Soybean science challenge™

Our Soy Checkoff™
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2021 SOYBEAN SCHOLARS

UofA DIVISION OF AGRICULTURE RESEARCH & EXTENSION
University of Arkansas System

ARKANSAS SOYBEAN PROMOTION BOARD

Meet Your 2021 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.

Alyssa Butler

Virtual Southwestern Energy Arkansas State Science and Engineering Fair First Place Winner and Central Arkansas Regional Science and Engineering Fair Winner, UA-Little Rock

Teacher-Mentor: Carly Bokker
Category: Plant Sciences
School: Carlisle High School, Carlisle, AR

Project Title: Greenhouse Comparison of Genetically Similar Soybean Varieties and Resistance to the Southern Root-Knot Nematode

Abstract:

The southern root-knot nematode (Meloidogyne incognita) is one of the most important yield-limiting plant-parasitic nematodes that affect soybeans (Glycine max) in Arkansas. One of the best management tools that farmers have is host resistance; however, limited information about the host is available. The objective of this study was to evaluate a greenhouse comparison of genetically similar soybean seed varieties. Soybean seed varieties with similar genetic backgrounds that all manufacturers claimed to be moderately resistant to root-knot nematodes, along with one susceptible check (Delta Grow 4880) and one resistant check (Forrest) were used to test nematode resistance and egg reproduction. Plants were planted in a randomized complete block design with five reps and artificially inoculated with 5,000 eggs per plant. Soybeans were rated at 48 days after inoculation, roots were processed to determine eggs per gram. Pioneer P45A45L, Pioneer P43A42X, Pioneer P46T59R and Forrest all were statistically different when compared to the susceptible check (Delta Grow 4880) for root gall ratings; P45A29L and Pioneer P43A42Z were the only two with significant differences in egg/gram root and egg reproduction factor. These varieties were confirmed to be moderately resistant when compared to the resistant check and would be good options for farmers' fields with damaging populations of root-knot nematodes.

"Alyssa has excelled in Plant Pathology in the last few years. Her knowledge of soybeans and soybean nematodes surpasses what most college students entering their first year of work even know. She has dedicated her last two years to learning as much as she can, and her receiving this award two years in a row corroborates that." – Carly Bokker

Claire Green

Virtual Southwestern Energy Arkansas State Science and Engineering Fair Second Place winner and West Central Arkansas Regional Science Fair Winner – ASMSA, Hot Springs, AR.

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

Project Title: Mushroom Meds for Bees

Abstract:

Bee populations are being negatively affected worldwide by the spread of the Varroa destructor mite, which is not only parasitic but can also transmit viruses. Close observers of nature have noticed mushrooms seem to attract wild bees, and laboratory experiments have found declines in viral loads of caged bees consuming extract. The purpose of this experiment was to discover if offering a homemade syrup made from mushroom extract could improve the health of bees in a community garden apiary in measurable ways. The procedure involved offering the syrup in two hives at a community garden site for two weeks during which hive monitoring equipment did not show significant swings in conditions within the hive. Findings showed a decrease in the number of Varroa mites in both hives. The genetic analysis further showed a drop in Deformed Wing Virus, Black Queen Cell Virus, and Varroa Destructor Virus 1. Other viruses increased but not to dangerous levels, probably due to outside factors like pesticide use that could not be controlled in an urban field study. A second experiment undertaken immediately following the first experiment occurred in a lab over a 72-hour period and featured applying undiluted and diluted extract on a sample of bees and mites, in Petri dishes. Results suggested undiluted extract may be toxic to bees and mites as all died more quickly after application compared to the control. Therefore, while bees in apiaries do seem to benefit from being offered mushroom extract, undiluted extract may be toxic to them.

"I knew some of the basics of soy from being a vegetarian and relying on it as a protein source in my diet. Participating in the Soybean Science Challenge allowed me to learn a lot about how and where soybeans are grown and uses for soy. Preparing to participate in this challenge, I discovered a connection between bees and soy I had not fully appreciated before as well, since bees are essential for pollination of soybeans and healthy bee populations translate into good crop production." – Claire Green

Cameron Holder

Virtual Southwestern Energy Arkansas Science and Engineering Fair Honorable Mention winner and Northeast Regional Science and Engineering Fair winner – Jonesboro, AR

Teacher-Mentor: Mr. Bryant Fong
Category: Plant Sciences
School: Nettleton High School, Jonesboro, AR

Project Title: Quantifying soybean CO2 exchange with chlorophyll content

Abstract:
Soybean is a major crop grown in Arkansas. Studying plant development is important to inform management decisions such as irrigation or chemical applications to maximize yield. The chlorophyll content of each leaf was measured and compared to the carbon dioxide exchange. The chlorophyll content was higher at leaves closer to the top compared to the bottom possibly related to more sunlight at top of canopy. The CO2 exchange went down because photosynthesis uses CO2. By Identifying most productive leaves, highest chlorophyll content and greatest reduction of CO2, producers and scientists can target management to maximize plant productivity.

"Students gained an understanding of scientific research, and how not every question can be answered with a clearly outlined procedure as in classroom labs. The learning modules provided background and relevance for soybean research. They were so informative that I implemented them in my general classroom lessons. I have gained a greater appreciation for producers and agriculture researchers as they identify plant processes to develop sustainable methods to grow soybeans." – Bryant Fong

Robert Lutgen

Virtual Southwestern Energy Arkansas Science and Engineering Fair Honorable Mention winner

Teacher-Mentor: Ms. Mary Lutgen
Category: Environmental Science
School: Homeschooled, Cabot, AR

Project Title: How Drones Can Help Manage Tailwater on Farms

Abstract:
The purpose of this experiment is trying to answer the question "Can the Use of Drones Improve the Management of Tail Waters on Farms?" The student believes that the drone will help see how much the volume of the water changes and detect any problems that may occur.

Method: The student called his county's extension office to help him get in contact with a farmer. Once the information had been collected, the student contacted the farmer and asked for his permission to fly a drone over his tailwater ditch. After the student got permission, he flew the drone lengthwise over the ditch and flew the drone once a month for a three-month period. With a measuring software, the student accurately measured the surface area of the ditch so that he could calculate by how much the water had changed.

Data: The length of the ditch on Day 1 was 463 ft, the depth was 2ft, and 10.5 ft wide. The total volume of the water was 9723ft2. On Day 2, the length and depth remained the same while the width had increased to 10.75 ft, causing the volume to become 9954.5 ft2. On Day 3, the length and depth once again held constant, but the width had increased to 11.33 ft, making the volume 10491.56 ft2.

Conclusion: Drones can help farmers better manage their tailwater and save them time and money in the process. The data of this experiment shows that the student's hypothesis is correct.

"Before the Soybean Challenge, I had no idea what soybeans were and how important they are. I learned about different ways of watering crops and the importance of tailwater to farmers and later learned that farmers measure this by inches per acre. This project has definitely given me a new perspective on agriculture and the careers associated with it." – Robert Lutgen

Jonathan Gonzales

Northwest Arkansas Regional Science and Engineering Fair winner – UA Fayetteville, Fayetteville, AR

Teacher-Mentor: Alicia Deavens
Category: Plant Sciences
School: Fayetteville Christian School, Fayetteville, AR

Project Title: Comparing Crop Species Response to Heat

Abstract:
In this project we will discover which of these popular crop species create the most efficient heat pack for First Aid purposes. I chose this project because I am curious which will make a better heat pack. I have grown to like the many uses of soybeans, so maybe they will excel and generate a better heat pack. I chose rice because it is a very popular 'homemade' heat pack. I chose soybeans because they are one of Arkansas' largest agricultural exports and I am very familiar with them. Finally, I chose chickpeas really, just for a third option, but frozen peas are a highly recommended item for ice packs too, so why not compare them to rice and soybeans to see if they are just as effective as a heat pack as they are an ice pack. In conclusion, the soybeans did the best, even though it was close. They were able to heat up the quickest and even maintain heat for a longer time. So, when it comes to homemade heat packs, then soybeans should be the best option. However, in second place was the chickpeas. Not only do they make for a great ice pack, but they can also do great things as a heat pack. In my opinion, the rice did not do as great as I assumed it was going to do, however, they still make a good heat pack, but it will not last as long.

"By participating in the Soybean Science Challenge, Jonathan was encouraged and really got more confident in the protocols and procedures of what it takes to do research from start to finish. I believe that participating in The Challenge will help give him great training for future science classes if he goes to college and help him solve problems in everyday life. He is more confident in himself and his ability to gather information and draw conclusions based on his research." – -Alicia Deavens

Nealy Nuessner

Virtual Northwest Arkansas Regional Science and Engineering Fair Junior Level winner – UA Fayetteville, Fayetteville, AR

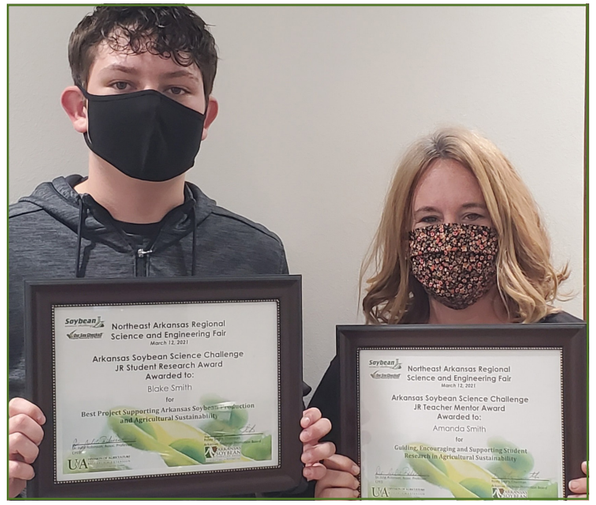
Teacher-Mentor: Stacy Williams
Category: Plant Sciences
School: Bergman Middle School, Bergman, AR

Project 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.

"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." – Stacy Williams



Blake Smith

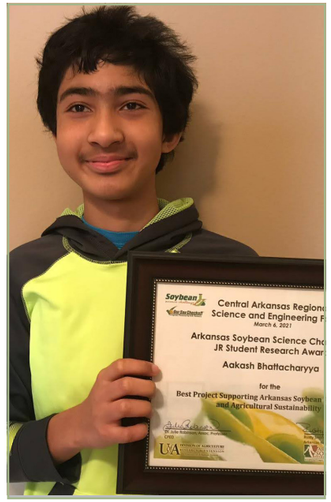
Northeast Arkansas Regional Science Fair Junior Level winner – ASU, Jonesboro, AR

Teacher-Mentor: Ms. Amanda Smith
Category: Environmental Science
School: Salem High School, Salem, AR

Project Title: River Pollution

Abstract:
My topic is River Pollution. I picked this project because I swim in rivers a lot and don't know what's in them. I do not want myself or others to get sick from what's in the rivers. My Question is that if we cleaned the water and kept it clean would it change. My answer is no. My hypothesis states that it would not matter because we would have to clean wherever the water starts. And people are still going to put stuff in the water. For my experiment, I obtained a water tester kit, I got water from the river and put it in the tube. I put pills in the water to see if it would change colors. If it did, I would look in the handbook and see what that meant. I would graph it and put it in my science fair project. In my experiment, I was also picking up trash and making sure to graph it too. I would also graph how many cars there were. I learned that people loved the river, but they do not love it enough to keep it clean. I found more and more trash each day.

"I decided to have my students participate in the Soybean Science Challenge because farming in Arkansas is a major industry and soybean production is one of the top three crops in Arkansas. The science of soybeans falls perfectly into the Arkansas Science Standards. The Soybean Science Challenge modules are a great source for learning about soybeans and farming in Arkansas." – Amanda Smith



Aakash Bhattacharyya

Central Arkansas Regional Science and Engineering Fair Junior Level winner, UA – Little Rock, Little Rock, AR

Teacher-Mentor: Ms. Amber Butte
Category: Energy & Transportation
School: Lisa Academy West Middle School, Little Rock, AR

Project Title: Electronic Soil Moisture Sensor: Save Water, Save the Future

Abstract:
Access to good quality water is a growing concern. According to the U.S. Geological Survey, in 2010, approximately 29% of surface water and 65% of fresh groundwater are used for agricultural needs of water in irrigation, and half of that is because of irrigation inefficiency and water wastage. Therefore, improving irrigation water usage efficiency is significant. Irrigation water practice efficiency depends on applying irrigation water at the right time, right place, and right amount. In my project, I made a Soil Moisture Sensor to reduce unnecessary water consumption. I used a NAND 4011 circuit to make a soil moisture sensor. Essentially what this does is making it light up the bulb only when there is not enough water. I tested the efficiency of my circuit using 3 different soil types (regular, potting, river-bed soil) with different amounts of water. I observed how my circuit performed. My control variables were Soil amount, and the circuit (equal distance between 2 resistors). I tested 3 times for each soil type and water amount combination. After, conducting the experiment and looking at my circuit. I have concluded that my circuit is indeed sensitive and is functional and able to reduce unnecessary water consumption. Also, based on my data, the type of soil minorly matters when using my soil moisture sensor. My hypothesis was proven correct because my soil moisture sensor indeed worked. In the future, I would like to improve my sensor to measure the exact amount of water needed.

"I had a few students who were recommended to participate in the Soybean Science Challenge. When I heard about the recommendation, I was very excited for my students to participate in this wonderful activity. I encouraged my students to participate and present the projects that they put so much effort into. By taking the SSC online course, I believe that my students were able to gain an awareness on the importance of cultivating soybeans in Arkansas. I am glad to see that the youth of Arkansas can present their ideas and make a positive impact in their state or even around the world through The Challenge. – Amber Butte

Joseph Young

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

Teacher-Mentor: Bobby Young
Category: Environmental Science
School: Mountain Pine High School, Mountain Pine, AR

Project Title: Burning Biofuels

Abstract:
Why is it when taking a shower, it's never easy to find the perfect temperature? This could be due to the height of the person taking the shower. Using a self-constructed apparatus, the temperature was measured (dependent variable) in increments of 15 cm (independent variable) starting from the head of the shower (0 cm) to 135 cm down the apparatus. The hypothesis states that if an individual is farther from the showerhead, then they will use more energy to heat their water reserves. Analysis of the data shows that the hypothesis is proven. Further analysis indicates as the bathroom air's access to the outside temperature increases, the water's temperature decreases significantly in comparison to when it had no access to the outside atmosphere. In conclusion, the shorter the individual is, the more energy they will use when showering.

"Last year I attended my first regional science fair in Arkansas and learned about the Soybean Science Challenge. I thought it was an interesting initiative so when I started my local science fair, I encouraged students to participate in it."
– Bobby Young

Josh Tolbert

Southeast Arkansas winner

Teacher-Mentor: Whitney Maggard
Category: Chemistry
School: Monticello High School, Monticello, AR

Project Title: Relative thermal conductive and dissipative properties of commonly available soy products to distilled water

Abstract:
Since Arkansas is a major producer of soybeans and soy products, it was questioned whether soy products could be better than water for water cooling in some fashion. The goal of this experiment was to compare the relative thermal conductive and dissipative properties of soy products to distilled water by placing the tested products in heated water and measuring them periodically as they heated and cooled when removed. Soy oil, two types of soy sauce, and soy milk were compared to distilled water. It was found that all the products were nearly identical in thermal conduction and dissipation for all practical purposes. Soy sauce was found to be superior in absorption of heat. Soy oil was found to be superior in dissipation of heat.

"I was proud of the fact that Joshua put in the work that so many others are not willing to do and was successful in this Challenge. That makes me so proud of him. He is very deserving of winning this challenge"
– Whitney Maggard

Jack Hoyle

Southwest Arkansas Regional Science Fair winner – Southern Arkansas University, Magnolia, AR

Teacher-Mentor: Ms. Christy Hoyle
Category: Engineering
School: Taylor High School, Taylor, AR

Project Title: Burning Biofuels

Abstract:
With unprecedented human population growth comes an increased demand for sustainable agriculture systems and a greater demand for alternative fuel sources. It is important for agriculturalists to consider the wastes produced by production agriculture as energy sources and to continue to explore ways to utilize these resources. The **purpose** of this research was to determine which types of agricultural wastes can produce biogas that can be collected and burned to power a small engine. Two previous years' research has been conducted to determine which types of agricultural waste products produce the most biogas and to measure the amount of energy, in Calories, in each biofuel. The **procedure** included the construction of a wood gasifier and modification of a small gas engine to run on biofuel. Common agricultural wastes were processed in the wood gasifier to produce biogas, collected and measured in a plastic chamber by water displacement. The gas was then passed from the collection chamber, through a fuel filter, and was used to power a small gas engine. The tests measured the amount of time the engine would run on each biogas. The results did not support the original hypothesis, which stated that the forestry waste would power the engine the longest. The **results** determined that wheat straw biofuel actually powered the engine for the greatest amount of time. All of the crop wastes tested produced biogas capable of powering the small gas engine. The animal wastes tested did produce flammable biogas when processed in the gasifier, however, none of the animal waste biogas was capable of successfully powering the small gas engine. These results are consistent with previous research of others that indicates animal waste is best suited to processing in a methane digester for collection of biogas. **Conclusions** can be drawn that agricultural wastes can serve as fuel sources and agriculturalists can determine which type of fuel source is best for them depending on the type of production they are in and the availability of the resources.

"I always encourage my students to take advantage of educational opportunities available to them, and the Soybean Science Challenge is both a great educational opportunity and an opportunity to win some money, which is always motivating to students." – Christy Hoyle

Ayana Patel

Southwest Arkansas Regional Science Fair Junior Level winner, Southern Arkansas University-Magnolia, AR

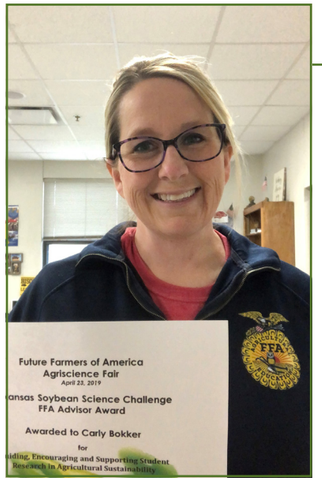
Teacher-Mentor: Ryland Ochs
Category: Plant Sciences
School: Magnolia Middle School, Magnolia, AR

Project Title: Relative thermal conductive and dissipative properties of commonly available soy products to distilled water

Abstract:
My science fair experiment was, "Which Leaf Releases the Most CO2 in Two Hours?" I did this project because I thought it would be very interesting to actually see the oxygen when it is released. This project helped me learn more about photosynthesis, and how plants release oxygen. I tested my scientific question by putting leaves in water for two hours, and then counted how many bubbles were on each leaf. The number of bubbles on the top of each leaf would tell me how much oxygen it released, so the leaf that had the most bubbles released the most oxygen.

The materials for my experiment were a camera, leaves, glass bowls, water, sunlight, rocks, and magnifying glass. My hypothesis for this experiment was that, if the Fringe flower is outside, in a bowl of water for two hours, then it will be the leaf to produce the most oxygen. I thought this, because according to research, the leaves with the smoothest and lightest texture, release the most oxygen since it can freely move through it.
The first procedure for this experiment, was to go outside and get four different types of leaves (that are a similar size) and get four rocks of the same size. Then, I got four glass bowls that were of a similar size and put a different leaf in each bowl. Next, I placed a rock on every leaf in the bowl and took all of the bowls outside into the sunlight. You should be able to go inside and keep them in the sunlight for two hours. Lastly, you have to go through on every leaf and count how many bubbles are on it (using a magnifying glass). Then record your data and take pictures. The independent variable in this experiment is the type of leaf placed in the bowl of water; the dependent variable is the number of bubbles on each leaf. Lastly, the constant in this experiment is the time that you leave the leaves in the bowl of water. An observation that I noticed was that right when you put the leaf in the water, it starts to form bubbles. My results were that the Chinese Holly released 7 bubbles, the Multiflora Rose released 18, the Alpen Rose released 22 bubbles, and the Fringe Flower released 34 bubbles.
My results show that the Fringe Flower released the most oxygen. My hypothesis was proven to be correct. If I were to repeat this experiment, I would only use soft textured leaves, since they are the leaves that release the most oxygen. There was a big difference in the number of bubbles in some of the leaves. In conclusion, I now know that every leaf releases a lot of oxygen, and if this was in only two hours, then they probably release a lot in a day!

"I was proud of the fact that Joshua put in the work that so many others are not willing to do and was successful in this Challenge. That makes me so proud of him. He is very deserving of winning this challenge"
– Ayana Patel



Alyssa Butler

Virtual FFA Arkansas State Agriscience Fair Soybean Science Challenge Winner

FFA Advisor: Carly Bokker
Category: Plant Sciences
School: Carlisle High School, Carlisle, AR

Project Title: Greenhouse host resistance rate study on soybean cultivars to southern root-knot nematode.

Abstract:
The southern root-knot nematode (Meloidogyne incognita) is one of the most important yield-limiting plant-parasitic nematodes that affect soybeans (Glycine max) in Arkansas. One of the best management tools that farmers have is host resistance; however, limited information about the host is available. The objective of this study is to evaluate host resistance to different inoculation rates of southern root-knot nematode. Plants were planted in a split plot design with a factorial arrangement of nematode inoculum rates and soybean cultivars. There were five replications per inoculum rate x soybean cultivar. Soybean cultivars that have proven resistant to root-knot nematodes (Pioneer P45A29L and Pioneer P46T59R), along with one susceptible check (Delta Grow 4880) were used to test nematode resistance and egg reproduction. Each cultivar was artificially inoculated 14 days after planting (DAP) with 10,000 and 20,000 eggs. Soybeans were rated at 48 days after inoculation, roots were processed to determine eggs per gram root, and egg reproduction was calculated. There was no inoculum rate interaction within varieties for eggs per gram of root; however, there was a cultivar interaction. One of the resistant cultivars had a significantly lower eggs per gram root at the lower inoculation rate when compared to the susceptible check at the higher inoculation rate. There was also an inoculum rate x soybean cultivar interaction for egg reproduction factor. The Liberty Link Pioneer cultivar at both inoculation rates and the Roundup Ready Pioneer cultivar at the higher inoculation rate were statistically different when compared to the lower inoculated susceptible check for egg reproduction factor. Pioneer P45A29L and Pioneer P46T59R showed to have lower egg reproduction when inoculated at higher nematode levels when compared to the susceptible check and would be good choices for farmers' fields with damaging populations of southern root-knot nematodes.

"Alyssa learned so much in her project in 2019-2020 that it was a natural fit for her to pick up another Soybean project to do. She has a passion for plant pathology and will pursue a degree in that field after graduation in May 2021."
– Carly Bokker

Hannah & Hadleigh Baker

Virtual FFA Arkansas State Agriscience Fair Soybean Science Challenge Junior Level Winners

FFA Advisor: Josh Baker
Category: Environmental Science/Natural Resource Systems
School: Mountain Home Junior High School, Mountain Home, AR

Project Title: Comparing Flavor Preferences of White-Tailed Deer to Understand Their Feeding Tendencies in Order to Improve Deer Numbers at Feeding Sites

Abstract:
Wildlife populations are an extremely vital part of the agricultural industry. For white-tailed deer, specifically, numerous humane measures are being taken to control the white-tailed deer population. While hunters may envision giant racks on their wall farmers see reduced crop yields instead. Deer eat millions of pounds of forage each day. This damage to crops in a substantial amount of ways. However, to control the population of deer in a given area, hunting is the most effective way to reduce deer inhabitants. To attract deer to a specific hunting site, feeding areas are often applied to allure deer. To entice the white-tailed deer with food, we must find out which type of corn these deer prefer. Our topic of deer corn experimentation is important to the agricultural industry because it will provide farmers with precise data that clearly represents which type of deer corn, they prefer.

In our experiment we provided different types of corn to the white-tailed deer on our farm. As we placed the different types of corn out, we aimed to identify which type of corn the deer preferred. The data that we collected would provide agriculturalists with precise information to discern which type of deer corn white tailed deer favor. Therefore, when corn is produced and distributed the people who purchase corn for their deer will be aware of what type of corn to obtain. This information reduces the inconvenience of farmers purchasing non effective deer corn. Finally, farmers will be able to effectively entice white tailed deer with the corn that they prefer to consume.

Prior to creating our deer corn experiment we were obligated to research the current data on white tailed deer corn preferences. The current data is exponentially contrasting to the results that we collected. The existing data states that white-tailed deer prefer persimmon deer corn over everything. Much like our experiment they set the control as plain deer corn and two other variables as apple and persimmon. This result was considerably unalike our experiment. The data that is currently available for this typical experiment was conducted through wide open spaces, a hunting informational site out of Texas. The existing data states that Persimmon is the most favored flavored corn by white-tailed deer. In our study Persimmon was the least favored corn out of the entire experiment. As far as the methods they used compared to ours they were extremely similar. We both created a normal feeding site and recorded the data over time. In the end, our results varied significantly. However, not only does the flavor of the corn plays a part in the corn preferences, but the location is a crucial factor. This might have been due to the location of the favored corn type. In conclusion, location and flavor are a key component to deer preferences and can alter the type of corn they choose to consume.

"Any chance we can give our students the ability to diversify and learn new aspects about agriculture is a plus, and the Soybean Science Challenge does just that." – Josh Baker

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UofA Division of Agriculture Research & Extension, University of Arkansas System

Arkansas Soybean Promotion Board

www.uaex.uada.edu/soywhatsup

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)
Diedre Young (dyoung@uada.edu)
Phone 501-671-2086

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

Soybean science challenge™

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Harvesting the potential of Arkansas' young scientists!

The GOAL of the Arkansas Soybean Science Challenge is to engage high school science students in "real-world" education to support soybean production and agricultural sustainability and to reward scientific inquiry and discovery that supports the Arkansas soybean industry.

Learn more at: www.uaex.uada.edu/soywhatsup

Funding provided by:

UofA Division of Agriculture Research & Extension, University of Arkansas System

Arkansas Soybean Promotion Board

UofA DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
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Soybean Science Challenge

funded by

ARKANSAS SOYBEAN PROMOTION BOARD

Cultivating Arkansas' student scientists to change the world