

# POSTER PRESENTATIONS

## AGRICULTURE

### Undergraduate

<b>Title:</b> Soil Moisture And Nutrient Monitoring For Irrigation And Nutrient Management		<b>Presentation ID:</b> A1 – LS
<b>Author:</b> Yassine Cherif	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Prairie View A&M University	<b>Student Level:</b> Undergraduate	
<b>Co-Authors:</b> Ripendra Awal, Ali Fares and Peter Ampim	<b>Mentor(s):</b> Ripendra Awal and Ali Fares	
<p><b>Abstract</b>  Water and nutrients can be conserved through proper irrigation scheduling based on real-time monitoring of soil water. Irrigation scheduling determine when and how much to irrigate to meet water requirements of crop and prevent nutrient leaching due to over irrigation. The aim of the current research is to optimize water and nutrient management of some vegetable crops (okra and eggplant) which are grown in the south-east Texas. The main objectives of this study are: (i) to test the performance of three types of soil water sensors in monitoring the water content in the rootzone, (ii) to understand the dynamics of soil water content in the rootzone of the test crops in order to establish site specific irrigation scheduling, and (iii) to monitor the dynamics of the soil nutrient within and below the rootzone of the test crops using suction cup lysimeters. All three types of soil water sensors are able to help in identifying and correcting over-irrigation and under-irrigation events. Monitoring of soil moisture at the rootzone of the crops helped identifying plant water uptake and excess water losses below the root zone during growing season. This work will expand to other crops grown at the University Farm of PVAMU.</p>		

<b>Title:</b> Multi-Rotor Adaptation Towards Agriculture And Engineering		<b>Presentation ID:</b> A2 – LS
<b>Author:</b> Daniel Gonzalez	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Corpus Christi	<b>Student Level:</b> Undergraduate	
<b>Co-Authors:</b>	<b>Mentor(s):</b> Professor Jinha Jung Ph.D.	
<p><b>Abstract</b>  Drone technology is undeniably the modern day solution to challenging tasks in areas pertaining to Agriculture, Engineering, Medicine, Fire and Rescue among other fields. The implementation of this technology is especially important in tasks that require beyond human capabilities. This abstract will describe the methods of adapting a multi- rotor aircraft to the respective field: Agriculture mapping and Structure Surveying.</p> <p>Agriculture mapping requires the use of two high-resolution cameras in order to reproduce a detailed, digital reconstruction of a field. In this project, a “3DR X8+” multi- rotor aircraft will carry out the task. This platform has been redesigned with the use of three-dimensional printing, extending its capabilities in order to carry the required equipment, while retaining the original features of the aircraft. The solution was a mount, designed in CAD, that includes a bay for the on-board battery, the proper mounts for two cameras, and a compartment for the shutter control board and electronics, all which were custom made as part of the design.</p> <p>The design and adaptation process is not simple. The process begins with the calculation of forces that the airframe will be subject to. This information is taken into account during the design stage, in conjunction with the material characteristics in order to determine the correct configuration of the new design. The goal is to create a strong and lightweight device, capable of handling highly sensitive equipment, safely.</p>		

<b>Title:</b> Forage Analysis For Accurate Representation Of Pastures		<b>Presentation ID:</b> A3 – LS
<b>Author:</b> Clarissa Guerrero	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Kingsville	<b>Student Level:</b> Undergraduate	
<b>Co-Authors:</b> Clarissa Guerrero	<b>Mentor(s):</b> Dr. McCuiston	
<p><b>Abstract</b>  Forage analysis is used to provide an assessment of the quality of forage based on the chemical composition to aid in the supplementation of livestock during the months when high quality forage is least available. Forage collections require sampling the whole pasture to retrieve an accurate representation of the pasture. However, it is still unknown how many samples are needed to exactly characterize a pasture. Thus, the purpose of this study was to effectively optimize time spent collecting forage samples by determining the number of samples needed per acre. The objective was to identify the forage quality within a pasture, between pastures, and, samples excluded from or subjected to grazing over time. The months of March and November were chosen because these are considered “transitional months” where forage quality is the most variable due to season transitions. The samples from March 2013 and 2014 and November 2012 and 2013 were evaluated for forage quality through chemical analysis, including Dry Matter (DM), Neutral Detergent Fiber (NDF), Acid Detergent Fiber (ADF) and Crude Protein (CP). The results of this research were to specify the number of forage samples that should be collected per pasture to accurately represent forage quality on 583 and 352 acre pastures. The outcomes of this study are useful for ranchers and scientists in the field who choose to determine pasture forage quality.</p>		

<b>Title:</b> Study The Impact Of Drought On Groundwater Storage In The State Of Texas		<b>Presentation ID:</b> A4 – LS
<b>Author:</b> Jasmine Hayes	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Prairie View A&M University	<b>Student Level:</b> Undergraduate	
<b>Co-Authors:</b> Ram Ray and Ali Fares	<b>Mentor(s):</b> Ali Fares and Ram Ray	
<p><b>Abstract</b>  It is easy to observe the impact of drought on surface water through reduced levels of water in lakes and reservoirs whereas it is not obvious to see its impact on groundwater because aquifers are hidden from the sight. Unlike the effects of a drought on streamflows, groundwater levels in wells may not reflect a shortage of rainfall for a year or more after a drought begins. However, excessive groundwater pumping is common during the drought to meet the water demands. Study the impact of drought on groundwater is essential for the state of Texas’s water management and planning. The main goal of this study is to investigate the impact of prolonged periods of drought on groundwater in Texas. Specifically, this work reports on groundwater level depletion and recovery of two selected major aquifers; Carrizo and Seymour aquifers, located at south and north in Texas, respectively. Results show the aquifers recovery never reached to the level prior to its 2011 state because of continuous drought until 2014 and increased number of new groundwater wells and rate of pumping. The possible cause for delay in recovery is lack of a longer period of sustained greater than average precipitation to recharge aquifers.</p>		

<b>Title:</b> Irrigation Water Needs For Turf Grass Across Harris County		<b>Presentation ID:</b> A5 – LS
<b>Author:</b> Devontey Lee	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Prairie View A&M University	<b>Student Level:</b> Undergraduate	
<b>Co-Authors:</b> Ripendra Awal and Ali Fares	<b>Mentor(s):</b> Ripendra Awal and Ali Fares	
<p><b>Abstract</b>  Harris County is one of the most populated county in the US. About 30% of domestic water use is for outdoor activities especially landscape irrigation and gardening. Optimum landscape and garden irrigation contributes to substantial water saving and energy saving and consequently reduction of CO2 emission into the atmosphere. Thus, the objectives of this work are i) to calculate site specific turf grass irrigation water requirement across Harris County; ii) calculate CO2 emission reduction, and water and energy savings across the county if optimum</p>		

turf grass irrigation is adopted. The Irrigation Management System (IManSys) was used with site specific soil hydrological data, turf crop water uptake parameters (root distribution and crop coefficient), and daily rainfall and potential evapotranspiration to calculate irrigation water demand across Harris county. IManSys outputs include irrigation requirements (IWRs), runoff, and drainage below the root system. Savings in turf IWRs and energy and their corresponding reduction in CO<sub>2</sub> emission were calculated. Irrigation water requirements decreased as one would move across the county from its North-West to its South-East corners. However, the opposite happened for the runoff and excess drainage below the rootzone along the same direction. The main reason for this variability is due to the combining effect of rainfall, potential evapotranspiration and soil types.

<b>Title:</b> Fermentation Of Simulated Lignocellulosic Hydrolysates Using Mixtures Of Authentic Pentose And Hexose Sugars		<b>Presentation ID:</b> A6 – LS
<b>Author:</b> Jaron Mackey	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Prairie View A&M University	<b>Student Level:</b> Undergraduate	
<b>Co-Authors:</b> Bruna Menezes, Abdoul Zampaligre, Mercy Ampaw-Asiedu and Jaycelyn Jefferson	<b>Mentor(s):</b> Dr. Michael Gyamerah	
<p><b>Abstract</b>  Renewable biofuels are gaining increased attention as an alternative to fossil fuels as a result of rising crude oil prices, depletion of resources and the potential for CO<sub>2</sub> neutral production in abating global warming. Among these alternative renewable energy sources is the production of bioethanol to increase biofuel availability. The objectives of the study were to quantify cell growth and the optimal media for recombinant <i>Zymomonas mobilis</i> AX101 that coferments glucose, xylose, and arabinose in batch fermentation using simulated lignocellulosic hydrolysates for production of fuel ethanol. The first phase of the study quantified the cell dry weight of <i>Z. mobilis</i> during cell growth. Cell dry weight was found to correlate linearly with optical density (OD) from 0 to 0.7 at a wavelength of at 600 nm. The second phase of the study examined the ethanol production capabilities of engineered <i>Zymomonas mobilis</i> in variable media composition over 48 hours using Ion Chromatography.</p>		

<b>Title:</b> Irrigation Water Requirements For Different Crops In Prairie View Texas		<b>Presentation ID:</b> A7 -- LS
<b>Author:</b> Michelle Mbia	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Prairie View A&M University	<b>Student Level:</b> Undergraduate	
<b>Co-Authors:</b> Ripendra Awal, Haimanote Bayabil and Ali Fares	<b>Mentor(s):</b> Professor Ali Fares, Ripendra Awal and Haimanote Bayabil	
<p><b>Abstract</b>  Different crops have distinct growth processes and thus have different water requirements. Another factor that affects crop irrigation water requirements is rainfall distribution and amount. In this study, we assessed effects of crop type (Cotton, Corn, Sorghum, Winter wheat, Soybean, and Peanut) and rainfall distribution and amount on irrigation water requirement at Prairie View, Texas. We used the Irrigation Management System (IManSys) model to calculate irrigation water requirement, runoff, drainage, canopy interception, and effective rainfall based on plant growth parameters, soil properties, irrigation system, and long-term daily weather data (rain and evapotranspiration). Planting date, harvesting date, and growing season for each crop were selected for Prairie View. Sorghum has the lowest irrigation water requirement among the selected crops. Whereas Cotton water requirements was the highest. Runoff, drainage, and canopy interception varied across crop types. Further study on water use and returns from different crops will help to identify best cropping rotations and management practices at Prairie View.</p>		

<b>Title:</b> Nitrogen And Carbon Yield Of Annual Warm-Season Legumes		<b>Presentation ID:</b> A8 – LS
<b>Author:</b> Monica Perez	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Corpus Christi	<b>Student Level:</b> Undergraduate	
<b>Co-Authors:</b> Jamie Foster and Jim Muir	<b>Mentor(s):</b> Jamie Foster	
<p><b>Abstract</b>  Annual warm-season legumes provide grazing and browse for livestock and wildlife, soil stabilization, and bioenergy production. Legumes used for these purposes require no inorganic nitrogen fertilizer input because of their symbiotic relationship with rhizobia. There is a wide variety of warm-season annual legumes and it is important to understand their adaptation to various environmental and soil environments. This completely randomized block design experiment evaluated 15 annual warm-season legumes in two environments (Beeville and Stephenville, TX) in two years for their herbage mass, and carbon and nitrogen yields. Subplots were harvest frequency and a portion of the plot was harvested at the end of the growing season or every 30 days. Plots were 6 × 6 m with a 2 m border around plots, the inner 0.25 m<sup>2</sup> was harvested to 10-cm stubble height and processed to determine herbage mass and for lab analyses. At both locations, the greatest yielding legumes for both years were Kauffman croatalaria (<i>Crotalaria juncea</i>; 13,000 kg ha<sup>-1</sup>) and Tropic Sun croatalaria (13,100 kg ha<sup>-1</sup>) harvested at the end of the season. Nitrogen and carbon concentrations did not differ, so the nitrogen and carbon yields were greatest for these croatalaria species. Rio Verde and Tecomate lablab (<i>Lablab purpureus</i>), Iron and Clay and Red Ripper cowpeas (<i>Vigna unguiculata</i>) were also well adapted to both locations. These annual warm-season legumes have potential to provide biomass for livestock and bioenergy in both south and northcentral Texas.</p>		

<b>Title:</b> UAS-Derived NDVI Measure Of Sorghum Yield		<b>Presentation ID:</b> A9 – LS
<b>Author:</b> Carly Stanton	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Corpus Christi	<b>Student Level:</b> Undergraduate	
<b>Co-Authors:</b> Keith Fuhrmann	<b>Mentor(s):</b> Michael Starek and Michael Brewer	
<p><b>Abstract</b>  A small, fixed-wing unmanned aircraft system (UAS) was used to survey crop fields being used for an experiment on economic spray thresholds for sugarcane aphids (a type of insect). Equipped with a near-infrared camera, the UAS was flown on a recurring basis over the summer 2015 growing season. The raw imagery was processed to generate Normalized Difference Vegetation Index (NDVI) maps of the fields. NDVI is commonly used to identify crop stress with higher values being associated with healthier plants due to a stronger near-infrared response. The focus of the data analysis and hypothesis was that higher NDVI values obtained mid-season would correlate with higher grain yield; similarly, lower NDVI values would indicate lower yielding crops.</p> <p>NDVI values were averaged on a per plot basis for three separate flights, two flown mid-season and a third flown close to harvest. Two varieties of sorghum, one aphid-resistant and one aphid-susceptible, were used for statistical analysis. NDVI values for each flight were compared to per-plot yield at 14% moisture. Regression models confirmed that a statistically significant positive correlation exists between mid-season NDVI values. This correlation suggests UAS-derived NDVI measures serve as useful measures for identifying stressed areas and improving crop yield.</p>		

<b>Title:</b> Glycolysis And TCA Cycle In Domesticated Exotic Animals		<b>Presentation ID:</b> A10 – LS
<b>Author:</b> Cayla Steemer	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Prairie View A&M University	<b>Student Level:</b> Undergraduate	
<b>Co-Authors:</b> Ripendra Awal, Ali Fares and Peter Ampim	<b>Mentor(s):</b> Dr. Gloria Regisford	
<p><b>Abstract</b>  Gene Ontology (GO) is a major bioinformatics initiative whereby descriptions of gene products across the database can be unified. With Gene Ontology (GO), a controlled vocabulary can be developed to describe all species. To have a better understanding of Gene Ontology, we must understand that it is a process formed using biocuration by other scientist. Biocuration is essentially translating biological information from scientific literature into a database. Biocurators gather, annotate and validate information on the databases, consequently affording easy access to accurate and updated data. In this study, we investigated the biocuration of two important biological processes, Glycolysis and the Tricarboxylic Acid cycle (TCA) or Citric Acid Cycle that occur in all domesticated animals. Our objective was to determine the number of domesticated exotic animals, in which glycolysis and the TCA cycle are annotated. We hypothesized that because these two processes of cellular respiration, glycolysis and the TCA cycle, are so important, there would be annotations on all domesticated animals. The National Center of Biotechnology Information (NCBI) was first accessed to retrieve the taxonomy ID for all domesticated species. Then the European Bioinformatics Institute (EBI) database, QuickGO was accessed to retrieve all annotations associated with the taxonomy ID of the species. The Gene Ontology (GO) term for Glycolysis (GO:0006096) and the TCA cycle (GO:0006099). Our results indicate that only 6 of the 16 domesticated exotic species studied had annotations for glycolysis, and only 4 had annotations on the TCA cycle.</p>		

<b>Title:</b> Effects Of Equine Appeasing Pheromone On Physiological Coping Mechanisms During Temporary Separation Of Equine Preferred Partners		<b>Presentation ID:</b> A11 – LS
<b>Author:</b> Hannah Wilson	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Commerce	<b>Student Level:</b> Undergraduate	
<b>Co-Authors:</b>	<b>Mentor(s):</b> Petra Collyer	
<p><b>Abstract</b>  Anxiety, more specifically separation anxiety in horses is a common problem in the equine community and can cause both physiological and psychological harm. With todays horses' being kept in more unnatural living conditions, the modern domesticated equine is experiencing many challenges that horses before them have not. Because of this, finding various ways to limit stressors whenever possible would prove beneficial to every horse's well-being. This study examines the effect of Confidence EQ® (Ceva, Lenexa, KS), an equine appeasing pheromone, as an anti-anxiety aid on 8 pairs of closely bonded horses during separation. Following a Latin Square design, each pair is subjected to randomized separation between stable and pasture with either the pheromone or a placebo. Physiological stress levels are assessed with heart rate monitors (Polar Electro Inc, Lake Success NY) for heartbeats per minute and heart rate variability. The hypothalamic-pituitary axis is assessed for salivary cortisol levels, taken with a sublingual swab periodically throughout the assessment, and evaluated with an ELISA (Salimetrics, Carlsbad, CA). Equine Behavior is videotaped throughout the periods of separation, and evaluated through an ethogram. This study is in progress, and presents preliminary data about physiological effects of separation in preferred equine partners.</p>		

<b>Title:</b> Extraction And Characterization Of Switch Grass And Alfalfa As Potential Feed Stocks For Biodiesel Production		<b>Presentation ID:</b> A12 – LS
<b>Author:</b> Abdoul Zampaligre		<b>Discipline:</b> Agriculture
<b>Campus:</b> Prairie View A&M University		<b>Student Level:</b> Undergraduate
<b>Co-Authors:</b> Kemi Animashaun, Caren Sims and Dr. Michael Gyamerah		<b>Mentor(s):</b> Dr. Michael Gyamerah
<p><b>Abstract</b></p> <p>Biodiesel derived from renewable feedstock has received increased interest, in recent times, as an alternative to fossil fuels due to declining reserves and the global pressure to reduce greenhouse gas emissions. Renewable feedstocks such as switch grass (<i>Panicum virgatum</i>) and alfalfa (<i>Medicago sativa</i>) have been investigated as feasible feedstocks for bioethanol and bio-oil production by fermentation and fast pyrolysis respectively. However seeds of switchgrass and alfalfa have not been studied as a source of triglycerides for the production of biodiesel. The research conducted compares switch grass and alfalfa for the purpose of ascertaining their potential for biodiesel production through extraction and characterization of their triglycerides. Oil yields from switch grass were 6.6% wt. and alfalfa yields were 9.7 % wt., which shows alfalfa oil yields are 50% greater than that of switch grass. The GC-MS analysis of the triglycerides show that between 99.2-100% of triglycerides in switchgrass and alfalfa are the same as the triglycerides found in edible vegetable oils. The results indicate that triglycerides from seeds of switch grass and alfalfa could serve as substitutes for edible oils in the production of biodiesel.</p>		

## Master's

<b>Title:</b> Leptin Rescues Corpora Luteal Development In Leptin Deficient Conditions		<b>Presentation ID:</b> B1 – LS
<b>Author:</b> Adrian Arellano	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Kingsville	<b>Student Level:</b> Master's	
<b>Co-Authors:</b> AA Arellano, MA Ramirez, A Calderon, L Ayala, RA Flores, RL Stanko and MR Garcia, DH Keisler	<b>Mentor(s):</b> MR Garcia	
<p><b>Abstract</b>            Improper vascularization of the corpus luteum (CL) has been implicated in the loss of a conceptus. Luteal angiogenic factors are regulated by leptin in a developing CL and luteal leptin deficiency alters morphological development. Therefore, it is hypothesized that leptin replacement therapy will rescue the development of a leptin deficient ovary. Ten cycling crossbred does of similar age were randomly allocated to one of four treatment groups: Control [C; saline in 2.5U heparin (vehicle) only; n=2], rabbit anti-leptin antibody + saline [ALS; AL antibody (1:10 dilution) in vehicle + vehicle only; n=3], saline + leptin [SL; vehicle + leptin (1ug, ovine leptin) in vehicle; n=2], and rabbit anti-leptin antibody + leptin (ALL; in vehicle; n=3). At estrus (D0), an osmotic infusion pump-catheter apparatus was surgically inserted in apposition to the convoluted ovarian artery and removed for CL collection and analysis on D7. Corpora lutea in the ALL treatment group were significantly smaller (P&lt;0.05) and the fluid-filled cavity was smaller (P&lt;0.05) in the ALL treatment group compared to all other treatments. Luteal vasculature was greatest (P&lt;0.05) in ALL CL. Serum leptin and progesterone did not differ among treatment groups. Leptin appears to accelerate luteal development, but only in leptin deficient lutea.</p>		

<b>Title:</b> Empirical Analysis Of The Relationship Between Feeder Cattle Futures Price And Cash Prices In North East Texas		<b>Presentation ID:</b> B2 – LS
<b>Author:</b> Taiwo Bankole	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Commerce	<b>Student Level:</b> Master's	
<b>Co-Authors:</b> Rafael Bahktavoryan, Jacqueline Warhmund and Jose Lopez	<b>Mentor(s):</b> Rafael Bahktavoryan and Jose Lopez	
<p><b>Abstract</b>            The present study was carried out in an attempt to empirically examine the relationship between feeder cattle cash price and futures price. To that end a multiple regression model was estimated using the data from the Northeast Texas Beef Improvement Organization at the Sulphur Springs Livestock Auction. The data collected contained information on feeder cattle cash price, weight, number of heads, and gender of feeder cattle sold. The corresponding feeder cattle futures prices were obtained from the Chicago Mercantile Exchange website. The multiple regression results showed that the coefficient of the futures price was statistically insignificant implying that there was no relationship between the cash price and futures price of feeder cattle. At the same time, the regression results revealed that both weight and gender had a statistically significant impact on the cash price of feeder cattle. Finally, the coefficient for the number of heads sold was found to be statistically insignificant.            Key words: feeder cattle, cash price, futures price, regression analysis</p>		

<b>Title:</b> Regulation Of Luteal Leptin And Vessel Formation In The Early Caprine Corpus Luteum		<b>Presentation ID:</b> B3 – LS
<b>Author:</b> Alexandra Calderon	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Kingsville	<b>Student Level:</b> Master's	
<b>Co-Authors:</b> A. Calderon, R.A. Flores, A.A. Arellano, L. Ayala, V. Garza, R.L. Stanko and M.R. Garcia	<b>Mentor(s):</b> Michelle R. Garcia	
<p><b>Abstract</b>  Infertility issues in women may be attributed to improper vascularization of the corpus luteum (CL). Leptin, a potent satiety hormone, has been reported to play a role in the vascularization process of a developing CL. Luteinizing hormone (LH) is the factor that luteinizes the ovulatory follicle and influences leptin expression in follicular cells. Therefore, it was hypothesized that leptin regulates vascular formation, which may be mediated by LH and progesterone. Seven mature crossbred (Boer X Spanish) caprine females were utilized. Ovaries were collected on Day 3 of the estrous cycle and CLs were harvested for cell culture with ovine LH (0, -11,-10,-9,-8,-7 IU/mg) or mifepristone (0,-9,-8,-7,-6,-5M). Ovine LH appears to increase leptin expression; however, the difference was not significant (<math>P &gt; 0.1</math>). Blocking progesterone tended to increase (<math>P &lt; 0.1</math>) leptin expression. Preliminary collagen gel culture data reveals a potential (<math>P = 0.1</math>) in verse correlation between tube diameter and total number of tubes in response to leptin treatment. Collectively the data suggest that LH may influence leptin expression, while blocking progesterone action may decrease leptin expression in early luteal development. Furthermore leptin gel data suggest that leptin may be involved in the regulation of vessel formation.</p>		

<b>Title:</b> Impacts Of Eagle Ford Shale Exploration On Quail Habitat Use And Abundance		<b>Presentation ID:</b> B4 – LS
<b>Author:</b> Kelsey Davis	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Kingsville	<b>Student Level:</b> Master's	
<b>Co-Authors:</b>	<b>Mentor(s):</b> Dr. Eric Grahmann	
<p><b>Abstract</b>  The northern bobwhite (<i>Colinus virginianus</i>) and scaled quail (<i>Callipepla squamata</i>) have been declining across their ranges for decades due to habitat loss. South Texas is considered to be one of the last remaining strongholds for quail populations in the US. However, the recent and rapid development of the Eagle Ford Shale in this region has the potential to negatively impact quail and their habitat. The objective of this study is to determine how bobwhites and scaled quail respond to localized oil-and-gas disturbance. Our study will take place on 2 private ranches located in Dimmit and Maverick counties. We will compare space use, survival, nest success, site fidelity, and abundance of bobwhites and scaled quail between 2 areas along an oil-and-gas exploration corridor (treatment) and 2 corridors where no exploration activities have occurred (control). Metrics of quail habitat use and population ecology will be collected using radio-telemetry. Traffic rates, noise levels, and plant communities also will be measured and compared between treatments. This research is important as exploration activities from the Eagle Ford Shale are expected to impact more than 5 million hectares within some of the last un-fragmented quail habitat in the US.</p>		

<b>Title:</b> Evaluation Of OR-079 With Ridomil For Efficacy In Treatment Of Phytophthora In Citrus		<b>Presentation ID:</b> B5 – LS
<b>Author:</b> Perla Duberney	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Kingsville	<b>Student Level:</b> Master's	
<b>Co-Authors:</b> Dr. Veronica Ancona	<b>Mentor(s):</b> Dr. Veronica Ancona	
<p><b>Abstract</b>  Foot rot, caused by <i>Phytophthora nicotianae</i>, is a very important disease affecting citrus production in South Texas. <i>P. nicotianae</i> infects feeder roots and the trunk of citrus trees causing poor water and nutrient uptake leading to yield loss, fruit size reduction, tree decline and eventually tree death. Effective treatments for</p>		



Phytophthora diseases are limited; therefore, optimization of available products is of great importance. We hypothesize that the effectiveness of Ridomil in reducing *P. nicotianae* soil propagules can be increased when applied together with the soil conditioner OR-079. To test if OR-079 increases the effectiveness of Ridomil we treated mature grapefruit trees with history of Phytophthora infection with Ridomil, OR-079, Ridomil plus OR-079, and untreated control. Phytophthora counts present in the soil were evaluated 4 weeks after treatment using standardized methods. Results show that trees treated with Ridomil had a decrease in the number of Phytophthora propagules when compared to the non-treated control. Surprisingly, OR-079 had a suppression effect on Phytophthora counts as well. Treatment with full rate of both products did not increase the suppression of Phytophthora in the soil. These preliminary results suggest that OR-079 does not increase in the effectiveness of Ridomil.

<b>Title:</b> Equine Physiological Responses To Competitive Barrel Racing		<b>Presentation ID:</b> B6 – LS
<b>Author:</b> Brooke Harris	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Commerce	<b>Student Level:</b> Master's	
<b>Co-Authors:</b>	<b>Mentor(s):</b> Dr. Petra Collyer	
<p><b>Abstract</b>            Previous studies in English Dressage and Jumping horses reveal significant differences of physiological parameters between training and competition settings. This discrepancy can be interpreted as the physiological stress response, which this experiment attempts to validate through collecting physiological exercise as well as stress parameters in rodeo horses during practice and competitive sessions. Six starter and six experienced barrel racing horses are accompanied during the period of their preparatory training regimen in order to evaluate the behavior and physiological stress symptoms between the familiar, and finally the competitive environment. Multiple training sessions will be compared with one or more rodeo events. This study aims to shed light on the degree of habituation of horses during competition, and elucidate the degree of equine distress in competitive settings. Standard methods of exercise and stress parameter data collection are used: Salivary cortisol, heart rate monitors, and plasma glucose and lactate monitors. Equine behavior is videographed and evaluated via ethograms. Baseline parameters are established prior to practice sessions, and data is collected at practice and competition thereafter. We present exercise physiological data in barrel horses with preliminary findings and an interpretation of the equine stress response in barrel horses in different settings.</p>		

<b>Title:</b> A Comparison & Contrast Of Celosia Species In The U.S. & Nigeria		<b>Presentation ID:</b> B7 – LS
<b>Author:</b> Olukunle Kolade	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Commerce	<b>Student Level:</b> Master's	
<b>Co-Authors:</b>	<b>Mentor(s):</b> Dr Jose Lopez	
<p><b>Abstract</b>            Celosia is known for its ability to survive in various soil conditions and weather. Celosia species are vegetable plants grown in the garden, and also considered as weed in some parts of the world. They are identified by their terminal flowers, scaly, silvery to purple in colour, 0.5 - 1.5 metres tall when matured. They are widely grown as one of the important vegetables in Nigeria, most especially, at the south western states where there are dry and wet seasons. They are grown with irrigation during the dry season. Celosias do well in the United State with warm weather, mostly in the summer. It takes about 90 days to flower. The weather difference in Nigeria and United State has made a difference in the growth condition of Celosia in both countries. During cold winter in the United State, Celosia is grown indoor by starting the seeds indoors four to six weeks before the last frost date with provision of warm place until the seed germinates. Celosia argentea enjoys wide range of soil for germination, but most productive on soils rich in organic matter. Celosia can do well in soil of little nutrient e.g. low level of zinc (micro-nutrient) found in leached sandy soil. Celosia has the ability of surviving with very low rate of micro-nutrient or its deficiency. This study will compare and contrast the Celosia establishment, growth conditions, and consumer uses in the U.S. and Nigeria. The study will create awareness of species in the U.S.</p>		

<b>Title:</b> Invasive Old World Bluestem Management Techniques To Restore Native Grasslands		<b>Presentation ID:</b> B8 – LS
<b>Author:</b> Meagan Lesak	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Kingsville	<b>Student Level:</b> Master's	
<b>Co-Authors:</b> Megan K. Clayton and Trent Teinert	<b>Mentor(s):</b> Jamie L. Foster and Kimberly C. McCuiston	
<p><b>Abstract</b>  Old World Bluestems (<i>Dichanthium annulatum</i> and <i>Bothriochloa ischaemum</i>; OWB) are classified as invasive plant species that are encroaching native rangelands in Texas. Historically, OWB were planted for grazing and erosion control; however, they provide poor quality wildlife habitat and livestock forage. Currently, no individual control method has proven to effectively manage OWB. Therefore, the objective of this study was to evaluate combinations of treatment methods to manage these invasive grasses. We used primary (summer fire, glyphosate, or nicosulfuron + metasulfuron methyl, and control) followed by secondary treatments (plowing, mowing, plowing + reseeding with a native mixture, or fertilizer, and a control) in a factorial design (4 × 5) to integrate multiple management practices and determine the most effective treatment combination. The experiment was conducted at three different sites, in two counties, representing different soil types and climatic conditions in south Texas. Cover and botanical composition of plots and yield of OWB were estimated bimonthly over 2 years to determine which treatment combinations were the most effective. Cover was initially decreased by treatments, but after 16 mo only primary treatments followed by plowing, mowing, or plowing + seeding had decreased (<math>P &lt; 0.05</math>) cover. After 16 mo, total herbage mass (<math>\text{kg ha}^{-1}</math>) and OWB (% of cover) declined (<math>P &lt; 0.05</math>) with primary treatments followed by plowing or plowing + reseeding. After 16 mo of observation, OWB is best controlled with these primary treatments followed by plowing. Alternative management practices which control OWB without destroying other native plant species are necessary.</p>		

<b>Title:</b> Mycotoxin Management In Maize ( <i>Zea Mays</i> (L.)) Damaged By Lepidopteran Insect Pests		<b>Presentation ID:</b> B9 – LS
<b>Author:</b> Dennis Mays	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Kingsville	<b>Student Level:</b> Master's	
<b>Co-Authors:</b>	<b>Mentor(s):</b> Greta Schuster, Mamoudou Setamou and Patrick Porter	
<p><b>Abstract</b>  Mycotoxins pose animal health risks and reduce grain marketability. Lepidopteran damage on corn causes injury, which facilitates fungal infection through fungal spore development. Atoxigenic strains of <i>Aspergillus flavus</i> can reduce contamination of aflatoxin and fumonisin. This study was initiated to evaluate optimal timing of AF-36 and Alfa-Guard® in relationship to insect activity. Treatments included no insect control (UTC), insect control, and application of both products at V8 and VT. Insect damage to the whole ear was statistically lower in the insect control than the control (<math>P &lt; 0.05</math>). Insect damage (<math>\text{cm squared}</math>) on the upper ear (<math>P = 0.032</math>) and lower ear (<math>P = 0.157</math>) were 52–91% lower for the insect control plots. Fumonisin was significantly lower in the insect control than the untreated control (<math>P &lt; 0.05</math>). We found no statistical difference in aflatoxin concentrations (ppb) among any treatment (<math>P = 0.375</math>); however, aflatoxin concentrations of insect control and AF-36 V8 were 21% lower than control.</p>		

<b>Title:</b> Associations Between Weather Conditions And Morbidity And Mortality In Beef Calves During The First 60 Days After Feedlot Arrival		<b>Presentation ID:</b> B10 – LS
<b>Author:</b> Sushil Paudyal	<b>Discipline:</b> Agriculture	
<b>Campus:</b> West Texas A&M University	<b>Student Level:</b> Master's	
<b>Co-Authors:</b>	<b>Mentor(s):</b> John T. Richeson, Samuel E. Ives, Tanya L. Covey and Pablo J. Pinedo	
<p><b>Abstract</b>  Cattle sickness and mortality are causes of substantial loss for US feedlots and represent animal welfare concerns.</p>		

The objective of our study was to determine if daily morbidity and mortality for commercial feedlot cattle during first 60 days on feed were associated with weather conditions at the same or the previous day. A total of 500 beef calves were enrolled in 5 groups facing different weather conditions. Health events were recorded by health personnel in the feedyard and weather information was collected from a weather station located in the research center. The results showed that morbidity was significantly associated with highest temperature of day (P=0.01), highest heat index of day (P=0.002), average THW index of day (P=0.02) and total daily rainfall (P=0.02) whereas mortality was associated with lowest wind chill temperature of the day (P=0.04). Similarly, analysis of the previous day weather suggested that morbidity tended to be associated with lowest temperature (P=0.09) whereas mortality can be associated with highest temperature (P=0.08), lowest temperature (P=0.008), highest wind speed (P=0.009), and lowest wind chill temperature (P=0.003) on the previous day. Thus we conclude that weather variables were associated with morbidity and mortality of the beef cattle during the early feeding period.

<b>Title:</b> Northern Bobwhites And Woody Cover In The Edwards Plateau		<b>Presentation ID:</b> B11 – LS
<b>Author:</b> Joshua Pearson	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Kingsville	<b>Student Level:</b> Master's	
<b>Co-Authors:</b> Dr. Tim Fulbright and Chad Markert	<b>Mentor(s):</b> Dr. Eric Grahmann and Dr. Fidel Hernandez	
<p><b>Abstract</b>  Northern bobwhite (<i>Colinus virginianus</i>) populations have declined substantially within the Edwards Plateau. Although the proximate cause(s) of this decline is unknown, it has been suggested that decades of excessive herbivory via livestock and native and exotic wildlife have been detrimental to bobwhites within this region. One feature of bobwhite habitat, woody cover, may be suppressed in areas where browsing remains high. Bobwhites require low-growing woody plants for thermal and escape cover. Furthermore, understanding how woody cover should be interspersed across the landscape may be critical in restoring bobwhites across the region. In 2014, we initiated a study in Real County, TX to determine what habitat components were most important in providing occupancy of bobwhites across a ranch recovering from decades of over-abundant livestock, exotic game, and white-tailed deer. We trapped and radio-marked bobwhites across 3 different plant communities with varying amounts of woody cover and tracked these birds 2-3 times/week and marked their locations via GPS. We will run a proximity analysis of bobwhite locations to woody cover and compare this data to the proximity of randomly generated points to delineated woody plants across 3 areas with varying amounts of woody cover.. Determining bobwhite selection of interspersed patches of woody cover will aid managers in planning brush management and restoration within the Edwards Plateau.</p>		

<b>Title:</b> An Analysis Of The Global Vegetable Market Including: Tomatoes, Carrots, Cauliflower, Celery, Lettuce, Onions, Radishes, Spinach And Pre-Cut Fresh Salad Mixes		<b>Presentation ID:</b> B12 – LS
<b>Author:</b> Jared Peckham	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Commerce	<b>Student Level:</b> Master's	
<b>Co-Authors:</b> Jose A. Lopez	<b>Mentor(s):</b> Jose A. Lopez	
<p><b>Abstract</b>  This study provides an in-depth analysis of the global vegetable market using a demand system approach. The study analyzes relevant data sets from the Food and Agriculture Organization of the United Nations Statistics Division (FAOSTAT). Unlike previous studies, the analysis presented considers a greater diversity of vegetables (carrots, cauliflowers, lettuce, onions, spinach and tomatoes) and data that spans from 1961 to the present. The study reports the world total as well as the ten largest producing, importing, exporting and consuming countries. Since 1961 world vegetable consumption has steadily increased annually 3.24 % compared to world production which increased 9.29 % annually. China and India consume more vegetables than any other country while both Iran and China have the fastest growing domestic consumption. Tomatoes represent the largest annual world production volume with an average share of 62% followed by carrots (13 %), lettuce (10%), cauliflower (8%), spinach (6%) and onions (2 %). All vegetables had production growth ranging from 5.31% to 13.16% from 1961-</p>		

2014. China produces the majority of carrots, and along with Russia and Germany, they are increasing the fastest while the USA and Japan have declined. Generally vegetable imports and exports are increasing with the bulk being tomatoes and onions. Germany, Russia, USA, UK, Belgium, France and Canada import the most while the Netherlands and Spain export more than Turkey, China, Mexico and India which are rapidly increasing. Market trend information is invaluable to producers and investors who anticipate sells to retailers, farmers' markets and food service providers.

<b>Title:</b> Anthelmintic Resistance And The Use Of Diatomaceous Earths An Alternative Anthelmintic In E. Caballus		<b>Presentation ID:</b> C1 – LS
<b>Author:</b> Brandy Spoor	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Commerce	<b>Student Level:</b> Master's	
<b>Co-Authors:</b>	<b>Mentor(s):</b> Dr. Petra Collyer	
<p><b>Abstract</b>  Equine intestinal parasites cause various ailments ranging from chronic weight loss to colic to death. Conventional rotational worming techniques build parasitic resistance, and anthelmintic inefficacy can vary geographically depending on management practices. As a result of growing resistance some owners have turned to diatomaceous earth (DE) as an alternative anthelmintic. The study objectives were to elucidate the level of parasite resistance to ivermectin, and validate DE as an alternative anthelmintic in horses. Fifty-one horses were examined weekly for 8 weeks using the Modified McMaster Technique (sensitivity = 25 eggs/g of feces) after initial treatment with ivermectin. The fecal egg count reduction (FECR) test revealed 100% efficacy of ivermectin in all horses against strongyles. An egg reappearance period (ERP) of six weeks was observed, which indicates developing resistance of parasites to ivermectin in the TAMUC equine herd. Twenty -one horses completed the DE study subsequently, with ten horses receiving the recommended 1.5 cups of DE daily. Fecal samples were collected weekly and analyzed with the McMasters Technique. The data demonstrate no significant egg count reduction, thus DE should not be considered an anthelmintic. Further, our data demonstrate the importance of targeted anthelmintic treatments through visualization of individual horses' responses to ivermectin.</p>		

<b>Title:</b> Nutritional Quality Of Young Citrus Flush Shoots Influences Asian Citrus Psyllid Population Densities		<b>Presentation ID:</b> C2 – LS
<b>Author:</b> Srilakshmi Telagamsetty	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University – Kingsville	<b>Student Level:</b> Master's	
<b>Co-Authors:</b>	<b>Mentor(s):</b> Dr. Ctherine Simpson, Dr. Shad D Nelson and Dr. Mamoudou Setamou	
<p><b>Abstract</b>  Asian Citrus Psyllid (ACP) <i>Diaphornia citri</i> Kuwayama, 1908 (Hemiptera: Liviidae) is a phytophagous pest of citrus. While feeding exclusively on young expanding flush shoots plant tissues they transmit the phloem inhibiting bacterium <i>Candidatus Liberibacter asiaticus</i>, causal pathogen of the citrus greening disease or Huanglongbing (HLB). Presently there is no cure for the disease, however, vector control plays a very important role in the management reduces the spread of HLB. Understanding the nutritional ecology of a pest is very effective in controlling the pest population. In this study, flush shoots of citrus at different growth stages were analyzed for their nutritional composition. The juvenile flush stages showed several major macro-nutrients (N, P, K) and some micro-nutrients (Na, Zn, and Cu) in higher concentrations, while mature flush shoots contained larger amounts of Ca, S, Mg, Fe, Mn, and B. The results were then used to formulate different foliar nutrient sprays and to study their impact on the ACP population densities.</p>		

<b>Title:</b> Estimates Of Genetic Variance For Drought Tolerance Traits In Tomato		<b>Presentation ID:</b> C3 – LS
<b>Author:</b> Limeng Xie		<b>Discipline:</b> Agriculture
<b>Campus:</b> Texas A&M University		<b>Student Level:</b> Master's
<b>Co-Authors:</b>		<b>Mentor(s):</b> Kevin Crosby and John Jifon
<p><b>Abstract</b></p> <p>Tomato (<i>Solanum lycopersicum</i> L.) is an economically important vegetable crop worldwide and like many other crops, its productivity is severely impacted by environmental stresses such as drought. Genetic improvement through hybridization with wild relatives of the tomato is one approach of introducing important drought tolerant traits into cultivated varieties. Shoot and root morphological characteristics such as root mass/length, leaf size, root-to-shoot ratio, stomatal density and physiological properties such as stomatal conductance are important for drought tolerance. However, heritability of some of these tolerance traits is uncertain. In the current study, genetic variability and broad-sense heritability of an F2 population derived from a cross between a wild species <i>Solanum cheesmaniae</i> (with drought tolerance traits) and an advanced breeding line RVT1 were investigated. The F2 population, F1 and both parents were planted in sand media and morphological parameters: plant height, shoot fresh weight (SFW) and root length were measured after eight weeks. Significant phenotypic variation for all the traits was recorded among the F2 generation. Broad sense heritability in plant height, SFW, and root length were 0.90, 0.74 and 0.28 respectively, indicating strong genetic effects on plant height and SFW, compared to root properties. The unexpected amount of variation for root length among the F1 and parent plants may be an indicator of residual heterozygosity for underlying gene loci, as well as environmental effects. The occurrence of F2 progeny with root length and area greater than either parent demonstrates the potential of this approach for genetic improvement of drought stress tolerance.</p>		

## Doctoral

<b>Title:</b> Physiological Responses To Prolonged Drought Differ Among Three Oak ( <i>Quercus</i> ) Species		<b>Presentation ID:</b> C4 – LS
<b>Author:</b> Caitlyn Cooper	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University	<b>Student Level:</b> Doctoral	
<b>Co-Authors:</b> G.W. Moore, J.G. Vogel and J.P. Muir	<b>Mentor(s):</b> J.P. Muir	
<p><b>Abstract</b>  Plant physiological responses to water stress provide insights into which species may survive in exceptional drought conditions. Our study on a remnant post oak savanna in College Station, Texas, examined drought effects on the physiology of 3-year-old <i>Quercus shumardii</i> (Shumard oak; SO), <i>Q. virginiana</i> (live oak; LO), and <i>Q. macrocarpa</i> (bur oak; BO) saplings. Species received one of two treatments: 1) watered the equivalent of average precipitation and 2) droughted, receiving no water from June to October 2014. Droughted saplings exhibited reduced (<math>P \leq 0.05</math>) photosynthesis, non-soluble sugar concentration, and <math>\Psi</math>, but greater (<math>P \leq 0.05</math>) soluble sugar and condensed tannin (CT) concentrations than watered saplings. Droughted LO exhibited photosynthesis rates similar (<math>P &gt; 0.05</math>) to those of watered BO and SO, and watered LO was best able to adjust its photosynthesis rates to changes in water availability during short-term drought. CT were greatest (<math>P \leq 0.05</math>) in BO, intermediate in LO, and lowest in SO. However, total sugar concentration was greatest (<math>P \leq 0.05</math>) in SO. Species differed in carbon allocation strategies and drought may increase these disparities.</p>		

<b>Title:</b> Assessment Of The Predicted Biomass Production In The Billion Ton Study Update		<b>Presentation ID:</b> C5 – LS
<b>Author:</b> Daniela Gonzales	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University	<b>Student Level:</b> Doctoral	
<b>Co-Authors:</b> Stephen Searcy and Laurence Eaton	<b>Mentor(s):</b> Stephen Searcy	
<p><b>Abstract</b>  The DOE published a strategic analysis that estimates if the US agriculture has the capability to produce at least one billion dry tons of biomass annually, in a sustainable manner. The Billion Ton Study (BT2) provides estimates of potential biomass within the contiguous US, which were obtained through the Policy Analysis System (POLYSYS) agricultural modeling framework. These estimates were based on numerous assumptions about current and future inventory, production capacity, availability, and technology. The objective of our study is to assess the underlying assumptions for the range of conditions across a nation and determine their influence on total biomass predicted. In particular, we look at the assumption that the production of perennial grasses is limited to rain-fed lands classified as cropland, cropland used as pasture and permanent pasture, and all conversion from pastureland to perennial grasses is limited to counties east of the 100th Meridian. The predictions of biomass quantity for the states that bisect the 100th Meridian were questioned based on the knowledge of local conditions. We carried out simulations in POLYSYS, using the annual average precipitation data as a bound for land conversion to perennial grasses. We concluded that the potential perennial grass production in the US, and particularly in Texas, was overestimated by allowing cropland in regions with less than 635 mm (25 inches) precipitation to be converted into perennial grasses. The perennial grass production was reduced in the US and Texas by 7.7 % and 86.8%, respectively under the \$60 farmgate price per dry ton scenario.</p>		

<b>Title:</b> Autumn And Winter Dynamics Of White-Tailed Deer Browse Nutritive Values In The Southern Cross Timbers		<b>Presentation ID:</b> C6 – LS
<b>Author:</b> Aaron Norris	<b>Discipline:</b> Agriculture	
<b>Campus:</b> Texas A&M University	<b>Student Level:</b> Doctoral	
<b>Co-Authors:</b> Mike S. Miller and Lea A. Kinman	<b>Mentor(s):</b> James P. Muir and Randy M. Harp	
<p><b>Abstract</b>  White-tailed deer (<i>Odocoileus virginianus</i>) are economically important to rangeland operations in Texas and Oklahoma. Deer herd health, production and survival rates decline when population size exceeds the available forage. During stressful weather, such as winter when rainfall is scarce and temperatures limit plant growth, white-tailed deer nutrition is limited and forage availability decreases drastically. During these times, white-tailed deer winter diets are mainly comprised of browse species because herbaceous production decreases as winter progresses. The objective of this study was to determine the influence of winter progression on nitrogen (N), neutral and acid detergent fiber (NDF and ADF) concentration and in vitro organic matter disappearance (IVOMD; free-range white-tailed deer rumen liquid) of six browse species of moderate to high forage importance in the Cross Timbers. Browse samples were collected during pre-frost, mid-winter, and late winter from four (replications) properties in north-central Texas over 2 years. Years did not affect (<math>P &gt; 0.05</math>) results. There was an interaction (<math>P \leq 0.05</math>) between browse species and season for all forage values. Nitrogen, a desirable nutrient, decreased (<math>P \leq 0.05</math>) as winter progressed while IVOMD also decreased (<math>P \leq 0.05</math>) as fiber increased with winter progression in five of the six browse species. Results confirm that nutritive value of browse, especially N and fiber, decreases in most but not all browse after the first freeze when most woody species shed leaves. It also emphasizes the need for plant biodiversity in habitat that supports adequate year-round white-tailed deer nutrition.</p>		