacher-Mentor: Pat Briney
Category: Plant Sciences
School: Fayetteville Christian Academy, Fayetteville

Project Title: The impact of varied light cycles on soybean seed germination.

Abstract:
This study investigates the impact of life cycles on soybean germination. It was suggested that different light cycles would affect the growth rate of soybean germination due to the way soybeans utilize light to convert carbon dioxide into glucose during photosynthesis during germination. Glucose may also increase the concentration of ABA, which can increase the germination rate of soybean seeds. However, photosynthesis requires leaves and chlorophyll. It was hypothesized that seeds grown in less light would germinate faster and more successfully due to the absence of leaves on the seeds.
Three different light cycles were tested: 100% light (24 hours a day), 50% light (12 hours a day), and 0% light (germination in the dark). To ensure accuracy and reliability, each cycle was tested three times with 50 seeds used in each trial, for a total of 450 seeds. Only one variety of soybean seeds were used in the experiment. The germination process took four days, and the germination rate and growth were analyzed to determine the optimal light cycle for soybean germination.
The findings of this project indicate that seeds grown in the dark germinated at the highest rate. The 50% light was also suitable for germination but had a lower percentage of sprouted seeds than the dark cycle. Seeds grown in the 24-hour light had the least number of sprouted seeds.

"I introduced my students to the Soybean Science Challenge to learn about science with a major producer of soybeans (the farmers of Arkansas) and to work with scientists at the University of Arkansas in Fayetteville."
– Pat Briney

Hadley Panek

Northwest Arkansas Junior Regional Science and Engineering Fair – University of Arkansas, Fayetteville, AR.

Teacher-Mentor: Erin Wragg
Category: Plant Sciences
School: St. Joseph Catholic School, Fayetteville

Project Title: The effect of pretreatments on soybeans

Abstract:
The purpose of this project was to determine which different pretreatments worked best on soybeans. One hundred seeds were divided into five groups of pretreatments. Twenty seeds were given no pretreatment as the control group, twenty seeds were soaked in hot water for twenty minutes, twenty seeds were placed in cold water and refrigerated overnight, twenty seeds were soaked in sulfuric acid for seven minutes, and twenty seeds were placed in a jar with sandpaper covering it and shaken. The seeds were then planted in the same conditions and watered as needed. The number of soybeans sprouted and when they did was recorded. The seeds rubbed with sandpaper sprouted first, with control second, cold water third, hot water fourth, and sulfuric acid last. The conclusion was drawn that pretreating soybeans with sandpaper improves their growth rates, but cold water, hot water, and sulfuric acid slowed the growth rates.

"I feel that many students do not understand the impact that soybean production has on our state, and this program gives the students more insight as to why soybean research is important." – Erin Wragg

Ka'Lee Hanson

Southwest Arkansas Emerson High School STEM Night

Teacher-Mentor: Amanda Watson
Category: Plant Sciences
School: Emerson High School, Emerson

Project Title: Soybean Hydroponics

Abstract:
Soybeans are an important crop in America due to their many functions. My experiment tests which soybean seed grows the best in hydroponics. Hydroponics have many benefits including the minimization of space, weather, and weed issues in comparison to growing soybeans in the field. Using a hydroponic tank, I planted 3 different soybean seeds: food-grade, conventional, and herbicide-resistant. My hypothesis is that the largest of the three seeds (food-grade) would grow the tallest while the other two types would have similar height due to similarity of seed size. As predicted, the food-grade seeds grew the tallest. Surprisingly, the other two seeds had variation in growth with the conventional growing taller than the herbicide resistant. This information can help farmers make decisions about what crops to grow hydroponically.

"The Soybean Science Challenge helps to challenge my students to learn more about topics that they don't know a lot about." – Amanda Watson

Aiden Watson

Southwest Arkansas Emerson High School STEM Night

Teacher-Mentor: Jessica Glass
Category: Plant Sciences
School: Emerson High School, Emerson

Project Title: The effect of different soils on soybean plant growth

Abstract:
This experiment was designed to test what kind of soil has the largest effect on soybean plants growth. Eleven materials were used, including soybean seeds, potting soil, soil with pig manure, soil with chicken manure, soil with goat manure, containers for the soil, water, a ruler, and a notebook for data entry.

My research showed that the soybean seeds planted in the potting soil grew the best. The hypothesis that the soybean seeds planted in chicken manure would grow the best (due to high nitrogen content) was rejected.
This research provides people with information regarding the best soil for soybean growth. My goal to conduct thorough research and come to an evidence-based conclusion on the best soil for soybeans was successful.

"The Soybean Science Challenge is a great way to learn about the production of soybeans in Arkansas. The Challenge gives students the opportunity to carry out experiments and see what will help soybeans grow their best." – Jessica Glass

Soybean Science Challenge State Science Fair Participants

Bennet Chen, Little Rock Central High School. Teacher: Tarsha Parker
Forecasting the future: a predictive modeling approach to deciphering climate change's impact on county level soybean yields.

Jana Abuelem, Pulaski Academy. Teacher: Katie Parson
Effects of caffeine on Glycine max proteogenomics.

Maddie Hernandez, Pulaski Academy. Teacher: Katie Parson
The effects of different degrees of rainfall on soybean sprouts.

Sulli Schaffer, Gravette High School. Teacher: Allison Schaffer
Does radiation affect soybean growth?

Alice Dong, ASMSA. Teacher: Dr. Lindsey Waddell
Effects of ALAN on soybean phenology and chlorophyll levels.

Daniel Blevens, Fayetteville Christian School. Teacher: Alicia Deavens
Drastic plastics: Discovering unique bioplastics that biodegrade.

Duyen Do, Fayetteville Christian School. Teacher: Pat Briney
The impact of varied light cycles on soybean seed germination.

Trinity Freeman, Fayetteville Christian School. Teacher: Alicia Deavens
Is paper the problem?

Alexander Pagliani, Fayetteville Christian School. Teacher: Pat Briney
Soy oil sunscreen lotion.

Grady Pitcock, Timbo High School. Teacher: Ty Pitcock
Dirty work.

Zoe Long, Timbo High School. Teacher: Ty Pitcock
How do natural fertilizers affect soybean plants.

Sydney Wolf and Anna Leslie, The Academies at Jonesboro High School. Teacher: Allyson Goodin
How effective is green filtering.

Sydney Fuller, Stuttgart High School. Teacher: Katherine Yancey
Effects of soil nutrients on plant growth.

Soybean science challenge™

Our Soy Checkoff™ Progress Powered by U.S. Farmers

www.uaex.uada.edu/soywhatsup

UofA DIVISION OF AGRICULTURE RESEARCH & EXTENSION University of Arkansas System

ARKANSAS SOYBEAN PROMOTION BOARD

Free Educational Resources and Materials Available from the Soybean Science Challenge at www.uaex.uada.edu/soywhatsup

The Arkansas Soybean Science Challenge is a science enrichment program open to students in grades 6-12.

The Arkansas Soybean Science Challenge research program includes:

- $300 cash awards for high school student science projects impacting sustainability at Arkansas regional science fairs and Arkansas FFA Agriscience Fair; $1000 first place, $500 second place and $250 Honorable Mention at the Arkansas state science fair.
- $200 cash awards for junior high (6-8th grade) student science projects impacting sustainability at Arkansas regional science fairs and Arkansas FFA Agriscience Fair.
- $200 cash awards to teachers whose students win the Soybean Science Challenge at regional. Teacher awards at state are $300 for first place, $200 for second place and $100 for Honorable Mention. $100 for junior level Soybean Science Challenge teacher awardees at regional.

STUDENT ONLINE COURSE – 6 MODULES

- The Science of Soybean Production
- The Miracle Bean: Food
- The Miracle Bean: Fuel
- The Miracle Bean: Feed
- The Faces & Challenges of Farming: Emerging Issues
- Ready…Set…Research!

6-12th grade students who successfully complete the Soybean Science Challenge online course and enter a soybean related project in one of the Arkansas regional and state science fairs, and FFA Agriscience Fair are eligible to have their projects judged for cash awards.

For more information about the Soybean Science Challenge Program, contact:
Dr. Julie Robinson (jrobinson@uada.edu)
Keith Harris (kharris@uada.edu) Phone 501-671-2189

FREE CLASSROOM RESOURCES

Teacher In-Service Online Course
7 Hours ADE Approved – 6 Modules
1 Hour ADE Approved: Science Fair 101

Teacher Resources Course for Classroom Use
6 Modules, Tests, Answer Keys and over 50 other soybean-related articles and resources

Teacher Classroom Lessons in 7E & GRC-3D (NGSS Aligned) Format covering multiple subjects.

5-10-minute NGSS aligned agriculturally based mini-lesson videos for the virtual and face to face classroom. Video lessons cover a multitude of subjects with accessible Power Points.

High School Science Curriculum Resource Guide

Arkansas High-School Science Project Development Guide

Soybean Science Challenge Brochure

Free Soybean Science Challenge Seed Store for Student Research Projects

Several Virtual Field Trip videos that include Teacher Guides

Cultivating Arkansas' student scientists to change the world