

**From:** [John Mullet](#)  
**To:** [Bill Rooney](#)  
**Subject:** Draft DARPA Intro  
**Date:** Friday, September 04, 2009 9:32:38 AM  
**Attachments:** [DARPA R&D Plan 90409.doc](#)  
[ATT00017.txt](#)

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Bill,

I updated the draft of the INTRO that will lead into our DARPA research plans.

Your thoughts on this?

John











**From:** [Stelly David](#)  
**To:** [Undisclosed-recipients:](#)  
**Cc:** [Stelly David David M.](#)  
**Subject:** Draft notes and report, files  
**Date:** Thursday, September 17, 2009 12:48:17 PM  
**Attachments:** [Ganjegunte - SFeagley.docx](#)  
[ATT00024.htm](#)  
[Ganjegunte-KBronson.rtf](#)  
[ATT00027.htm](#)  
[Gentry-DZuberer.doc](#)  
[ATT00030.htm](#)  
[Gentry-HZhang.doc](#)  
[ATT00033.htm](#)  
[Haque-LNelson.docx](#)  
[ATT00036.htm](#)  
[Ibrahim\\_Tenure-WRooney.pdf](#)  
[ATT00039.htm](#)  
[Ibrahim-SFinlayson.doc](#)  
[ATT00042.htm](#)  
[JPeterson-Loeppert.docx](#)  
[ATT00045.htm](#)  
[Morgan-DVeitor.doc](#)  
[ATT00048.htm](#)  
[Morgan-KMcInnes.docx](#)  
[ATT00051.htm](#)  
[Peterson-THallmark.doc](#)  
[ATT00054.htm](#)  
[PnT\\_subcomm\\_Rpt\\_09i17.doc](#)  
[ATT00057.htm](#)  
[Provin-LRedmon-2.doc](#)  
[ATT00060.htm](#)  
[Provin-LRedmon.doc](#)  
[ATT00063.htm](#)  
[Provin-PBaumann.doc](#)  
[ATT00066.htm](#)

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Thanks to everyone's efforts, the we are in good shape on the P&T Subcommittee activities and preparations for Monday's meeting of the Overall P&T Committee. Carol and Judy are busy preparing ballots and so on for that.

As you will recall, we decided to have one ad hoc reviewer (listed below)

- [1] "update" their assessment file, (if needed)
- [2] make 1-2 "slides" for Monday, that they can use to better
- [3] communicate the essential elements of the assessment on the Monday meeting.

Monday presenters:

- Baumann, Paul
- Hons-Frank
- Loeppert, Richard
- McInnes, Kevin
- Nelson, Lloyd
- Rooney, William
- Zuberer, David

To facilitate #2, I typed up some notes, most intended to items that I thought were likely to be complementary to the pre-drafted assessments. Those notes, and a draft report on our activities are in the attached file: [PnT\\_subcomm\\_Rpt\\_09i17.doc](#)  
***Please feel free to redact or otherwise change or comment the drafts and share them.***

Also, I am sending all of the ad hoc reviews that I have received to date by email --

some you probably do not have, as they came relatively late.

David

September 15, 2009

Dr. David Stelly  
Soil and Crop Sciences Department  
Texas A&M University  
2474 TAMU  
College Station, TX 77843-2474

Dear David:

I serve on Dr. Ganjegunte's mentoring committee and have been impressed with his progress. Dr. Ganjegunte started his position in 2006 and has a 100% Research appointment at the Texas AgriLife Research Center in El Paso. He is a certified professional soil scientist. Since he does not have a teaching appointment, I will comment on only research and service.

**Research:**

Dr. Ganjegunte has more than 12 years of research experience in the areas of salinity management, irrigation water quality and carbon sequestration. His research program specializes in beneficial uses of waters with elevated salinity, soil-water salinity interaction, on-farm water conservation and desalination concentrate management. Current research includes agricultural irrigation of electric cooling tower reject water (blowdown water) and graywater, on-farm water conservation, soil salinity management using organic polymers and evaluation of electromagnetic induction method for rapid assessment of salinity at a high spatial resolution.

He has 15 peer reviewed journal articles, being first author on 11. He has two manuscripts in the review process and three in various stages of development. All of the submitted and in progress manuscripts are from research conducted in Texas. He has two book chapters, several grant final reports, and several meeting abstracts from national and international meeting presentations. He has obtained grants and contracts since 2006 totaling about \$114,000. He is on the grant proposal treadmill and is obtaining grant funds at a steady pace.

**Service:**

Dr. Ganjegunte serves as the chemical safety officer for the El Paso Texas AgriLife Research Center and has served on the vehicle purchase committee. He reviews manuscripts from journals such as Soil Science Society of America Journal, Journal of Environmental Quality, Applied Clay Science, and Groundwater. He is a member of the American Association for Advancement of Science, Soil Science Society of America, American Society of Mining and Reclamation, New Zealand Society of Soil Science, Indian Society of Soil Survey and Land Use Planning and Indian Society of Remote Sensing. He was awarded the 2007 Outstanding Young Agricultural Scientist Award by the Association of Agricultural Scientists of Indian Origin (AASIO). He has served on the AASIO Outstanding Student Award Committee and is currently serving as the chair of the AASIO Outstanding Young Agricultural Scientist Award Committee.

I believe that Dr. Ganjegunte is making very good progress and should be able to go forward for promotion in the next 1 to 2 years. Within 1 year he should have four or five referred journal articles on research he has conducted since arriving in Texas. He is trying to get more involved in ASA committees. He has volunteered for committees, but has not been selected. We, as his mentoring committee, are working with him to help him get assigned to a committee. We are also encouraging him to get more involved in international work.

Sincerely,

Dr. Sam Feagley  
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Soil & Crop Sciences  
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**From:** "Kevin Bronson" <k-bronson@tamu.edu>

**Date:** September 16, 2009 9:03:13 AM CDT

**To:** "Dirk Hays" <DBHays@ag.tamu.edu>, "Don Vietor" <DVietor@ag.tamu.edu>, "David Zuberer" <DZuberer@ag.tamu.edu>, "Richard H Loeppert" <RLoepper@ag.tamu.edu>, <dbhays@tamu.edu>, "Frank Hons" <f-hons@tamu.edu>, "Charles Thomas Hallmark" <hallmark@tamu.edu>, <hbz7049@tamu.edu>, "Kevin McInnes" <k-mcinnis@tamu.edu>, "Lloyd Nelson" <lr-nelson@tamu.edu>, "Paul A Baumann" <p-baumann@tamu.edu>, "Sam Feagley" <s-feagley@tamu.edu>, <sfinalyson@tamu.edu>, "David M Stelly" <stelly@tamu.edu>, "Bill L Rooney" <wlr@tamu.edu>

**Cc:** "David Baltensperger" <DBaltensperger@ag.tamu.edu>, "Carol Rhodes" <cj-rhodes@tamu.edu>, "Judy Young" <j-young@tamu.edu>, "Travis Miller" <td-miller@tamu.edu>

**Subject:** Mid-term review of Girisha Ganjegunte's P&T package

David:

Here is my report on Girisha Ganjegunte's dossier package for mid-term review to Associate Professor.

Girisha's area of emphasis on salinity management and wastewater chemistry and management and irrigation science and management is a very vital thrust in West Texas. Girisha is 110 % committed to this crucial program, and in short he is making excellent progress after only three years. His documented activities in grantmanship, research, publishing, service, and speaking engagements are at or above expectations. It is very impressive that his research program is multi-pronged, and that he has accomplishments to document in only in 2-3 years in the thrusts of cooling tower and wastewater reuse, irrigation efficiency, and EMI approach to salinity assessment.

Naturally his publications to present are mostly from Wyoming and his other appointments prior to coming to El Paso three years ago. But he has several journal publications in the pipeline from his Texas research. Given his obvious strong commitment to publishing, we look forward to seeing other pubs come out on his Texas program by the time he goes up for promotion to Associate Professor.

Grant dollars for this area of soil and water science are not easy to garnish. There appears to be some gap in funding dollars compared to the long list of current collaborators listed in the package. I would just encourage Girisha to continue to push hard for internal and federal grants. Realizing also, that it is difficult to advise graduate students being based in the El Paso center, I hope that he can still manage to advise at least one in the next 3 years.

Overall, a very good research program, and I give him high marks.

Kevin Bronson  
Professor of Soil Fertility

Lubbock Center

**Mid-tenure evaluation comments for Dr. Terry Gentry - Assistant Professor Soil and Aquatic Microbiology**  
D. Zuberer

**Teaching**

While Dr. Gentry's official appointment is 70% research and 30% teaching he has taken on a substantial share of teaching activities with the assumption of Agro (SCSC) 455/657, Environmental Soil Science, and the revamping of that course. He has also developed a new graduate-level course, SCSC 637 - Environmental Microbiology, which offers advanced instruction beyond the basics of SCSC 405 including modern molecular techniques for the study of microbial community structure, etc. He also co-developed a dual-level course, SCSC 425/465, Biofuels and the Environment with Dr. Hons. Perhaps what impresses me the most is that he has undertaken these tasks with a great deal of zeal. He is a highly-motivated educator! His dedication to quality teaching has been recognized by his being awarded the 2008 Special Achievement Award for Teaching from the Department of Soil and Crop Sciences and a Teaching Associate Award from the University of Arizona in 2002. Student evaluations are consistently very favorable!

**Research**

Dr. Gentry has established a very robust research program in his short time here. He has identified research opportunities of potentially very high impact at the local, state and national level. The centerpiece of his program is the development and application of modern molecular techniques for enhanced understanding of microbial communities and processes relevant to the solution of environmental issues or to increasing efficiencies of industrial processes such as biofuel production.

He is poised to make very substantial contributions to our understanding of the sources of bacterial contaminants in Texas' impaired water bodies and the results of that research will be important to producers and ranchers as well as to the broader public

He has also developed part of his program to deal with several aspects of the biofuels industry. He has ongoing research with Dr. Holtzapple to develop a clearer understanding of the microbial processes occurring during the MixAlco (carboxylate) fermentation process. He also has collaborative research with Dr. Hons and others on the impacts of bioenergy cropping systems on soil microbial communities and on the utilization of bioproducts such as oil seed meals, etc. from biofuels production facilities.

One of Dr. Gentry's strengths is his ability to reach across disciplines and across units to put together or participate in collaborative research teams that can have a greater impact than if those researchers were working in isolation. Thus far his projects have attracted funding from local, state, federal and corporate sources in the amount of about \$3.9 million. His share of that pool is \$1.6 million! He has been very successful with getting research results out to the scientific community having published 13 papers since his appointment (25 career), 3 book chapters (4 career) and 58 Technical Abstracts (96 career).

**Service**

While he has been heavily engaged with his teaching and research activities, Dr. Gentry has managed to find time to be active in service to the department and beyond. He is an active member on three of our departmental committees and at the college level, he serves on the COALS Study Abroad Scholarship Committee. He serves on two state-level task forces involved with bacterial contamination and the establishment of TMDLs. He has provided service to SSSA by chairing a session on organic matter at the 2007 meeting in New Orleans and he is the current Chair of Regional Research project S1022. He also provides extensive service as a reviewer for several top-tier soil science and microbiology journals.

**Conclusion**

I hope that my evaluation of Dr. Gentry does him justice! I believe he is one of our truly outstanding young faculty members and that he is well on his way to becoming a nationally and internationally recognized leader in his field. I have no doubt that he is on track for promotion and tenure and I look forward to watching his career as it grows. He is a great asset to our department!



## **Assessment on the Dr. Terry Gentry's Dossier**

**Dr. Terry Gentry:** Teaching – 30%, research – 70%, service – 0.0%

### **Strengths:**

Dr. Terry Gentry has done excellent jobs in teaching, research and service since he joined the departmental faculty in January 2006.

He has taught three courses: SCSC 425 stacked with SCSC 625 (2 credit hours, Fall of even-numbered year), SCSC 455 stacked with SCSC 657 (3 credit hours, spring) and SCSC 637 (3 credit hours, spring of odd-numbered year), chaired or co-chaired graduate students from 5 in 2006 to 12 (8 PhD, 4 MS) in 2009, and supervises or co-supervised 4 postdocs. He has also served as a committee member of 9 graduate students. The students' evaluation on his courses ranges from 4.63 – 4.91, for which he has obtained departmental Special Achievement Award for Teaching in 2008.

Dr. Gentry has developed an active research program in environmental microorganisms. He has been the PI and Co-PI of 12 grants, with a total fund of \$3,867,956 (\$1,600,111 for Dr. Gentry), of which 54% are competitive and 46% are internal. From the research, a total of 13 peer-reviewed papers have been published in professional journals, such as Appl. Microbiol. Biotech., Pest Manag. Sci. Environ. Sci. Technol., and Microb. Ecol., since 2006. Additionally, he has presented 58 papers and abstracts at professional meetings.

Dr. Gentry has provided numerous services at the departmental, college/university, state, national and professional community levels. These include committee services, manuscript review and proposal review.

### **Areas to be Improved:**

1. More grants at the federal level – Of the 12 grants that he has obtained so far, none was federal-level competitive.
2. More peer-reviewed publications with Dr. Gentry as senior or corresponding authors. Of the 13 peer-reviewed publications, Dr. Gentry is the senior or corresponding author of only one that was published in 2006.

There will be no doubt that the improvement in the areas will make him to be very successful in future promotion from Assistant Professor to Associate Professor.

Lloyd R. Nelson, Regents Fellow and Professor, Texas AgriLife Research

RE: Dr. Steve Hague – Dossier Review (9-14-2009)

Dr. Hague is Assistant Professor and Plant Breeder with cotton, sunflowers, jatropha, castor beans and rapeseed. He has a 75% research and 25% teaching position.

**RESEARCH:** Dr. Hague began his research program as a cotton breeder; however, has expanded to other crops as well. Main emphasis on cotton relates to water-use efficiency. Oilseed species relates to energy crops, or bio-diesel. I expect oilseed crop research is in an effort to obtain grant dollars. Dr. Hague had had been a cotton breeder in Louisiana, so came in with good experience. He is working with Dr. Wayne Smith in the cotton program, so is not starting from scratch. He is working with extra-long staple cotton germplasm, enhancing genetic diversity through mutation, exogenous auxin application, etc. His research with other oil seed crops should be pursued as time allows. I expect one or two of these bio-energy crop efforts should pay-off either by publications, grants, or new cultivars and germplasm releases.

**PUBLICATIONS:** Dr. Hague has 9 pubs listed as journal papers, of which he is senior author on 4. Five are after he was hired at A&M. He is in very good shape with journal papers, if he continues at this level over the next 3 yrs. He has 2 book chapters, of which he is senior author on one. He has 28 proceeding papers, which is outstanding. He has 3 invited international, and 3 national presentations. He has 2 patents on FiberMax FM cotton for 2006. Overall, this record would likely merit his promotion even at this date.

**GRANTS and FUNDING:** Dr. Hague's external grant funding as PI is at \$172,590.00. As Co-PI he has \$385,500 to date. From internal funding he has \$105,000 as PI and as gifts-in-kind he has \$88,500. For a traditional plant breeder, these amounts are very good considering he has only been employed for three plus years.

**TEACHING:** Dr. Hague has taught 4 classes, of which 2 are undergraduate (SCSC 304 and SCSC 421) and 2 graduate level (SCSC 621 and SCSC 689). He has or had 4 graduate students, of which one received his M.S. Degree, and others are still in graduate school. From his pre- and post course survey, it appears he improve the students appreciation for plant breeding and for public support of university and USDA plant breeding programs. It was stated that in all of the classes he has taught have shown increased enrollment in subsequent semesters. He was involved in a Special Topic class to visit International Ag. Res. Centers in Mexico. This certainly took a

great deal of Dr. Hague's time to organize this class.

**ROYALTIES:** I saw no evidence of any royalties being collected in his program. He does have two plant patents in 2006; however, will any royalties be collected in relation to these patents? I expect this is the accepted protocol for the cotton program with Texas AgriLife Research. Never-the-less I see this as a negative aspect of his program. Some royalties need to be produced to support the cotton breeding program, the unit, and for his personnel income. Perhaps royalties could be forthcoming from the oilseed crops.

**SERVICE:** His service to state, national, and international organizations seems quite outstanding for a young scientist. I would expect he will continue this effort and likely be elected to several regional and national offices during his career. His international interaction first in Mexico, but also in China, and cooperative efforts and numerous contacts may result in international grants and/or contracts. This effort should be pursued; however, he needs to make sure these efforts are productive and not just time consuming so as to reduce efforts in his research program and plant breeding projects.

In summary, I would rate Dr. Hague performance over the past 3 years as above average and that he is well on his way to being a successful scientist and teacher in the Department of Soil and Crop Sciences. I would not expect him to have any problems in being promoted to Associate Professor in the next 2 or 3 years.

August 19, 2009

To:

I have reviewed the tenure packet of Dr. Amir Ibrahim and based on the documentation, it is my recommendation that Amir be given tenure.

Dr. Ibrahim has been on faculty at Texas A&M University since 2007 as an Associate Professor and Small Grain Breeder. Prior to this position, Dr. Abraham was a winter wheat breeder at South Dakota State University. At South Dakota State University, Amir started as an Assistant Professor and rose through the ranks to Associate Professor with tenure. At Texas A&M University, Amir is responsible for the small grain breeding program for both oat and winter wheat.

It is my recommendation that given tenure based on the following assessment.

1. Dr. Ibrahim developed and taught several courses at SDSU; he has continued that trend here at TAMU. He is now teaching an experimental design course that has had both good enrollment and good ratings. It is an important and needed course in our graduate student training.
2. Dr. Ibrahim has developed a strong graduate research training component to his breeding program. He serves as advisor for three students and co-advises another three (with other faculty in our department).
3. In the past two years, Dr. Ibrahim has reestablished the small grains breeding program at College Station to critical mass. I expect him to produce new and useful oat and wheat varieties for South and Central Texas.
4. Dr. Ibrahim has established his ability to procure traditional sources of funding to provide base funding for the breeding program. He is collaborating with additional scientists to procure funds from more non-traditional and competitive sources (ie, the AFRI grant).
5. Dr. Ibrahim is studying application of wheat production in new and innovative ways. While not all of these may be successful or adopted, it is the role of public breeding programs to develop innovative approaches and uses of our important crop plants.
6. With regard to publication, Amir has 18 published journal articles. In addition, over his career he has released eight wheat cultivars. This publication and release record is acceptable for a breeder. (He lists another 4 as submitted and 14 in preparation – I would remove these from the package and just provide those that are published, in press or accepted).

In summary, Dr. Ibrahim has established a small grain program that will be productive; he is already well know and received by his colleagues in wheat breeding. His program is funded and he is publishing the results of his research. It is my opinion that Dr. Ibrahim is certainly qualified for tenure in the Department of Soil and Crop Science at Texas A&M University.

**Sorghum Breeding and Genetics**  
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**From:** [Curtis L Weller](#)  
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**Cc:** [Timothy P Carr](#); [Vicki L Schlegel](#); [Jens Walter](#); [David S Jackson](#)  
**Subject:** draft of one-pager for NSP on sorghum nutrition initiative  
**Date:** Friday, August 21, 2009 9:02:41 AM  
**Attachments:** [Great Plains Sorghum Initiative draft.pdf](#)

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Based on input from you, I have prepared the attached draft of the "one-pager" for use by the NSP as it heads to DC. Please review and share your comments. Pass on to any others that may need or want to see this.

I assume depending on what the response from everyone is, either the draft with comments will come back to me or will pass on to Jeff.

Curt

Curtis L. Weller, Ph.D., P.E.  
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You can't lead anyone else further than you have gone yourself. ----- Gene Mauch

# SORGHUM and HEALTH

## Issue

As citizens of the United States, we are currently having to address the painful issues of how to deal with a growing health care crisis. Our expanding and aging population suffers from many chronic diseases, such as obesity, type II diabetes, cardiovascular disease (CVD), and cancer. All have a strong causative link with our diets. Moreover, we have a large and growing number of individuals with gluten sensitivity. One of the best ways to reduce health care problems and costs is through prevention. Inclusion of foodstuffs in our diets capable of suppressing development or severity of these diseases and sensitivities can be key in prevention.

Sorghum offers many benefits to consumers that are not currently being realized. It is one of the top five cereal crops grown in the world and is well known for its greater drought tolerance than the other cereals. Research to define the opportunities and to develop the information base that can be used to educate consumers and the food industry on how best to incorporate sorghum into the food supply is lacking. Adequate and stable support for research necessary to ascertain which sorghum types provide the greatest protection against chronic diseases and how best to include them in foods is needed. The potential advantages of sorghum as a source of health-promoting compounds in a world with decreasing water availability are enormous.

## Background

Specific chronic afflictions suffered by a growing number of citizens of the United States include:

**Obesity** - In 2005–2006, ~34% (over 72 million) of U.S. adults 20 years of age and older were obese. Total cost of obesity in the United States was estimated to be \$117 billion; \$61 billion for direct medical costs and \$56 billion for indirect costs.

**Diabetes** - In 2003–2006, ~26% (an estimated 57 million) of U.S. adults aged 20 years or older and 35% of adults aged 60 years or older had impaired fasting glucose (IFG) or prediabetes. Estimated cost of diabetes in 2007 was \$174 billion, including \$116 billion in excess medical expenditures and \$58 billion in reduced national productivity.

**Cardiovascular disease** - In 2006, ~80,000,000 people in the U.S. were estimated to have one or more forms of CVD. The estimated direct and indirect cost of CVD for 2008 was \$475.3 billion.

**Colon cancer** - In 2005, over 141,000 cases of colon cancer were diagnosed and over 53,000 (nearly evenly split between males and females) died of colon cancer. Incidence of inflammatory bowel diseases is increasing in the US, with a 3.0–4.3% increase in the number of hospitalizations from both Crohn's disease and ulcerative colitis from 1998–2004.

**Gluten sensitivity** - Gluten-sensitive enteropathy including celiac disease, wheat allergy and gluten-sensitive idiopathic neuropathy are estimated to occur in ~15% of the U.S. population with ~1% of the population being severely afflicted. Those having sensitivity are restricted from eating foods containing proteins from wheat, triticale, rye, barley or oats to minimize health problems.

Preliminary research findings relative to health benefits of consuming sorghum and sorghum products are promising. They mesh well with the American Institute for Cancer Research reports that correlate relative chemoprotection with the level of consumption of plant-derived foods in the diet. In addition to the fiber in these foods, there are many different bioactive compounds, termed phytochemicals (i.e., polyphenols and lipids), that help to suppress inflammation and carcinogenesis processes. These effects also confer benefits against cardiovascular disease, arthritis, and damage caused by diabetes and obesity. Instances where unique properties of sorghum have been observed to provide protection include:

- ❑ Grain sorghum has long been recognized as taking longer to digest than other cereal grains due to its starch being tightly embedded in the protein matrix within its endosperm and due to binding of proteins and carbohydrates in the presence of condensed tannins in certain sorghums. Reduced digestion time of foods containing sorghum could provide relief to Type II diabetics and overweight humans. Currently, 9% of domestic grain sorghum is incorporated into pet foods in an attempt to decrease obesity and to protect against Type II diabetes in companion animals. A sustained 10% weight loss is estimated to reduce an overweight person's lifetime medical costs by \$2,200–\$5,300 by lowering costs associated with hypertension, Type II diabetes, heart disease, stroke, and high cholesterol.
- ❑ Black, lemon yellow and tan plant sorghums uniquely contain assorted high levels of polyphenols (e.g., condensed tannins and 3-deoxyanthocyanins) which have been observed to induce strong chemoprotective and anti-inflammatory responses in human cell cultures, and reductions of pre-cancerous lesions in the colon. Additionally, some studies have shown some indication that the sorghum polyphenols exhibit antimicrobial activity which has led to speculation on how effective they might be replacing antibiotics in animal feed rations.
- ❑ Lipids, extracted from food-grade grain sorghum, included in the diet significantly improved the non-HDL/HDL cholesterol equilibrium of hamsters. Furthermore, the lipids (e.g., sterols, tocopherols and policosanols) stimulated putative health-promoting bacteria in the gastrointestinal tract of the hamsters, and that alterations within the gut bacteria were strongly linked to improvements in cholesterol metabolism. Modulation of the gut microbiota-host metabolic interrelationship using sorghum lipids has potential to improve cholesterol homeostasis and cardiovascular health.
- ❑ Sorghum is free of gluten so it serves as an ingredient in a small variety of foods enjoyed by gluten-sensitive consumers. Additional products made with healthy sorghums will provide welcome variation in gluten-free products. According to the U.S. Department of Agriculture, gluten-free food industry revenues are expected to increase by ~10% during 2009 and 2010, and reach \$1.7 billion by 2010.

## Recommendation

The Great Plains Sorghum Nutrition Initiative should be fostered. The aim of the Initiative will be to bring together researchers from Nebraska, Texas, Kansas and Arkansas to realize how increasing grain sorghum in human and animal diets can improve health. Funding is needed for the Initiative to conduct long-term experiments that will manifest comprehensive understanding of the biological responses and health benefits for both humans and agriculturally-relevant animals through inclusion of sorghum in their diets.

*To learn more about sorghum, go to:*  
**[www.sorghumgrowers.com](http://www.sorghumgrowers.com)**





**From:** [Kathy Ferguson](#)  
**To:** [Bill L. Rooney](#)  
**Subject:** Drs. Patrick Brown, Serge Edme and Kimbeng Collins  
**Date:** Thursday, September 10, 2009 10:47:13 AM  
**Attachments:** [Kathy Ferguson.vcf](#)

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We will be interviewing the referenced candidates for the Plant Geneticist position in Weslaco. Would you check your calendars for the dates and let me know if you can spend some time with each of them. Dr. Smith has asked that if you are able to visit that you visit with all three. The dates of the visits are as follows (first day is arrival date, second is interview date):

September 15 & 16 - Dr. Patrick Brown  
September 22 & 23 - Dr. Serge Edme  
September 29 & 30 - Dr. Kimbeng Collins

### **Patrick Brown**

#### **September 15 -**

Dinner -

#### **September 16 -**

Breakfast -

Lunch -

Dinner -

### **All three candidates**

#### **September 16, 23, 30 meet times** - (length of time dependant on responses)

8:30 am

2:30 pm

3:00 pm

3:30 pm

4:00 pm

4:30 pm

**Note:** All afternoon meetings will be in HPCT room 437

### **Serge Edme**

#### **September 22 -**

Dinner -

#### **September 23-**

Breakfast -

Lunch -

Dinner -

### **Kimbeng Collins**

#### **September 29 -**

Dinner -

#### **September 30 -**

Breakfast -

Lunch -

Dinner -

Please let me know at your earliest what time you want since the first candidate arrives next week, and we need to coordinate his schedule as quickly as possible.

Make it a GREAT day!

***Kathy Ferguson***

Senior Office Associate

Soil & Crop Sciences | Instruction Programs

MEPS | Instruction Programs

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"Learning is ever in the freshness of its youth, even for the old." Aeschylus

**From:** [orfscmail@oro.doe.gov](mailto:orfscmail@oro.doe.gov)  
**To:** [wlr@tamu.edu](mailto:wlr@tamu.edu)  
**Subject:** Electronic Invoice Submission - CID = EE0001326  
**Date:** Wednesday, November 11, 2009 12:20:09 PM

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An invoice was submitted electronically to the Department of Energy through the VIPERS system.

**From:** [Vilma R. Calderón](#)  
**To:** [lrooney@tamu.edu](mailto:lrooney@tamu.edu); [wlr@tamu.edu](mailto:wlr@tamu.edu); [reneclara@yahoo.com](mailto:reneclara@yahoo.com)  
**Subject:** Eliette work  
**Date:** Monday, November 09, 2009 1:39:00 PM

---

Dr Rooney

Here is the information Eliette Palacios sent to me about what she is doing in Nicaragua. Apparently she got some money from FAO to invest in a bakery and also she is going to train people from AMPROSOR are asking for training in flour production, Some TV channels will cover the event.

---

From: eliette64@gmail.com  
Date: Tue, 3 Nov 2009 16:21:16 +0100  
Subject: Re: saludos  
To: vilmaruth02@hotmail.com

Hola Vilma como estas? .

Con respecto al sorgo te cuento que la prueba de aceptación ya pasó y la FAO aprobó financiar a un grupo de mujeres con U\$2500.00 para iniciar la panadería, y el 12 de este mes si DIOS quiere, filmaremos un documental de la FAO, para difundir la tecnología por el país y no se por donde mas, pues la FAO esta encantada con el proyecto.

El 9 y 10 de noviembre de este mes impartiré si DIOS quiere un taller por fin con AMPROSOR, a los panificadores de Chinandega, poco a poco vamos ahí paso lento, pero se que esto va para adelante, se que no vamos como quiere INTSORMIL, pero vamos caminando, AMPROSOR que son los grandes productores de sorgo no se si te acordas vos de eso, van tambien a financiar un taller a panificadores en León, ah y en los días del taller llegarán un medio televisivo y otro radial, para filmar parte del evento. Como te digo sigo trabajando en esa área.

DIOS te bendiga

Eliette

---

**From:** [Moore, Liz](#)  
**To:** [undisclosed-recipients:](#)  
**Subject:** Emailing: 5.5\_MRC Workbook\_sep 3\_end  
**Date:** Thursday, October 01, 2009 11:16:00 AM  
**Attachments:** [5.5\\_MRC Workbook\\_sep 3\\_end.xls](#)

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<<5.5\_MRC Workbook\_sep 3\_end.xls>> I apologize if you are receiving this in duplicate, I may have sent out the wrong ones to some panels yesterday so I want to make sure everyone has the proper workbook.

Liz



## Reviewer Instructions for Individual Rating Sheets

These instructions are provided to you to help you use and navigate through the electronic versions of the technical rating sheets.

The first sheet you'll see in this workbook is titled 'Start'. When you click this tab, you should see your name listed on the screen. If you do not see your name, call the Merit Review Chairperson for further instructions.

To begin logging your comments, select the application to review by clicking the gray box. Using the pull down menu, select which application you would like to review (or edit comments/scores you made previously). The name of the application and the applicant will appear after you've selected from the list. To enter the individual rating sheet, click the button labeled 'Add/Edit Comments'. This will take you to a new worksheet with the name of the selected application.

In the individual rating sheet, you'll see two buttons on the top right. The first 'Return to Start Menu' will take you back to the previous screen. The second 'Enter/Edit Comments' will take you to a different part of the worksheet where you can add your strengths and weaknesses for the application being reviewed. Click this button.

If you have any general comments about the application (i.e., not tied to a specific evaluation criteria), enter them in the 'General Comments' section. Keep these comments brief and specify if these are comments for the merit review Chairperson, Selection Official or ones you would like sent to the applicant. An example of this would be suggestions on writing style that would make the overall application easier to follow.

Enter comments (strengths/weaknesses) for each criterion:

- Select the relevant criterion using the pull down list under the Criterion menu. In order to view the full evaluation criteria, click on the "?" symbol. This will open a Microsoft Word document that lists the Merit Review Criteria. (You may want to print this for reference during your review.).
- Once you've selected the criteria, select the appropriate comment type (Strength or Weakness) from the Type drop down box and the level of the strength or weakness (i.e., you're opinion of whether or not this should be considered a Minor or Significant strength or weakness) from the Level drop down box.
- Enter your comment. Each strength or weakness must relate to the specific criterion. Try to keep each comment to one or two short (but complete) sentences. You can enter as many comments as you would like; however, keeping each individual comment brief will greatly improve the process of reconciling comments from all reviewers.
- To enter your next comment, move to the next row and fill in all the cells (criterion, type, level, comment).
- When you have added all your comments, click 'Spell Check' to check for typos.
- SAVE your work (do this frequently), and click the 'Return' button at the top of the page.

Enter rating (0-10) for each criterion:

- For each criterion, a summary of the number of significant and minor strengths and weaknesses entered is displayed. This is for your reference to ensure there are adequate comments to support the rating you give each criterion. The rating score for each criterion should be entered into the light blue cells. For each criterion, assign a rating based on the technical rating standards (click the "?" symbol to view the Rating Standards). Use a numeric whole number (no decimals, fractions, or percentages) rating for each criterion. After you enter ratings for each criterion, the weighted score is calculated.
- When you have completed reviewing the entire application and have filled in rating scores and strengths and weaknesses for each criterion, click the 'Return to Start' button.

From the 'Start' screen, you can now select another application to review. Note that the applications you have already reviewed/viewed will have an 'X' next to the application name on the pull down list. At any time you can go back and edit a review by selecting the application. You can also click on the 'View Rankings' button to see a summary of the applications ranked so far.

Save your work again when you've completed your review of all applications (save frequently!!). (note: to save, simply, click on 'File' from the menu line at the top of the screen. Click on 'Save' or 'Save as' depending on

where you would like to save your work.)

#### Returning Electronic Files to DOE Designee:

When you have completed sheets for all applications and have saved your comments and ratings, return the file to the DOE designee via email. His or her specific email address should have been provided to you previously. If not, contact the point of contact designated in your Merit Review Member letter.

#### Additional Helpful Hints:

In the Strengths and Weaknesses sections, your comments should have wrapped automatically if they exceeded the line length. If you notice that a particular line did not wrap, you can set the format to wrap by doing the following:

- a. Click on the line you wish to 'wrap' or expand.
- b. Click on 'Format' (located in the menu line at the top of the screen).
- c. When you click on 'Format', a pull-down (or new) menu should appear with 'Cells' as an option. Click on 'Cells'.
- d. When you click on 'Cells', a window (box) should appear on the screen with multiple tabs (file folders) that can be accessed by clicking on them as well. One tab is labeled 'Alignment'. Click on this tab.
- e. When you click this tab, the alignment options should appear in the window. To the lower left side of this window, you should see various options including 'Wrap Text'. Click on this option. When you do, the small square to the left of the words 'Wrap Text' should appear white with a black check mark in it.
- f. Click 'OK' found at the lower right of the open window. Now when you look at the line you intended to expand, the text should have wrapped and you should be able to view the entire line.

To move between sheets, use the button to return to the start page, or click on the tabs at the bottom of the screen.

To scroll down a sheet or left and right, simply click on the bars located on the far right hand side of the screen and at the bottom of the screen.

To delete a previous comment, simply click on the line containing the comment you wish to delete and push the



Compile Comments

Compile Comments

# Integrated Biorefinery Operations

## s and Strengths and Weaknesses

Topic/Panel: 5

Description: Topic Area 5

\*Note, if the ID ends with "\_P", you have already worked on this application. "F" means you have finished reviewing.

Create All

View Rankings



1









**From:** [David Baltensperger](#)  
**To:** [David Baltensperger](#)  
**Subject:** Emerging Technologies Bio Energy  
**Date:** Thursday, September 17, 2009 8:36:08 AM

---

Followup on faculty meeting:

Please share names of potential candidates for the Emerging Technologies (ETF) Bioenergy Position. I need the individuals name, contact information and a brief description of the reason you are nominating them (IP, area of speciality). This does not have to be detailed at this stage.

For example: Dr. BioEnergy, President of Emerging bio Products, Research scientist formerly with University of Somewhere, Currently working with algae startup company that has IP for production of human pharmaceuticals utilizing algae. Holds several patents on genes controlling lipid production in algae. 1234 Bio Lane, Outside TX, 311-322-4455.  
ddude@algae.net.

Thanks!

David D. Baltensperger  
Professor and Head  
Soil and Crop Sciences  
Texas A&M University  
2474 TAMU  
College Station, Texas 77843-2474

Phone 979-845-3041  
Fax 979-845-0456  
Email [dbaltensperger@ag.tamu.edu](mailto:dbaltensperger@ag.tamu.edu)

**From:** [John Mullet](#)  
**To:** [Bill Rooney](#)  
**Subject:** Energy sorghum hybrid growth study update/question  
**Date:** Saturday, September 12, 2009 10:13:07 AM  
**Attachments:** [GCA\\_09\\_Fwt\\_Sept\\_810\\_comparison.xlsx](#)  
[ATT00044.txt](#)

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Bill,

We collected the Sept 10 time point on the irrigated energy hybrid growth study this year. A comparison of total fresh weight per plant the average per nine plants is attached. As we expected, the irrigated plots are showing increased biomass accumulation compared to last year. We will be over 20 dT/acre based on our method of estimating biomass accumulation per plant/unit area.

Note the large amount of plant to plant variation (~3X among the 9 plants sampled). We pick 3 random locations and harvest three adjacent plants, so if one is large and one is small, this is what we get. I am not exactly sure what causes this variation (differences in initial seedling vigor, different soil E, different shading, etc.) but I guess that if overall stands were more uniform yield might increase/acre?

We talked about comparing our sampling method to results obtained using your chopper. I think this would be a good idea to provide greater confidence in the average yields in these plots. While individual plant sampling provides useful information about variation/plant, no group that does normal harvesting will believe these numbers without validation/comparison using a normal harvesting system. I would expect the numbers to be lower for a silage chopper due to the fact that when we sample, we avoid gaps in stand density and areas where plants have lodged, etc..

Our next sampling date is about October 10th and we will do one in November if the fields allow. However, we can compare yield using your chopper vs. plant sampling from any time point because our growth/biomass curves will span the season.

Regards,

John

1210	1150	725
1205	1195	1370
1095	995	1590
1060	1870	1405
1225	1045	1640
1245	1960	1060
700	1795	2300
1085	1790	3205
790	1180	1615

X= 1068

X=1442

X=1657

**From:** [Suhas Vyavhare](#)  
**To:** [wlr@tamu.edu](mailto:wlr@tamu.edu)  
**Subject:** Enquiry letter for PhD  
**Date:** Friday, November 06, 2009 8:56:49 AM  
**Attachments:** [suhas cv.docx](#)

---

Dear Dr. Rooney,

I am earning my Master's degree in Plant, Soil and Environmental Science at West Texas A&M University in Canyon. I am a graduate research assistant working on integrated pest management with Dr. Bonnie B. Pendleton. For the research for my Master's degree, I am evaluating the stored grain of 26 sorghum genotypes for resistance to maize weevils.

I desire to earn my Ph.D. in plant breeding, particularly in Sorghum. I am very interested in the research you do and believe it would be a great opportunity to work under your guidance. I was wondering if you have an opening for a Ph.D. student for which I might apply. I should be finished with my Master's thesis in summer 2010.

The grade-point average of my Bachelor's degree was 8.3/10 and I am expecting more than a 3.6 GPA for my Master's degree. I have skills and experience working in the field of agriculture for the last eight years that I believe would be an asset in my Ph.D. under your guidance. I have attached my CV with this email.

Thank you for your time, and I look forward to hearing from you soon.

Regards,

Suhas Vyavhare  
Graduate Research Assistant  
Department of Agricultural Sciences  
West Texas A&M University  
Canyon, TX 70016  
(806)220-4228

---

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## CURRICULUM VITAE




**From:** [American Airlines@aa.com](mailto:AmericanAirlines@aa.com)  
**To:** [WLR@TAMU.EDU](mailto:WLR@TAMU.EDU)  
**Subject:** E-Ticket Confirmation-KGPIVQ 18OCT  
**Date:** Monday, September 28, 2009 8:40:58 AM



**Date of Issue: 28SEP09**

William Lloyd Rooney:

Thank you for choosing American Airlines / American Eagle, a member of the **oneworld™** Alliance. Below are your itinerary and receipt for the ticket(s) purchased. Please print and retain this document for use throughout your trip.

**Record Locator: KGPIVQ**

You may check in and obtain your boarding pass for U.S. domestic electronic tickets within 24 hours of your flight time online at AA.com by using [www.aa.com/checkin](http://www.aa.com/checkin) or at a Self-Service Check-In machine at the airport. Check-in options may be found at [www.aa.com/options](http://www.aa.com/options). For information regarding American Airlines checked baggage policies, please visit [www.aa.com/baggageinfo](http://www.aa.com/baggageinfo). **For faster check-in at the airport, scan the barcode at any AA Self-Service machine.**

Effective June 1, American Airlines transitioned to cashless cabins on flights within the continental United States and on flights to and from Hawaii, Alaska, and Canada. For in-flight purchases, we will accept American Express® Cards and other major credit or debit cards only. American Eagle and American Connection flights will continue to accept cash only. Please visit [www.aa.com/cashless](http://www.aa.com/cashless).






You must present a government-issue photo ID and either your boarding pass or a priority verification card at the security screening checkpoint.



**Record Locator: KGPIVQ**



Carrier	Flight Number	Departing		Arriving		Booking Code
		City	Date & Time	City	Time	
American Airlines	3387	COLLEGE STATION	SUN 18OCT 3:55 PM	DALLAS FT WORTH	4:50 PM	G
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	William Rooney		FF#: 75YJ910	Economy	Seat 16B	Food For Purchase
American Airlines	2473	DALLAS FT WORTH	SUN 18OCT 7:05 PM	LOS ANGELES	8:25 PM	G
	OPERATED BY AMERICAN EAGLE					
	William Rooney		FF#: 75YJ910	Economy	Seat 34C	Food For Purchase
American Airlines	6121	LOS ANGELES	SUN 18OCT 11:50 PM	HONG KONG	5:25 AM	H
	OPERATED BY CATHAY PACIFIC AIRWAYS					
	CHECK-IN WITH OPERATING CARRIER					

	William Rooney		FF#: 75YJ910	Economy	Seat 0	Refrshmnt/Comp/Bre
	6109	HONG KONG	TUE 20OCT 9:20 AM	JAKARTA CGK	1:05 PM	H
American Airlines	OPERATED BY CATHAY PACIFIC AIRWAYS CHECK-IN WITH OPERATING CARRIER					
	William Rooney		FF#: 75YJ910	Economy	Seat 0	Breakfast
	6104	JAKARTA CGK	FRI 30OCT 2:50 PM	HONG KONG	8:30 PM	H
American Airlines	OPERATED BY CATHAY PACIFIC AIRWAYS CHECK-IN WITH OPERATING CARRIER					
	William Rooney		FF#: 75YJ910	Economy	Seat 0	Dinner
	6120	HONG KONG	FRI 30OCT 11:45 PM	LOS ANGELES	9:15 PM	H
American Airlines	OPERATED BY CATHAY PACIFIC AIRWAYS CHECK-IN WITH OPERATING CARRIER					
	William Rooney		FF#: 75YJ910	Economy	Seat 0	Dinner/Breakfast
	2400	LOS ANGELES	SAT 31OCT 12:30 AM	DALLAS FT WORTH	5:20 AM	Q
American Airlines	OPERATED BY AMERICAN EAGLE					
	William Rooney		FF#: 75YJ910	Economy	Seat 29C	Food For Purchase
	3351	DALLAS FT WORTH	SAT 31OCT 9:05 AM	COLLEGE STATION	9:55 AM	Q
American Airlines	OPERATED BY AMERICAN EAGLE					
	William Rooney		FF#: 75YJ910	Economy	Seat 7B	Food For Purchase



PASSENGER	TICKET NUMBER	FARE-USD	TAX	TICKET TOTAL
WILLIAM ROONEY	0012310506456-57	2140.00	77.70	2217.70
<b>Payment Type:</b> Master Card XXXXXXXXXXXX0011				<b>Total:</b> \$2217.70

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Effective January 23, 2007, All nationals of the U.S., Canada and Bermuda will be required to hold a passport to enter or re-enter the United States if coming from the Caribbean (except Puerto Rico and the US Virgin Islands), Bermuda, Central and South America by air and by sea. This is a change from prior travel requirements and will affect all United States citizens entering the United States from countries within the Western Hemisphere. This new requirement will also affect certain foreign nationals who currently are not required to present a passport to travel to the United States. For additional information on this new policy and instructions on how to obtain a passport, please visit [Travel Documents](http://www.aa.com/traveldocuments).

A summary of Terms and Conditions of Travel is available by selecting the Conditions of Carriage button below.







NRID: 2117561962272808391548000

**From:** [Hanson, Robert E.](#)  
**To:** [Schmitt, Brian C.](#); [Baltensperger, David](#); [RJessup@ag.tamu.edu](mailto:RJessup@ag.tamu.edu); [nmelhout@tamu.edu](mailto:nmelhout@tamu.edu); [Stelly, David Stelly](#); [George L. Hodnett](#); [Rooney Bill](#); [McCutchen, Bill](#); [Mullet, John E.](#); [Mirkov Erik](#); [Mirkov Erik](#); [Keerti Rathore](#); [Avant, Bob](#)  
**Cc:** [Schuerman, Peter L.](#); [Zak, Kendra](#)  
**Subject:** Example of agronomics-type application  
**Date:** Thursday, September 03, 2009 5:16:10 PM  
**Attachments:** [WO\\_2008\\_051633.pdf](#)

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All,

It was a pleasure speaking with you today. As requested I am attaching an example of an agronomics-type application that we handled in the context of a herbicide tolerant plant. The concept would be similar for Sorcane, but more generalized to include other categories of inputs that provide some advantage when cultivating the plant.

Regards,

Rob

Robert E. Hanson, Ph. D., JD  
Sonnenschein Nath & Rosenthal LLP  
Direct: 214.259.0931  
Fax: 214.259.0910  
[rhanson@sonnenschein.com](mailto:rhanson@sonnenschein.com)  
[www.sonnenschein.com](http://www.sonnenschein.com)



---

**From:** Schmitt, Brian C. [<mailto:Brian.Schmitt@tamu.edu>]  
**Sent:** Thursday, September 03, 2009 8:28 AM  
**To:** Hanson, Robert E.; Baltensperger, David; [RJessup@ag.tamu.edu](mailto:RJessup@ag.tamu.edu); [nmelhout@tamu.edu](mailto:nmelhout@tamu.edu); [Stelly, David Stelly](#); [George L. Hodnett](#); [Rooney Bill](#); [McCutchen, Bill](#); [Mullet, John E.](#); [Mirkov Erik](#); [Mirkov Erik](#); [Keerti Rathore](#); [Avant, Bob](#)  
**Cc:** [Schuerman, Peter L.](#); [Zak, Kendra](#)  
**Subject:** Wide Hybridization Progress Meeting Updated Agenda  
**Importance:** High

All:

I've updated the agenda. It is attached as an MS word document. I made two changes. These are: (1) Updated discussion leaders to reflect those who will be in attendance; (2) Broadened the discussion from sorcane agronomics to all wide hybrid agronomic systems. (It was my intention to discuss all WH agronomics systems and the mention of sorcane alone was in error).

I look forward to our discussion.

Regards,

Brian Schmitt

Brian Schmitt, J.D.  
Intellectual Property Manager  
Registered Patent Attorney

Office of Technology Commercialization  
Texas A&M University System  
800 Raymond Stotzer Parkway  
College Station, TX 77845  
979-862-6832  
bschmitt@tamu.edu

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**From:** [Karen Prihoda](#)  
**To:** [Bill Rooney](#)  
**Subject:** F4 Inventory  
**Date:** Tuesday, August 04, 2009 3:50:27 PM  
**Attachments:** [09 CS F4 Ma5Ma6 Inventory.xls](#)

---

If there is anything else please let me know.

Thanks,

Karen Prihoda Teal  
Agriculture Research Tech II  
Sorghum Breeding and Genetics  
Department of Soil & Crop Science  
Texas AgriLIFE Research  
Texas A&M University  
College Station, TX 77843  
Phone:(979)845-2151  
Fax:(979)862-1931

Code	Weight	Source
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0	23	09CS3027-2
0	31	09CS3028-1
0	28	09CS3028-2
0	35	09CS3028-3
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**From:** [Delroy Collins](#)  
**To:** [Bill](#)  
**Subject:** f405 inv  
**Date:** Monday, September 28, 2009 8:01:01 AM  
**Attachments:** [09CSf405 inventory.xls](#)

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Mr. S. Delroy Collins, Research Associate  
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R	P	5
R	P	
R	P	5
R	P	5
RW	P	
W	P	5
BN	P	5
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R	P	2
R	P	3
W	T	5
Y	P	4
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W	T	4
W	P	4
W	T	5
BN	P	5
R	P	5
W	P	4
BN	P	5
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R	P	5
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R	P	5
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**From:** [Bill Rooney](#)  
**To:** ["Karen L Prihoda"](#)  
**Cc:** ["dustin borden"](#); ["Collins, Stephen D"](#)  
**Subject:** f5 inventory labels, file and fieldbook  
**Date:** Friday, August 07, 2009 6:25:00 PM  
**Attachments:** [09CS F5 Nursery Inventory.xls](#)  
[09CS F5 Inventory Labels.docx](#)

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Use the same fieldbook that I sent with the A-line.

These can be put in coin envelopes.

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151

06CS1/2-1 ,

06CS1/50-1 ,



06CS1/104-1 ,

09CS6/5

W, T

09CS19-2

RY, P

09CS29-2

W, T

09CS40-4

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09CS53-2

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09CS65-4

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09CS82-2

w, t



09CS98-1

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09CS110-2

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W, P



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Pedigree























Pedigree2	Sd	PI	Notes
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W	T	12.8, late
W	T	16.3
W	P	15.6, late
W	T	22.8
W	P	
W	P	16.6, nice
W	P	
W	P	17.6, nice
W	P	
W	T	13.3
W	P	
W	T	10.4, no uc, good sw

W	P	
W	T	18.5

W	P	
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**From:** [Anna J Fox](#)  
**To:** [undisclosed-recipients:](#)  
**Subject:** Fall 2009 PBGC Seminar  
**Date:** Wednesday, August 19, 2009 1:46:28 PM  
**Attachments:** [PBGC Seminars Fall 2009.doc.pdf](#)

---

Please see attached.

Thank you,  
Anna

August 19, 2009

**To:** Members of the Plant Breeding and Genetics Circle

**Sub.:** Friday Lunch Seminars - Fall Semester, 2009

The theme for the PBGC seminars this semester is “Breeding for food, fodder and fiber quality”. Plant breeders, food scientists and biotechnologists working on various crops as well as their graduate students whose theses research focus on food, fodder, or fiber quality are invited to present their work.

Presentations could include: 1) major quality traits, 2) brief review of completed research work and gaps, 3) current research objectives and ongoing work (methods and results), and 4) future challenges and opportunities.

The dates available for the seminars are given below:

September 4, 11, 18, 25

October 2, 9, 16, 23 30

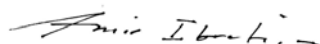
November 6, 13, 20, 27

The first seminar (Sept. 4) would be a lead paper entitled “Improving food quality in crops – An end use perspective” presented by Dr. Joseph M. Awika, Assistant Professor of Food Science and Technology.

All other dates are open. Interested scientists and graduate students are encouraged to submit titles and dates for their presentations by August 31.

If you have questions or suggestions, please don't hesitate to contact Amir Ibrahim ([aibrahim@ag.tamu.edu](mailto:aibrahim@ag.tamu.edu)) or B B Singh ([BSingh@ag.tamu.edu](mailto:BSingh@ag.tamu.edu)). Thank you.

Regards,



Amir Ibrahim and B.B. Singh, Co-chairs

**From:** [Vilma Ruth Calderon](#)  
**To:** [Ricardo Hernandez Auerbach](#); [Lloyd Rooney](#)  
**Cc:** [Rene Clara](#); [Bill Rooney](#)  
**Subject:** farmer to farmer corrected propossal version  
**Date:** Sunday, August 23, 2009 10:27:07 PM  
**Attachments:** [SOW form 07 Eng sorghum.doc](#)

---

Ricardo

I'm sending you the corrected version of the propossal. This include Dr Rooney sugestions and the cronogram also. Please check it out and let me know if is ok. Dr. Lloyd said that they have the right person for the assignment, someone from Colombia i guess. I think the resources to be contributed by each partner will be discussed later?????

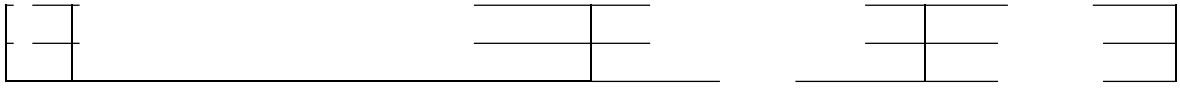
Thank you for your help.

Vilma Ruth













[illegible]

**From:** [Vilma Ruth Calderon](#)  
**To:** [Lloyd Rooney](#); [Bill Rooney](#)  
**Cc:** [Rene Clara](#)  
**Subject:** farmer to farmer propossal  
**Date:** Tuesday, August 11, 2009 11:47:04 AM  
**Attachments:** [SOW form 07 Eng sorghum.doc](#)

---

Dear Dr Rooney

I´m sending the winrock propossal for your revision. Please check it out and send me comment or suggestions as soon as you can.

I have good news, a company called Nutravida natural products is going to use sorghum combined with soy in some products. They have a big market here.

I´m preparing everything for next week. We are going to have a big workshop on friday for LeAnn Taylor visit . I will send pictures later.

Alicia Urquilla also is coming to collect and mill sorghum samples next week. She is waiting some comments about her thesis from you.

Dr Bill how are you going to proceed with funds for PCCMCA . Meeting will be in one month.

Thanks

Best Regards

Vilma Ruth Calderon de Zacatares  
MSc en Tecnologia de Alimentos  
MSc en Economia Ambiental  
Laboratorio de Tecnologia de Alimentos  
CENTA, El Salvador  
2302-0200 ext 246  
vilmaruth02@yahoo.com  
vilmita@neo.tamu.edu



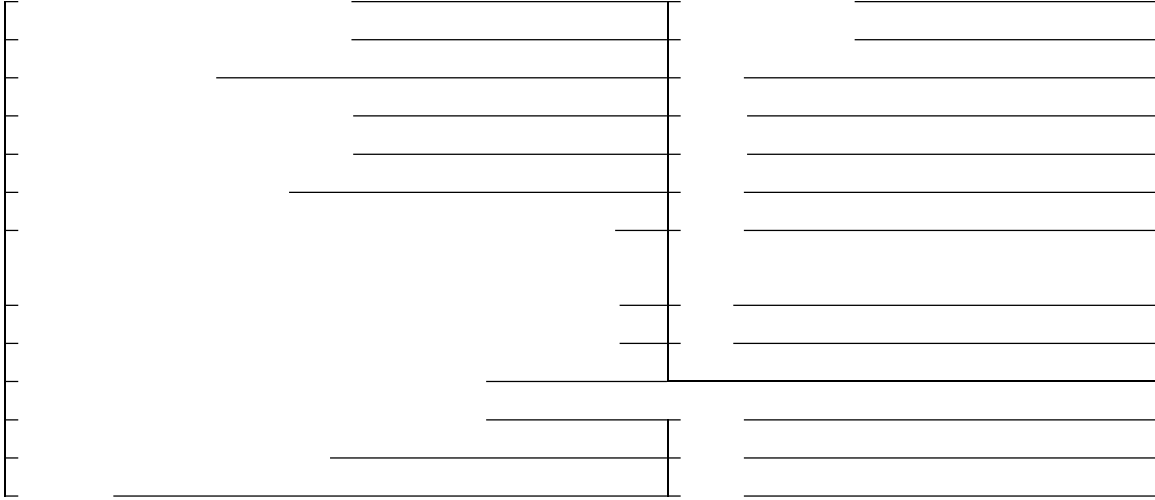


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**From:** [DoNotReply@FederalReporting.gov](mailto:DoNotReply@FederalReporting.gov)  
**To:** [wlr@tamu.edu](mailto:wlr@tamu.edu)  
**Subject:** FederalReporting.gov Registration Confirmation  
**Date:** Wednesday, November 11, 2009 7:39:52 AM

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Do not reply to this e-mail. Please contact the [FederalReporting.gov Service Desk](#) or call us at 877-508-7386; TTY: 877-881-5186 if you have any questions.

**From:** [Don Vietor](#)  
**To:** [Dustin Borden](#)  
**Cc:** [Bill L Rooney](#)  
**Subject:** Feedstock harvest  
**Date:** Saturday, September 19, 2009 2:30:56 PM

---

Hi Dustin: Delroy harvested 5 sorghum cultivars for us last season: Graze all, Graze N Bale, 22053, Sugar T, and M81E. We do want to take advantage of the two cultivars you have available in mid October. Which cultivars did you produce. In addition, are any of the cultivars grown last season available this year? Thanks, Don Vietor

Donald M. Vietor  
Soil and Crop Sciences Department  
Texas A&M University  
College Station, Texas  
77843-2474

FAX 979-845-0456  
Tel. 979-845-5357

**From:** [Hoffmann, Leo, Jr](#)  
**To:** [Rooney, Bill](#)  
**Subject:** File selections to Puerto Rico2009  
**Date:** Friday, November 06, 2009 11:06:48 AM  
**Attachments:** [Selection 2007-2009 list with values.xlsx](#)

---

Oi!

LHJ

List of 2007 selection for composition (17)

High cut	Lignin	Lig./ (G+X)
PI 156906	18.08	0.40
PI 329456	20.32	0.40
PI 329470	20.74	0.40
PI 494910	18.95	0.40
PI 494912	19.71	0.41
PI 495929	16.39	0.41
PI 496129	20.57	0.37
PI 496171	20.32	0.41
Low cut		
PI 329595	12.60	0.25
PI 154866	11.96	0.26
PI 276820	13.09	0.26
PI 297223	13.39	0.28
PI 482837	12.06	0.29
PI 482831	13.07	0.29
PI 482901	12.67	0.29
PI 482735	13.14	0.30
PI 482826	13.38	0.30

8

9

List of 2008 selection for composition (20)

High cut	Lignin	Lig./ (G+X)
PI-513398	19.05	0.37
PI-586036	17.67	0.40
PI-501024	16.20	0.40
PI-524552	16.59	0.40
PI-501075	16.36	0.41
PI-524599	18.52	0.41
Low cut		
PI-513467	13.88	0.35
PI-524715	14.19	0.38
PI-524588	14.22	0.35
PI-562159	14.39	0.38
PI-513411	14.56	0.39
PI-545575	14.64	0.36
PI-513438	14.65	0.37
PI-549198	14.67	0.34
PI-545579	14.79	0.33
PI-536606	14.85	0.33
PI-536562	16.15	0.31
PI-536553	16.08	0.31
PI-536571	15.68	0.31
PI-536592	16.37	0.31

6

14

List of 2009 selection for composition (19)

High cut	Lignin	Lig./ (G+X)
PI 573258	14.21	0.35

List of 2009 selection for agronom

PI	Comment
PI 514514	2 <sup>nd</sup> cut
PI 514543	2 <sup>nd</sup> cut
PI 514564	2 <sup>nd</sup> cut
PI 521195	2 <sup>nd</sup> cut
PI 521198	2 <sup>nd</sup> cut

PI 521108	11.45	0.36
PI 537751	13.81	0.36
PI 521999	13.05	0.36
PI 522028	12.73	0.36
PI 521191	12.30	0.36
PI 562732	13.11	0.37
Low cut		
PI 532226	10.00	0.26
PI 521906	10.41	0.35
PI 521904	10.46	0.33
PI 513821	10.51	0.30
PI 521924	10.61	0.33
PI 521905	11.01	0.33
PI 537752	11.03	0.28
PI 568698	11.29	0.28
PI 521988	11.44	0.29
PI 514564	12.02	0.29
PI 537763	11.08	0.29
PI 573267	12.23	0.29

Note: Total # of selecitons 56.

7

12

PI 521202	2 <sup>nd</sup> cut
PI 521295	2 <sup>nd</sup> cut
PI 521892	New
PI 526068	2 <sup>nd</sup> cut
PI 526069	2 <sup>nd</sup> cut
PI 526136	2 <sup>nd</sup> cut
PI 549173	2 <sup>nd</sup> cut
PI 549175	2 <sup>nd</sup> cut
PI 562085	2 <sup>nd</sup> cut
PI 563179	2 <sup>nd</sup> cut
PI 568684	2 <sup>nd</sup> cut
PI 568691	2 <sup>nd</sup> cut
PI 568695	2 <sup>nd</sup> cut
PI 568698	New
PI 568699	New
PI 568700	New
PI 568701	New
PI 568730	New
PI 568758	New

Note: Green maker cells over lap o

24

ic diserability

in both criteria.



**From:** [John Mullet](#)  
**To:** [Adam Helms](#)  
**Cc:** [Shayna Spurlin](#); [Bill Rooney](#); [Bob Avant](#)  
**Subject:** Final drafts of GOAL2, Tasks 2.1, 2.2  
**Date:** Wednesday, October 07, 2009 6:18:53 PM  
**Attachments:** [DARPA Energy Crops JM100709.doc](#)  
[Goal 2 Summary.docx](#)  
[DARPA GOAL 2 Task2.1 budgetJust Milestones.doc](#)  
[DARPAGOAL2Task2.2 final](#)

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Adam and Shayna,

I am attaching four documents.

1. The Master Preproposal with a revised write up of GOAL 2, Task 2.1, 2.2, 2.3.
2. A Draft of the overall GOAL 2 statement of Deliverable, Metrics, Milestones.
3. A final draft of GOAL 2, Task 2.1 budget justification, Milestones/Deliverables.
4. A final draft of GOAL 2, Task 2.2 budget justification, Milestones/Deliverables.

My plan is to work on the STO slides next.

John







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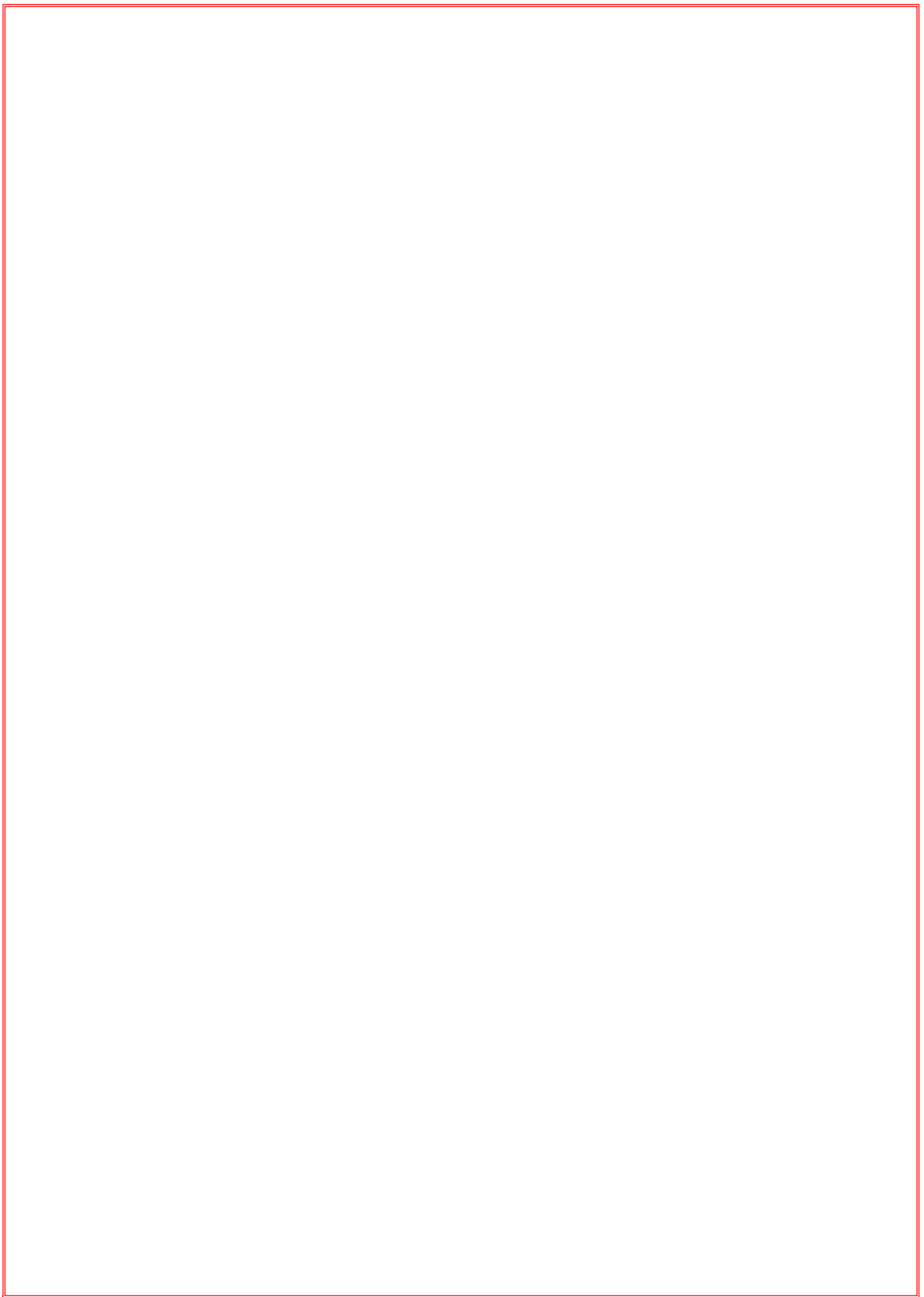
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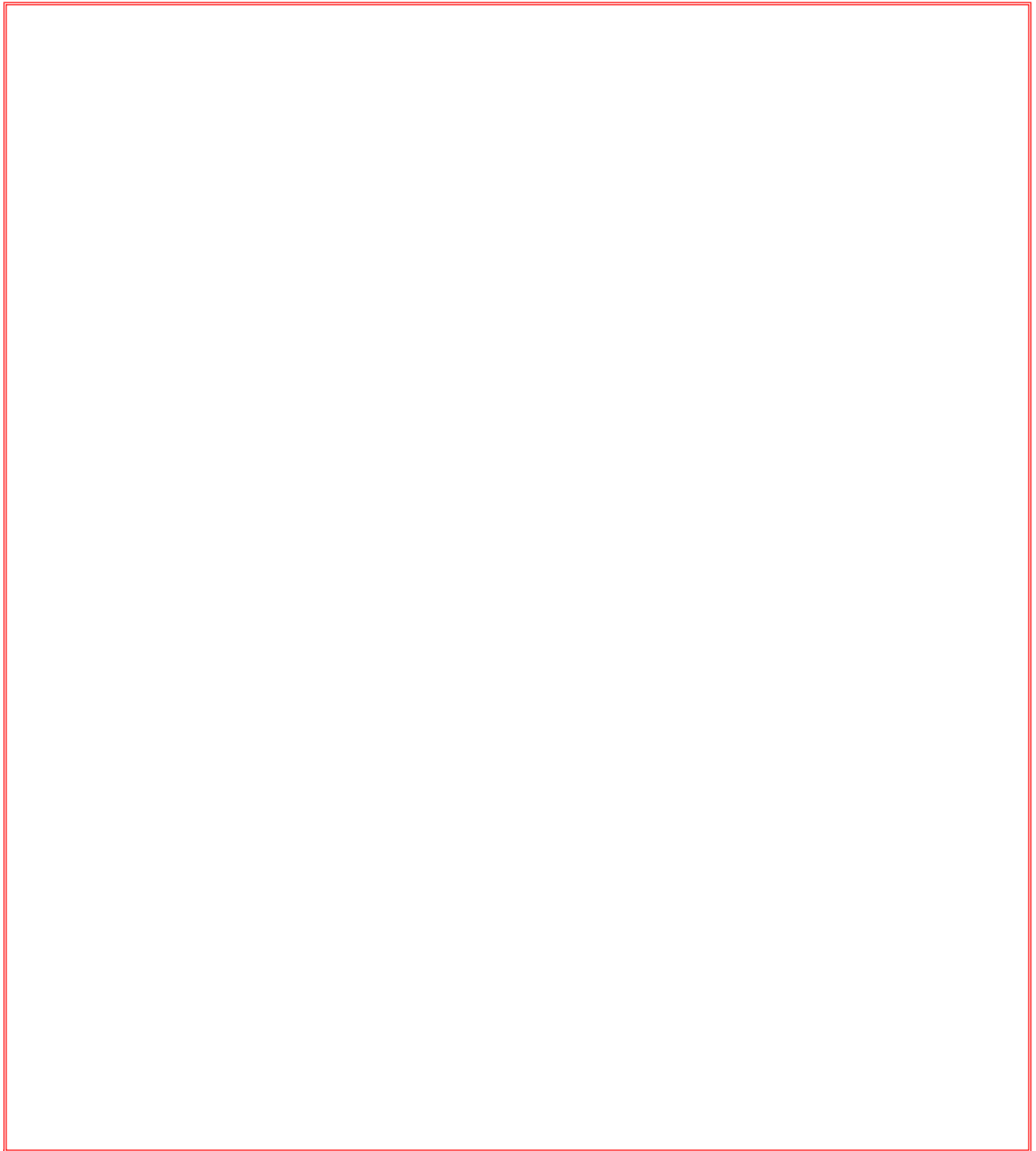


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**From:** [Anna J Fox](#)  
**To:** [Bill L Rooney](#)  
**Subject:** Final Grades Due  
**Date:** Wednesday, August 05, 2009 2:16:34 PM  
**Attachments:** [Rooney, W..pdf](#)

---

979/845-3496  
2009

August 5,

afox@ag.tamu.edu

## MEMORANDUM

**TO:** Teaching Faculty  
**FROM:** Anna Fox  
**SUBJECT:** Grade Sheets

I am attaching copies of final grade sheet(s) for your classes and variable credit sections for the Summer 2009 semester. Please come see me, Anna, in Room 217 of Heep Center to mark and sign the original grade sheets by 4:00 on Friday, August 14, 2009.

If you are not on the College Station Campus or in our building you may e-mail your grades to me and we will complete the grade sheets for you using your e-mail as our verification of grades.

These are final grades for the semester, therefore there is no flexibility in the due date.

Please let me know if you have any questions.

Thanks!





\_\_\_\_\_

**SIGNATURE OF PROFESSOR**

**From:** [Wayne Thompson](#)  
**To:** [Dustin Borden](#)  
**Cc:** [Juerg Blumenthal](#); [Robert Myatt](#); [Delroy Collins](#); [Bill L Rooney](#)  
**Subject:** Forage Harvester and Weigh Wagon  
**Date:** Thursday, October 15, 2009 4:47:46 PM

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Dustin,

I hope that all is well ...

I spoke with Bill yesterday afternoon about setting up an agreement for use of your forage harvester and weigh wagon. Could you come up with an hourly rate that we could pay to help defray your operation and maintenance costs?

We have quite a bit of area at Buffalo Ranch, the rotation study with Cothren, and all of the trials in Field 111. We would like to record yields with the weigh wagon on the Cothren trial and at Buffalo Ranch. We need to hand-harvest our single-cut varieties ASAP (very wet) and follow with your harvester ... in total, maybe 25 hours (?).

Thank you,  
- Wayne

**From:** [Bill Rooney](#)  
**To:** ["Brummett, Robert G."](#)  
**Subject:** forages to keep in agreement  
**Date:** Tuesday, August 11, 2009 9:41:00 AM  
**Attachments:** [07.13.09 - Juan Carlos Landivar adjusted 8-11.xlsx](#)

---

I've marked the forages as to keep and drop.

We should keep three and drop the remainder.

questions - give me a call on my cell. Otherwise, we are good to go on this.

regards,

bill

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151

	Code	Source	
	1	07CS2048	5
	1	07CS2057	5
	1	07CS2174	5
	5	08CS6179-2,3	5
	5	08CS6195-1,2	5
	5	08CS6049-1	5
	6	07WF580/579-2	5
	6	07WF588/587-1	5
	6	07WF618/617-2	5
	6	08CS6180/6179-4	5
	6	08CS6196/6195-3	5
	6	08WF1260/1259-2	5
	1	07CS-FORO102	5
	1	07CS-FORO103	5
	1	07CS-FORO104	5
	4	07CS2374/2373	5
	4	07CS2362/2361	5
	4	07CS2368/2367	5
	1	07CS-FORO133	5
	0	08CS7815-2	5
	0	08CS7817-2	5
	0	08CS7847-3	5
	0	08CS7857-4	5
	0	08CS7879-3	5
	1	08CS7917	5
	0	08CS7919-3	5



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W P keep  
R P drop  
R T keep  
W P drop  
Sg Bndrop  
R Bndrop

**From:** [Delroy Collins](#)  
**To:** [Bill](#)  
**Subject:** FORH first cut  
**Date:** Monday, August 10, 2009 5:31:32 PM  
**Attachments:** [2009 CS FORH first cut.xls](#)

---

Mr. S. Delroy Collins, Research Associate  
Sorghum Breeding and Genetics  
Dept. of Soil & Crop Sciences  
Texas A&M University  
370 Olsen Blvd.  
College Station, TX 77843  
[delroy@tamu.edu](mailto:delroy@tamu.edu)  
(979) 845-2151

## ENTRY PLOT PEDIGREE

1	10
1	25
2	10
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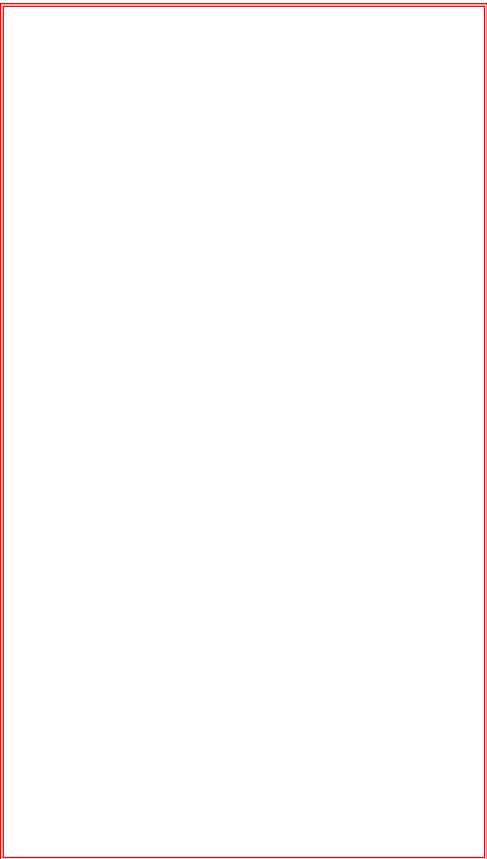
f224	f405	YD f224	YD f405	Mean f224
85	92	82280	89056	69212
58	62	56144	60016	
93	128	90024	123904	79860
72	107	69696	103576	
53	42	51304	40656	52272
55	62	53240	60016	
55	76	53240	73568	49852
48	44	46464	42592	
46	75	44528	72600	49368
56	54	54208	52272	
52	71	50336	68728	57596
67	51	64856	49368	
45	60	43560	58080	49368
57	40	55176	38720	
34	53	32912	51304	43076
55	34	53240	32912	
52	63	50336	60984	43076
37	47	35816	45496	
46	58	44528	56144	22264
	45		43560	
49	64	47432	61952	39204
32	44	30976	42592	
21	43	20328	41624	19360
19	30	18392	29040	
39	34	37752	32912	43076
50	55	48400	53240	
63	54	60984	52272	55660
52	42	50336	40656	
37	46	35816	44528	36300
38	46	36784	44528	
58	51	56144	49368	52756
51	52	49368	50336	
48	53	46464	51304	45012
45	47	43560	45496	
40	56	38720	54208	42592
48	59	46464	57112	
34	43	32912	41624	27104
22	35	21296	33880	
27	57	26136	55176	26620
28	37	27104	35816	
36	42	34848	40656	38236
43	50	41624	48400	
29	43	28072	41624	28072
29	25	28072	24200	
47		45496		25652
6	43	5808	41624	
69	56	66792	54208	58080
51	31	49368	30008	

25	125
25	250
26	126
26	207
27	127
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28	128
28	211
29	129
29	222
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37	202
38	138
38	203
39	139
39	247
40	140
40	212
41	141
41	241
42	142
42	215
43	143
43	244
44	144
44	209
45	145
45	229
46	146
46	205
47	147
47	214
48	148
48	228
49	149

51	125	49368	121000	54692
62	47	60016	45496	
60	46	58080	44528	47916
39	46	37752	44528	
52	40	50336	38720	44044
39	40	37752	38720	
46	58	44528	56144	50820
59	55	57112	53240	
45	63	43560	60984	45496
49	38	47432	36784	
47	45	45496	43560	43076
42	41	40656	39688	
41	39	39688	37752	38720
39	31	37752	30008	
67	41	64856	39688	57596
52	63	50336	60984	
57	60	55176	58080	56628
60	57	58080	55176	
54	44	52272	42592	45496
40	45	38720	43560	
50	65	48400	62920	43560
40	47	38720	45496	
48	50	46464	48400	42108
39	61	37752	59048	
57	54	55176	52272	51788
50	57	48400	55176	
55	39	53240	37752	60016
69	45	66792	43560	
42	52	40656	50336	47916
57	68	55176	65824	
46	58	44528	56144	48400
54	42	52272	40656	
53	57	51304	55176	49852
50	56	48400	54208	
83	95	80344	91960	64372
50	75	48400	72600	
44	28	42592	27104	48884
57	53	55176	51304	
45	57	43560	55176	50336
59	47	57112	45496	
50	36	48400	34848	42592
38	35	36784	33880	
47	44	45496	42592	47916
52	47	50336	45496	
67	52	64856	50336	54692
46	43	44528	41624	
65	42	62920	40656	56628
52	57	50336	55176	
33	38	31944	36784	45496



49 217  
50 150  
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52 152  
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**Means**

61	49	59048	47432	
40	48	38720	46464	49852
63	66	60984	63888	
35	44	33880	42592	42108
52	48	50336	46464	
41	53	39688	51304	45496
53	65	51304	62920	
42	67	40656	64856	55660
73	72	70664	69696	
55	90	53240	87120	60984
71	106	68728	102608	
53	62	51304	60016	57596
66	75	63888	72600	
58	87	56144	84216	65824
78	109	75504	105512	
50	30	48400	29040	44528
42	52	40656	50336	
51	91	49368	88088	57596
68	63	65824	60984	
34	29	32912	28072	28556
25	42	24200	40656	
68	92	65824	89056	66308
69	80	66792	77440	
		<b>48189</b>	<b>53248</b>	

<b>Mean f405</b>	<b>Mean</b>
74536	71874
113740	96800
50336	51304
58080	53966
62436	55902
59048	58322
48400	48884
42108	42592
53240	48158
49852	36058
52272	45738
35332	27346
43076	43076
46464	51062
44528	40414
49852	51304
48400	46706
55660	49126
37752	32428
45496	36058
44528	41382
32912	30492
20812	23232
42108	50094

83248	68970
44528	46222
38720	41382
54692	52756
48884	47190
41624	42350
33880	36300
50336	53966
56628	56628
43076	44286
54208	48884
53724	47916
53724	52756
40656	50336
58080	52998
48400	48400
54692	52272
82280	73326
39204	44044
50336	50336
34364	38478
44044	45980
45980	50336
47916	52272
42108	43802

55176	52514
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44528	43318
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57112	51304
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67276	61468
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94864	77924
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66308	61952
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94864	80344
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39688	42108
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74536	66066
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34364	31460
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83248	74778
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	<b>50718</b>
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PLOT		REP	ENTRY	CD	SOURCE	WT
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102		1	2	4	06CS7846/7845	169
103		1	3	4	07CS4854/4853	625
104		1	4	4	07CS4858/4857	62
105		1	5	4	07CS4864/4863	127
106		1	6	4	07CS4868/4867	74
107		1	7	4	07CS4874/4873	65
108		1	8	4	07CS4878/4877	217
109		1	9	4	07CS4888/4887	154
110		1	10	4	07CS4890/4889	35
111		1	11	4	07CS4892/4891	284
112		1	12	4	07CS4896/4895	212
113		1	13	4	07CS4900/4899	193
114		1	14	4	07CS4908/4907	162
115		1	15	4	07CS4910/4909	117
116		1	16	4	07CS4912/4911	189
117		1	17	4	07CS4914/4913	393
118		1	18	4	07CS4932/4931	131
119		1	19	4	08CS7804/7803	256
120		1	20	4	08CS7806/7805	166
121		1	21	4	08CS7808/7807	46
122		1	22	4	08CS7812/7811	242
123		1	23	4	08CS7814/7813	29
124		1	24	4	08CS7816/7815	56
125		1	25	4	08CS7818/7817	43
126		1	26	4	08CS7820/7819	145
127		1	27	4	08CS7822/7821	71
128		1	28	4	08CS7830/7829	308
129		1	29	4	08CS7840/7839	66
130		1	30	4	08CS7842/7841	31
131		1	31	4	08CS7846/7845	90
132		1	32	4	08CS7848/7847	42
133		1	33	4	08CS7858/7857	52
134		1	34	4	08CS7864/7863	269
135		1	35	4	08CS7868/7867	104
136		1	36	4	08CS7872/7871	180
137		1	37	4	08CS7874/7873	24
138		1	38	4	08CS7880/7879	127
139		1	39	4	08CS7884/7883	124
140		1	40	4	08CS7886/7885	122
141		1	41	4	08CS7892/7891	267

142		1	42	4	08CS7894/7893	29
143		1	43	4	08CS7896/7895	58
144		1	44	4	08CS7908/7907	352
145		1	45	4	08CS7910/7909	136
146		1	46	4	08CS7914/7913	145
147		1	47	4	08CS7918/7917	32
148		1	48	4	08CS7920/7919	76
149		1	49	4	08CS7922/7921	64
150		1	50	4	08CS8044/8043	37
151		1	51	4	08CS8046/8045	227
152		1	52	4	08CS8048/8047	96
153		1	53	4	08CS8052/8051	76
154		1	54	4	08CS8054/8053	234
155		1	55	4	08CS8056/8055	22
156		1	56	4	08CS8058/8057	288
157		1	57		Bott166	
158		1	58		Bott 208	
159		1	59		Bott 304	
160		1	60		Bott 311	
201		2	8	4	07CS4878/4877	217
202		2	37	4	08CS7874/7873	24
203		2	38	4	08CS7880/7879	127
204		2	53	4	08CS8052/8051	76
205		2	46	4	08CS7914/7913	145
206		2	7	4	07CS4874/4873	65
207		2	26	4	08CS7820/7819	145
208		2	30	4	08CS7842/7841	31
209		2	44	4	08CS7908/7907	352
210		2	20	4	08CS7806/7805	166
211		2	28	4	08CS7830/7829	308
212		2	40	4	08CS7886/7885	122
213		2	60		Bott 311	
214		2	47	4	08CS7918/7917	32
215		2	42	4	08CS7894/7893	29
216		2	31	4	08CS7846/7845	90
217		2	49	4	08CS7922/7921	64
218		2	10	4	07CS4890/4889	35
219		2	50	4	08CS8044/8043	37
220		2	6	4	07CS4868/4867	74
221		2	9	4	07CS4888/4887	154
222		2	29	4	08CS7840/7839	66
223		2	11	4	07CS4892/4891	284

224		2	14	4	07CS4908/4907	162
225		2	24	4	08CS7816/7815	56
226		2	55	4	08CS8056/8055	22
227		2	17	4	07CS4914/4913	393
228		2	48	4	08CS7920/7919	76
229		2	45	4	08CS7910/7909	136
230		2	5	4	07CS4864/4863	127
231		2	4	4	07CS4858/4857	62
232		2	35	4	08CS7868/7867	104
233		2	58		Bott 208	
234		2	12	4	07CS4896/4895	212
235		2	36	4	08CS7872/7871	180
236		2	27	4	08CS7822/7821	71
237		2	19	4	08CS7804/7803	256
238		2	16	4	07CS4912/4911	189
239		2	51	4	08CS8046/8045	227
240		2	57		Bott166	
241		2	41	4	08CS7892/7891	267
242		2	33	4	08CS7858/7857	52
243		2	21	4	08CS7808/7807	46
244		2	43	4	08CS7896/7895	58
245		2	56	4	08CS8058/8057	288
246		2	23	4	08CS7814/7813	29
247		2	39	4	08CS7884/7883	124
248		2	54	4	08CS8054/8053	234
249		2	3	4	07CS4854/4853	625
250		2	25	4	08CS7818/7817	43
251		2	2	4	06CS7846/7845	169
252		2	13	4	07CS4900/4899	193
253		2	59		Bott 304	
254		2	18	4	07CS4932/4931	131
255		2	1	4	06CS7844/7843	172
256		2	52	4	08CS8048/8047	96
257		2	32	4	08CS7848/7847	42
258		2	22	4	08CS7812/7811	242
259		2	34	4	08CS7864/7863	269
260		2	15	4	07CS4910/4909	117

Category	Percentage
Category 1	10%
Category 2	15%
Category 3	85%
Category 4	95%
Category 5	95%
Category 6	80%
Category 7	80%
Category 8	100%
Category 9	100%
Category 10	100%
Category 11	100%
Category 12	100%
Category 13	100%
Category 14	100%
Category 15	100%
Category 16	100%
Category 17	100%
Category 18	100%
Category 19	100%
Category 20	100%
Category 21	100%
Category 22	100%
Category 23	100%
Category 24	100%
Category 25	100%
Category 26	100%
Category 27	100%
Category 28	100%
Category 29	100%
Category 30	100%



[illegible]

Reason for leaving a job	Percentage of respondents
Lack of opportunities for growth	35%
Lack of challenges in the job	25%
Lack of recognition	20%
Lack of interest in the job	15%
Lack of salary	10%
Lack of work-life balance	5%
Lack of job security	5%
Lack of communication	5%
Lack of team spirit	5%
Lack of management	5%
Lack of resources	5%
Lack of technology	5%
Lack of training	5%
Lack of experience	5%
Lack of education	5%
Lack of skills	5%
Lack of knowledge	5%
Lack of information	5%
Lack of motivation	5%
Lack of commitment	5%
Lack of loyalty	5%
Lack of integrity	5%
Lack of honesty	5%
Lack of respect	5%
Lack of courtesy	5%
Lack of politeness	5%
Lack of kindness	5%
Lack of compassion	5%
Lack of empathy	5%
Lack of understanding	5%
Lack of tolerance	5%
Lack of patience	5%
Lack of persistence	5%
Lack of determination	5%
Lack of confidence	5%
Lack of self-esteem	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
Lack of self-kindness	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
Lack of self-kindness	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
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Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
Lack of self-kindness	5%
Lack of self-respect	5%
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Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
Lack of self-kindness	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
Lack of self-kindness	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	

SD	PL	DY	HT	DS	ST	UN	LG	PW (7/10)	Code	Barcode	Plot ID Label	Fresh wt (g)
W	T		85	1	1	1	1	85	09CMP-1690	*09CMP-1690*	09CS-FORG-101	332.2
W	P		90	1	1	1	1	93	09CMP-1691	*09CMP-1691*	09CS-FORG-102	519.9
W	P	176	100	2	1	1	2	53	09CMP-1692	*09CMP-1692*	09CS-FORG-103	425.5
W	P	178	115	2	1	1	2	55	09CMP-1693	*09CMP-1693*	09CS-FORG-104	443
W	P	176	112	3	2	1	3	46	09CMP-1694	*09CMP-1694*	09CS-FORG-105	434.2
W	P	175	115	4	1	2	3	52	09CMP-1695	*09CMP-1695*	09CS-FORG-106	492.9
W	P	175	120	3	2	2	3	45	09CMP-1696	*09CMP-1696*	09CS-FORG-107	542.6
W	P	175	125	5	2	3	2	34	09CMP-1697	*09CMP-1697*	09CS-FORG-108	422.8
W	P	177	113	3	1	2	2	52	09CMP-1698	*09CMP-1698*	09CS-FORG-109	389.7
W	P	174	115	3	1	2	2	46	09CMP-1699	*09CMP-1699*	09CS-FORG-110	502.9
W	T	187	100	3	2	2	2	49	09CMP-1700	*09CMP-1700*	09CS-FORG-111	510.7
W	T	189	115	4	3	3	1	21	09CMP-1701	*09CMP-1701*	09CS-FORG-112	458.1
W	P	175	112	3	2	2	2	39	09CMP-1702	*09CMP-1702*	09CS-FORG-113	487.5
W	P	167	115	3	2	2	3	63	09CMP-1703	*09CMP-1703*	09CS-FORG-114	
W	P	167	113	4	2	3	3	37	09CMP-1704	*09CMP-1704*	09CS-FORG-115	461.9
W	P	167	115	2	1	2	2	58	09CMP-1705	*09CMP-1705*	09CS-FORG-116	394.6
W	P	168	110	3	2	2	2	48	09CMP-1706	*09CMP-1706*	09CS-FORG-117	468.5
W	P	167	114	3	1	2	2	40	09CMP-1707	*09CMP-1707*	09CS-FORG-118	564.4
W	P	174	83	6	1	3	2	34	09CMP-1708	*09CMP-1708*	09CS-FORG-119	376.9
W	P	177	80	7	2	4	1	27	09CMP-1709	*09CMP-1709*	09CS-FORG-120	429
W	P	176	98	6	2	3	2	36	09CMP-1710	*09CMP-1710*	09CS-FORG-121	372.9
W	P	171	90	7	2	4	2	29	09CMP-1711	*09CMP-1711*	09CS-FORG-122	441.1
W	P	176	90	6	1	4	1	47	09CMP-1712	*09CMP-1712*	09CS-FORG-123	453.3
W	P	176	110	3	1	2	1	69	09CMP-1713	*09CMP-1713*	09CS-FORG-124	460.1
W	P	175	113	2	2	2	2	51	09CMP-1714	*09CMP-1714*	09CS-FORG-125	489.8
W	P	176	118	3	2	3	2	60	09CMP-1715	*09CMP-1715*	09CS-FORG-126	540.9
W	P	175	114	4	1	3	2	52	09CMP-1716	*09CMP-1716*	09CS-FORG-127	492.6
W	P	182	112	2	2	1	2	46	09CMP-1717	*09CMP-1717*	09CS-FORG-128	558.9
W	P	176	120	3	2	2	2	45	09CMP-1718	*09CMP-1718*	09CS-FORG-129	515
W	P	167	108	3	1	2	2	47	09CMP-1719	*09CMP-1719*	09CS-FORG-130	509.5
W	P	174	110	3	1	2	1	41	09CMP-1720	*09CMP-1720*	09CS-FORG-131	557
W	P	176	112	3	1	2	1	67	09CMP-1721	*09CMP-1721*	09CS-FORG-132	432.1
W	P	188	102	2	1	2	1	57	09CMP-1722	*09CMP-1722*	09CS-FORG-133	402.9
W	P	167	105	5	1	3	2	54	09CMP-1723	*09CMP-1723*	09CS-FORG-134	549.2
W	P	168	100	4	1	2	2	50	09CMP-1724	*09CMP-1724*	09CS-FORG-135	488.6
W	P	177	110	2	2	2	1	48	09CMP-1725	*09CMP-1725*	09CS-FORG-136	515.9
W	P	177	105	3	2	2	1	57	09CMP-1726	*09CMP-1726*	09CS-FORG-137	491.6
W	P	176	115	3	2	2	2	55	09CMP-1727	*09CMP-1727*	09CS-FORG-138	540.4
W	P	176	124	3	2	2	2	42	09CMP-1728	*09CMP-1728*	09CS-FORG-139	524.7
W	P	176	113	3	1	2	2	46	09CMP-1729	*09CMP-1729*	09CS-FORG-140	505.3
W	P	175	120	5	1	3	2	53	09CMP-1730	*09CMP-1730*	09CS-FORG-141	500.3

W	P		100	2	1	2	1	83	09CMP-1731	*09CMP-1731*	09CS-FORG-142	467.4
RW	P	176	115	4	1	2	1	44	09CMP-1732	*09CMP-1732*	09CS-FORG-143	525.3
W	P	176	118	5	1	3	4	45	09CMP-1733	*09CMP-1733*	09CS-FORG-144	470.8
W	P	177	112	7	2	2	7	50	09CMP-1734	*09CMP-1734*	09CS-FORG-145	497
W	P	177	107	6	2	3	4	47	09CMP-1735	*09CMP-1735*	09CS-FORG-146	440.5
W	P	177	114	6	2	2	4	67	09CMP-1736	*09CMP-1736*	09CS-FORG-147	583.4
W	P	177	120	6	1	2	4	65	09CMP-1737	*09CMP-1737*	09CS-FORG-148	479.8
W	P	178	104	5	2	3	2	33	09CMP-1738	*09CMP-1738*	09CS-FORG-149	452
W	T	175	105	4	1	2	2	40	09CMP-1739	*09CMP-1739*	09CS-FORG-150	441.6
W	P	175	114	3	2	2	2	35	09CMP-1740	*09CMP-1740*	09CS-FORG-151	517.5
W	T	175	110	2	2	2	1	41	09CMP-1741	*09CMP-1741*	09CS-FORG-152	468.5
W	T		73	2	2	1	1	42	09CMP-1742	*09CMP-1742*	09CS-FORG-153	466.4
W	P		82	2	2	1	1	55	09CMP-1743	*09CMP-1743*	09CS-FORG-154	525.7
W	T		80	2	1	1	1	53	09CMP-1744	*09CMP-1744*	09CS-FORG-155	198.1
W	P		83	2	1	1	1	58	09CMP-1745	*09CMP-1745*	09CS-FORG-156	454.3
		168	100	5	1	3	1	50	09CMP-1746	*09CMP-1746*	09CS-FORG-157	435.2
			84	2	2	1	1	51	09CMP-1747	*09CMP-1747*	09CS-FORG-158	489.8
		179	104	3	2	2	1	34	09CMP-1748	*09CMP-1748*	09CS-FORG-159	346.2
			83	2	1	2	1	68	09CMP-1749	*09CMP-1749*	09CS-FORG-160	
W	P	176	108	2	1	3	1	55	09CMP-1750	*09CMP-1750*	09CS-FORG-201	454.6
W	P	178	106	3	1	2	1	50	09CMP-1751	*09CMP-1751*	09CS-FORG-202	539.8
W	P	175	106	3	1	2	1	69	09CMP-1752	*09CMP-1752*	09CS-FORG-203	463
W	T		93	2	1	1	1	73	09CMP-1753	*09CMP-1753*	09CS-FORG-204	506.4
W	P	177	104	6	1	3	2	52	09CMP-1754	*09CMP-1754*	09CS-FORG-205	502.1
W	P	176	115	4	2	2	1	57	09CMP-1755	*09CMP-1755*	09CS-FORG-206	549.3
W	P	177	110	4	3	2	1	39	09CMP-1756	*09CMP-1756*	09CS-FORG-207	520.6
W	P	168	100	3	2	3	1	42	09CMP-1757	*09CMP-1757*	09CS-FORG-208	470.6
W	P	176	115	3	1	3	3	59	09CMP-1758	*09CMP-1758*	09CS-FORG-209	481.7
W	P	180	94	7	2	4	1	28	09CMP-1759	*09CMP-1759*	09CS-FORG-210	512
W	P	182	100	2	1	2	2	59	09CMP-1760	*09CMP-1760*	09CS-FORG-211	488.4
W	P	176	105	2	1	2	2	54	09CMP-1761	*09CMP-1761*	09CS-FORG-212	522
			87	2	1	2	1	69	09CMP-1762	*09CMP-1762*	09CS-FORG-213	450.1
W	P	177	105	3	2	3	2	46	09CMP-1763	*09CMP-1763*	09CS-FORG-214	570.3
W	P		86	3	1	3	2	50	09CMP-1764	*09CMP-1764*	09CS-FORG-215	464
W	P	176	104	4	2	3	2	39	09CMP-1765	*09CMP-1765*	09CS-FORG-216	502.7
W	P	179	115	2	1	2	2	61	09CMP-1766	*09CMP-1766*	09CS-FORG-217	
W	P				5			0	09CMP-1767	*09CMP-1767*	09CS-FORG-218	
W	T	175	110	3	2	2	1	63	09CMP-1768	*09CMP-1768*	09CS-FORG-219	528.7
W	P	167	106	5	2	2	1	67	09CMP-1769	*09CMP-1769*	09CS-FORG-220	501.8
W	P	180	105	4	2	2	1	37	09CMP-1770	*09CMP-1770*	09CS-FORG-221	467.4
W	P	177	106	3	1	3	1	49	09CMP-1771	*09CMP-1771*	09CS-FORG-222	497.1
W	T	175	87	5	2	2	1	32	09CMP-1772	*09CMP-1772*	09CS-FORG-223	364.1

W	P	168	104	4	1	3	2	52	09CMP-1773	*09CMP-1773*	09CS-FORG-224	415.3
W	P	177	100	2	2	3	1	51	09CMP-1774	*09CMP-1774*	09CS-FORG-225	489.4
W	T		79	2	2	2	1	66	09CMP-1775	*09CMP-1775*	09CS-FORG-226	475.6
W	P	175	102	4	1	3	2	45	09CMP-1776	*09CMP-1776*	09CS-FORG-227	511.4
W	P	177	105	4	1	3	2	52	09CMP-1777	*09CMP-1777*	09CS-FORG-228	466.6
W	P	177	110	5	2	2	3	38	09CMP-1778	*09CMP-1778*	09CS-FORG-229	406.2
W	P	178	99	3	1	2	2	56	09CMP-1779	*09CMP-1779*	09CS-FORG-230	493.6
W	P	183	113	3	1	3	1	48	09CMP-1780	*09CMP-1780*	09CS-FORG-231	484.1
W	P	172	87	5	2	2	1	40	09CMP-1781	*09CMP-1781*	09CS-FORG-232	510.1
			77	2	1	1	1	68	09CMP-1782	*09CMP-1782*	09CS-FORG-233	488
W	T	174	85	6	2	2	1	19	09CMP-1783	*09CMP-1783*	09CS-FORG-234	421.8
W	P	184	87	4	2	2	1	39	09CMP-1784	*09CMP-1784*	09CS-FORG-235	531.6
W	P	177	89	4	2	2	2	39	09CMP-1785	*09CMP-1785*	09CS-FORG-236	498
W	P	182	80	7	2	3	1	22	09CMP-1786	*09CMP-1786*	09CS-FORG-237	540.4
W	P	177	100	3	2	3	1	51	09CMP-1787	*09CMP-1787*	09CS-FORG-238	555.6
W	P	175	102	3	2	2	1	52	09CMP-1788	*09CMP-1788*	09CS-FORG-239	482.4
		176	93	5	2	2	1	42	09CMP-1789	*09CMP-1789*	09CS-FORG-240	524.7
W	P	177	101	3	1	3	1	50	09CMP-1790	*09CMP-1790*	09CS-FORG-241	482.9
W	P	174	100	4	1	3	2	60	09CMP-1791	*09CMP-1791*	09CS-FORG-242	435.9
W	P	174	94	5	1	2	2	43	09CMP-1792	*09CMP-1792*	09CS-FORG-243	511.8
RW	P	177	103	3	1	2	2	57	09CMP-1793	*09CMP-1793*	09CS-FORG-244	466.6
W	P		88	2	1	1	1	78	09CMP-1794	*09CMP-1794*	09CS-FORG-245	430.6
W	P	179	80	7	3	3	1	6	09CMP-1795	*09CMP-1795*	09CS-FORG-246	415
W	P	179	106	2	2	1	2	57	09CMP-1796	*09CMP-1796*	09CS-FORG-247	458.1
W	P		94	2	1	1	1	71	09CMP-1797	*09CMP-1797*	09CS-FORG-248	394.8
W	P	176	106	3	2	2	1	55	09CMP-1798	*09CMP-1798*	09CS-FORG-249	458.3
W	P	176	96	3	1	2	1	62	09CMP-1799	*09CMP-1799*	09CS-FORG-250	474.4
W	P		83	2	1	1	1	72	09CMP-1800	*09CMP-1800*	09CS-FORG-251	503.5
W	P	179	104	2	2	2	1	50	09CMP-1801	*09CMP-1801*	09CS-FORG-252	472.7
		181	103	5	2	2	1	25	09CMP-1802	*09CMP-1802*	09CS-FORG-253	561.8
W	P	168	109	2	1	3	2	48	09CMP-1803	*09CMP-1803*	09CS-FORG-254	612
W	T	178	87	4	1	3	1	58	09CMP-1804	*09CMP-1804*	09CS-FORG-255	499.8
W	T	175	106	2	2	1	2	53	09CMP-1805	*09CMP-1805*	09CS-FORG-256	538.5
W	P	177	93	3	2	3	1	52	09CMP-1806	*09CMP-1806*	09CS-FORG-257	541.4
W	P	176	73	6	1	3	1	29	09CMP-1807	*09CMP-1807*	09CS-FORG-258	430.1
W	P	175	99	4	2	3	1	40	09CMP-1808	*09CMP-1808*	09CS-FORG-259	384.3
W	P	170	106	4	2	2	3	38	09CMP-1809	*09CMP-1809*	09CS-FORG-260	483.5

<b>Dry wt (g)</b>	<b>Location</b>	<b>Grinded Material</b>	<b>Harvest #</b>
76.1	College Station-Field 224	Whole	Primary
124.2	College Station-Field 224	Whole	Primary
134.2	College Station-Field 224	Whole	Primary
143.9	College Station-Field 224	Whole	Primary
120.5	College Station-Field 224	Whole	Primary
137.2	College Station-Field 224	Whole	Primary
163.7	College Station-Field 224	Whole	Primary
103.2	College Station-Field 224	Whole	Primary
99.7	College Station-Field 224	Whole	Primary
151.1	College Station-Field 224	Whole	Primary
124.8	College Station-Field 224	Whole	Primary
116.5	College Station-Field 224	Whole	Primary
132.6	College Station-Field 224	Whole	Primary
	College Station-Field 224	Whole	Primary
166.5	College Station-Field 224	Whole	Primary
100.8	College Station-Field 224	Whole	Primary
133.9	College Station-Field 224	Whole	Primary
209.1	College Station-Field 224	Whole	Primary
120.2	College Station-Field 224	Whole	Primary
111.7	College Station-Field 224	Whole	Primary
107.6	College Station-Field 224	Whole	Primary
134.1	College Station-Field 224	Whole	Primary
144.8	College Station-Field 224	Whole	Primary
141.3	College Station-Field 224	Whole	Primary
133.6	College Station-Field 224	Whole	Primary
157.3	College Station-Field 224	Whole	Primary
131.8	College Station-Field 224	Whole	Primary
136.4	College Station-Field 224	Whole	Primary
124.1	College Station-Field 224	Whole	Primary
172.6	College Station-Field 224	Whole	Primary
160.7	College Station-Field 224	Whole	Primary
108.9	College Station-Field 224	Whole	Primary
114.4	College Station-Field 224	Whole	Primary
172.4	College Station-Field 224	Whole	Primary
146.1	College Station-Field 224	Whole	Primary
135.9	College Station-Field 224	Whole	Primary
127	College Station-Field 224	Whole	Primary
155.3	College Station-Field 224	Whole	Primary
152.1	College Station-Field 224	Whole	Primary
157.8	College Station-Field 224	Whole	Primary
136.3	College Station-Field 224	Whole	Primary

131.5	College Station-Field 224	Whole	Primary
155	College Station-Field 224	Whole	Primary
119.6	College Station-Field 224	Whole	Primary
110.4	College Station-Field 224	Whole	Primary
118.6	College Station-Field 224	Whole	Primary
147.1	College Station-Field 224	Whole	Primary
143.5	College Station-Field 224	Whole	Primary
123.7	College Station-Field 224	Whole	Primary
157.5	College Station-Field 224	Whole	Primary
155.6	College Station-Field 224	Whole	Primary
134.8	College Station-Field 224	Whole	Primary
101	College Station-Field 224	Whole	Primary
128.3	College Station-Field 224	Whole	Primary
59	College Station-Field 224	Whole	Primary
116.3	College Station-Field 224	Whole	Primary
111.9	College Station-Field 224	Whole	Primary
109.4	College Station-Field 224	Whole	Primary
97.8	College Station-Field 224	Whole	Primary
	College Station-Field 224	Whole	Primary
116.1	College Station-Field 224	Whole	Primary
149.8	College Station-Field 224	Whole	Primary
129.1	College Station-Field 224	Whole	Primary
123.6	College Station-Field 224	Whole	Primary
140.9	College Station-Field 224	Whole	Primary
169.2	College Station-Field 224	Whole	Primary
140.8	College Station-Field 224	Whole	Primary
143.2	College Station-Field 224	Whole	Primary
126.9	College Station-Field 224	Whole	Primary
138.9	College Station-Field 224	Whole	Primary
148.9	College Station-Field 224	Whole	Primary
158.9	College Station-Field 224	Whole	Primary
116.2	College Station-Field 224	Whole	Primary
155.8	College Station-Field 224	Whole	Primary
113.7	College Station-Field 224	Whole	Primary
125.7	College Station-Field 224	Whole	Primary
	College Station-Field 224	Whole	Primary
	College Station-Field 224	Whole	Primary
167.2	College Station-Field 224	Whole	Primary
126.4	College Station-Field 224	Whole	Primary
142.5	College Station-Field 224	Whole	Primary
143.1	College Station-Field 224	Whole	Primary
115	College Station-Field 224	Whole	Primary

138.2	College Station-Field 224	Whole	Primary
131.7	College Station-Field 224	Whole	Primary
111.3	College Station-Field 224	Whole	Primary
158.2	College Station-Field 224	Whole	Primary
143	College Station-Field 224	Whole	Primary
118.3	College Station-Field 224	Whole	Primary
142.7	College Station-Field 224	Whole	Primary
135.5	College Station-Field 224	Whole	Primary
137.9	College Station-Field 224	Whole	Primary
109.3	College Station-Field 224	Whole	Primary
119.9	College Station-Field 224	Whole	Primary
152.6	College Station-Field 224	Whole	Primary
148.6	College Station-Field 224	Whole	Primary
134.2	College Station-Field 224	Whole	Primary
154.7	College Station-Field 224	Whole	Primary
136	College Station-Field 224	Whole	Primary
138.9	College Station-Field 224	Whole	Primary
116.6	College Station-Field 224	Whole	Primary
114.1	College Station-Field 224	Whole	Primary
144.3	College Station-Field 224	Whole	Primary
129.3	College Station-Field 224	Whole	Primary
96.8	College Station-Field 224	Whole	Primary
120.6	College Station-Field 224	Whole	Primary
120.1	College Station-Field 224	Whole	Primary
82.2	College Station-Field 224	Whole	Primary
123.5	College Station-Field 224	Whole	Primary
131.4	College Station-Field 224	Whole	Primary
116.2	College Station-Field 224	Whole	Primary
124.4	College Station-Field 224	Whole	Primary
157	College Station-Field 224	Whole	Primary
196.7	College Station-Field 224	Whole	Primary
127.8	College Station-Field 224	Whole	Primary
148.6	College Station-Field 224	Whole	Primary
134.2	College Station-Field 224	Whole	Primary
128.9	College Station-Field 224	Whole	Primary
123.6	College Station-Field 224	Whole	Primary
155.6	College Station-Field 224	Whole	Primary



PLOT		REP	ENTRY	CD	SOURCE	WT
101		1	1	4	06CS7844/7843	172
102		1	2	4	06CS7846/7845	169
103		1	3	4	07CS4854/4853	625
104		1	4	4	07CS4858/4857	62
105		1	5	4	07CS4864/4863	127
106		1	6	4	07CS4868/4867	74
107		1	7	4	07CS4874/4873	65
108		1	8	4	07CS4878/4877	217
109		1	9	4	07CS4888/4887	154
110		1	10	4	07CS4890/4889	35
111		1	11	4	07CS4892/4891	284
112		1	12	4	07CS4896/4895	212
113		1	13	4	07CS4900/4899	193
114		1	14	4	07CS4908/4907	162
115		1	15	4	07CS4910/4909	117
116		1	16	4	07CS4912/4911	189
117		1	17	4	07CS4914/4913	393
118		1	18	4	07CS4932/4931	131
119		1	19	4	08CS7804/7803	256
120		1	20	4	08CS7806/7805	166
121		1	21	4	08CS7808/7807	46
122		1	22	4	08CS7812/7811	242
123		1	23	4	08CS7814/7813	29
124		1	24	4	08CS7816/7815	56
125		1	25	4	08CS7818/7817	43
126		1	26	4	08CS7820/7819	145
127		1	27	4	08CS7822/7821	71
128		1	28	4	08CS7830/7829	308
129		1	29	4	08CS7840/7839	66
130		1	30	4	08CS7842/7841	31
131		1	31	4	08CS7846/7845	90
132		1	32	4	08CS7848/7847	42
133		1	33	4	08CS7858/7857	52
134		1	34	4	08CS7864/7863	269
135		1	35	4	08CS7868/7867	104
136		1	36	4	08CS7872/7871	180
137		1	37	4	08CS7874/7873	24
138		1	38	4	08CS7880/7879	127
139		1	39	4	08CS7884/7883	124
140		1	40	4	08CS7886/7885	122
141		1	41	4	08CS7892/7891	267

142		1	42	4	08CS7894/7893	29
143		1	43	4	08CS7896/7895	58
144		1	44	4	08CS7908/7907	352
145		1	45	4	08CS7910/7909	136
146		1	46	4	08CS7914/7913	145
147		1	47	4	08CS7918/7917	32
148		1	48	4	08CS7920/7919	76
149		1	49	4	08CS7922/7921	64
150		1	50	4	08CS8044/8043	37
151		1	51	4	08CS8046/8045	227
152		1	52	4	08CS8048/8047	96
153		1	53	4	08CS8052/8051	76
154		1	54	4	08CS8054/8053	234
155		1	55	4	08CS8056/8055	22
156		1	56	4	08CS8058/8057	288
157		1	57		Bott166	
158		1	58		Bott 208	
159		1	59		Bott 304	
160		1	60		Bott 311	
201		2	8	4	07CS4878/4877	217
202		2	37	4	08CS7874/7873	24
203		2	38	4	08CS7880/7879	127
204		2	53	4	08CS8052/8051	76
205		2	46	4	08CS7914/7913	145
206		2	7	4	07CS4874/4873	65
207		2	26	4	08CS7820/7819	145
208		2	30	4	08CS7842/7841	31
209		2	44	4	08CS7908/7907	352
210		2	20	4	08CS7806/7805	166
211		2	28	4	08CS7830/7829	308
212		2	40	4	08CS7886/7885	122
213		2	60		Bott 311	
214		2	47	4	08CS7918/7917	32
215		2	42	4	08CS7894/7893	29
216		2	31	4	08CS7846/7845	90
217		2	49	4	08CS7922/7921	64
218		2	10	4	07CS4890/4889	35
219		2	50	4	08CS8044/8043	37
220		2	6	4	07CS4868/4867	74
221		2	9	4	07CS4888/4887	154
222		2	29	4	08CS7840/7839	66
223		2	11	4	07CS4892/4891	284

224		2	14	4	07CS4908/4907	162
225		2	24	4	08CS7816/7815	56
226		2	55	4	08CS8056/8055	22
227		2	17	4	07CS4914/4913	393
228		2	48	4	08CS7920/7919	76
229		2	45	4	08CS7910/7909	136
230		2	5	4	07CS4864/4863	127
231		2	4	4	07CS4858/4857	62
232		2	35	4	08CS7868/7867	104
233		2	58		Bott 208	
234		2	12	4	07CS4896/4895	212
235		2	36	4	08CS7872/7871	180
236		2	27	4	08CS7822/7821	71
237		2	19	4	08CS7804/7803	256
238		2	16	4	07CS4912/4911	189
239		2	51	4	08CS8046/8045	227
240		2	57		Bott166	
241		2	41	4	08CS7892/7891	267
242		2	33	4	08CS7858/7857	52
243		2	21	4	08CS7808/7807	46
244		2	43	4	08CS7896/7895	58
245		2	56	4	08CS8058/8057	288
246		2	23	4	08CS7814/7813	29
247		2	39	4	08CS7884/7883	124
248		2	54	4	08CS8054/8053	234
249		2	3	4	07CS4854/4853	625
250		2	25	4	08CS7818/7817	43
251		2	2	4	06CS7846/7845	169
252		2	13	4	07CS4900/4899	193
253		2	59		Bott 304	
254		2	18	4	07CS4932/4931	131
255		2	1	4	06CS7844/7843	172
256		2	52	4	08CS8048/8047	96
257		2	32	4	08CS7848/7847	42
258		2	22	4	08CS7812/7811	242
259		2	34	4	08CS7864/7863	269
260		2	15	4	07CS4910/4909	117

**PEDIGREE2**

[illegible]

Reason for leaving a job	Percentage of respondents
Lack of opportunities for growth	35%
Lack of challenges in the job	25%
Lack of recognition	20%
Lack of interest in the job	15%
Lack of salary	10%
Lack of work-life balance	5%
Lack of job security	5%
Lack of communication	5%
Lack of team spirit	5%
Lack of management	5%
Lack of resources	5%
Lack of technology	5%
Lack of training	5%
Lack of experience	5%
Lack of education	5%
Lack of skills	5%
Lack of knowledge	5%
Lack of information	5%
Lack of motivation	5%
Lack of commitment	5%
Lack of loyalty	5%
Lack of integrity	5%
Lack of honesty	5%
Lack of respect	5%
Lack of courtesy	5%
Lack of politeness	5%
Lack of kindness	5%
Lack of compassion	5%
Lack of empathy	5%
Lack of understanding	5%
Lack of tolerance	5%
Lack of patience	5%
Lack of persistence	5%
Lack of determination	5%
Lack of confidence	5%
Lack of self-esteem	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
Lack of self-kindness	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
Lack of self-kindness	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
Lack of self-kindness	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
Lack of self-kindness	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
Lack of self-kindness	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	5%
Lack of self-education	5%
Lack of self-training	5%
Lack of self-development	5%
Lack of self-growth	5%
Lack of self-actualization	5%
Lack of self-fulfillment	5%
Lack of self-satisfaction	5%
Lack of self-acceptance	5%
Lack of self-compassion	5%
Lack of self-kindness	5%
Lack of self-respect	5%
Lack of self-love	5%
Lack of self-worth	5%
Lack of self-identity	5%
Lack of self-awareness	5%
Lack of self-reflection	5%
Lack of self-examination	5%
Lack of self-criticism	5%
Lack of self-improvement	

SD	PL	EX	DY	HT	DS	ST	UN	LG	bmr	Code	Barcode	Plot ID Label	Fresh wt (g)
W	T			95	1	1	1	1		09CMP-1810	*09CMP-1810*	09CS-FORG-101	
W	P			100	1	1	1	1		09CMP-1811	*09CMP-1811*	09CS-FORG-102	
W	P		170	102	3	2	2	1	y	09CMP-1812	*09CMP-1812*	09CS-FORG-103	
W	P		174	115	2	2	2	2	y	09CMP-1813	*09CMP-1813*	09CS-FORG-104	
W	P		169	105	3	1	2	2	y	09CMP-1814	*09CMP-1814*	09CS-FORG-105	
W	P		167	115	4	1	3	2	y	09CMP-1815	*09CMP-1815*	09CS-FORG-106	
W	P		167	115	6	1	1	7	y	09CMP-1816	*09CMP-1816*	09CS-FORG-107	
W	P		170	103	6	2	2	7	y	09CMP-1817	*09CMP-1817*	09CS-FORG-108	
W	P		174	110	3	1	3	6	y	09CMP-1818	*09CMP-1818*	09CS-FORG-109	
W	P		170	106	3	1	1	2	y	09CMP-1819	*09CMP-1819*	09CS-FORG-110	
W	T		169	105	3	1	2	2	s	09CMP-1820	*09CMP-1820*	09CS-FORG-111	
W	T		166	100	5	2	3	1	s	09CMP-1821	*09CMP-1821*	09CS-FORG-112	
W	P		168	100	7	2	2	8	y	09CMP-1822	*09CMP-1822*	09CS-FORG-113	
W	P		166	106	5	2	3	4	n	09CMP-1823	*09CMP-1823*	09CS-FORG-114	
W	P		162	96	6	1	3	5	n	09CMP-1824	*09CMP-1824*	09CS-FORG-115	
W	P		167	104	6	1	2	7	n	09CMP-1825	*09CMP-1825*	09CS-FORG-116	
W	P		167	103	5	1	3	4	n	09CMP-1826	*09CMP-1826*	09CS-FORG-117	
W	P		167	109	4	1	3	3	n	09CMP-1827	*09CMP-1827*	09CS-FORG-118	
W	P		170	95	5	1	3	2	y	09CMP-1828	*09CMP-1828*	09CS-FORG-119	
W	P		171	95	3	1	3	2	y	09CMP-1829	*09CMP-1829*	09CS-FORG-120	
W	P		168	94	6	1	3	7	y	09CMP-1830	*09CMP-1830*	09CS-FORG-121	
W	P		168	88	4	1	3	6	y	09CMP-1831	*09CMP-1831*	09CS-FORG-122	
W	P		172			5			no stand	09CMP-1832	*09CMP-1832*	09CS-FORG-123	
W	P		167	94	7	2	2	8	y	09CMP-1833	*09CMP-1833*	09CS-FORG-124	
W	P		167	95	7	1	2	7	y	09CMP-1834	*09CMP-1834*	09CS-FORG-125	
W	P		168	86	6	1	2	5	y	09CMP-1835	*09CMP-1835*	09CS-FORG-126	
W	P		167	89	8	1	3	8	y	09CMP-1836	*09CMP-1836*	09CS-FORG-127	
W	P		174	101	2	1	2	2	y	09CMP-1837	*09CMP-1837*	09CS-FORG-128	
W	P		168	90	5	1	3	5	y	09CMP-1838	*09CMP-1838*	09CS-FORG-129	
W	P		166	90	4	2	1	4	y	09CMP-1839	*09CMP-1839*	09CS-FORG-130	
W	P		167	90	8	1	2	9	y	09CMP-1840	*09CMP-1840*	09CS-FORG-131	
W	P		167	105	8	1	2	8	y	09CMP-1841	*09CMP-1841*	09CS-FORG-132	
W	P		173	99	2	1	1	2	y	09CMP-1842	*09CMP-1842*	09CS-FORG-133	
W	P		166	100	5	2	2	3	y	09CMP-1843	*09CMP-1843*	09CS-FORG-134	
W	P		167	91	4	1	2	3	y	09CMP-1844	*09CMP-1844*	09CS-FORG-135	
W	P		170	95	3	1	2	2	y	09CMP-1845	*09CMP-1845*	09CS-FORG-136	
W	P		170	105	6	1	2	6	y	09CMP-1846	*09CMP-1846*	09CS-FORG-137	
W	P		167	105	8	1	2	8	y	09CMP-1847	*09CMP-1847*	09CS-FORG-138	
W	P		170	111	7	1	1	7	y	09CMP-1848	*09CMP-1848*	09CS-FORG-139	
W	P		167	106	7	1	2	8	y	09CMP-1849	*09CMP-1849*	09CS-FORG-140	
W	P		168	104	7	1	2	8	y	09CMP-1850	*09CMP-1850*	09CS-FORG-141	

W	P			87	2	1	1	1	sg	09CMP-1851	*09CMP-1851*	09CS-FORG-142
RW	P		168	95	7	2	3	6	y	09CMP-1852	*09CMP-1852*	09CS-FORG-143
W	P		169	105	7	1	2	6	y	09CMP-1853	*09CMP-1853*	09CS-FORG-144
W	P		167	95	8	1	3	7	y	09CMP-1854	*09CMP-1854*	09CS-FORG-145
W	P		167	92	8	1	3	8	y	09CMP-1855	*09CMP-1855*	09CS-FORG-146
W	P		171	109	8	1	3	7	y	09CMP-1856	*09CMP-1856*	09CS-FORG-147
W	P		170	110	8	2	2	9	y	09CMP-1857	*09CMP-1857*	09CS-FORG-148
W	P		169	108	5	2	2	4	y	09CMP-1858	*09CMP-1858*	09CS-FORG-149
W	T		166	102	6	2	3	4	n	09CMP-1859	*09CMP-1859*	09CS-FORG-150
W	P		166	104	4	1	1	3	n	09CMP-1860	*09CMP-1860*	09CS-FORG-151
W	T		168	105	3	1	1	2	n	09CMP-1861	*09CMP-1861*	09CS-FORG-152
W	T			98	2	2	2	1	n	09CMP-1862	*09CMP-1862*	09CS-FORG-153
W	P			81	1	1	1	2	n	09CMP-1863	*09CMP-1863*	09CS-FORG-154
W	T			86	2	2	1	1	n	09CMP-1864	*09CMP-1864*	09CS-FORG-155
W	P			87	1	1	1	1	n	09CMP-1865	*09CMP-1865*	09CS-FORG-156
			167	96	5	2	1	2	n	09CMP-1866	*09CMP-1866*	09CS-FORG-157
				81	2	1	1	1	n	09CMP-1867	*09CMP-1867*	09CS-FORG-158
			175	92	5	3	2	2	y	09CMP-1868	*09CMP-1868*	09CS-FORG-159
				83	1	1	1	1	n	09CMP-1869	*09CMP-1869*	09CS-FORG-160
W	P		167	97	8	1	3	7	y	09CMP-1870	*09CMP-1870*	09CS-FORG-201
W	P		169	101	7	1	2	5	y	09CMP-1871	*09CMP-1871*	09CS-FORG-202
W	P		169	94	6	1	1	4	y	09CMP-1872	*09CMP-1872*	09CS-FORG-203
W	T			83	2	1	1	1	n	09CMP-1873	*09CMP-1873*	09CS-FORG-204
W	P		166	84	4	1	2	6	y	09CMP-1874	*09CMP-1874*	09CS-FORG-205
W	P		166	97	7	2	2	7	y	09CMP-1875	*09CMP-1875*	09CS-FORG-206
W	P		167	89	6	1	2	4	y	09CMP-1876	*09CMP-1876*	09CS-FORG-207
W	P		162	95	4	2	3	2	y	09CMP-1877	*09CMP-1877*	09CS-FORG-208
W	P		171	97	7	2	2	6	y	09CMP-1878	*09CMP-1878*	09CS-FORG-209
W	P		170	83	6	1	3	1	n	09CMP-1879	*09CMP-1879*	09CS-FORG-210
W	P		170	91	2	1	1	1	y	09CMP-1880	*09CMP-1880*	09CS-FORG-211
W	P		167	93	6	2	2	5	y	09CMP-1881	*09CMP-1881*	09CS-FORG-212
				86	2	2	1	2	n	09CMP-1882	*09CMP-1882*	09CS-FORG-213
W	P		172	111	6	1	2	7	y	09CMP-1883	*09CMP-1883*	09CS-FORG-214
W	P			102	2	1	2	2	sg	09CMP-1884	*09CMP-1884*	09CS-FORG-215
W	P		167	95	7	2	3	5	sg	09CMP-1885	*09CMP-1885*	09CS-FORG-216
W	P		170	104	4	1	2	2	y	09CMP-1886	*09CMP-1886*	09CS-FORG-217
W	P		168	101	4	1	3	3	y	09CMP-1887	*09CMP-1887*	09CS-FORG-218
W	T		167	110	4	2	1	2	n	09CMP-1888	*09CMP-1888*	09CS-FORG-219
W	P		170	104	3	1	2	2	y	09CMP-1889	*09CMP-1889*	09CS-FORG-220
W	P		173	92	4	1	2	1	y	09CMP-1890	*09CMP-1890*	09CS-FORG-221
W	P		167	97	7	1	3	7	y	09CMP-1891	*09CMP-1891*	09CS-FORG-222
W	T		170	92	4	2	2	1	y	09CMP-1892	*09CMP-1892*	09CS-FORG-223



W	P		166	102	6	1	3	5	n	09CMP-1893	*09CMP-1893*	09CS-FORG-224
W	P		167	92	8	1	2	7	y	09CMP-1894	*09CMP-1894*	09CS-FORG-225
W	T			81	2	2	1	1	n	09CMP-1895	*09CMP-1895*	09CS-FORG-226
W	P		167	101	4	2	2	2	n	09CMP-1896	*09CMP-1896*	09CS-FORG-227
W	P		174	105	6	1	2	6	y	09CMP-1897	*09CMP-1897*	09CS-FORG-228
W	P		167	99	8	1	2	8	y	09CMP-1898	*09CMP-1898*	09CS-FORG-229
W	P		169	101	3	2	1	2	y	09CMP-1899	*09CMP-1899*	09CS-FORG-230
W	P		173	115	6	1	2	4	y	09CMP-1900	*09CMP-1900*	09CS-FORG-231
W	P		169	89	2	1	2	1	y	09CMP-1901	*09CMP-1901*	09CS-FORG-232
				80	2	2	1	1	n	09CMP-1902	*09CMP-1902*	09CS-FORG-233
W	T		169	95	5	1	3	1	n	09CMP-1903	*09CMP-1903*	09CS-FORG-234
W	P		170	97	3	1	2	1	y	09CMP-1904	*09CMP-1904*	09CS-FORG-235
W	P		167	97	7	1	3	7	y	09CMP-1905	*09CMP-1905*	09CS-FORG-236
W	P		169	91	6	1	3	3	y	09CMP-1906	*09CMP-1906*	09CS-FORG-237
W	P		166	101	6	1	2	4	n	09CMP-1907	*09CMP-1907*	09CS-FORG-238
W	P		166	100	6	1	1	3	n	09CMP-1908	*09CMP-1908*	09CS-FORG-239
			166	100	5	1	2	3	n	09CMP-1909	*09CMP-1909*	09CS-FORG-240
W	P		166	92	7	1	2	8	y	09CMP-1910	*09CMP-1910*	09CS-FORG-241
W	P		176	95	2	1	1	1	y	09CMP-1911	*09CMP-1911*	09CS-FORG-242
W	P		170	95	6	2	2	3	y	09CMP-1912	*09CMP-1912*	09CS-FORG-243
RW	P		169	110	5	1	2	4	y	09CMP-1913	*09CMP-1913*	09CS-FORG-244
W	P			88	1	1	1	1	n	09CMP-1914	*09CMP-1914*	09CS-FORG-245
W	P		170	86	6	1	3	2	y	09CMP-1915	*09CMP-1915*	09CS-FORG-246
W	P		170	115	2	2	2	2	y	09CMP-1916	*09CMP-1916*	09CS-FORG-247
W	P			90	1	1	1	1	n	09CMP-1917	*09CMP-1917*	09CS-FORG-248
W	P		168	101	2	2	2	2	y	09CMP-1918	*09CMP-1918*	09CS-FORG-249
W	P		167	90	8	1	1	7	y	09CMP-1919	*09CMP-1919*	09CS-FORG-250
W	P			87	1	1	1	1	n	09CMP-1920	*09CMP-1920*	09CS-FORG-251
W	P		169	102	2	1	2	2	y	09CMP-1921	*09CMP-1921*	09CS-FORG-252
			174	105	4	2	2	2	y	09CMP-1922	*09CMP-1922*	09CS-FORG-253
W	P		162	106	3	1	3	1	n	09CMP-1923	*09CMP-1923*	09CS-FORG-254
W	T			80	2	2	1	1	n	09CMP-1924	*09CMP-1924*	09CS-FORG-255
W	T		170	98	2	2	2	1	n	09CMP-1925	*09CMP-1925*	09CS-FORG-256
W	P		168	90	3	1	3	2	y	09CMP-1926	*09CMP-1926*	09CS-FORG-257
W	P		173	75	6	2	3	1	y	09CMP-1927	*09CMP-1927*	09CS-FORG-258
W	P		167	91	2	1	2	2	y	09CMP-1928	*09CMP-1928*	09CS-FORG-259
W	P		167	92	3	1	3	2	n	09CMP-1929	*09CMP-1929*	09CS-FORG-260

<b>Dry wt (g)</b>	<b>Location</b>	<b>Grinded Material</b>	<b>Harvest #</b>	<b>PW(7/7)</b>	<b>wet sample (7/7)</b>
132.6	College Station-Field 405	Whole	Primary	92	606
106.7	College Station-Field 405	Whole	Primary	128	552
127.4	College Station-Field 405	Whole	Primary	42	465
150.2	College Station-Field 405	Whole	Primary	76	562
119.3	College Station-Field 405	Whole	Primary	75	395
186.4	College Station-Field 405	Whole	Primary	71	649
149.9	College Station-Field 405	Whole	Primary	60	517
135.1	College Station-Field 405	Whole	Primary	53	533
135.7	College Station-Field 405	Whole	Primary	63	516
160.9	College Station-Field 405	Whole	Primary	58	584
152.3	College Station-Field 405	Whole	Primary	64	493
143.2	College Station-Field 405	Whole	Primary	43	432
101.8	College Station-Field 405	Whole	Primary	34	362
173	College Station-Field 405	Whole	Primary	54	475
164.9	College Station-Field 405	Whole	Primary	46	510
155.4	College Station-Field 405	Whole	Primary	51	497
184.9	College Station-Field 405	Whole	Primary	53	525
157.1	College Station-Field 405	Whole	Primary	56	426
125.3	College Station-Field 405	Whole	Primary	43	391
169.8	College Station-Field 405	Whole	Primary	57	558
136.6	College Station-Field 405	Whole	Primary	42	494
155.5	College Station-Field 405	Whole	Primary	43	499
	College Station-Field 405	Whole	Primary		
160.3	College Station-Field 405	Whole	Primary	56	513
111.2	College Station-Field 405	Whole	Primary	125	362
164.8	College Station-Field 405	Whole	Primary	46	544
131.1	College Station-Field 405	Whole	Primary	40	500
124.3	College Station-Field 405	Whole	Primary	58	552
169.9	College Station-Field 405	Whole	Primary	63	642
156.5	College Station-Field 405	Whole	Primary	45	481
109.6	College Station-Field 405	Whole	Primary	39	373
149.7	College Station-Field 405	Whole	Primary	41	530
138.5	College Station-Field 405	Whole	Primary	60	513
181.7	College Station-Field 405	Whole	Primary	44	604
183.6	College Station-Field 405	Whole	Primary	65	600
163.6	College Station-Field 405	Whole	Primary	50	537
139.8	College Station-Field 405	Whole	Primary	54	519
184.7	College Station-Field 405	Whole	Primary	39	636
139.4	College Station-Field 405	Whole	Primary	52	624
177.3	College Station-Field 405	Whole	Primary	58	603
146.5	College Station-Field 405	Whole	Primary	57	599

122.3	College Station-Field 405	Whole	Primary	95	473
139.4	College Station-Field 405	Whole	Primary	28	436
183	College Station-Field 405	Whole	Primary	57	648
142	College Station-Field 405	Whole	Primary	36	545
142.2	College Station-Field 405	Whole	Primary	44	619
159.3	College Station-Field 405	Whole	Primary	52	597
138.1	College Station-Field 405	Whole	Primary	42	411
130.3	College Station-Field 405	Whole	Primary	38	389
166.2	College Station-Field 405	Whole	Primary	48	501
175	College Station-Field 405	Whole	Primary	44	539
180.8	College Station-Field 405	Whole	Primary	53	588
131.7	College Station-Field 405	Whole	Primary	67	618
107.6	College Station-Field 405	Whole	Primary	90	478
93.5	College Station-Field 405	Whole	Primary	62	422
133.9	College Station-Field 405	Whole	Primary	87	623
134.1	College Station-Field 405	Whole	Primary	30	496
118.4	College Station-Field 405	Whole	Primary	91	600
155.7	College Station-Field 405	Whole	Primary	29	675
116.3	College Station-Field 405	Whole	Primary	92	518
139.6	College Station-Field 405	Whole	Primary	34	439
221.4	College Station-Field 405	Whole	Primary	57	683
159.1	College Station-Field 405	Whole	Primary	45	608
115.4	College Station-Field 405	Whole	Primary	72	554
179.3	College Station-Field 405	Whole	Primary	47	576
138.1	College Station-Field 405	Whole	Primary	40	504
157.6	College Station-Field 405	Whole	Primary	46	492
189.4	College Station-Field 405	Whole	Primary	41	543
147	College Station-Field 405	Whole	Primary	47	559
151	College Station-Field 405	Whole	Primary	37	507
201.1	College Station-Field 405	Whole	Primary	55	716
154.3	College Station-Field 405	Whole	Primary	42	402
136.1	College Station-Field 405	Whole	Primary	80	535
167.4	College Station-Field 405	Whole	Primary	43	655
135.2	College Station-Field 405	Whole	Primary	75	676
162.4	College Station-Field 405	Whole	Primary	31	540
214	College Station-Field 405	Whole	Primary	49	624
156.8	College Station-Field 405	Whole	Primary	45	465
145.9	College Station-Field 405	Whole	Primary	66	376
194.8	College Station-Field 405	Whole	Primary	51	671
175.8	College Station-Field 405	Whole	Primary	47	622
143	College Station-Field 405	Whole	Primary	38	498
192.4	College Station-Field 405	Whole	Primary	44	676

161.6	College Station-Field 405	Whole	Primary	42	419
120.8	College Station-Field 405	Whole	Primary	31	422
154.8	College Station-Field 405	Whole	Primary	75	712
171.1	College Station-Field 405	Whole	Primary	47	516
141.2	College Station-Field 405	Whole	Primary	57	555
154.1	College Station-Field 405	Whole	Primary	35	644
120.7	College Station-Field 405	Whole	Primary	54	405
155.5	College Station-Field 405	Whole	Primary	44	553
178.6	College Station-Field 405	Whole	Primary	47	614
91.4	College Station-Field 405	Whole	Primary	63	559
154.6	College Station-Field 405	Whole	Primary	30	516
185.1	College Station-Field 405	Whole	Primary	61	718
134.6	College Station-Field 405	Whole	Primary	40	512
140	College Station-Field 405	Whole	Primary	35	436
225.1	College Station-Field 405	Whole	Primary	52	679
216.4	College Station-Field 405	Whole	Primary	48	622
154.2	College Station-Field 405	Whole	Primary	52	596
197.1	College Station-Field 405	Whole	Primary	56	806
142	College Station-Field 405	Whole	Primary	57	464
156	College Station-Field 405	Whole	Primary	50	523
173.8	College Station-Field 405	Whole	Primary	53	716
125.6	College Station-Field 405	Whole	Primary	109	661
159.1	College Station-Field 405	Whole	Primary	43	623
216.3	College Station-Field 405	Whole	Primary	68	854
118.9	College Station-Field 405	Whole	Primary	106	496
181.1	College Station-Field 405	Whole	Primary	62	570
180.6	College Station-Field 405	Whole	Primary	47	718
130	College Station-Field 405	Whole	Primary	107	713
179.1	College Station-Field 405	Whole	Primary	55	722
241.7	College Station-Field 405	Whole	Primary	42	962
173.7	College Station-Field 405	Whole	Primary	59	581
	College Station-Field 405	Whole	Primary	62	529
269.3	College Station-Field 405	Whole	Primary	65	887
199.8	College Station-Field 405	Whole	Primary	63	761
174.5	College Station-Field 405	Whole	Primary	25	615
274.3	College Station-Field 405	Whole	Primary	45	918
219.1	College Station-Field 405	Whole	Primary	46	640

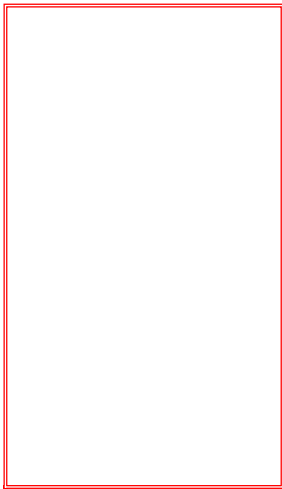
**ENTRY PLOT**

2 102  
56 156  
54 154  
60 160  
42 142  
1 101  
25 125  
58 158  
55 155  
53 153  
6 106  
33 133  
5 105  
32 132  
4 104  
39 139  
37 137  
28 128  
50 150  
48 148  
41 141  
52 152  
16 116  
3 103  
14 114  
47 147  
44 144  
38 138  
24 124  
18 118  
35 135  
7 107  
40 140  
9 109  
36 136  
29 129  
17 117  
26 126  
46 146  
11 111  
34 134  
43 143  
49 149  
51 151  
13 113  
8 108  
30 130  
57 157

**YD f224 YD f405 Mean f224 Mean f405**

90024 123904 79860 113740  
56144 84216 65824 94864  
53240 87120 60984 94864  
65824 89056 66308 83248  
80344 91960 64372 82280  
82280 89056 69212 74536  
49368 121000 54692 83248  
49368 88088 57596 74536  
51304 60016 57596 66308  
40656 64856 55660 67276  
50336 68728 57596 59048  
55176 58080 56628 56628  
44528 72600 49368 62436  
64856 39688 57596 50336  
53240 73568 49852 58080  
40656 50336 47916 58080  
55176 52272 51788 53724  
44528 56144 50820 54692  
38720 46464 49852 55176  
62920 40656 56628 47916  
51304 55176 49852 54692  
39688 51304 45496 57112  
56144 49368 52756 49852  
51304 40656 52272 50336  
60984 52272 55660 46464  
64856 50336 54692 45980  
43560 55176 50336 50336  
53240 37752 60016 40656  
66792 54208 58080 42108  
38720 54208 42592 55660  
48400 62920 43560 54208  
43560 58080 49368 48400  
44528 56144 48400 48400  
50336 60984 43076 53240  
46464 48400 42108 53724  
43560 60984 45496 48884  
46464 51304 45012 48400  
58080 44528 47916 44528  
45496 42592 47916 44044  
47432 61952 39204 52272  
52272 42592 45496 43076  
42592 27104 48884 39204  
31944 36784 45496 42108  
33880 42592 42108 44528  
37752 32912 43076 43076  
32912 51304 43076 42108  
45496 43560 43076 41624  
48400 29040 44528 39688

27	127
21	121
15	115
45	145
31	131
20	120
10	110
19	119
59	159
22	122
12	112
23	123



50336	38720	44044	38720
34848	40656	38236	44528
35816	44528	36300	44528
48400	34848	42592	34364
39688	37752	38720	33880
26136	55176	26620	45496
44528	56144	22264	49852
32912	41624	27104	37752
32912	28072	28556	34364
28072	41624	28072	32912
20328	41624	19360	35332
45496		25652	20812

<b>Means</b>	<b>48189</b>	<b>53248</b>	
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**Mean (wet lb/ac)**

96800  
80344  
77924  
74778  
73326  
71874  
68970  
66066  
61952  
61468  
58322  
56628  
55902  
53966  
53966  
52998  
52756  
52756  
52514  
52272  
52272  
51304  
51304  
51304  
51062  
50336  
50336  
50336  
50094  
49126  
48884  
48884  
48400  
48158  
47916  
47190  
46706  
46222  
45980  
45738  
44286  
44044  
43802  
43318  
43076  
42592  
42350  
42108

41382  
41382  
40414  
38478  
36300  
36058  
36058  
32428  
31460  
30492  
27346  
23232  
**50718**



**From:** [Bill Rooney](#)  
**To:** ["David Bransby"](#)  
**Subject:** four pages of sorghum  
**Date:** Thursday, November 12, 2009 10:14:00 PM  
**Attachments:** [Sorghum for Grass Book Chapter.docx](#)

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David:

I'm a week late but better late than never. Attached is a rough draft, I still need to provide the references, but I'll do that this weekend (and I may tweak the writing).

Regards,

Bill

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151

Sorghum evolved and was domesticated in arid areas of Northeastern Africa; it has been found in archaeological excavations estimated to be over 6,000 years ago<sup>3</sup>. After domestication, sorghum spread across Africa and into the continent of Asia through traditional trade routes. As the crop moved, new races were selected with specific adaptation to the region. The species is relatively new to the Americas and Australia, arriving in the past 200 to 300 years. As a consequence of domestication and distribution, sorghum is an extremely diverse species with a wide range of variation within domesticated sorghum. This variation has resulted in (or is the result of) many different end uses.

Sorghum is most widely known as a cereal grain crop. It is the fifth most widely grown and produced cereal crop in the world (FAO, 2006). However, in many regions of the world, sorghum is equally if not more important as a forage crop. While accurate statistics for forage use are not available, it is very likely that sorghum's use as forage exceeds its production as a cereal grain. In addition to forage and grain, sorghum types high in stalk sugar content, and extremely lignified types (for structural building) have been grown throughout the world.

Given the current energy situation, sorghum is now being developed as a potential bioenergy crop. This designation is not new; sorghum was mentioned prominently as a potential bioenergy crop over 20 years ago<sup>5</sup>. The interest in the crop is justifiable based on several independent factors that separately, indicate good potential, but when combined clearly designate sorghum as a superior choice for bioenergy production. These factors include yield potential and composition, water-use efficiency and drought tolerance, established production systems, and the potential for genetic improvement using both traditional and genomic approaches.

Whether measured in grain yield or total biomass yield, sorghum is a highly productive C4 photosynthetic species that is well adapted to warm growing regions. The optimum type of sorghum to be grown for biofuels production is highly dependent on the type of conversion process that will be used. Hybrids of grain sorghum will provide starch for conversion, while sweet sorghum accumulates sugar in the stalk that could be used for biofuels production. Finally, cellulose is produced by all types of sorghum and specific genotypes are being developed to maximize this production. Each type thus fits a different production system; no other species has the flexibility to produce large quantities of starch, sugar or cellulose.

Sweet sorghums accumulate high levels of sugar in the stalk of the plant. Initially identified and used as alternative sugar sources, they are very amenable for conversion to ethanol, using methodology similar to that used in sugarcane production. In the mid 1970's significant research was conducted to explore the development of sweet sorghum as a bioenergy source for biofuels and energy production<sup>9</sup>. Breeding programs were initiated to develop high yielding sweet sorghum specifically for ethanol production. Hallam et al.<sup>11</sup>, compared perennial grasses with annual row crops and found that sweet sorghum had the highest yield potential, averaging over 35 Mg ha<sup>-1</sup> (dry weight basis), and also performing well when intercropping with legume species. PUT THE HAWAII AND LOUISIANA DATA HERE.

Specific types of photoperiod sensitive sorghums are very efficient at producing biomass; primarily structural carbohydrates. These high biomass sorghums are a bioenergy crop due to their high yield potential and growth habit, which allows more flexible management of the crop. These sorghums produced biomass yields in excess of 100 Mg ha<sup>-1</sup> (fresh weight) and 30 Mg ha<sup>-1</sup> (dry weight). They reported that potential improvements could extend the potential of these types of hybrids to a wide range of environments. The unique feature of these sorghums is strong photoperiod sensitivity; they have long periods of vegetative growth. Under irrigation in the Texas panhandle, McCollum et al.<sup>16</sup>

reported yield of commercial photoperiod sensitive sorghum hybrids as high as 80 Mg ha<sup>-1</sup> (65% moisture) from a single harvest. In subtropical and tropical conditions, single cut yields are generally lower, likely due to increased night temperatures, but cumulative yields are higher due to the ratoon potential of the crop. Total biomass yields as high as 30 Mg ha<sup>-1</sup> (dry weight basis) were reported near College Station, Texas<sup>17</sup>.

Composition of sorghum is highly dependent on the type that is produced; i.e., grain sorghum, sweet sorghum, forage and cellulosic (high biomass) sorghum. Sorghum grain is high in starch, with lower levels of protein, fat and ash<sup>8</sup>. Significant variation in the composition of grain is controlled by both genetic and environmental components, making consistency in composition a function of the environment at the time of production and these factors influence ethanol production<sup>7</sup>. Juice extracted from sweet sorghum is predominantly sucrose with variable levels of glucose and fructose, and in some genotypes, small amounts of starch are detectable<sup>10,18</sup>. In forage, and photoperiod sensitive, and high biomass sorghums, the predominant compounds that are produced are structural carbohydrates (lignin, cellulose and hemi-cellulose)<sup>9,19</sup>. Amaducci et al.<sup>20</sup> reported that the environment influences sucrose, cellulose and hemicellulose concentrations while lignin content remains relatively constant.

## OPPORTUNITIES

There are significant opportunities for the further improvement of sorghum as a bioenergy crop. The established history of sorghum provides and immediate breeding and seed production infrastructure. In addition, the genetics of the crop are relatively simple when compared to other prominent bioenergy crops. To that point, sorghum genome research has advanced to where the generation of superior biomass sorghum genotypes can be addressed using genome scale analysis in conjunction with other systems-based approaches. Significant research has been completed to build integrated genetic, physical, and comparative maps of the sorghum genome<sup>42-45</sup>, to validate map-based gene cloning in sorghum<sup>47</sup>, and to carry out an in-depth gene expression analysis<sup>48,27</sup>. Finally, the completion of a 8X whole genome shotgun sequence of sorghum will greatly aid the completion of a high quality sequence of the sorghum genome (JGI, <http://www.jgi.doe.gov/sequencing/why/CSP2006/sorghum.html>). Ongoing breeding and research will utilize this emerging sorghum genome information and technology platform to advance the understanding of the genetic and biochemical basis of superior sorghum biomass generation.

There are several traits of specific importance to sorghum improvement as it relates to bioenergy production. These include, but are certainly not limited to maturity and height, drought tolerance, pest tolerance and/or resistance and composition and/or quality. Improvements in these areas will increase yield potential, protect existing yield potential and enhance conversion efficiency during processing.

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The renewed interest in bioenergy has increased research activities in sweet sorghums; emphasis in this work has been in the development of hybrid sweet sorghum. The production of hybrids is expected

to result in modest yield increases <sup>10</sup> and probably more importantly, make the logistics of seed production feasible. Currently, sweet sorghum hybrid production is limited by a paucity of grain type seed parents with high stem sugar content. These types are critical to maintain high sugar yields in the hybrids. Several groups have been developing these seed parents; experimental hybrids derived from them are now in experimental testing. In addition there is a real need for further development of pollinator parents. These first generation sweet sorghum hybrids are slightly higher in yield than traditional varieties, but seed production yields are much higher and easier to harvest. Currently, existing sweet sorghum varieties are used as pollinator parents, but complementary selection of the pollinator parent with the seed parent will result in second generation sweet sorghum hybrids that are easier to produce and have even higher yields.

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While the reason for producing bioenergy feedstock is to produce renewable fuel, one of the critical components in their production will be water. Thus, both drought tolerance and water-use efficiency is critical as many of these feedstocks will be produced in marginal environments where rainfall is limited and irrigation is either too expensive or would deplete water reserves. Sorghum is more drought tolerant than many other biomass crops. Depending on the type of biomass production in sorghum, both pre- and post- flowering drought tolerance mechanisms will be important. In sweet sorghum, both traits are of important but there has been little research into the impact of drought stress on sweet sorghum productivity. For high biomass photoperiod sensitive sorghums, preflowering drought tolerance is critical because, in most environments, this germplasm does not transition to the reproductive phase of growth. Each type of tolerance is associated with several phenotypic and physiological traits; these relationships have been used to fine map QTL associated with both pre and post-flowering drought tolerance. Traits that have been associated with drought resistance include heat tolerance, osmotic adjustment <sup>28</sup>, transpiration efficiency <sup>29</sup>, rooting depth and patterns <sup>30</sup>, epicuticular wax <sup>31</sup> and stay-green. Combining both phenotypic and MAB approaches should enhance drought tolerance breeding in bioenergy sorghums.

Disease and insect resistance have always been important traits in traditional sorghum breeding programs. However, bioenergy sorghums will likely be grown in different environments compared to traditional grain sorghum production environments and this will likely mean that the relative importance of pests and diseases will shift. For example, grain weathering resistance is critical in grain sorghum; it will be of diminished importance in a crop for which total biomass is the primary yield component. Likewise any disease that destroys the whole plant must be mitigated with either genetic resistance or management practices.

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Packer, personal communication). Further analysis is needed to partition this variation into genotypic and environmental variation. If even a portion is due to genetic effects, then there is a real opportunity to manipulate composition and optimize it to specifications of different end users.

The molecular genetic resources available in the sorghum species are the most advance among all of the potential energy crops. These tools can be readily applied to the improvement of sorghum for biofuel production. Combining these molecular genetic resources with traditional breeding approaches it should be possible to rapidly develop and deploy improved dedicated bioenergy sorghum that meet the needs of both crop and biofuel producers.

**From:** [Bill Rooney](#)  
**To:** ["David Bransby"](#)  
**Subject:** four pages of sorghum  
**Date:** Thursday, November 12, 2009 10:14:00 PM  
**Attachments:** [Sorghum for Grass Book Chapter.docx](#)

---

David:

I'm a week late but better late than never. Attached is a rough draft, I still need to provide the references, but I'll do that this weekend (and I may tweak the writing).

Regards,

Bill

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151

Sorghum evolved and was domesticated in arid areas of Northeastern Africa; it has been found in archaeological excavations estimated to be over 6,000 years ago<sup>3</sup>. After domestication, sorghum spread across Africa and into the continent of Asia through traditional trade routes. As the crop moved, new races were selected with specific adaptation to the region. The species is relatively new to the Americas and Australia, arriving in the past 200 to 300 years. As a consequence of domestication and distribution, sorghum is an extremely diverse species with a wide range of variation within domesticated sorghum. This variation has resulted in (or is the result of) many different end uses.

Sorghum is most widely known as a cereal grain crop. It is the fifth most widely grown and produced cereal crop in the world (FAO, 2006). However, in many regions of the world, sorghum is equally if not more important as a forage crop. While accurate statistics for forage use are not available, it is very likely that sorghum's use as forage exceeds its production as a cereal grain. In addition to forage and grain, sorghum types high in stalk sugar content, and extremely lignified types (for structural building) have been grown throughout the world.

Given the current energy situation, sorghum is now being developed as a potential bioenergy crop. This designation is not new; sorghum was mentioned prominently as a potential bioenergy crop over 20 years ago<sup>5</sup>. The interest in the crop is justifiable based on several independent factors that separately, indicate good potential, but when combined clearly designate sorghum as a superior choice for bioenergy production. These factors include yield potential and composition, water-use efficiency and drought tolerance, established production systems, and the potential for genetic improvement using both traditional and genomic approaches.

Whether measured in grain yield or total biomass yield, sorghum is a highly productive C4 photosynthetic species that is well adapted to warm growing regions. The optimum type of sorghum to be grown for biofuels production is highly dependent on the type of conversion process that will be used. Hybrids of grain sorghum will provide starch for conversion, while sweet sorghum accumulates sugar in the stalk that could be used for biofuels production. Finally, cellulose is produced by all types of sorghum and specific genotypes are being developed to maximize this production. Each type thus fits a different production system; no other species has the flexibility to produce large quantities of starch, sugar or cellulose.

Sweet sorghums accumulate high levels of sugar in the stalk of the plant. Initially identified and used as alternative sugar sources, they are very amenable for conversion to ethanol, using methodology similar to that used in sugarcane production. In the mid 1970's significant research was conducted to explore the development of sweet sorghum as a bioenergy source for biofuels and energy production<sup>9</sup>. Breeding programs were initiated to develop high yielding sweet sorghum specifically for ethanol production. Hallam et al.<sup>11</sup>, compared perennial grasses with annual row crops and found that sweet sorghum had the highest yield potential, averaging over 35 Mg ha<sup>-1</sup> (dry weight basis), and also performing well when intercropping with legume species. PUT THE HAWAII AND LOUISIANA DATA HERE.

Specific types of photoperiod sensitive sorghums are very efficient at producing biomass; primarily structural carbohydrates. These high biomass sorghums are a bioenergy crop due to their high yield potential and growth habit, which allows more flexible management of the crop. These sorghums produced biomass yields in excess of 100 Mg ha<sup>-1</sup> (fresh weight) and 30 Mg ha<sup>-1</sup> (dry weight). They reported that potential improvements could extend the potential of these types of hybrids to a wide range of environments. The unique feature of these sorghums is strong photoperiod sensitivity; they have long periods of vegetative growth. Under irrigation in the Texas panhandle, McCollum et al.<sup>16</sup>

reported yield of commercial photoperiod sensitive sorghum hybrids as high as 80 Mg ha<sup>-1</sup> (65% moisture) from a single harvest. In subtropical and tropical conditions, single cut yields are generally lower, likely due to increased night temperatures, but cumulative yields are higher due to the ratoon potential of the crop. Total biomass yields as high as 30 Mg ha<sup>-1</sup> (dry weight basis) were reported near College Station, Texas<sup>17</sup>.

Composition of sorghum is highly dependent on the type that is produced; i.e., grain sorghum, sweet sorghum, forage and cellulosic (high biomass) sorghum. Sorghum grain is high in starch, with lower levels of protein, fat and ash<sup>8</sup>. Significant variation in the composition of grain is controlled by both genetic and environmental components, making consistency in composition a function of the environment at the time of production and these factors influence ethanol production<sup>7</sup>. Juice extracted from sweet sorghum is predominantly sucrose with variable levels of glucose and fructose, and in some genotypes, small amounts of starch are detectable<sup>10,18</sup>. In forage, and photoperiod sensitive, and high biomass sorghums, the predominant compounds that are produced are structural carbohydrates (lignin, cellulose and hemi-cellulose)<sup>9,19</sup>. Amaducci et al.<sup>20</sup> reported that the environment influences sucrose, cellulose and hemicellulose concentrations while lignin content remains relatively constant.

## OPPORTUNITIES

There are significant opportunities for the further improvement of sorghum as a bioenergy crop. The established history of sorghum provides and immediate breeding and seed production infrastructure. In addition, the genetics of the crop are relatively simple when compared to other prominent bioenergy crops. To that point, sorghum genome research has advanced to where the generation of superior biomass sorghum genotypes can be addressed using genome scale analysis in conjunction with other systems-based approaches. Significant research has been completed to build integrated genetic, physical, and comparative maps of the sorghum genome<sup>42-45</sup>, to validate map-based gene cloning in sorghum<sup>47</sup>, and to carry out an in-depth gene expression analysis<sup>48,27</sup>. Finally, the completion of a 8X whole genome shotgun sequence of sorghum will greatly aid the completion of a high quality sequence of the sorghum genome (JGI, <http://www.jgi.doe.gov/sequencing/why/CSP2006/sorghum.html>). Ongoing breeding and research will utilize this emerging sorghum genome information and technology platform to advance the understanding of the genetic and biochemical basis of superior sorghum biomass generation.

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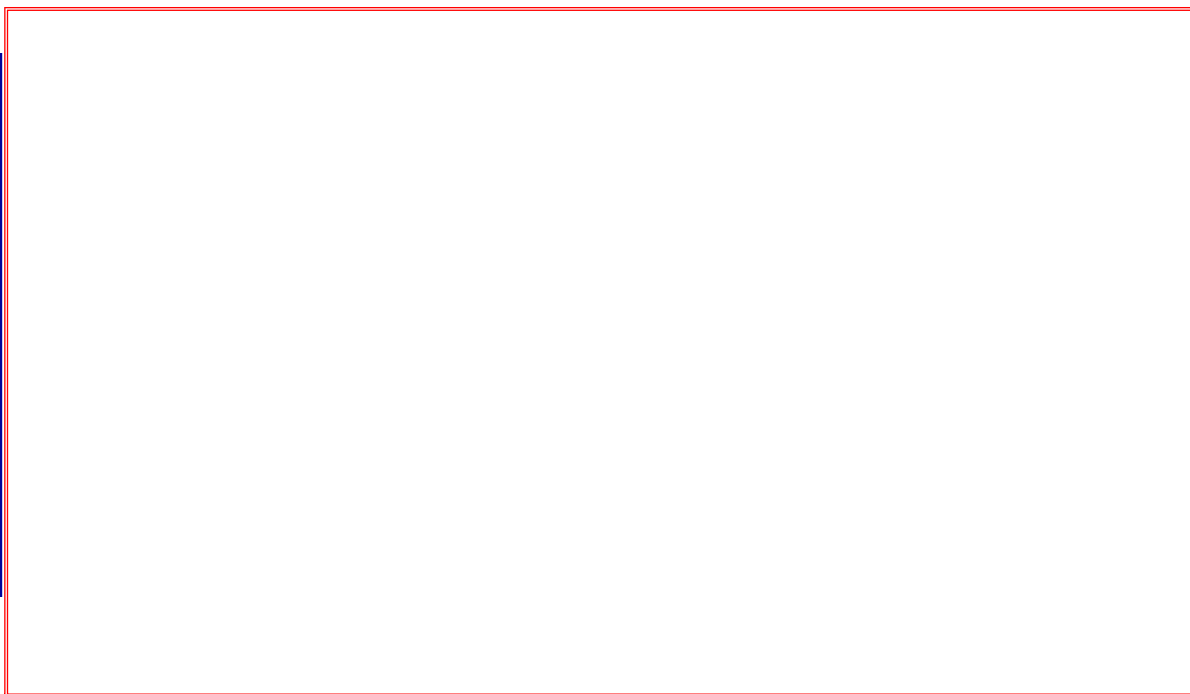
**From:** [Rafael Nieves](#)  
**To:** ["Bill Rooney"](#)  
**Subject:** From Rafael -MEDCO info  
**Date:** Saturday, September 26, 2009 12:39:26 PM  
**Attachments:** [08 07 11 ADT Initial Merauke Data \(Pre-FS Purpose\).ppt](#)

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Bill,

I am sending this in case I had not previously. Let me know if you need any special equipment for the site assessment so we can inform MEDCO.

Cheers,  
Rafael



# Outline



# General on Merauke



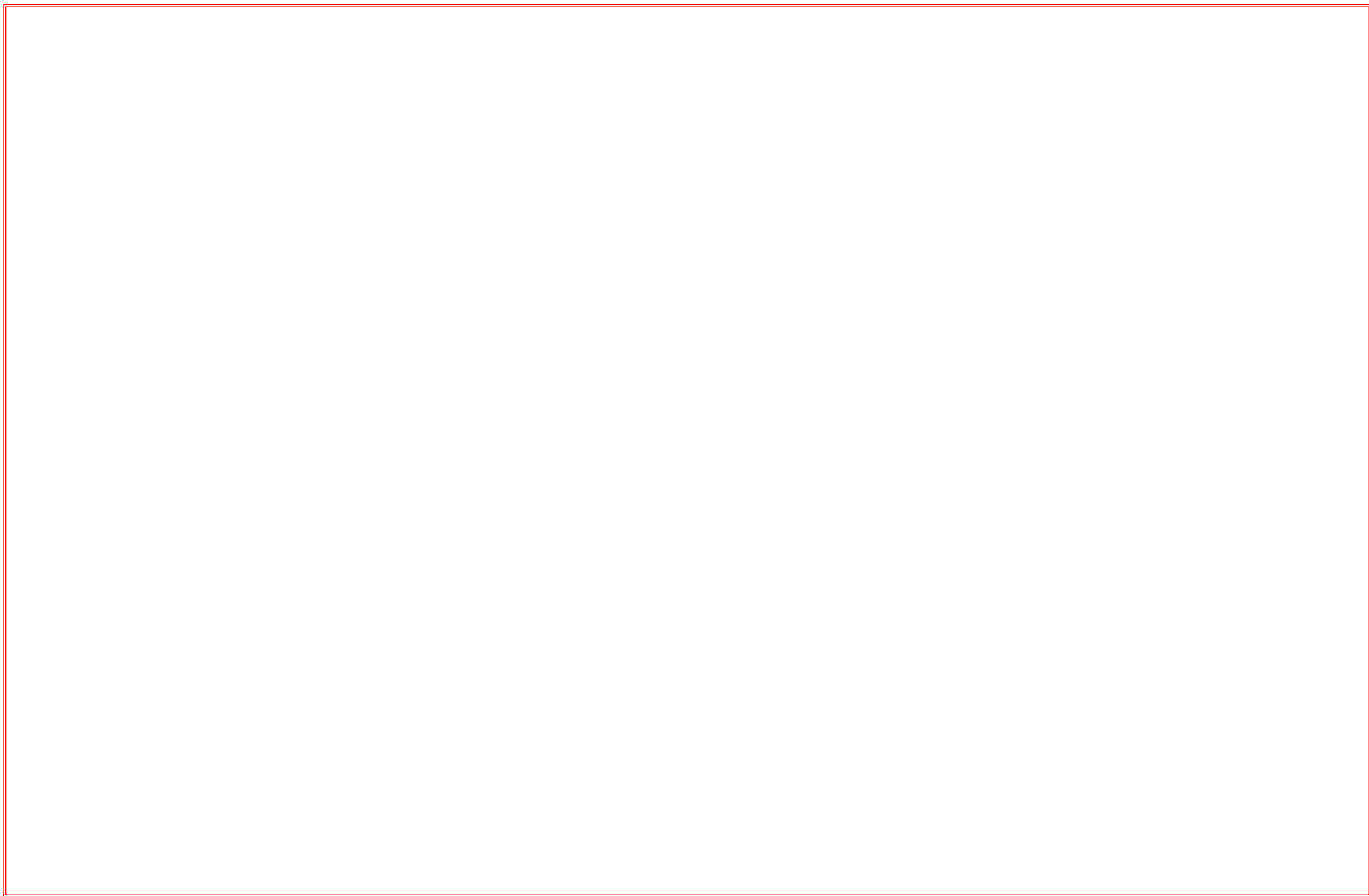




































**From:** [Audie Sciumbato](#)  
**To:** [wlr@tamu.edu](mailto:wlr@tamu.edu)  
**Subject:** FS-5 Sterility Update  
**Date:** Friday, October 16, 2009 1:58:21 PM

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Dr. Rooney-

I just wanted to drop a quick line to give you an update on the sterility issue up here. They drug their heels a little bit, but it looks like the company will be taking care of the producers' losses without the need for litigation. The producers didn't get quite as much as they wanted, but it was still a fair settlement. I'll be sure to let you know if that changes for some reason.

We appreciate all of your help and your willingness to sacrifice a day to come up here and meet with us. Please let me know if there is ever anything we can do for you.

Sincerely,  
Audie

Audie Sciumbato, PhD  
*Associate Attorney*  
Underwood Law Firm  
P.O. Box 9158  
Amarillo, Texas 79105  
[www.uwlaw.com](http://www.uwlaw.com)  
Phone: (806) 379-0326  
Fax: (806) 379-0316

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**From:** [Seth C. Murray](#)  
**To:** [David D Baltensperger](#)  
**Cc:** [Tim Herrman](#); [Bill Rooney](#)  
**Subject:** FT-NIRS  
**Date:** Sunday, September 06, 2009 4:32:50 PM  
**Attachments:** [Texas AgriLife Funding Request4.docx](#)

---

I hope you are having an enjoyable weekend,

Attached is a proposal for the FT-NIR that can be shared. I restructured it slightly for PUF but the two references do put it over the official two page limit and thus can be deleted if desired. I do have slight concerns on the timeline for PUF and would appreciate any guidance you can give.

From my perspective, even though we have \$10k for a vacuum planter from TXCorn Producers, FT-NIRS equipment could add far more value and increase outside funding chances more than the vacuum planter ever will. I think I and others would currently rank the interest and need for this FT-NIRS equipment above the vacuum planter but I would be open to discuss this further. I also talked with Dr. Smith about a cotton vacuum planter very briefly and there could be a possibility these two planter requests could be combined.

Thanks,

Seth

--

Seth C. Murray  
Assistant Professor  
Dept. Soil and Crop Sciences  
TAMU MS 2474  
College Station, TX 77843  
Office (979) 845-3469  
Cell (979) 595-5176  
<http://maizeandgenetics.tamu.edu/>

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**From:** [Rene Clara](#)  
**To:** [Bill Rooney](#); [Joan Frederick](#)  
**Subject:** Fund for CENTA and for me.  
**Date:** Monday, October 26, 2009 2:37:58 PM  
**Attachments:** [Proyectos CENTA finalmente aprobados 2009-2010.doc](#)

---

Dear Dr. Bill and Joan,

I don't know if INTSORMIL has interest to do alliance with SICTA in Central América.

I am reminding to you that CENTA will need the mailing of the second part of the approved funds, since the first funds are becoming exhausted and the projects have 50 % of execution. Attached I send to you the budget approved to CENTA and in red color the part that is missing for sending.

I also need send to me my regional budget, since I have been operating in the region with my money.

Regards,

**René Clará V.**  
INTSORMIL  
Host Regional Coordinator

CENTA, Apdo. Postal 885,  
San Salvador, El Salvador, C.A.  
Tel. (503) 2302 0239 - (503) 7815 2238 cel.  
Fax: (503) 2302 0239

E-mail: [reneclara@yahoo.com](mailto:reneclara@yahoo.com)

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¡Obtén la mejor experiencia en la web!  
Descarga gratis el nuevo Internet Explorer 8  
<http://downloads.yahoo.com/ieak8/?l=e1>



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**From:** [Bill Rooney](#)  
**To:** ["Robert M. Harris"](#)  
**Cc:** ["McCutchen, Bill"](#); ["Lloyd Rooney"](#); ["David Baltensperger"](#)  
**Subject:** funding opportunity  
**Date:** Wednesday, August 26, 2009 6:06:00 PM  
**Attachments:** [CPRIT\\_RFP.pdf](#)

---

Bob:

When we finished our discussions in June, we indicated that we were waiting on some health opportunities to develop. One specifically mentioned by Dr. Bill McCutchen was a cancer research funding opportunity. Well, that funding opportunity is now been published and I'm attaching the file for your information.

We are reading the request and assessing the potential viability of submitting a sorghum-focused proposal. If we do so, we will be looking for corporate involvement. We wanted to make you aware and give you a chance to consider the opportunity. I'm sure there is more to inform you of, but it might be easier to discuss the details in a phone call.

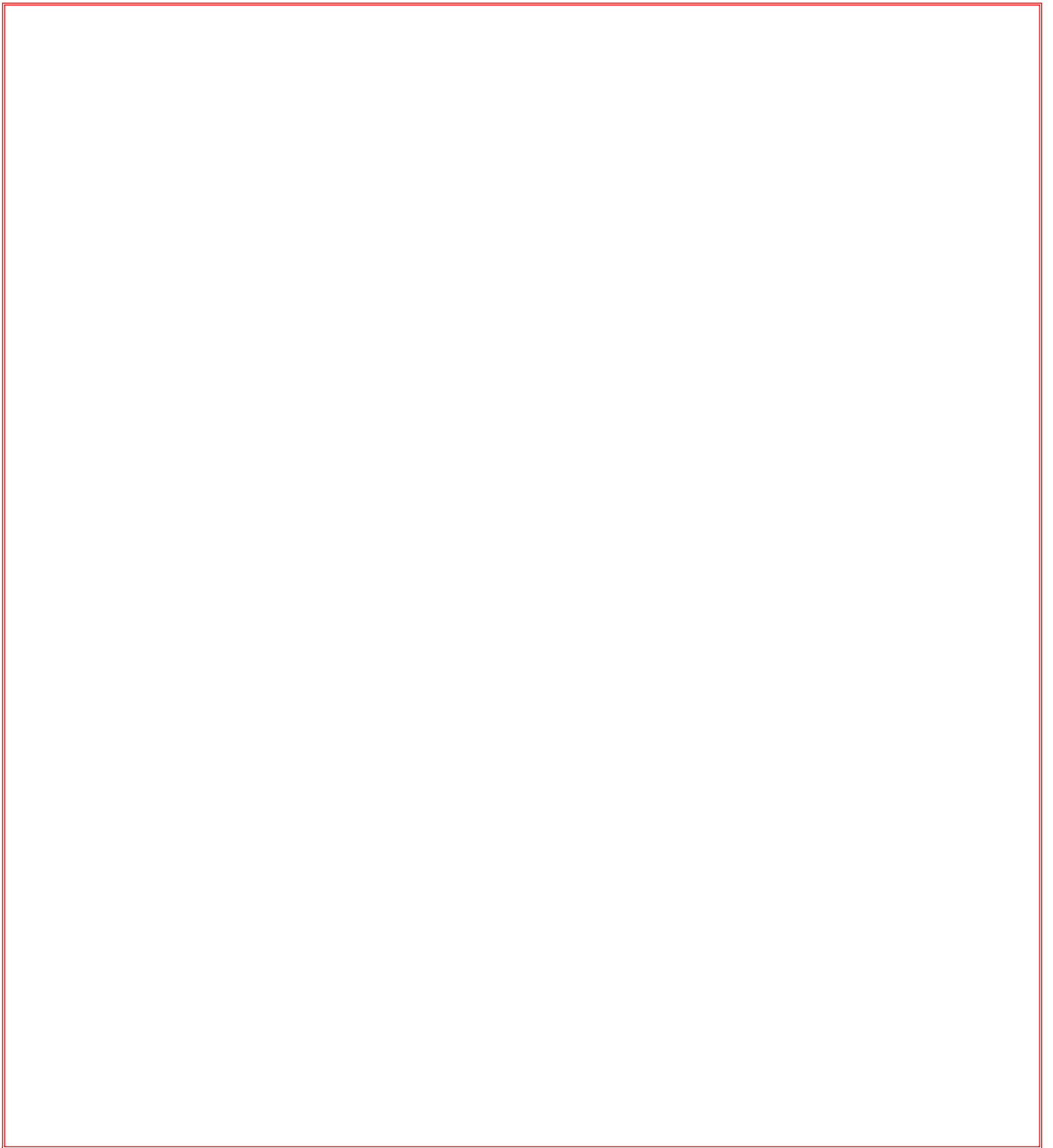
regards,

bill

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151





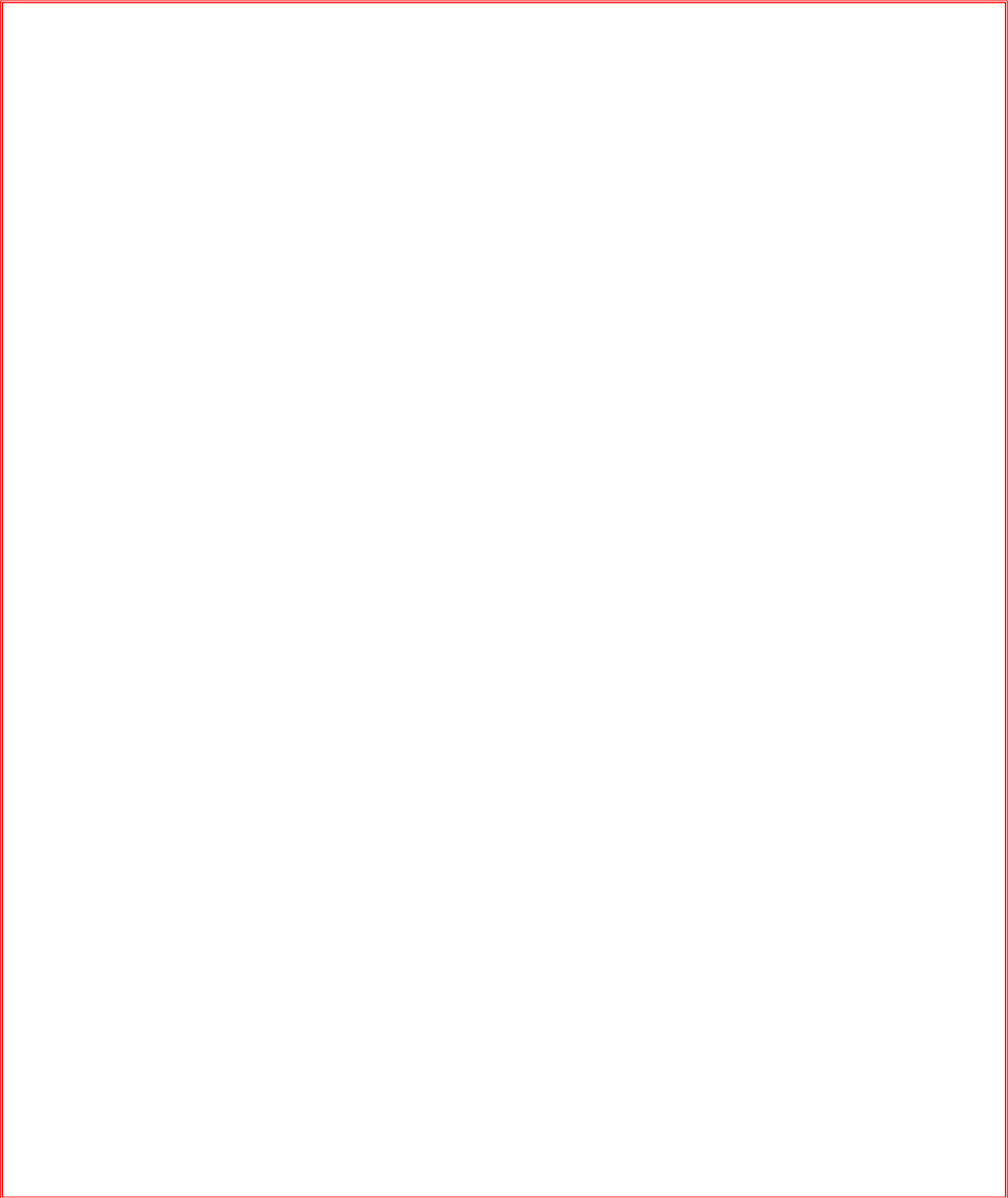




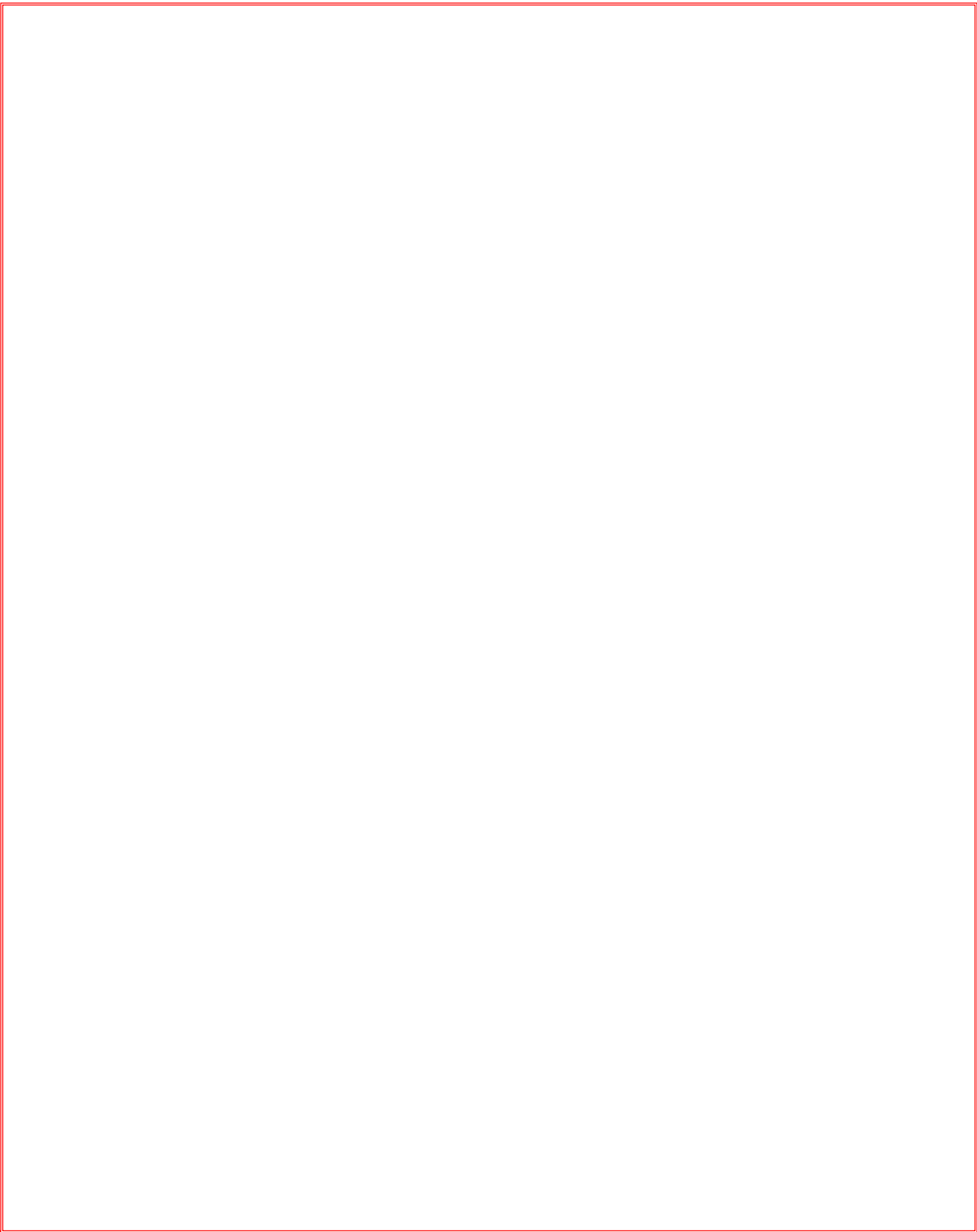














**From:** [Kathy Ferguson](#)  
**To:** [undisclosed-recipients:](#)  
**Subject:** Future Students WEB site - UPDATED  
**Date:** Friday, October 09, 2009 2:50:36 PM  
**Attachments:** [Kathy Ferguson.vcf](#)

---

The future students WEB site ([soilcrop.tamu.edu/futurestudents](http://soilcrop.tamu.edu/futurestudents)) has been updated to add the following NEW applicants:

**Travis Hunter Brown - 10C - MS AGRO**  
e-application

**Ashima Poudel - 10A - MS PLBR**  
e-application

**Brittany Nicole Sousa - 10A - MS SOSC**  
e-application  
e-essay  
resume  
recommendation 1

In addition all Applicant Summaries have been updated.

Please let me know if you have any questions.

Thanks!  
Kathy

Make it a GREAT day!

***Kathy Ferguson***

Senior Office Associate  
Soil & Crop Sciences | Instruction Programs  
MEPS | Instruction Programs  
Texas A&M University  
TAMU 2474  
Heep Center, Rm 217  
Phone: 979-845-4620 | MEPS: 979-845-0532 | Fax: 979-458-0533

"Learning is ever in the freshness of its youth, even for the old." Aeschylus

**From:** [Bill Rooney](#)  
**To:** ["Les Kuhlman"](#)  
**Subject:** FW: 09-105 - Revise Manuscript  
**Date:** Thursday, August 27, 2009 7:17:00 AM  
**Attachments:** [Genome 09-105 Revision.doc](#)

---

Les:

I realized I can send this to your Pioneer address as well. So in case you haven't yet, here it is.

I've made corrections and resubmitted the revised version (I've attached that to this e-mail).

I also have all of the permission to copyright forms (except yours) signed and I'll send those in.

What I don't know - they have a section for adding good files for images and tables. Do you have those files or should they simply use the revised manuscript? (ie, in the last manuscript, what did you send them?) If they are different files, do you have those files and can you upload them?

Regards,

Bill

P.S. I have approval to release  so I am reworking the manuscript and submitting it for release. Before I submit, I'll send the registration manuscript up to you for approval.

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151

-----Original Message-----

From: Editorial Office [<mailto:genome@yorku.ca>]  
Sent: Thursday, August 06, 2009 8:32 PM  
To: [wlr@tamu.edu](mailto:wlr@tamu.edu)  
Subject: 09-105 - Revise Manuscript

Dear William Rooney ,

Re: 09-105

Perry Gustafson has received and assessed reviewer comments for your manuscript. Based on the reviewer comments, Perry Gustafson recommends you submit a revised manuscript.

To submit a revised manuscript, log on to OSPrey at

"Your Work Areas" box. Please DO NOT submit a new manuscript as this will lead to delays.

Below I have printed the reviewer comments and the comments of Perry Gustafson.

In addition, no work may be published in GENOME unless the publisher receives an assignment of copyright form from each author. You should have downloaded these forms during the submission process. If you have not done so already, please complete these forms and upload them with your revised manuscript files or fax them to the Editorial Office at 1-905-237-3645.

If your manuscript contains colour figures you need to fill out additional forms that I can provide by e-mail. Please ask if you need this form.

Sincerely,  
Alistair Coulthard  
Assistant to the Editor  
GENOME  
e-mail: genome@yorku.ca

Associate Editor's Comments:

I agree with the reviewer in that this is a very well written manuscript. However, it does need to be carefully edited by the authors to make several small corrections as noted in the review.

Review 1  
Questions/Answers

Q. There are four general questions for recommendation:  
A. Accept as it stands

Comments

These are my general/specific comments:

The manuscript is well written. Proper methodology and protocol were followed in conducting the research. Conclusions drawn are proper.

The research adds new knowledge on the potential to introgress genes from other *Sorghum* species into *S. bicolor*.

Manuscript is acceptable for publication as submitted.

The reference Sharma (1999) on page 6 is not listed in the References.

Huelgas et al., reference - location is Tamworth, not Tomworth. (See Franzmann and Hardy)





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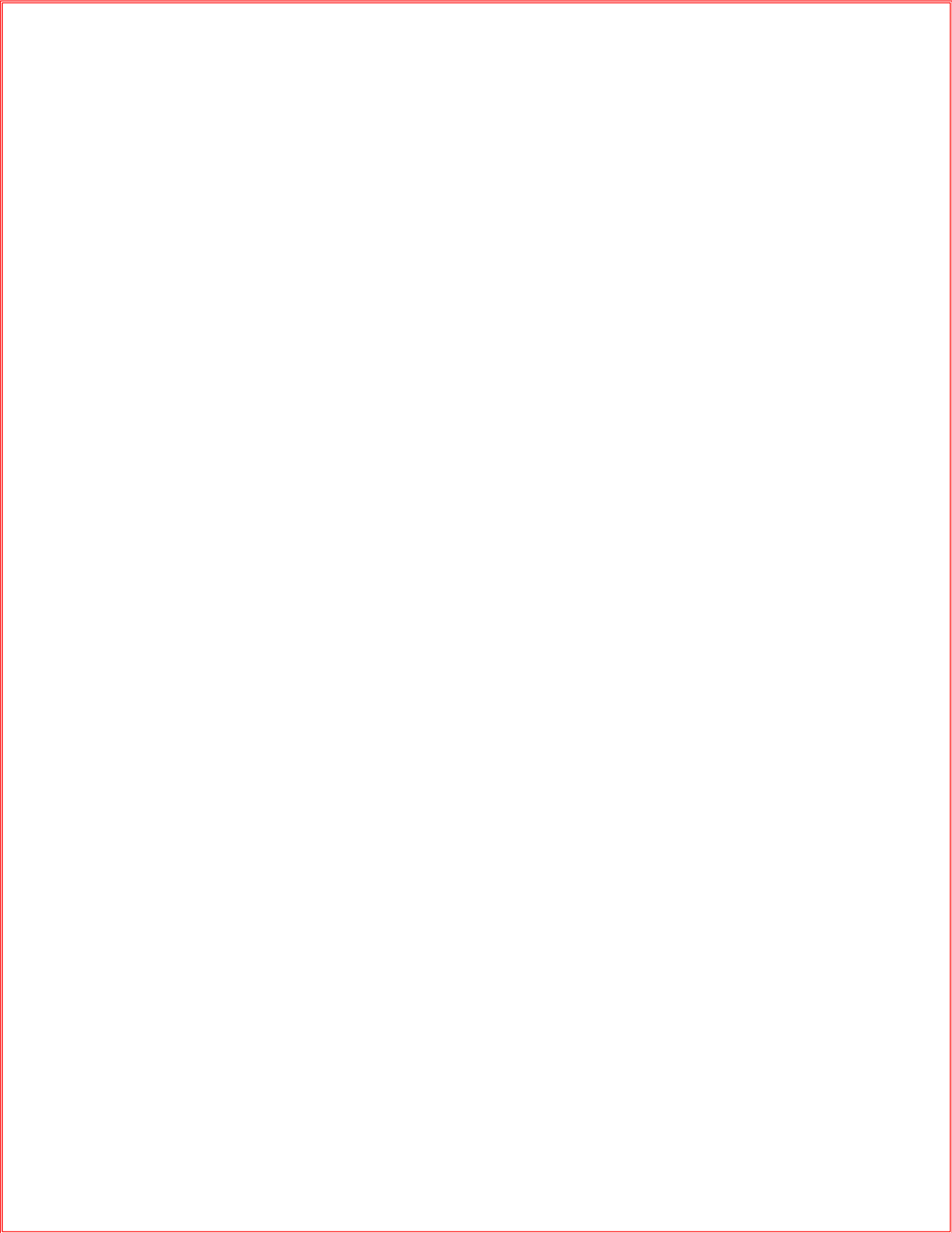
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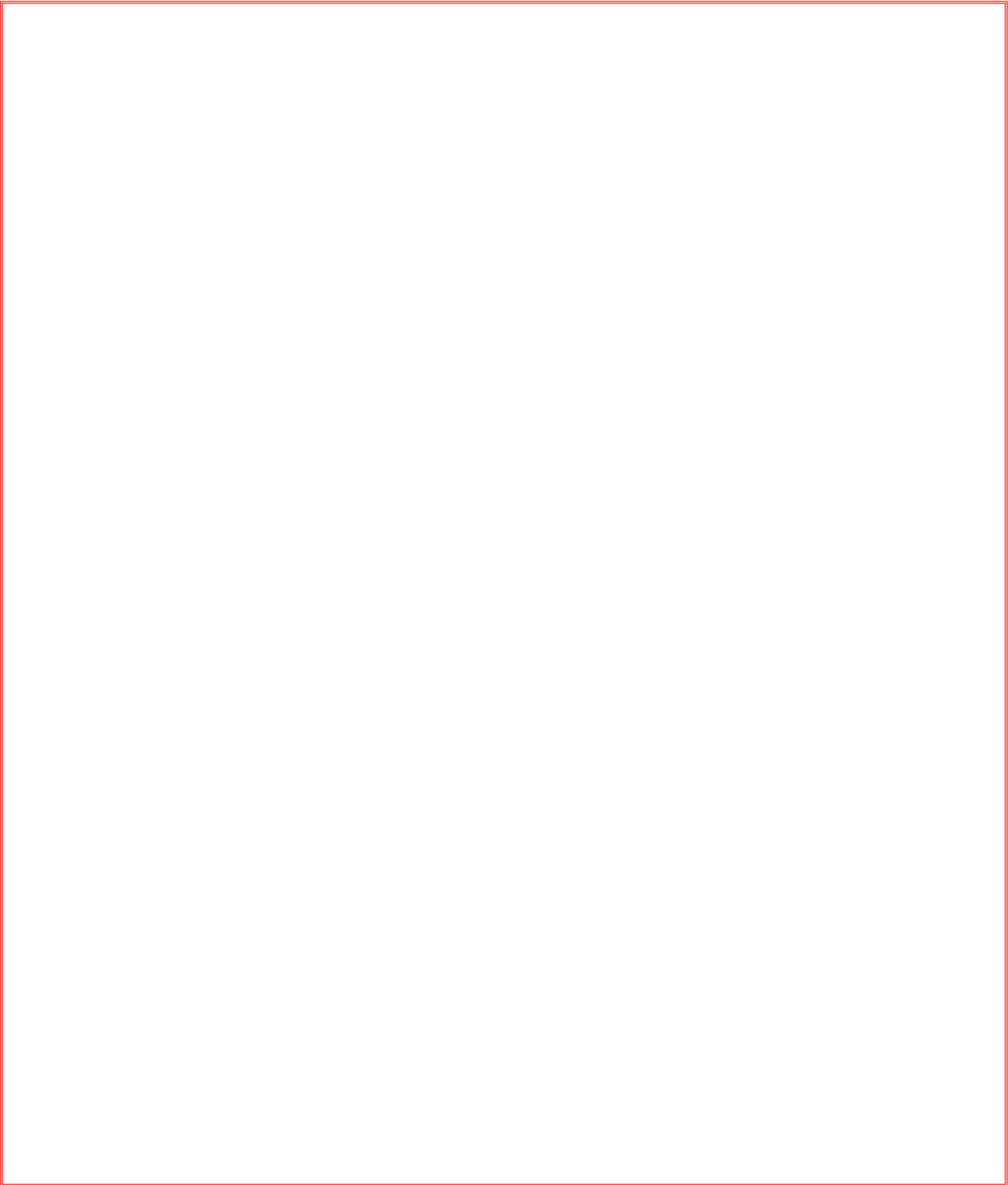












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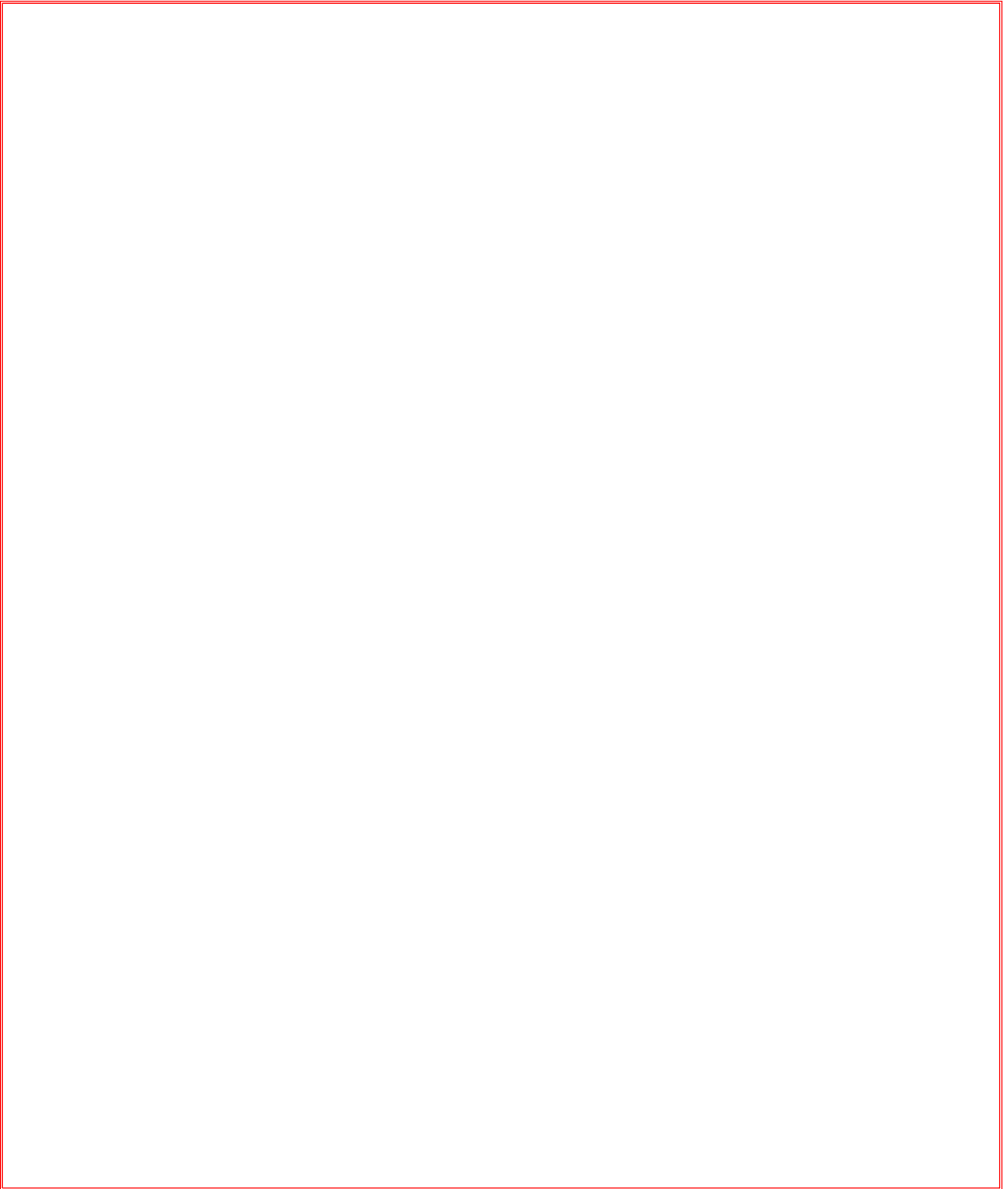
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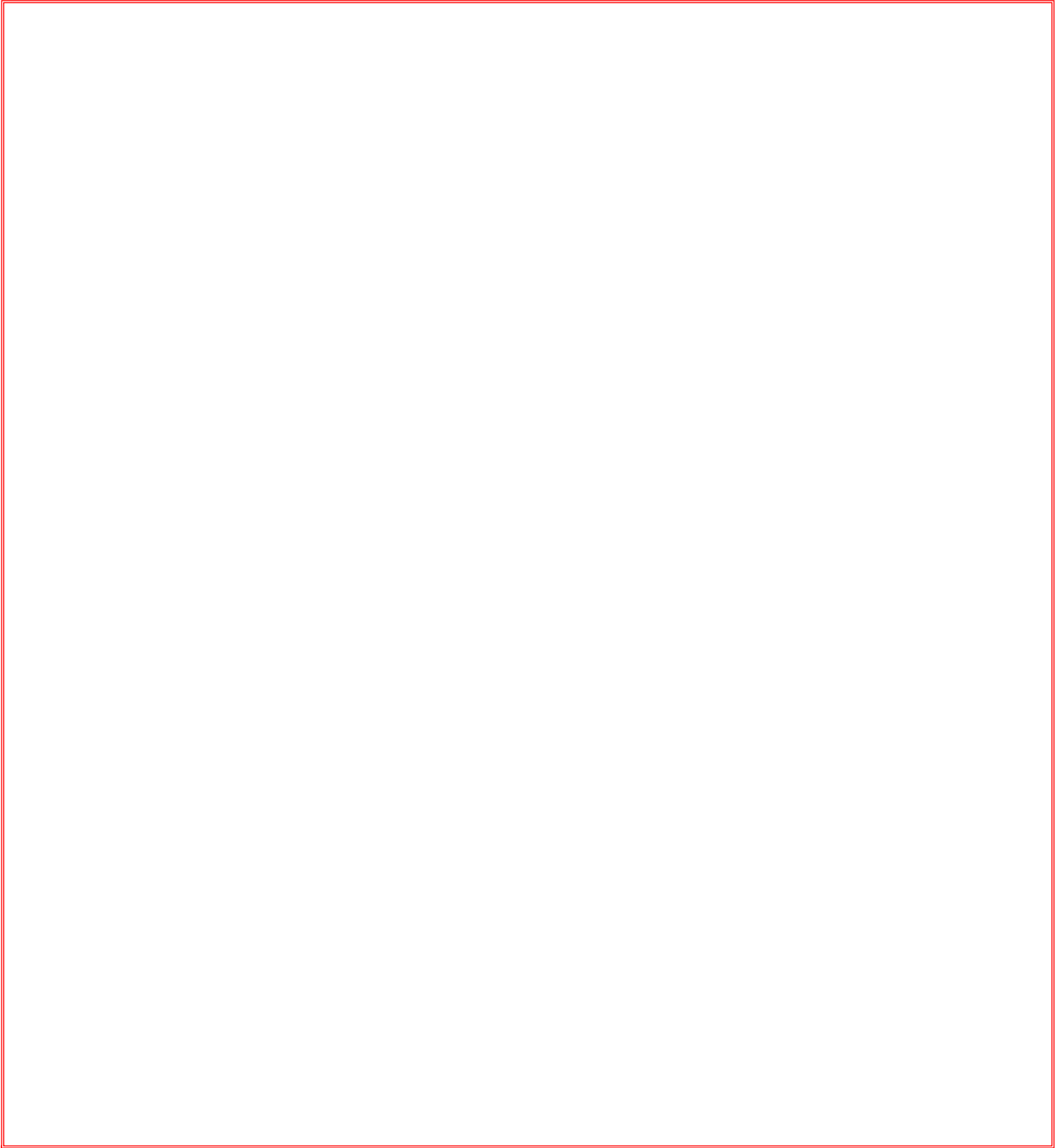


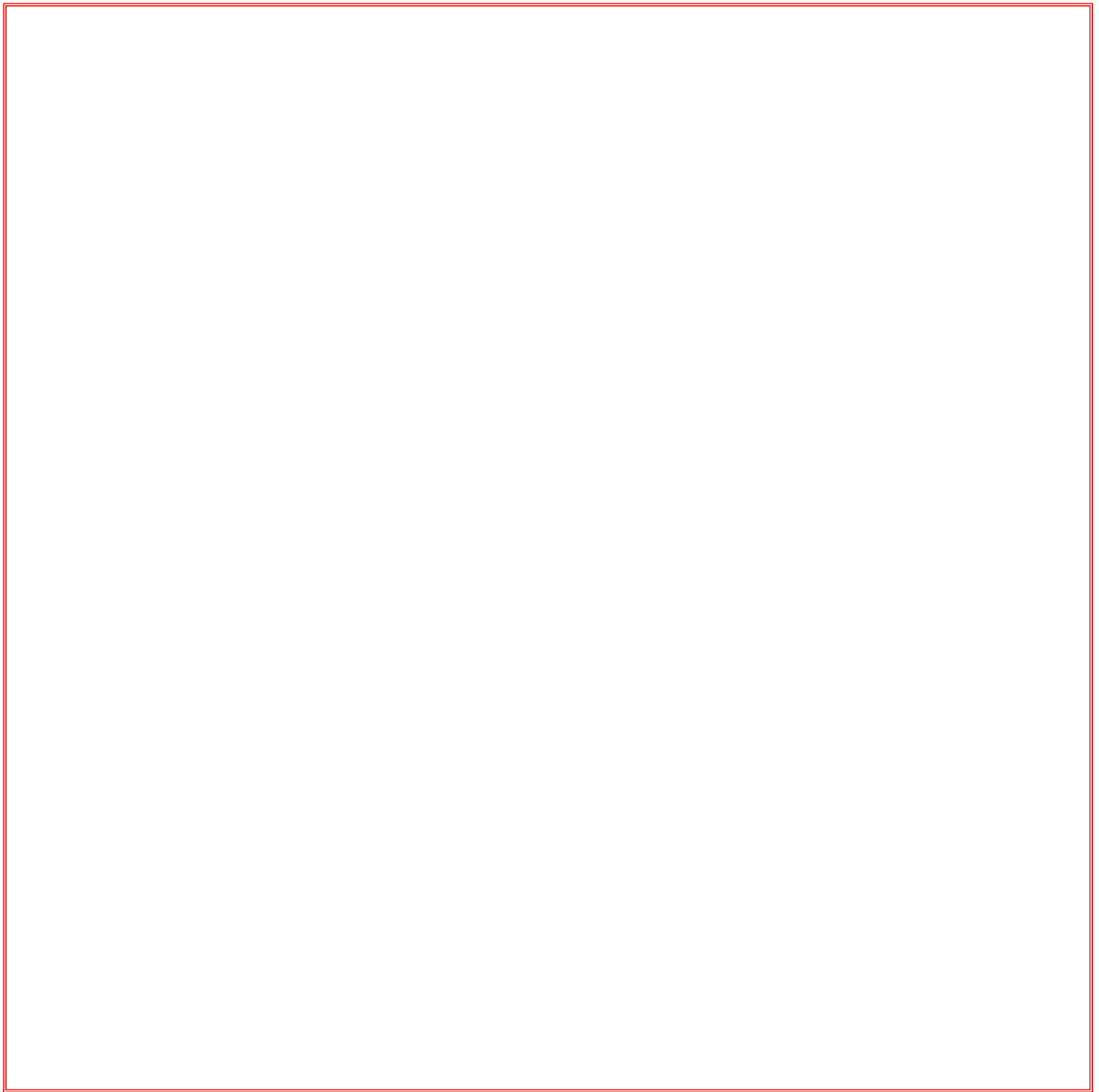














**From:** [Bill Rooney](#)  
**To:** ["felderhoff@tamu.edu"](#); ["Payne Burks"](#)  
**Subject:** FW: 2009 New Grad Student Orientation  
**Date:** Wednesday, August 19, 2009 6:39:00 AM  
**Attachments:** [2009 Invitation.pdf](#)  
[Kathy Ferguson.vcf](#)

---

Make sure you attend.

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151

-----Original Message-----

**From:** Kathy Ferguson [mailto:KFerguson@ag.tamu.edu]  
**Sent:** Tuesday, August 18, 2009 8:35 AM  
**To:** Don Vietor; Juerg Blumenthal; Joe Cothren; Jane Dever; Jacqueline Peterson; Dirk Hays; Charles Thomas Hallmark; Richard White; Scott Senseman; Dave Stelly; Bill Payne; Bill L Rooney  
**Subject:** Fwd: 2009 New Grad Student Orientation

Please accept this follow-up regarding the New Grad Student Orientation. We have not heard from the students noted below with an \*\*. Please encourage them to RSVP to me and to attend the luncheon.

Thanks!

Kathy

>>> Kathy Ferguson 8/4/2009 4:01 PM >>>

We sent the attached invitation to our 2009 incoming graduate students for our annual orientation. Please encourage your students to attend this luncheon. We will use this opportunity to introduce the admin staff and share information that will help them throughout their graduate career.

The list of students we invited includes:

Ben McKnight (Senseman) \*\*  
Ryan Mueller (Hallmark) \*\*  
Julianna Osorio (Dever) \*\*  
Chance Robinson (Hallmark) \*\*  
Cheryl Verbree (Peterson) \*\*  
David Verbree (Payne) \*\*  
Jatara Wise (Vietor) \*\*  
Melanie Ancheta (Cothren) \*\*  
Derek Husmoen (Vietor)  
Aaron Turner (Senseman)  
Terry Felderhoff (Rooney, B) \*\*  
Payne Burks (Rooney, B)  
Yuan Chen (Cothren) \*\*  
Kyle Whitmire (Jessup)  
Szilvia Zilahi-Sebess (Blumenthal) \*\*  
Jim Florey (Gentry)  
Mohammed Suheb (Hays) \*\*  
Cort Winkle (White) \*\*  
Xiuting Zheng (Stelly) \*\*

If you have any questions, please let me know.

Thanks,

Kathy

Make it a GREAT day!

*Kathy Ferguson*

Senior Office Associate

Soil & Crop Sciences | Instruction Programs

MEPS | Instruction Programs

Texas A&M University

TAMU 2474

Heep Center, Rm 217

Phone: 979-845-4620 | MEPS: 979-845-0532 | Fax: 979-458-0533

"Learning is ever in the freshness of its youth, even for the old." Aeschylus

*Welcome to all  
2009  
New Graduate Students*

*You are invited to the  
Soil and Crop Sciences  
New Student Orientation Luncheon  
Monday, August 24, 2009  
12:00—1:30  
Heep Center, Room 440*

*Lunch Buffet  
Drinks*

*You will receive valuable information to help you  
with your graduate career here at Texas A&M.*

*RSVP to Kathy Ferguson  
By Noon on Friday, August 22nd*

*E-mail: [kferguson@ag.tamu.edu](mailto:kferguson@ag.tamu.edu)  
Phone: 845-4620  
Office: Room 217, Heep Center*



**From:** [Bill Rooney](#)  
**To:** [delroy@tamu.edu](mailto:delroy@tamu.edu); [dustin\\_b82@yahoo.com](mailto:dustin_b82@yahoo.com)  
**Subject:** FW: 2009-2010 Puerto Rico Winter Nursery and Growout Service.  
**Date:** Saturday, October 10, 2009 11:11:08 PM  
**Attachments:** [CSCo Nursery Pricing for2009-2010.doc](#)

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Don't know if the Crosbyton Seed Guys sent this to you, but just in case, here it is.

Looks like seed needs to be to Jim by Nov 10.

We will likely need 300 rows (maximum).

If we need their seed envelopes, please make arrangements to get those in the next few weeks. My goal is to have the planting list ready by the first of November.

Regards,

Bill

---

**From:** James Osborne [mailto:kjo64@msn.com]  
**Sent:** Thursday, October 08, 2009 12:41 PM  
**To:** Dr. Bill Rooney; Dr. Cleve Franks; Dale Wimmer; [delroy@tamu.edu](mailto:delroy@tamu.edu); Donnie Swink; Dr. Gary C Peterson; Dr. George Graef; Dr. Gebisa Ejeta; [kjo64@msn.com](mailto:kjo64@msn.com); Jerry; Jianming Yu; Prihoda, Karen L; Dr. Kassim Al-Khatib; Leslie L Korte; [mmolina@ksu.edu](mailto:mmolina@ksu.edu); Mitch Tuinstra; Nathan Boardman; Reba Cargile; sbrown; Shan Podduturi; Sharon E. Mitchell, Ph.D.; Stephen Kresovich; Tesfaye Tesso; Lemming, Terry R.; Mark Stelter  
**Subject:** 2009-2010 Puerto Rico Winter Nursery and Growout Service.

All,

It is that time of year again!

Crosbyton Seed Company will once again be offering the winter (Off Season) Nursery and Grow out planting Service in the Indios Valley of Puerto Rico. I will have you ship your seed to me here in Kansas, I will assemble it for nursery planting, then forward it to the Crosbyton Seed Company personnel in Puerto Rico. Once again because of family concerns I will not personally be planting again this year, however, the highly experienced employees who planted last season will be planting again this year.

Some points to remember or information for those of you that will be working with us for the first time:

PLEASE try and send your nurseries to me by November 10 so I can have them in planting order and in Puerto Rico for planting the week following Thanksgiving.

Package your seed in the 2 3/8" x 4 1/4" coin envelopes with the **1/4"** hole in the flap and the top of the packet stapled **below** the hole. If you need nursery planting packets they will be available from Crosbyton Seed Company, let us know and we will send them to you as soon as possible.

Plan your nurseries in multiples of 25 or 50 plot increments, (fields will be 25-15 ft. plots long, 2 rows wide = 50 plots/bed).

Be sure and let me know if you want row 1&2 on the same bed or if you want row 1 on the right side of bed #1 and row 2 on the left side of bed #2 so you can work your

material walking in the furrow between beds.

Please include your nursery field map so we are sure to plant your nurseries the way you want them. You can also email your maps to me at [kjo64@msn.com](mailto:kjo64@msn.com).

If any of you have special herbicide experiments I recommend 3 beds/6 rows buffer between treatments to help reduce the chance of drift from resistant onto non-resistant material. The sprayer is 7 beds/14 rows wide, we can spray using just the one side of the sprayer boom (4 beds/8 rows) minimum coverage on one pass.

Please let me know AS SOON AS YOU CAN the approximate number of rows/beds you will be using this year so we can get the land reserved and prepared.

If you know of anyone interested in this service that I have inadvertently missed please forward this email to them or let me know so I can contact them personally. It appears that we will have more corn this year and in the coming years so please include those interested in winter corn nursery space also.

**Thank you all**, I look forward to another productive year for the Corn and Sorghum Research Community!! If you have any questions, please, give me a call or send an email.

Please find attached the price schedule for 2009-2010, which remains the same as 2008-2009 prices.

Regards,

Jim Osborne  
Crosbyton Seed Company  
2500 N. 231st. W.  
Andale, Kansas 67001-9510  
(H) 316.444.2530  
(C) 316.734.2303  
(Fax) 316.444.2530 (please call first)  
[kjo64@msn.com](mailto:kjo64@msn.com)

**From:** [McCutchen, Bill](#)  
**To:** [Avant, Bob](#); [wlr@tamu.edu](mailto:wlr@tamu.edu); [Mullet, John E.](#); [stelly@tamu.edu](mailto:stelly@tamu.edu)  
**Subject:** Fw: Biofuels  
**Date:** Wednesday, September 23, 2009 4:40:27 PM

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DO NOT FORWARD - FYI

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**From:** Giroir, Brett  
**To:** Kirkpatrick, Douglas <[Douglas.Kirkpatrick@darpa.mil](mailto:Douglas.Kirkpatrick@darpa.mil)>  
**Sent:** Wed Sep 23 13:52:17 2009  
**Subject:** Biofuels

Doug:

Regina's trip was very successful, and she was extremely enthusiastic about the biofuels project. The team had freshly cut sorghum, as well as live wide hybrid plants in pots. Impressive.

[Redacted content]

Best  
Brett

Brett P. Giroir, MD  
Vice Chancellor for Research,  
The Texas A&M University System;  
Research Professor, Dwight Look College of Engineering;  
Adjunct Professor, The Bush School of Government and Public Service;  
200 Technology Way, Suite 2043  
College Station, Texas 77845-3424  
Phone: 979-458-6054  
Fax: 979-458-6044

**From:** [MEGAN ROONEY](#)  
**To:** [Bill Rooney](#)  
**Subject:** Fw: Calender  
**Date:** Saturday, September 05, 2009 12:07:56 PM  
**Attachments:** [Microsoft Office Outlook - Weekly Style.pdf](#)

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# September 06, 2009 - September 12, 2009

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October 2009

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	6 Sun	7 Mon	8 Tue	9 Wed	10 Thu	11 Fri	12 Sat
7 am							
8 <sup>00</sup>		Math 151-804 Lecture Heldenfels H.	POSC 201-501 Kleberg Center 127	Math 151-804 Lecture Heldenfels H.	POSC 201-501 Kleberg Center 127	Math 151-804 Lecture Heldenfels H.	
9 <sup>00</sup>							Brazos Best Kickoff
10 <sup>00</sup>							Stand and Pray at Planner Parent
		ANSC 107 - 501 Kleberg Center 115		ANSC 107 - 501 Kleberg Center 115		ANSC 107 - 501 Kleberg Center 115	
11 <sup>00</sup>							
12 pm							
1 <sup>00</sup>	MSC Open House Rec Center	INTRO BIO & AGR ENGR DES Francis Hall 2				BAEN 150 -Lab 202 Francis Hall 	
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		Mee	Dinner	Knight			
		7:00pm - 9:00pm	7:30pm - 9:30pm	9:30pm - 10:30pm			

**From:** [Bill Rooney](#)  
**To:** ["Steve Searcy"](#); ["James Richardson"](#)  
**Cc:** ["Avant, Bob"](#); ["John Mullet"](#); ["bmccutchen@tamu.edu"](mailto:bmccutchen@tamu.edu)  
**Subject:** FW: DARPA draft  
**Date:** Wednesday, September 02, 2009 10:06:00 PM  
**Attachments:** [GOAL I.doc](#)  
[DARPA RD Plan 90209.doc](#)

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Steve and James

Bob asked me to forward an "opportunity" for your input.

We have been in development stages of a grant proposal to DARPA as is outlined in the attached document DARPA RD Plan. This was submitted as a concept paper back in July; they have now asked for a more detailed proposal. The group working has felt that your expertise is important for Goal I (ie, harvest logistics and economics of production). Bob had some information from a previous grant, but we are trying to tailor more to the concepts described in both of these documents.

So, hopefully you are interested in contributing. What we need now is for you to review and edit the information on the Goal I document. Specifically, objective 3 to Searcy and Objective 4 to Richardson. As of now there is \$1 million annually (total) for three years for all the objectives in Goal I.

I'm sure you've got questions, and please feel free to contact either Bill M., John M, Bob or myself

Regards,

bil

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151

-----Original Message-----

**From:** Avant, Bob [mailto:bavant@tamu.edu]  
**Sent:** Wednesday, September 02, 2009 8:17 PM  
**To:** Bill Rooney  
**Cc:** Mullet, John E.  
**Subject:** Re: DARPA draft

I'll work on it tomorrow night.

Would one of you send the latest version to Searcy and Richardson for their input and provide background. This will be their first intro to the project. They both contributed to the document I sent John on Friday, but it was for a DOE proposal.

I am traveling until midnight and will be in meetings until 5 tomorrow. So I can't contribute until then

Sent from my iPhone

On Sep 2, 2009, at 6:50 PM, "Bill Rooney" <[wlr@tamu.edu](mailto:wlr@tamu.edu)> wrote:

Bob:

I understand and agree. We need additional input on that (or have you write them).

Regards,

Bill

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151

-----Original Message-----

From: Avant, Bob [<mailto:bavant@tamu.edu>]  
Sent: Wednesday, September 02, 2009 3:19 PM  
To: Mullet, John E.; Bill Rooney; Stelly\_David Stelly  
Cc: McCutchen, Bill  
Subject: RE: DARPA draft

Under the Project Deliverables section, I think we should include logistics and economics bullets. I won't have time until Thur evening on way back from Albuquerque to edit more. Have to prepare for that meeting by 9 am in morning.

Bob Avant  
Program Director  
Texas AgriLife Research  
979/845-2908  
512/422-6171 (Cell)  
[bavant@tamu.edu](mailto:bavant@tamu.edu)  
<http://agbioenergy.tamu.edu>

-----Original Message-----

From: John Mullet [<mailto:jmullet@tamu.edu>]  
Sent: Wednesday, September 02, 2009 8:06 AM  
To: Avant, Bob; Bill Rooney; Stelly\_David Stelly  
Cc: McCutchen, Bill  
Subject: DARPA draft

All,

I revised the front part of our proposal and provided space for the GOAL implementation plans/budgets we are developing.

Thanks,

John

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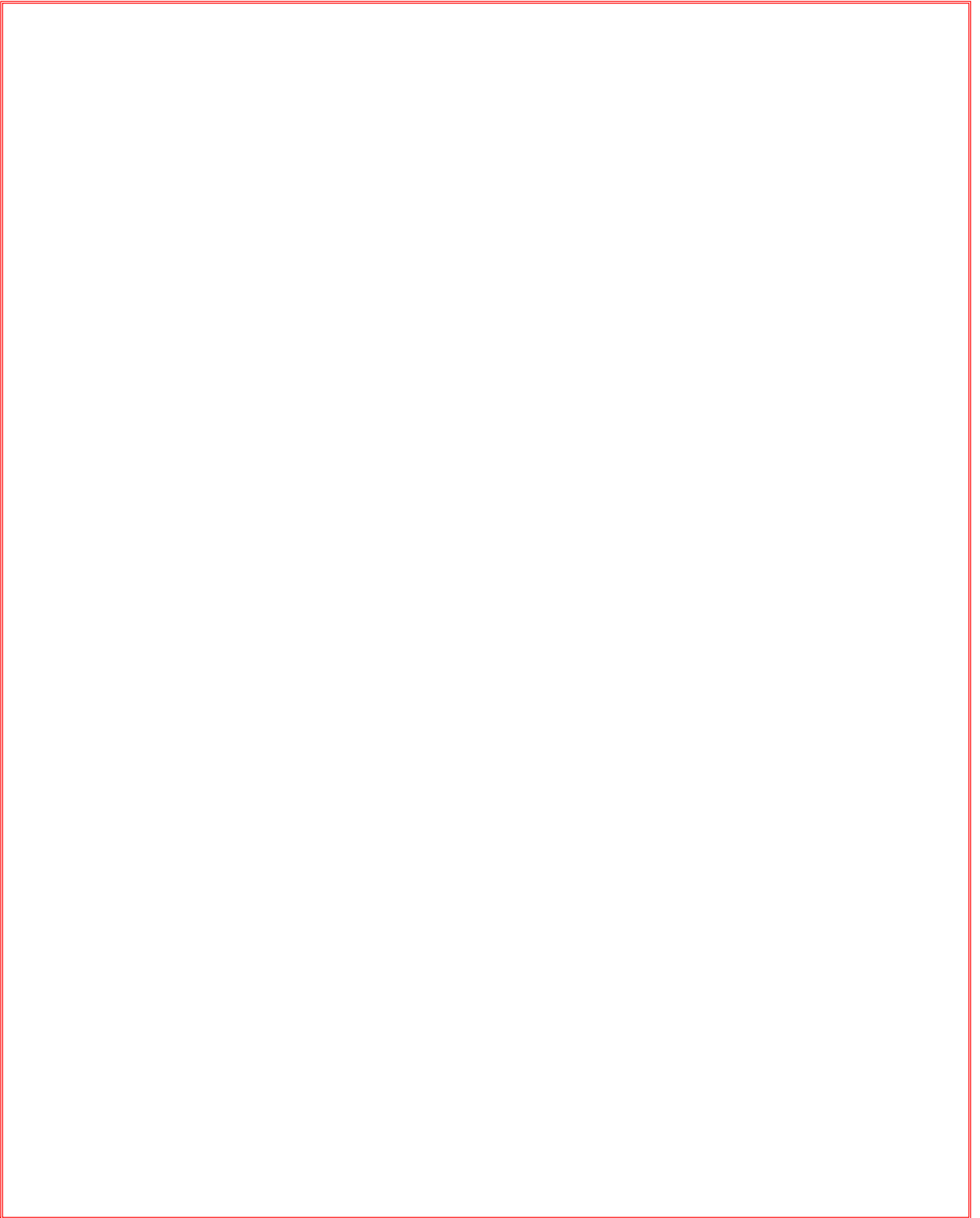
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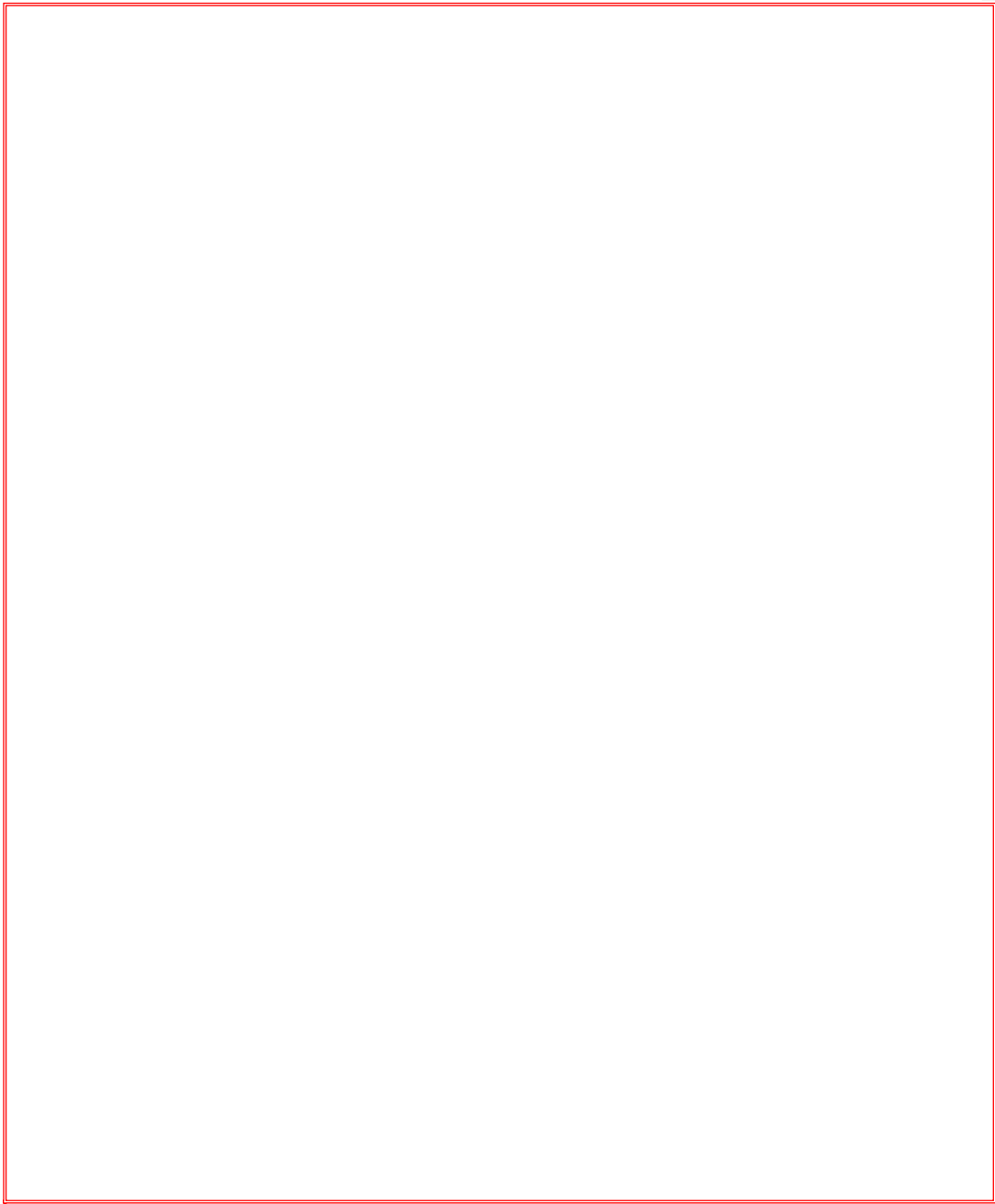


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**Comment [MSOffice1]:** I assume this is the economic analysis objective. I must have delected up above, but I am not adverse to including it, if appropriate., but I need insight and help from others.

**From:** [McCutchen, Bill](#)  
**To:** [wlr@tamu.edu](#); [Mullet, John E.](#); [stelly@tamu.edu](#); [ssearcy@tamu.edu](#); [jwrichardson@tamu.edu](#); [Avant, Bob](#)  
**Cc:** [Hussey, Mark](#); [Dugas, William](#); [Lunt, David](#); [Slovacek, Jackie](#); [Penn, Nancye B](#)  
**Subject:** Fw: DARPA Visit Itinerary  
**Date:** Wednesday, September 16, 2009 6:54:54 AM  
**Attachments:** [DARPA Director Visit Itinerary - Sept 17-20 2009.doc](#)  
[Regina E Dugan BIO 091109.pdf](#)

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**From:** Pollard, Claudia  
**To:** 'tfossum@cvm.tamu.edu' <tfossum@cvm.tamu.edu>; Junkins, John; 'Theresa Maldonado' <maldonado@tamu.edu>; McCutchen, Bill; Seemann, Jeffrey; 'David Shanahan' <dshanahan@marycrowley.org>; Giroir, Brett; Shanks, LauraLee M.  
**Cc:** 'Marcia Wenck' <MWenck@tamu.edu>; 'Deanna Jones' <deannajones@tamu.edu>; Slovacek, Jackie; Lily Portales <lportales@tamu.edu>  
**Sent:** Tue Sep 15 21:06:14 2009  
**Subject:** DARPA Visit Itinerary

Good evening –

The itinerary for Dr. Dugan's visit to Aggieland is finalized. Attached s a copy of the itinerary along with her bio.

Thank you, again, for helping put together a stellar program.

Regards,  
Claudia

Claudia Pollard  
Assistant to the Vice Chancellor for Research  
The Texas A&M University System  
200 Technology Way, Suite 2043  
College Station, TX 77845-3424  
[cpollard@tamu.edu](mailto:cpollard@tamu.edu)  
Phone: 979.458.6052  
Fax: 979.458.6044  
[www.tamus.edu](http://www.tamus.edu)



**DARPA Director Site Visit to The Texas A&M University System**  
**September 17-20, 2009**  
**College Station, Texas**

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**Key Participants**

Mr. Husameddin Almadani, President of the Graduate Student Council, Texas A&M University

Frank B. Ashley, III, Ph.D., Vice Chancellor for Academic Affairs, The Texas A&M University System

Theresa W. Fossum, DVM, MS, Ph.D., Diplomate, ACVS  
Director, Texas A&M Institute for Preclinical Studies  
Tom and Joan Read Chair in Veterinary Surgery  
Director and Founder, Texas A&M Institute for Preclinical Studies  
Director, Clinical Programs and Biomedical Devices, Michael E. DeBakey Institute  
Professor of Surgery, College of Veterinary Medicine

Brett Giroir, M.D.  
Vice Chancellor for Research, The Texas A&M University System  
Research Professor, Dwight Look College of Engineering  
Adjunct Professor, The Bush School of Government and Public Service

John Junkins, Ph.D., P.E., NAE  
Regents Professor, Distinguished Professor of Aerospace Engineering, Texas A&M University  
Holder of the Royce E. Wisenbaker '39 Chair in Engineering  
Director of Center for Mechanics and Control

R. Bowen Loftin, Ph.D., Interim President, Texas A&M University

Theresa A. Maldonado, Ph.D., P.E., Executive Associate Vice President for Research, Texas A&M University; Professor of Electrical & Computer Engineering Texas A&M University

Bill F. McCutchen, Ph.D., Associate Director, Texas AgriLife Research

Michael D. McKinney, M.D., Chancellor, The Texas A&M University System

Jeffrey R. Seemann, Ph.D., Vice President for Research, Texas A&M University

Mr. David Shanahan, Founder and President, G-CON, LLC

Karan L. Watson, Ph.D., P.E.  
Interim Provost and Executive Vice President for Academics, Texas A&M University  
Regents Professor in the Department of Electrical and Computer Engineering



**ITINERARY**  
**DARPA Director Site Visit**  
**September 17-20, 2009**

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**Thursday, September 17**

6:13 p.m.	Dr. Regina Dugan and Ms. Patricia Haigwood AR Houston IAH via Continental Airlines flt 1859  Giroir to meet party at IAH and drive to College Station
8:30 p.m.	Dinner at Christopher's World Grille  Reservations at the College Station Hilton (3 nights for Dr. Dugan and Ms. Haigwood)
10:12 p.m.	Dr. Greg Kovacs arrives at Easterwood Airport Continental flt 9578 IAH – CLL  LauraLee Shanks to meet Kovacs at airport Overnight at Giroir residence

**Friday, September 18**

7:45 a.m.	Giroir to transport party to System Offices
8:00 – 8:30 a.m.	Meeting with Chancellor McKinney and Vice Chancellor Ashley Chancellor's Conference Room 2070
8:30 – 8:50 a.m.	Transport to main campus – Giroir
8:50 – 9:30 a.m.	Meeting with Interim President Loftin and Interim Provost Watson
9:30 – 9:45 a.m.	Break
9:45 – 10:30 a.m.	Meeting with Distinguished Professors Room 701 Rudder Tower Host: Dr. Theresa Maldonado
10:30 – 11:45 a.m.	Meeting with the Vice President for Research and College Deans – Room 701 Rudder Tower Host: Dr. Jeffrey Seemann, Vice President for Research
11:45 a.m. – 12:30 p.m.	Lunch with Students – University Club, 11 <sup>th</sup> Floor Rudder Tower Host: Mr. Husameddin Almadani, President of the Graduate Student Council
1:00 – 2:15 p.m.	Presentation and Town Hall Meeting with Faculty Room 601 Rudder Tower Host: Dr. Brett Giroir

2:30 p.m.	Transport Dr. Kovacs to Easterwood Airport – Shanks American flt 3416 departs at 3:55 p.m.
2:30 – 3:00 p.m.	Briefing and Tour of the Land, Air and Space Robotics (LASR) Laboratory – Room 108 Donald L. Houston Building, 200 Discovery Drive (Junkins' Lab) Host: Dr. John Junkins
3:10-3:40 p.m.	Bio-fuels Briefing and Demonstration Borlaug Center for Southern Crop Improvement Host: Dr. Bill McCutchen
4:00 – 4:30 p.m.	Modular Mobile Biomanufacturing Pods Host: Mr. David Shanahan
4:45 – 5:15 p.m.	TIPS – Texas Institute for Preclinical Studies Host: Dr. Terry Fossum
5:15 – 5:30 p.m.	Transport to Hotel - Giroir
6:20 p.m.	Transport from hotel to The Reed House – Giroir
6:30 p.m.	Reception and Dinner at The Reed House Hosts: Mike and Lou Ann McKinney Entertainment - The Singing Cadets and Ms. Jacqueline Giroir  Transport to hotel – Giroir

### **Saturday, September 19**

2:45 p.m.	Transport – Giroir
3:00 p.m.	Pre-Game Buffet – Duncan Dining Hall
4:30 p.m.	Depart Dining Hall via Bus - Giroir
5:00 p.m.	Review the Corps of Cadets Lt. Gen. Loyd S. “Chip” Utterback, Commander, 13 <sup>th</sup> Air Force, Hickam Air Force Base, Hawaii Giroir and Dugan in Reviewing Stand
6:00 p.m.	Fightin' Texas Aggie Football Game
Following game	Transport to Hotel

### **Sunday, September 20**

	Transport to Easterwood Airport - Giroir
10:25 a.m.	Depart College Station via American Eagle flt 3362 Stop – Dallas/Ft. Worth AR Los Angeles 1:40 p.m.



**Regina E. Dugan**  
**Director**  
**Defense Advanced Research Projects Agency**

Appointed by President Barack Obama, and announced by Defense Research and Engineer Director Zachary Lemnios, Dr. Regina E. Dugan was sworn in as the 19<sup>th</sup> Director of DARPA – the Defense Advanced Research Projects Agency – on July 20, 2009.

Founded in 1958 as a response to the Soviet Union's launch of Sputnik, DARPA's mission is to prevent strategic surprise for the United States as well as create strategic surprise for our adversaries. From its founding more than 50 years ago to current day, this mission implies one imperative for the Agency: radical innovation for national security. Today DARPA is the principal agency within the Department of Defense for research, development and demonstration of high-risk, high-payoff projects for the current and future combat force.

Experienced in counterterrorism and defense against explosive threats, Dr. Dugan first served the Nation as a DARPA program manager from 1996 to 2000. During this first tour with the Agency, she directed a diverse \$100 million portfolio of programs including the "Dog's Nose" program, an effort focused on the development of an advanced, field-portable system for detecting the explosive content of land mines. In 1999, Dr. Dugan was named DARPA Program Manager of the Year for her efforts, and in 2000 she was awarded the prestigious Bronze [deFleury medal](#) by the Army Engineer Regiment. She is also the recipient of the Office of the Secretary of Defense Award for Exceptional Service and the Award for Outstanding Achievement.

Dr. Dugan's contributions to the United States military are numerous. She led a counterterrorism task force for the Deputy Secretary of Defense in 1999 and, from 2001 to 2003, she served as a special advisor to the Vice Chief of Staff of the Army, completing a Quick Reaction Study on Countermine for Enduring Freedom. The results of this study were subsequently briefed to joint senior military leadership and successfully implemented in the field.

Prior to her appointment as Director of DARPA, Dr. Dugan co-founded Dugan Ventures, a niche investment firm, where she served as President and CEO. In 2005, Dugan Ventures founded RedXDefense, LLC, a privately held company devoted to innovating solutions for combating explosive threats, where she also served as President and CEO. From private industry, Dr. Dugan brings a wealth of management, finance, product development, and marketing experience to the Agency.

Widely recognized for her leadership in technology development and as an experienced public speaker, Dr. Dugan has appeared on the Discovery Channel, National Public Radio, and *The AAAS Science Report*. Her projects have been the subject of articles in *The New York Times Science Times*, *The New York Times Circuits*, *Forbes*, *The Wall Street Journal*, *Chemical and Engineering News* and *Science News*. Additionally, Dr. Dugan previously participated in wide-ranging studies for the Defense Science Board, Army Science Board, National Research Council, and the Science Foundation, and sat on the Naval Research Advisory Committee and the Defense Threat Reduction Agency and Technology Panel.

Dr. Dugan obtained her doctorate degree in mechanical engineering from the California Institute of Technology and her master's and bachelor's degrees from Virginia Tech. She is the sole inventor or co-inventor on multiple patents and patents pending. Dr. Dugan is the co-author of *Engineering Thermodynamics*, 1996. She is the first female director of DARPA.



**From:** [David Baltensperger](#)  
**To:** [Girisha Ganjegunte](#); [bavant@tamu.edu](mailto:bavant@tamu.edu)  
**Cc:** [Bill L Rooney](#)  
**Subject:** Fw: DOE FOA 0000123  
**Date:** Tuesday, August 18, 2009 7:59:55 PM  
**Attachments:** [DOE FOA 0000123 \(34.4 KB\).msg](#)

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Girisha,

I think this would be a good place to include your salt tolerance work on sorghum at Pecos.

Please touch base with Bill Rooney and Bob Avant on this.

David Baltensperger  
Professor and Head  
Soil and Crop Sciences  
Texas A&M University  
2472 TAMU  
College Station  
Texas 77843-2474

979-845-3041

**From:** [Avant, Bob](#)  
**To:** [Mullet, John E.](#); [Bill Rooney](#)  
**Cc:** [McCutchen, Bill](#); [Baltensperger, David](#); [Jaroy Moore](#)  
**Subject:** RE: DOE FOA 0000123  
**Date:** Tuesday, August 18, 2009 7:30:12 PM  
**Attachments:** [TAMU budgets 8-18-09.xls](#)

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I spoke too soon, the \$1million budget would be broken down over 3 years as shown on the attached spreadsheet. Based on this, it might make more sense to add breeding and agronomics into one project for screening and agronomics. Also note the match requirement and be thinking about how we deliver. Could Ceres \$ be used as match? Your thoughts?

**Bob Avant**  
Program Director  
Texas AgriLife Research  
979/845-2908  
512/422-6171 (Cell)  
[bavant@tamu.edu](mailto:bavant@tamu.edu)  
<http://agbioenergy.tamu.edu>

---

**From:** Avant, Bob  
**Sent:** Tuesday, August 18, 2009 7:00 PM  
**To:** 'John Mullet'; Bill Rooney  
**Cc:** Bill McCutchen (bmccutchen@tamu.edu); David Baltensperger (dbaltensperger@ag.tamu.edu); Jaroy Moore  
**Subject:** DOE FOA 0000123  
**Importance:** High

John and Bill,

General Atomics is assembling a consortium in response to a recent DOE FOA for cellulose production and they would like us to submit a mini proposal to develop salt tolerant energy sorghum varieties for production at Pecos and the Southwest. (Ceres is also part of the consortium to evaluate compositional analysis of sorghum.)

I suggested a budget of \$1 million per year for 3 years including IDC. Would you be interested in participating? If so GA needs a 2 page miniproposal within a week.

**Bob Avant**  
Program Director  
Texas AgriLife Research  
979/845-2908  
512/422-6171 (Cell)  
[bavant@tamu.edu](mailto:bavant@tamu.edu)  
<http://agbioenergy.tamu.edu>



**From:** [Bill Rooney](#)  
**To:** [GUTIERREZ, MIGUEL](#); ["Daniel Packer"](#); ["mohan gowda"](#); ["Payne Burks"](#); ["Rebecca Corn"](#); ["Bartek Matthew S"](#); ["felderhoff@tamu.edu"](#); ["Hoffmann, Leo, Jr"](#)  
**Subject:** FW: Fall 2009 PBGC Seminar  
**Date:** Wednesday, August 19, 2009 5:22:00 PM  
**Attachments:** [PBGC Seminars Fall 2009.doc.pdf](#)

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Folks,

I assume all of you saw this. I expect it is time for some of you to make presentations to the group.

regards,

bill

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151

-----Original Message-----

**From:** Anna J Fox [mailto:[AFox@ag.tamu.edu](mailto:AFox@ag.tamu.edu)]  
**Sent:** Wednesday, August 19, 2009 1:46 PM  
**To:** undisclosed-recipients:  
**Subject:** Fall 2009 PBGC Seminar

Please see attached.

Thank you,  
Anna

August 19, 2009

**To:** Members of the Plant Breeding and Genetics Circle

**Sub.:** Friday Lunch Seminars - Fall Semester, 2009

The theme for the PBGC seminars this semester is “Breeding for food, fodder and fiber quality”. Plant breeders, food scientists and biotechnologists working on various crops as well as their graduate students whose theses research focus on food, fodder, or fiber quality are invited to present their work.

Presentations could include: 1) major quality traits, 2) brief review of completed research work and gaps, 3) current research objectives and ongoing work (methods and results), and 4) future challenges and opportunities.

The dates available for the seminars are given below:

September 4, 11, 18, 25

October 2, 9, 16, 23 30

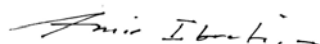
November 6, 13, 20, 27

The first seminar (Sept. 4) would be a lead paper entitled “Improving food quality in crops – An end use perspective” presented by Dr. Joseph M. Awika, Assistant Professor of Food Science and Technology.

All other dates are open. Interested scientists and graduate students are encouraged to submit titles and dates for their presentations by August 31.

If you have questions or suggestions, please don't hesitate to contact Amir Ibrahim ([amir@ag.tamu.edu](mailto:amir@ag.tamu.edu)) or B B Singh ([BSingh@ag.tamu.edu](mailto:BSingh@ag.tamu.edu)). Thank you.

Regards,



Amir Ibrahim and B.B. Singh, Co-chairs

**From:** [Bill Rooney](#)  
**To:** ["Nilesh Dighe"](#)  
**Subject:** FW: FMC Potential Partnership Meeting  
**Date:** Saturday, October 10, 2009 11:11:08 PM

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Nilesh:

FYI, you will probably be asked to make our presentation for me. I'll work with you next week to get set up and confirm. It will be on October 20<sup>th</sup>.

Regards,

Bill

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**From:** Zak, Kendra [mailto:kzak@tamu.edu]  
**Sent:** Tuesday, October 06, 2009 11:34 AM  
**To:** Irooney@tamu.edu; wlr@tamu.edu; Turner, Nancy; Lunt, David; Sawyer, Jason; Wickersham, Tryon A.; Simpson, Shay; Avant, Bob; smpall@yahoo.com; McCutchen, Bill; Helms, Adam; Spurlin, Shayna  
**Cc:** Slovacek, Jackie  
**Subject:** FMC Potential Partnership Meeting

All,

Todd McGee with FMC BioPolymer will be on campus at the Corporate Relations Conference Room in the Centeq building on Tuesday October 20<sup>th</sup> from 8-2pm. I have the conference line reserved for those off campus. Below are his interest. This could have significant sponsored research potential. Please make arrangements to attend. I will make individual contact on what topic areas you will need to discuss.

Please let me know your availability by tomorrow Wednesday October 7<sup>th</sup> at 5 pm. Ie: if you have a class that day I need to schedule around.

From Todd:

Where I would see next steps going, for example with sorghum, is to understand how we can extract from sorghum the fiber, minerals and protein and potentially supply it and some revised recipes for food companies. Might be very interesting for companies supplying things like muscle milks, meal replacement systems, gluten free baked goods, etc.

Only addition if not already part of it, would be to cover anything you know about nutrients in seaweeds (properties, potential health and nutrition benefits, extract-ability).

Fundamentally we supply food and nutraceutical ingredients and delivery systems, so anything that will help our customers add additional value to their products are a potential fit for us.

Thank you,

Kendra Zak  
Administrative Assistant  
AgriLife Corporate Relations  
1500 Research Pkwy Suite 100

College Station, TX 77845  
office: 979-845-4281  
cell: 512-304-5373  
fax: 979-458-2155  
[kzak@tamu.edu](mailto:kzak@tamu.edu)

**From:** [Helms, Adam](#)  
**To:** [g-peterson1@tamu.edu](#); [nmelhout@ag.tamu.edu](#); [thomasson@tamu.edu](#)  
**Cc:** [jmgould@ag.tamu.edu](#); [wlr@tamu.edu](#); [ssearcy@tamu.edu](#)  
**Subject:** FW: Highest Priority: DARPA Energy Crops  
**Date:** Tuesday, September 29, 2009 12:01:43 PM  
**Attachments:** [DARPA Energy Crops Assigned Tasks.doc](#)  
[TIGM DTRA Milestones and Deliverables.pdf](#)  
[Budget Instructions.doc](#)  
[RR FedNonFed Budget 2010.xls](#)  
**Importance:** High

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Drs. El-Hout, Peterson and Thomasson,

I hope that Mike Gould, Bill Rooney or Steve Searcy have all talked to you about this project with DARPA. Attached are several documents – the assigned tasks document shows what tasks we would like for you work on with other collaborators. The other files are explained in the email below. Please, if you have any questions, contact me at your earliest convenience.

Thanks,,

Adam

Adam Helms  
AgriLife Research Corporate Relations  
979-255-0752 (mobile)  
979-458-2677 (office)

---

**From:** Helms, Adam  
**Sent:** Monday, September 28, 2009 2:58 PM  
**To:** [wlr@tamu.edu](#); [stelly@tamu.edu](#); Mullet, John E.; [ssearcy@tamu.edu](#); [jwrichardson@tamu.edu](#); [jmgould@ag.tamu.edu](#); [pklein@tamu.edu](#)  
**Cc:** Simpson, Shay; Spurlin, Shayna; Nelson, Michelle; Bridges, Brenda; Giroir, Brett; Avant, Bob; McCutchen, Bill  
**Subject:** Highest Priority: DARPA Energy Crops  
**Importance:** High

Good Afternoon:

Please find attached the proposal for the DARPA Energy Crops proposal. I have updated each objective to include assigned PI's. There are several things we need to accomplish to submit this proposal to DARPA by October 9<sup>th</sup>.

1. Please submit your budgets by close of business October 1 to myself and Shayna Spurlin. Shayna prepared the budget template (attached) with instructions for entering information – if you have any questions, please refer them to her ( [sfspurlin@tamu.edu](#) ). If you have any capital equipment or lab supplies, we will need a detailed list of items to be purchased as well as a quote for the expenses. We will send an example budget justification out ASAP.
2. Timelines for Gantt Chart development – The example we were given for the latest DARPA proposal from Engineering showed a Gantt Chart developed on the weekly level. I do not know if we can honestly justify developing a Gantt Chart to that level of detail and defend it (specifically due to unknown weather concerns, start time, etc). We are aiming for a quarterly Gantt Chart timeline to begin this project, and if need be, refine the chart to DARPA's specific needs (Dr. Giroir – do you know reporting format is preferred?).
  - a. For each Objective you are assigned, please submit a numbered Milestones and Metrics/Deliverables/Total Cost breakdown (example attached)
3. PowerPoint – John Mullet will send me a PPT which I will distribute to the group. This PPT will be presented to the DARPA team and can be thought of as the “defense” for this



project. Please add no more than a slide or two summarizing your assigned task with budget in the spirit and theme of the original PPT.

4. Drs. Gould, Rooney & Searcy – please forward this note on to Dr. El-Hout, Dr. Blumenthal, Dr. Peterson and Dr. Thomasson once you have updated them to the situation.

If you have any questions, please contact me at your earliest convenience.

Best,

Adam

Adam Helms  
AgriLife Research Corporate Relations  
979-255-0752 (mobile)  
979-458-2677 (office)

---

**From:** Avant, Bob [mailto:bavant@tamu.edu]  
**Sent:** Sunday, September 27, 2009 12:54 PM  
**To:** McCutchen, Bill; wlr@tamu.edu; stelly@tamu.edu; Mullet, John E.; ssearcy@tamu.edu; jwrichardson@tamu.edu; jmgould@ag.tamu.edu; pklein@tamu.edu  
**Cc:** Simpson, Shay; ahelms@tamu.edu; Spurlin, Shayna; Nelson, Michelle; Bridges, Brenda; Gilliland, Diane M.; Giroir, Brett; Slovacek, Jackie  
**Subject:** RE: Highest Priority: DARPA

Bill (and Brett can correct me), we do not need to add much more to the scope of work, but we do need to provide the detailed forms that include budget outlays, budget justification, Gantt chart, etc. This takes a lot of work and we must have direct input from all involved PI's (which is the critical path). In the morning, Shayna will be in contact with the PI's to develop this information unless you or Brett advise me otherwise.

Bob Avant  
Program Director  
Texas AgriLife Research  
979/845-2908  
512/422-6171 (Cell)  
[bavant@tamu.edu](mailto:bavant@tamu.edu)  
<http://agbioenergy.tamu.edu>

---

**From:** McCutchen, Bill  
**Sent:** Sunday, September 27, 2009 12:45 PM  
**To:** 'wlr@tamu.edu'; 'stelly@tamu.edu'; Mullet, John E.; 'ssearcy@tamu.edu'; 'jwrichardson@tamu.edu'; 'jmgould@ag.tamu.edu'; 'pklein@tamu.edu'  
**Cc:** Avant, Bob; Simpson, Shay; 'ahelms@tamu.edu'; Spurlin, Shayna; Nelson, Michelle; Bridges, Brenda; Gilliland, Diane M.; Giroir, Brett; Slovacek, Jackie  
**Subject:** Highest Priority: DARPA

All,

Please read Brett's email below.

Timing is of critical importance for completing the DARPA package, but we do not have to be as stringent as the example the Bob has (or will) provided.

We need to shoot for having a final package ready for submission by October 9th. Therefore we need to get started immediately, and I believe we have most of the RD components outlined. There maybe a little flex in the budget (+/- 5percent) starting in year 2 but especially year 3-5. We also need to ask Ceres for their input for Hawaii, TX and any other RD/plots that they may oversee.

I have asked Bob and his group to make this project their top priority, and I would suggest we meet as team or small groups periodically to facilitate. Now I am asking all of you to make this your top priority. We have a great opportunity to advance our bioenergy programs to the next level.

Thanks and please call with any questions.

Bill

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**From:** Giroir, Brett  
**To:** McCutchen, Bill  
**Cc:** Pollard, Claudia  
**Sent:** Sun Sep 27 08:28:24 2009  
**Subject:** RE: DARPA UPDATE

I don't think you need that detailed of a statement of work as we did for DTRA. But it gives you some idea. I would not sit too long on this.

I will be happy to meet multiple times in the next 2 weeks to get this done

Brett P. Giroir, MD  
Vice Chancellor for Research,  
The Texas A&M University System;  
Research Professor, Dwight Look College of Engineering;  
Adjunct Professor, The Bush School of Government and Public Service;  
200 Technology Way, Suite 2043  
College Station, Texas 77845-3424  
Phone: 979-458-6054  
Fax: 979-458-6044

---

**From:** McCutchen, Bill  
**Sent:** Friday, September 25, 2009 5:33 PM  
**To:** Schuerman, Peter L.; Ellison, Mark M.; Howell, Bill; Diedrich, Guy  
**Cc:** Giroir, Brett; Avant, Bob  
**Subject:** Fw: DARPA UPDATE

We are starting to round 3rd base with DARPA per dedicated energy crop proposal.

Bill

---

**From:** McCutchen, Bill  
**To:** Rooney Bill <wlr@tamu.edu>; John Mullet (jmmullet@tamu.edu) <jmmullet@tamu.edu>; stelly@tamu.edu <stelly@tamu.edu>; James Richardson (jwrichardson@tamu.edu) <jwrichardson@tamu.edu>; 'Gould Mike' <jmgould@tamu.edu>; Steve Searcy (ssearcy@tamu.edu) <ssearcy@tamu.edu>; (pklein@tamu.edu) <pklein@tamu.edu>  
**Cc:** Avant, Bob; Dugas, William; Hussey, Mark; Giroir, Brett; Lunt, David; Baltensperger, David; Reinhart, Gregory; Riskowski, Gerald; Nichols, John P; Davis, Tim; Simpson, Shay; Gilliland,

Diane M.; Adam Helms <ahelms@tamu.edu>; Spurlin, Shayna; Nelson, Michelle; Bridges, Brenda

**Sent:** Fri Sep 25 13:51:48 2009

**Subject:** DARPA UPDATE

All,

I just wanted to provide an update on progress with DARPA per Dedicated Bioenergy Crops proposal.

DARPA is now asking for a detailed technical brief (detailed task, work plan, schedule, and budget) inclusive of the recent proposal that we submitted. We will be receiving an example for you to work from in the near future. We will ask all of you to coordinate with Bob Avant's Corporate Relations and Diane Gilliland's Contracts and Grants groups to make this happen as soon as feasible.

Thanks again for all of your hard work and dedication, and no doubt that this request from DARPA is very positive news - no guarantees yet, but good news.

Thanks,

Bill

--

Bill F. McCutchen, Ph.D.  
Associate Director  
Texas AgriLife Research  
Texas A&M University System  
113 Jack K. Williams Administration Building  
2142 TAMU College Station, TX 77843-2142  
979-845-8488 Tel  
979-458-4765 Fax  
bmccutchen@tamu.edu

Attached is a sample format to use for the budget justification. If everyone formats the justification for their tasks in this format, Jean Ann Bowman will assist us by combining them all into one overall project justification for submission.

Also attached is the AgriLife C&G budget template for FY10. It is already populated with the correct figures for FY10 fringe and insurance rates and built with formulas to correctly calculate the indirect costs based on our modified total direct cost method (if you have a subcontract on your project, let us know so we can re-calculate the IDC as appropriate for subs).

Notes/Helpful Hints to make the Budget Sheet work for you:

Entering Faculty/Staff:

Enter the exact monthly salary (for named personnel) or the salary you wish to pay (for to-be-determined personnel) in the "Salary" column for year 1, then enter the number of full-time person months that person will be working on the project in year 1 under the column labeled "Person Months Request." The spreadsheet will auto-calculate the total salary to be paid for year 1 and the correct insurance/fringe for that position. The spreadsheet will also automatically fill in the salary for years 2-5 for you with a 3% inflation rate built in. For years 2-5, all you need to do is enter the number of full-time person months for those years for each position to complete the salary.

**REMINDER: If any of the personnel will be less than 100% time for the number of full-time person months entered in the budget, please indicate their percent effort for those months next to the position title or named person. See the graduate research assistant entry as an example.**

Graduate Research Assistants:

By definition, GRAs can only be 50% time to be considered full-time and the spreadsheet is built to accommodate that. For GRAs, enter the monthly salary you want to pay them and then for the "Person Months Request" remember to enter FULL-TIME PERSON months. For example, if you are budgeting for one GRA to be on the project the entire 12-month year, then that is equal to 6 full-time person months and you would enter 6 under the "Person Months Requested" column.

**REMINDER: If you budget a GRA on your project, you MUST include tuition for each GRA at a minimum of \$5352 for the year.**

For Undergraduate Student Labor, there are no salary/month formulas built in since this is wage labor. You can just manually enter the total you want to spend on undergrad labor in the Fed Salary column for that line and then the spreadsheet will calculate the appropriate fringe required for your undergrad labor. It is helpful for us if you enter the hourly rate you are going to pay under the "Salary" column.

Equipment: Must be \$5000 or more per piece of equipment (or if you are buying all the parts to manufacture a specific piece of equipment yourself and the sum is more \$5000 or more) and have a useful life of one year or more; otherwise, it goes under materials and supplies or other direct costs.

Participant Support Costs are very rare and you shouldn't have any of these.

If you have any other questions, please let us know.

Thanks,

*Shayna Spurlin*

Contract Manager

Texas AgriLife Research, Corporate Relations

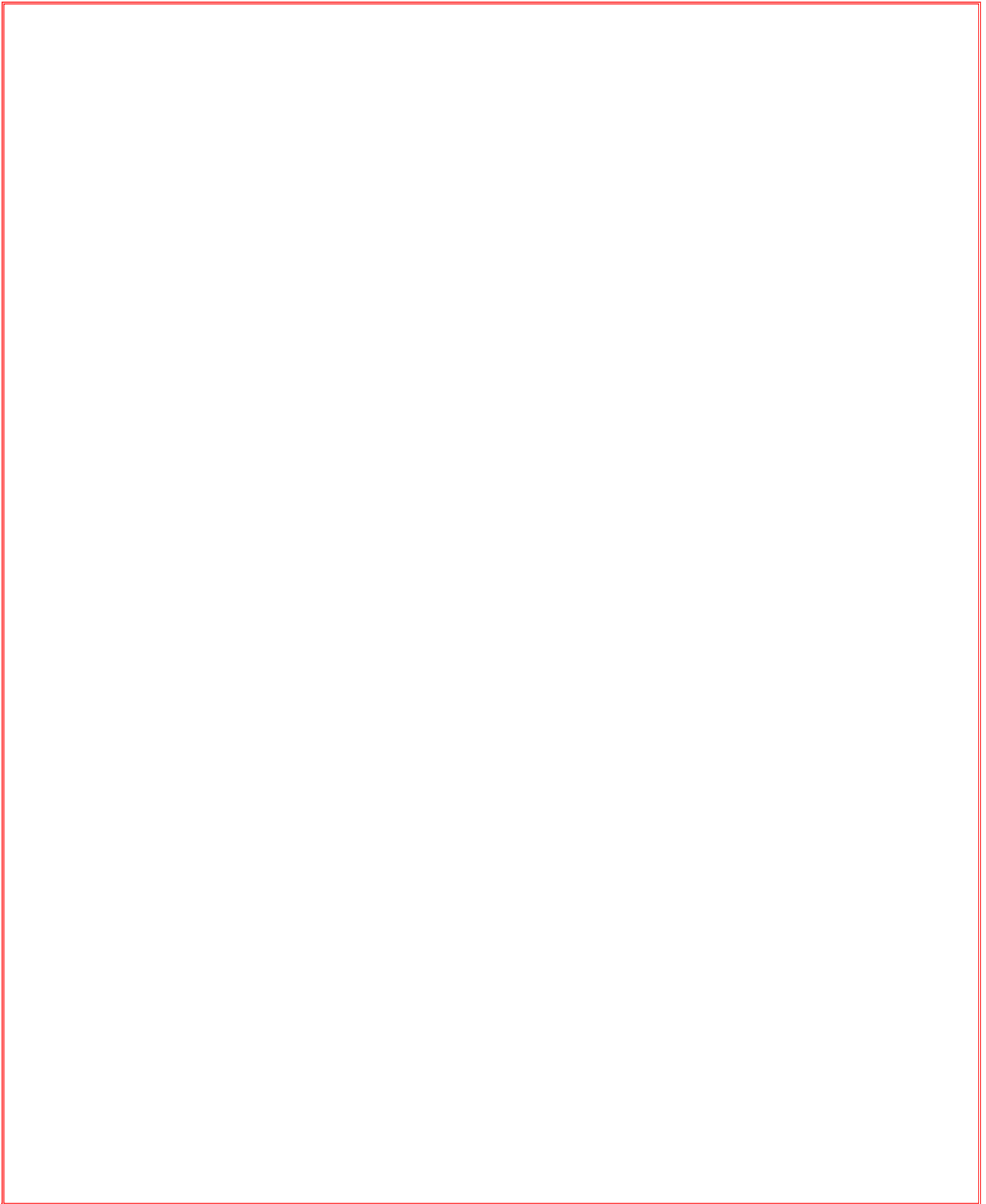
100-G Centeq Building A

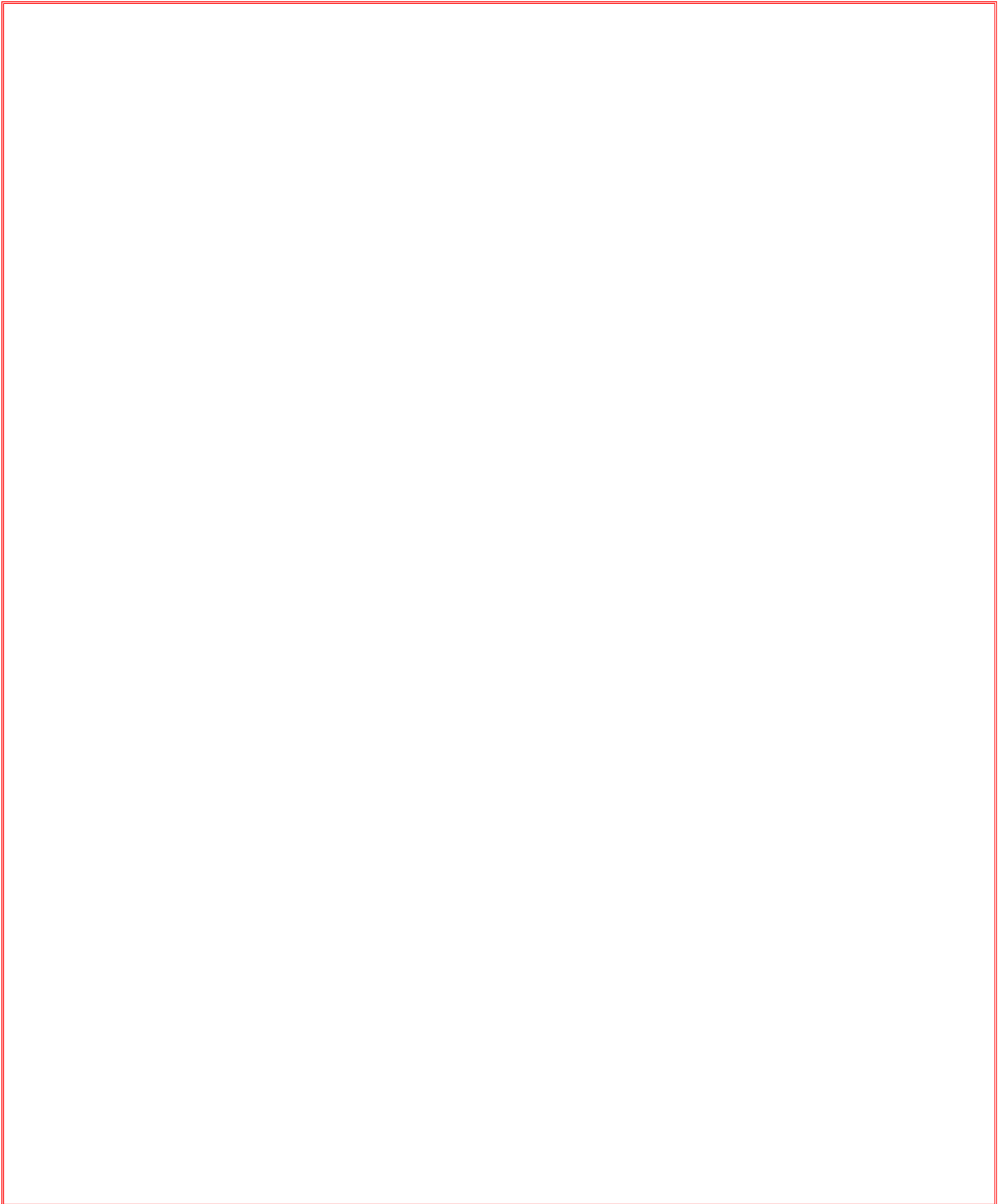
1500 Research Parkway

College Station, Texas 77843-2583

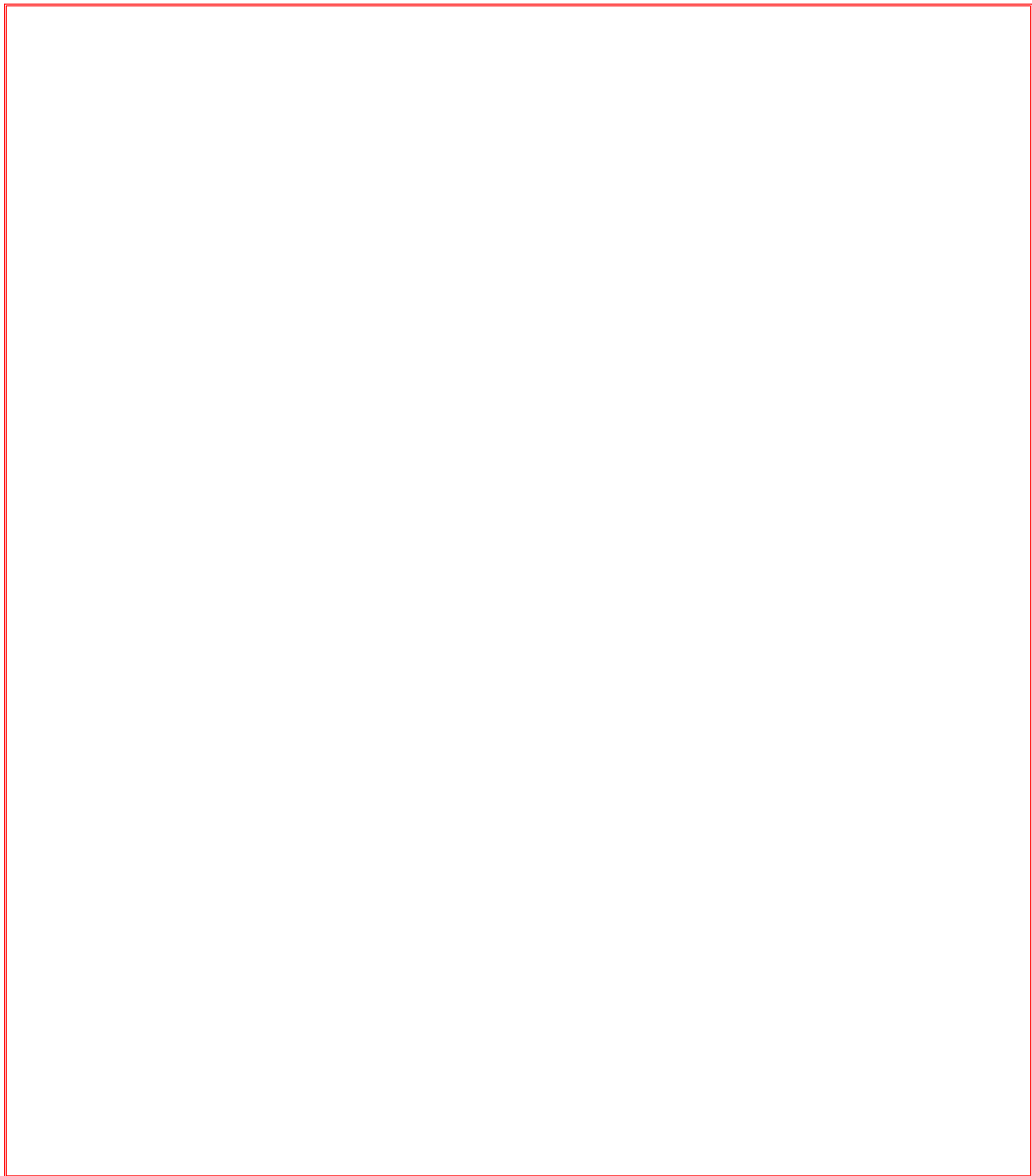
979.845.2364 office  
979.575.2070 mobile  
979.458.2155 fax  
[sfspurlin@tamu.edu](mailto:sfspurlin@tamu.edu)  
<http://AgriLifeResearch.tamu.edu>





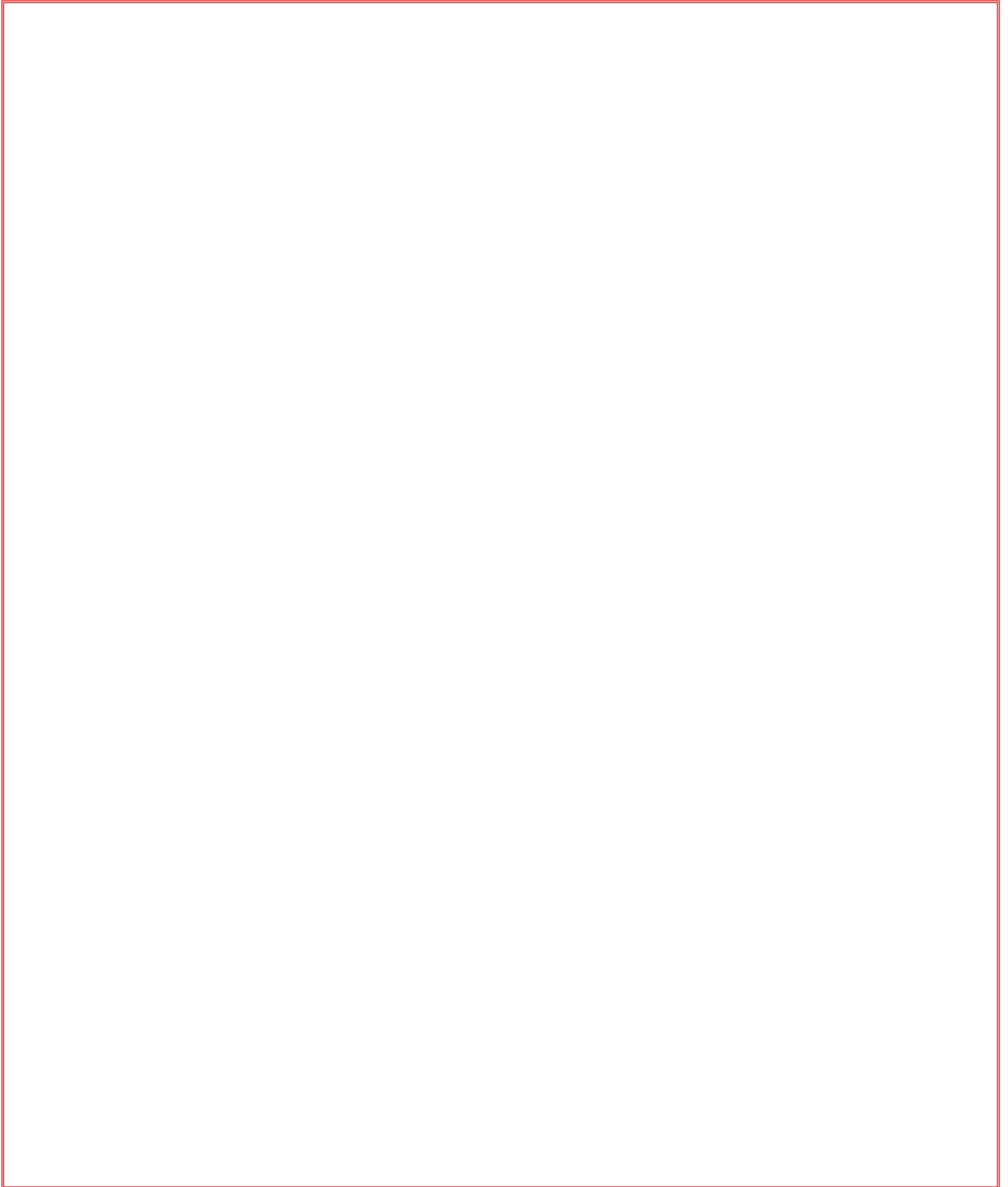








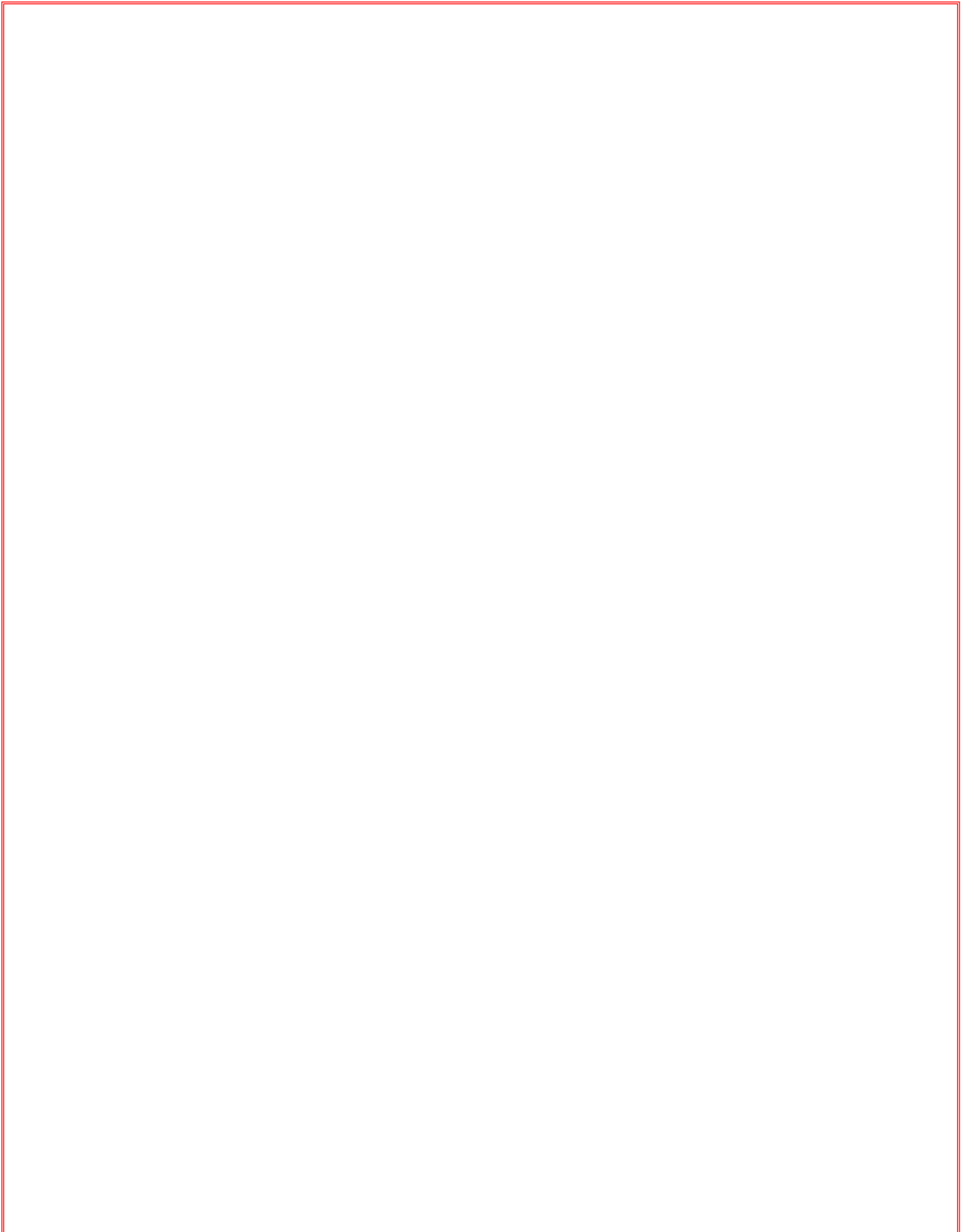




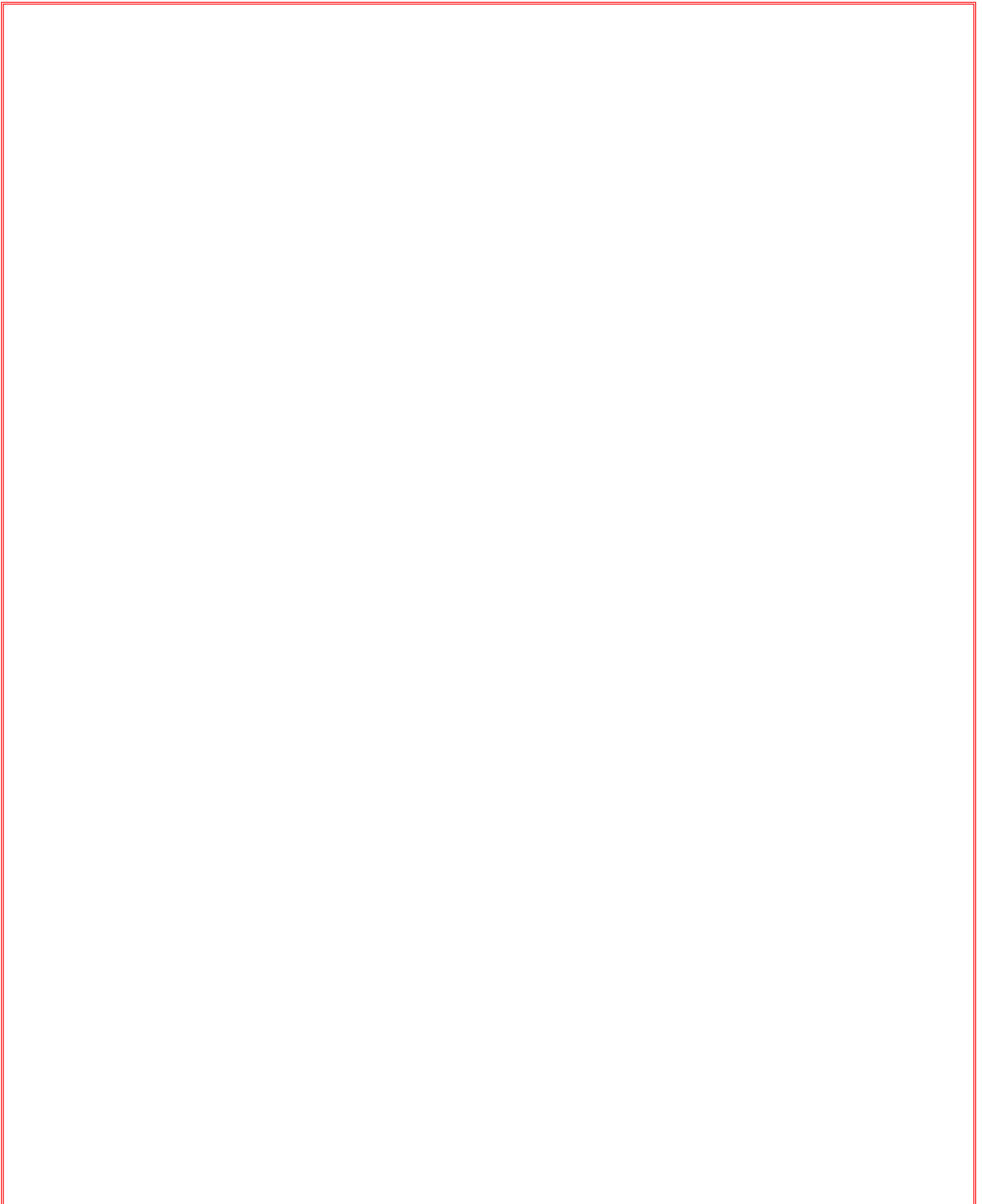


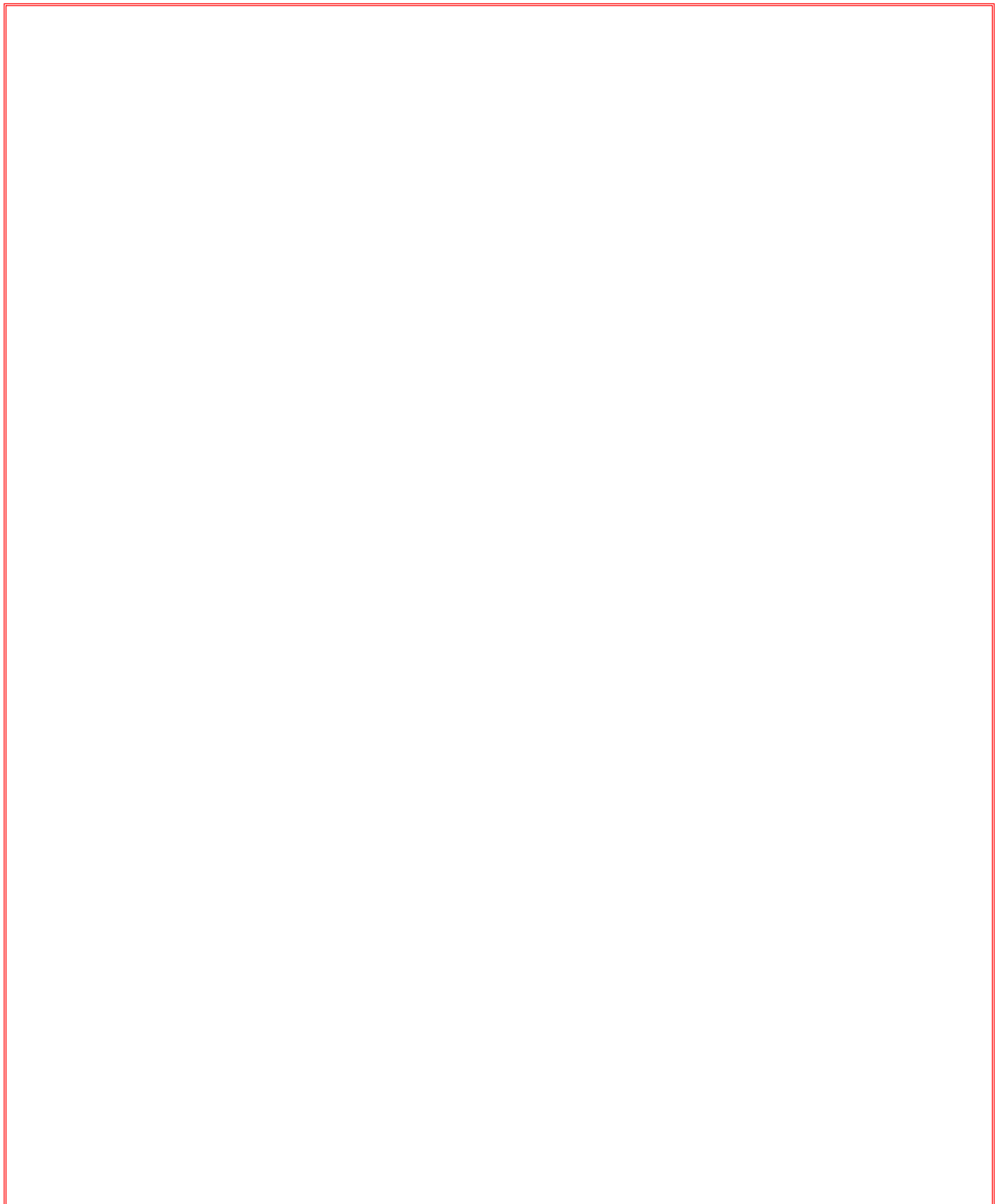


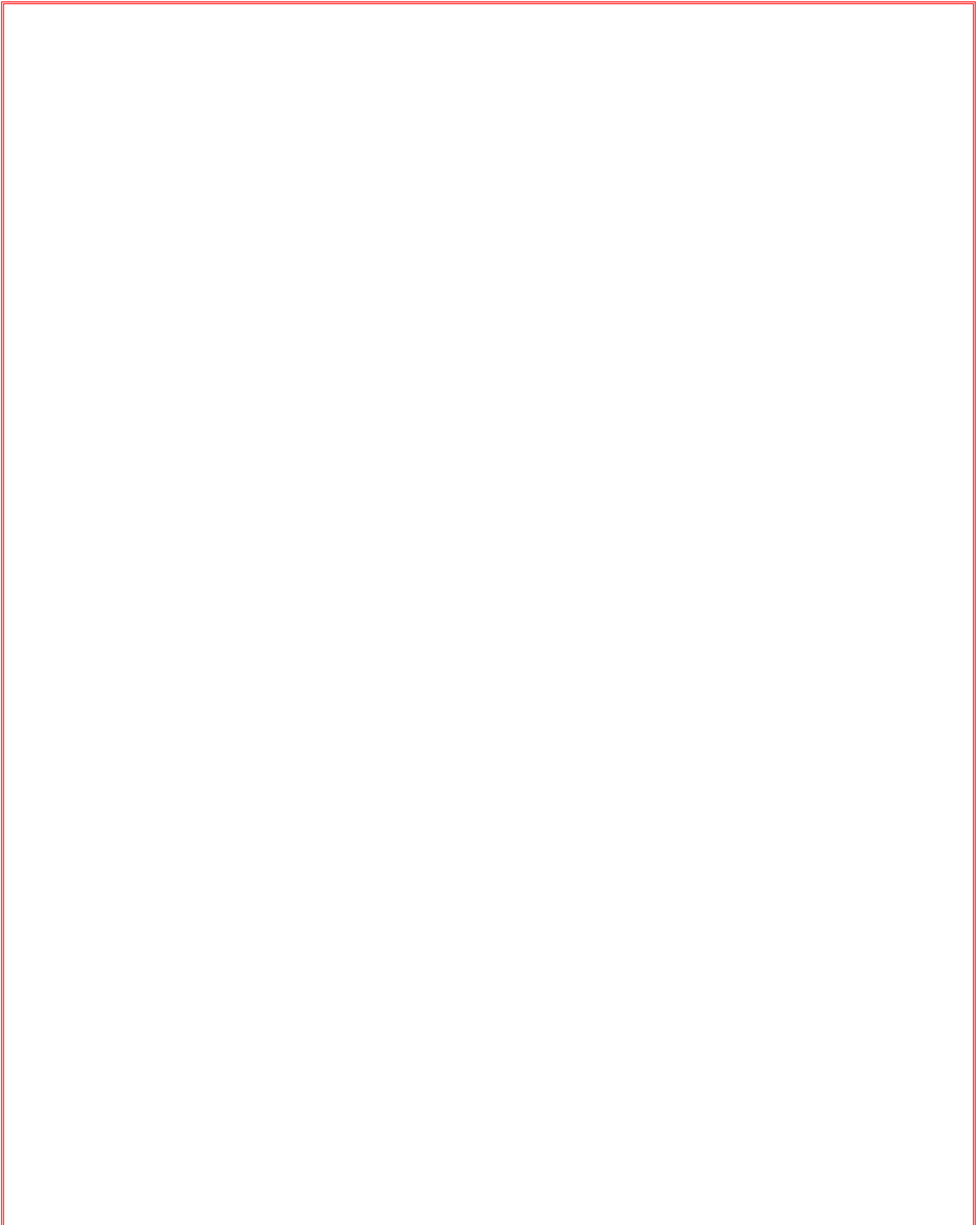


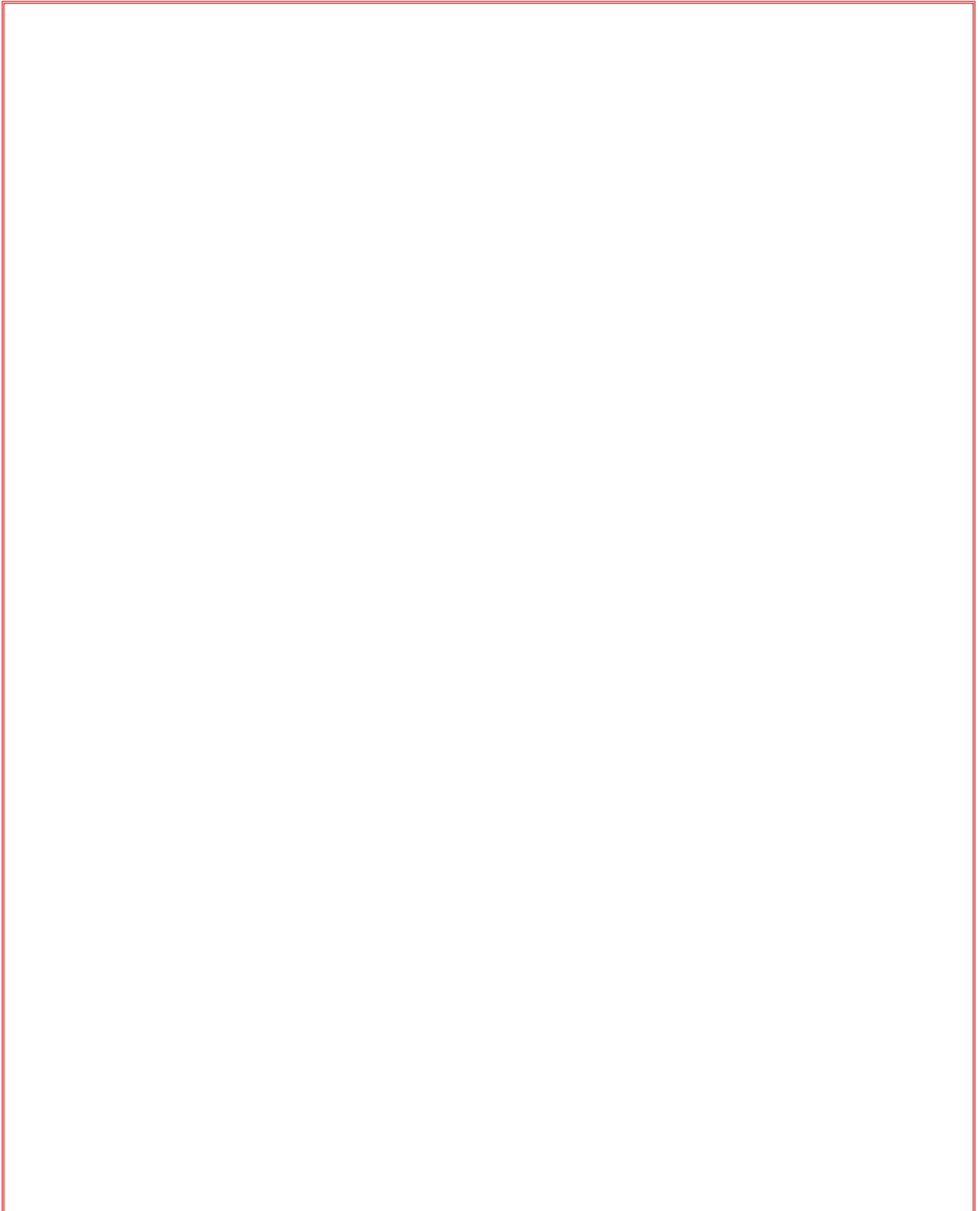














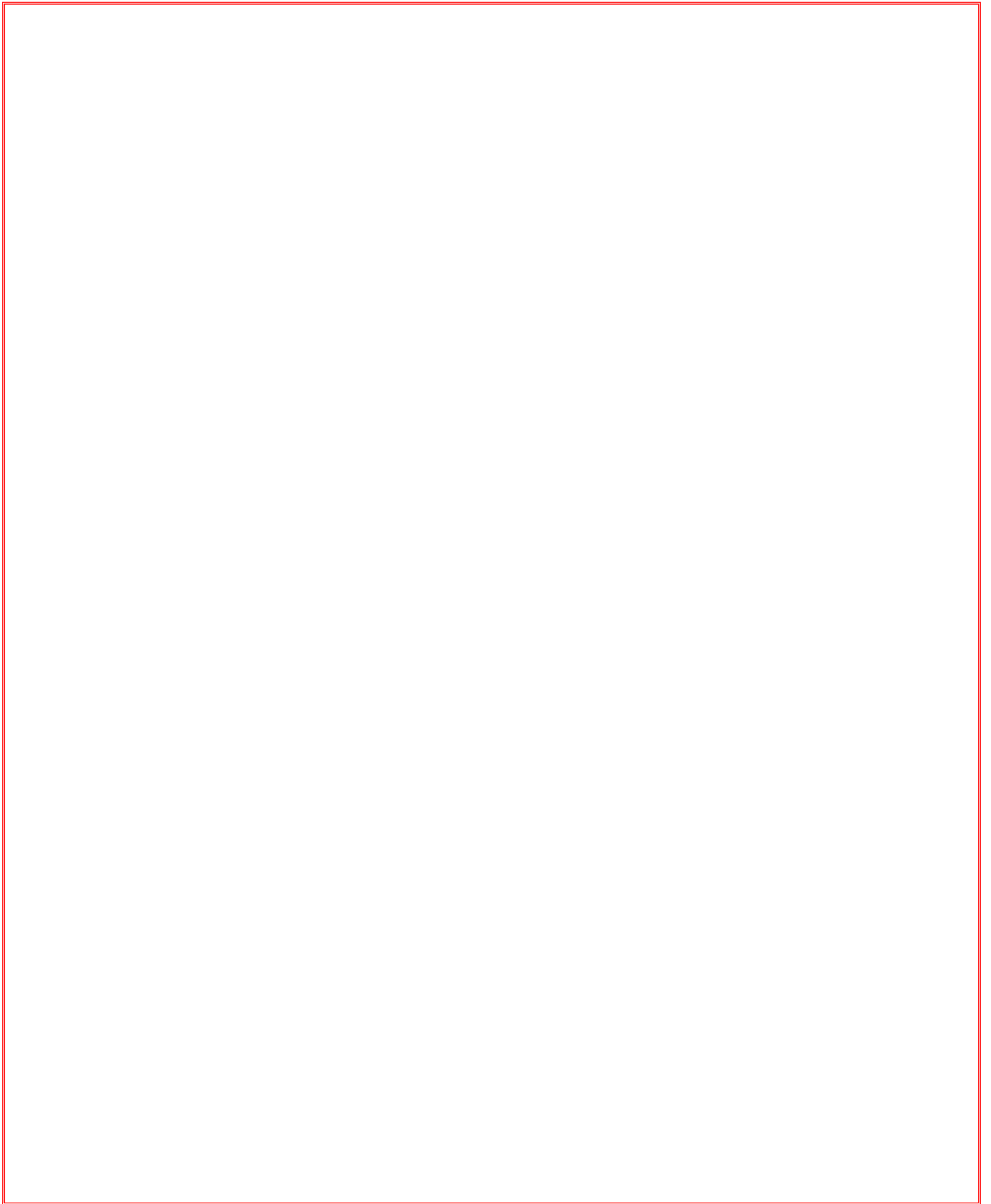
















**From:** [Kimberly Christiansen](#)  
**To:** [g-peterson1@tamu.edu](#); [gpeterso@ag.tamu.edu](#); [bpendleton@mail.wtamu.edu](#); [hamakerb@purdue.edu](#); [erbaugh.1@osu.edu](#); [wlr@tamu.edu](#); [gejeta@purdue.edu](#); [jfl@ksu.edu](#); [Charles S Wortmann](#); [baduguma@usaid.gov](#)  
**Cc:** [Joan Frederick](#); [eheinric@vt.edu](#); [Diane Sullivan](#); [John M Yohe](#); [dtopliff@mail.wtamu.edu](#); [dDILL1@unl.edu](#); [fcholick@ksu.edu](#); [lowenbej@purdue.edu](#); [w-payne@tamu.edu](#); [ddoan@ksu.edu](#); [Gary L Cunningham](#); [slack.36@osu.edu](#); [ASTRUTHERS2@UNL.EDU](#)  
**Subject:** Fw: INTSORMIL Advisory Committee Meeting to Organize a Technology Transfer Project & Discuss Communications Project  
**Date:** Wednesday, October 07, 2009 4:07:14 PM  
**Attachments:** [2009-2010 BUDGET.xls](#)  
[Letter to Pls on Tech transfer10062009.docx](#)

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**All:**

As you recall at our Advisory Committee Meeting in Lincoln, NE on July 16-17, 2009 we discussed the USAID letter of July 14 which announced the change in the INTSORMIL authorization ceiling from \$9,000,000 to \$12,900,000 for the period of September 30, 2006 to September 29, 2011. The ME presented a budget which was approved by the Advisory Committee. This budget with some revisions to accommodate the USAID/Procurement Office was approved by the Board of Directors at their meeting in Lubbock, Texas on September 29 - 30, 2009. Now, in this budget we have a new project indicated for Technology Transfer for \$215,000 per year for year 4 and year 5. I wish to call an advisory committee meeting for developing a workplan for this project and moving forward on this ASAP. The information below is what we created on a very short time notice and was approved by the USAID procurement office. We used Southern Africa as the model site. However, this can be modified to include all regions or simply focus on one or a few sites. We need to present a more comprehensive plan. We are also going to invite someone from the private sector or an NGO person to attend who has experience in developing country technology transfer activities.

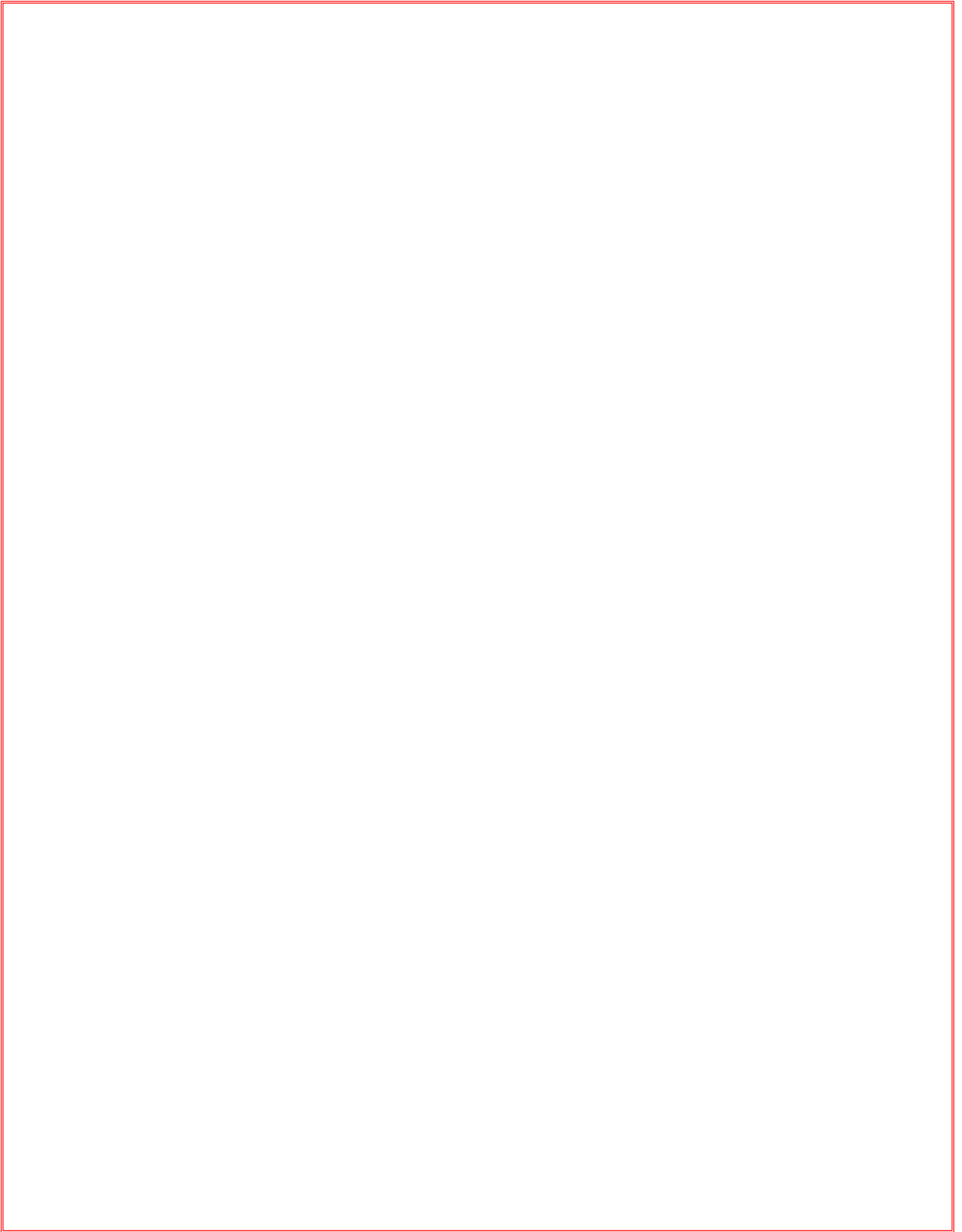
I propose to hold this meeting in Kansas City near the Airport sometime in early November or early December. We are looking at the period of November 9 - 13 or 19 - 20 or December 3-4 or 7-11 for a 1½ day meeting. Kim Christiansen will be sending out a link with a Doodle poll to determine your availability.

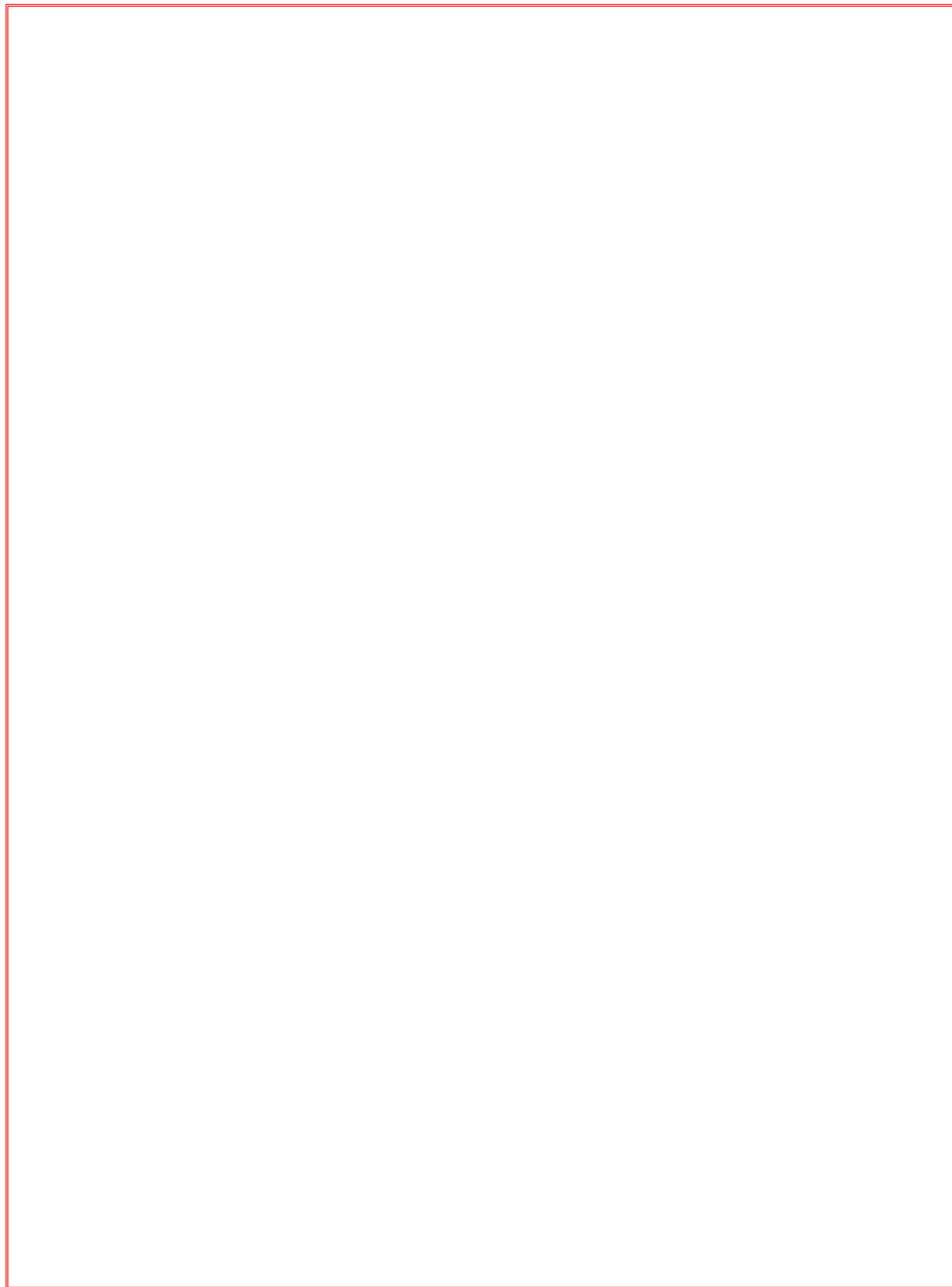
We will also be inviting a representative from the UNL School of Journalism to discuss with the Advisory Committee the development and application of effective and user-friendly communication tools as was discussed in part (g) of the Technical Application which was on page 2 of the July 14 USAID letter. A brief description of this is described in part II. of this message below.

The approved budget is attached.

John







specialists during the summer of 2010.

**John Yohe**  
**Program Director**  
**Sorghum, Millet and Other Grains CRSP**  
**113 Biochemistry Hall**  
**Lincoln, NE 68583-0748**  
**Ph: 402-472-6032**  
**Fax: 402-472-7978**  
**<http://intsormil.org>**







**All:**

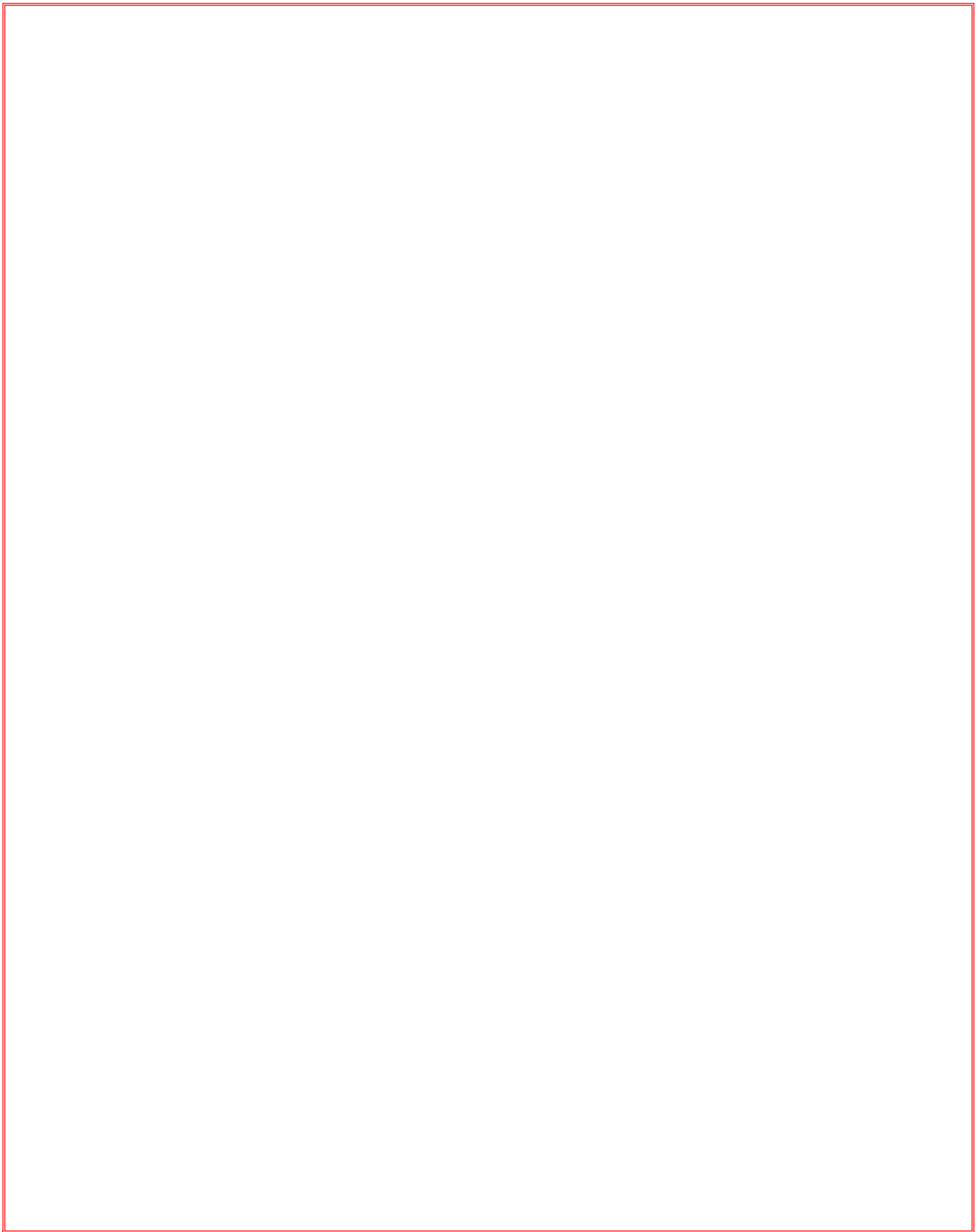
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I propose to hold this meeting in Kansas City near the Airport sometime in early November or early December. Please let us know what your availability is during the period of November 9 - 13 or 19 - 20 or December 3-4 or 7-11 for a 1½ day meeting. We will also be inviting a representative from the UNL School of Journalism to discuss with the Advisory Committee the development and application of effective and user-friendly communication tools as was discussed in part (g) of the Technical Application which was on page 2 of the July 14 USAID letter. A brief description of this is described in part II. of this message below.

The approved budget is attached.

John







**From:** [Bill Rooney](#)  
**To:** ["Karen L Prihoda"](#)  
**Subject:** FW: Invoice from SCSC IT Resources  
**Date:** Wednesday, August 26, 2009 5:45:00 PM  
**Attachments:** [Inv\\_25\\_from\\_SCSC\\_IT\\_Resourc.pdf](#)

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Please print and account it (to one of the ones that is expiring). I'll sign and you can send it back.

bill

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151

-----Original Message-----

**From:** SCSC IT Resources [mailto:klabar@ag.tamu.edu]  
**Sent:** Wednesday, August 26, 2009 3:12 PM  
**To:** wlr@tamu.edu  
**Subject:** Invoice from SCSC IT Resources

Dear Bill Rooney :

Your invoice is attached. Please remit payment at your earliest convenience.

Thank you for your business - we appreciate it very much.

Sincerely,

SCSC IT Resources  
979-845-3913

**To view your invoice**

Open the attached PDF file. You must have [Acrobat® Reader®](#) installed to view the attachment.

# Invoice

SCSC IT Resources

Soil & Crop Sciences  
TAMU 2474

College Station, TN 77843-2474

Date	Invoice #
8/4/2009	25

Bill To
Soil & Crop Sciences Dr. Bill Rooney

Account #	P.O. No.	Terms	Project

Quantity	Description	Rate	Serviced	Amount
1	Troubleshoot slow Internet performance/lockups in IE on Karen Prihoda's PC. MSN toolbar causing problems-removed-rebooted	40.00	1/9/2009	40.00
4	Troubleshoot Internet Explorer adware/hijack problem. Remove outdated Norton Antivirus 2003-install Symantec Endpoint Protection 1	40.00	1/22/2009	160.00
2	Troubleshoot AC power adapter connectivity problem on DelRoy's laptop-bend internal connector pins out to make better contact-test on	40.00	2/11/2009	80.00
1	Troubleshoot antivirus360 problem on DelRoy's laptop.	40.00	2/26/2009	40.00
1	Continued troubleshooting antivirus360 problem on DelRoy's laptop	40.00	2/27/2009	40.00
1	Re-establish connection and shared connection for HP LJ 2100 on Karen's front desk PC	40.00	4/8/2009	40.00
2	Take inventory of two Dell Dimension 8300 PC's at the seed foundation building and check on laserjet2100 on Karen's desk-needed paper	40.00	4/20/2009	80.00
1	Check on DelRoy's Dell Inspiron 8500 laptop power adapter problem. Bring two student worker PC's back to office to re-install Windows and applications	40.00	4/29/2009	40.00
2	Reinstall windows on student Dell Inspiron 8300 pc	40.00	4/30/2009	80.00
2	Continue setting up student PCs with programs and updates	40.00	5/4/2009	80.00
1	Setup student PC's and re-establish connection to printers in front office.	40.00	5/6/2009	40.00
1	Pickup DelRoy's laptop and disassemble to prepare for installation of new DC jack on the motherboard.	40.00	5/21/2009	40.00
4	Remove old DC jack and install new one on Dell Inspiron 8500 motherboard. Test for proper operation.	40.00	5/22/2009	160.00

**Total**

Phone #	Fax #	E-mail	Web Site
979-845-3913	979-845-0456	klabar@ag.tamu.edu	soilcrop.tamu.edu

# Invoice

SCSC IT Resources

Soil & Crop Sciences

TAMU 2474

College Station, TN 77843-2474

Date	Invoice #
8/4/2009	25

Bill To
Soil & Crop Sciences Dr. Bill Rooney

Account #	P.O. No.	Terms	Project

Quantity	Description	Rate	Serviced	Amount
1	Telco w/Del Roy re: Dell laptop power connection not charging his battery battery is ok. works in another laptop. Power connection on laptop not charging the battery	40.00	5/28/2009	40.00
1	Remove corrupt print jobs from Karen's PC and test shared connection to her HP LI 2100 printer	40.00	7/1/2009	40.00

			<b>Total</b>	\$1,000.00
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Phone #	Fax #	E-mail	Web Site
979-845-3913	979-845-0456	klabar@ag.tamu.edu	soilcrop.tamu.edu

**From:** [Bill Rooney](#)  
**To:** ["felderhoff@tamu.edu"](mailto:felderhoff@tamu.edu); ["Payne Burks"](#)  
**Subject:** FW: 2009 New Grad Student Orientation  
**Date:** Tuesday, August 04, 2009 5:04:00 PM  
**Attachments:** [2009 Invitation.pdf](#)  
[Kathy Ferguson.vcf](#)

---

I trust that both of you will be at this meeting.

bill

Dr. William L. Rooney  
Professor, Sorghum Breeding and Genetics  
Chair, Plant Release Committee  
Texas A&M University  
College Station, Texas 77843-2474  
979 845 2151

-----Original Message-----

**From:** Kathy Ferguson [mailto:KFerguson@ag.tamu.edu]

**Sent:** Tuesday, August 04, 2009 4:01 PM

**To:** Don Vietor; Juerg Blumenthal; Joe Cothren; Jane Dever; Jacqueline Peterson; Terry J Gentry; Dirk Hays; Charles Thomas Hallmark; Richard White; Russell Jessup; Scott Senseman; Dave Stelly; Bill Payne; Bill L Rooney

**Subject:** 2009 New Grad Student Orientation

We sent the attached invitation to our 2009 incoming graduate students for our annual orientation. Please encourage your students to attend this luncheon. We will use this opportunity to introduce the admin staff and share information that will help them throughout their graduate career.

The list of students we invited includes:

Ben McKnight (Senseman)  
Ryan Mueller (Hallmark)  
Julianna Osorio (Dever)  
Chance Robinson (Hallmark)  
Cheryl Verbree (Peterson)  
David Verbree (Payne)  
Jatara Wise (Vietor)  
Melanie Ancheta (Cothren)  
Derek Husmoen (Vietor)  
Aaron Turner (Senseman)  
Terry Felderhoff (Rooney, B)  
Payne Burks (Rooney, B)  
Yuan Chen (Cothren)  
Kyle Whitmire (Jessup)  
Szilvia Zilahi-Sebess (Blumenthal)  
Jim Florey (Gentry)  
Mohammed Suheb (Hays)  
Cort Winkle (White)  
Xiuting Zheng (Stelly)

If you have any questions, please let me know.

Thanks,

Kathy

Make it a GREAT day!



*Kathy Ferguson*

Senior Office Associate

Soil & Crop Sciences | Instruction Programs

MEPS | Instruction Programs

Texas A&M University

TAMU 2474

Heep Center, Rm 217

Phone: 979-845-4620 | MEPS: 979-845-0532 | Fax: 979-458-0533

"Learning is ever in the freshness of its youth, even for the old." Aeschylus

*Welcome to all  
2009  
New Graduate Students*

*You are invited to the  
Soil and Crop Sciences  
New Student Orientation Luncheon  
Monday, August 24, 2009  
12:00—1:30  
Heep Center, Room 440*

*Lunch Buffet  
Drinks*

*You will receive valuable information to help you  
with your graduate career here at Texas A&M.*

*RSVP to Kathy Ferguson  
By Noon on Friday, August 22nd*

*E-mail: [kferguson@ag.tamu.edu](mailto:kferguson@ag.tamu.edu)  
Phone: 845-4620  
Office: Room 217, Heep Center*

**From:** [Bill Rooney](#)  
**To:** [delroy@tamu.edu](mailto:delroy@tamu.edu); [dustin\\_b82@yahoo.com](mailto:dustin_b82@yahoo.com)  
**Subject:** FW: 2009-2010 Puerto Rico Winter Nursery and Growout Service.  
**Date:** Saturday, October 10, 2009 11:11:08 PM  
**Attachments:** [CSCo Nursery Pricing for2009-2010.doc](#)

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Don't know if the Crosbyton Seed Guys sent this to you, but just in case, here it is.

Looks like seed needs to be to Jim by Nov 10.

We will likely need 300 rows (maximum).

If we need their seed envelopes, please make arrangements to get those in the next few weeks. My goal is to have the planting list ready by the first of November.

Regards,

Bill

---

**From:** James Osborne [mailto:kjo64@msn.com]  
**Sent:** Thursday, October 08, 2009 12:41 PM  
**To:** Dr. Bill Rooney; Dr. Cleve Franks; Dale Wimmer; [delroy@tamu.edu](mailto:delroy@tamu.edu); Donnie Swink; Dr. Gary C Peterson; Dr. George Graef; Dr. Gebisa Ejeta; [kjo64@msn.com](mailto:kjo64@msn.com); Jerry; Jianming Yu; Prihoda, Karen L; Dr. Kassim Al-Khatib; Leslie L Korte; [mmolina@ksu.edu](mailto:mmolina@ksu.edu); Mitch Tuinstra; Nathan Boardman; Reba Cargile; sbrown; Shan Podduturi; Sharon E. Mitchell, Ph.D.; Stephen Kresovich; Tesfaye Tesso; Lemming, Terry R.; Mark Stelter  
**Subject:** 2009-2010 Puerto Rico Winter Nursery and Growout Service.

All,

It is that time of year again!

Crosbyton Seed Company will once again be offering the winter (Off Season) Nursery and Grow out planting Service in the Indios Valley of Puerto Rico. I will have you ship your seed to me here in Kansas, I will assemble it for nursery planting, then forward it to the Crosbyton Seed Company personnel in Puerto Rico. Once again because of family concerns I will not personally be planting again this year, however, the highly experienced employees who planted last season will be planting again this year.

Some points to remember or information for those of you that will be working with us for the first time:

PLEASE try and send your nurseries to me by November 10 so I can have them in planting order and in Puerto Rico for planting the week following Thanksgiving.

Package your seed in the 2 3/8" x 4 1/4" coin envelopes with the **1/4"** hole in the flap and the top of the packet stapled **below** the hole. If you need nursery planting packets they will be available from Crosbyton Seed Company, let us know and we will send them to you as soon as possible.

Plan your nurseries in multiples of 25 or 50 plot increments, (fields will be 25-15 ft. plots long, 2 rows wide = 50 plots/bed).

Be sure and let me know if you want row 1&2 on the same bed or if you want row 1 on the right side of bed #1 and row 2 on the left side of bed #2 so you can work your

material walking in the furrow between beds.

Please include your nursery field map so we are sure to plant your nurseries the way you want them. You can also email your maps to me at [kjo64@msn.com](mailto:kjo64@msn.com).

If any of you have special herbicide experiments I recommend 3 beds/6 rows buffer between treatments to help reduce the chance of drift from resistant onto non-resistant material. The sprayer is 7 beds/14 rows wide, we can spray using just the one side of the sprayer boom (4 beds/8 rows) minimum coverage on one pass.

Please let me know AS SOON AS YOU CAN the approximate number of rows/beds you will be using this year so we can get the land reserved and prepared.

If you know of anyone interested in this service that I have inadvertently missed please forward this email to them or let me know so I can contact them personally. It appears that we will have more corn this year and in the coming years so please include those interested in winter corn nursery space also.

**Thank you all**, I look forward to another productive year for the Corn and Sorghum Research Community!! If you have any questions, please, give me a call or send an email.

Please find attached the price schedule for 2009-2010, which remains the same as 2008-2009 prices.

Regards,

Jim Osborne  
Crosbyton Seed Company  
2500 N. 231st. W.  
Andale, Kansas 67001-9510  
(H) 316.444.2530  
(C) 316.734.2303  
(Fax) 316.444.2530 (please call first)  
[kjo64@msn.com](mailto:kjo64@msn.com)

**Crosbyton Seed Company  
Research Division  
Puerto Rico  
Price Schedule  
2009 – 2010**

100+ 15 ft. rows – Sorghum Nursery \$4.75/row – customer furnishes all supplies and labor except planting and normal cultural crop care. (Corn Nursery \$7.15/row)

365 ft. Hand rows of Sorghum Nursery B &/or R lines - \$385.00/row – customer furnishes all supplies and labor except planting and normal cultural crop care. (Corn Nursery \$575.00/row)

100+ 25 ft. rows – Sorghum Nursery \$8.40/row – customer furnishes all supplies and labor except planting and normal cultural crop care. (Corn nursery \$12.65/row)

Dryer and Utility Expense will be billed at \$450.00/day of use.

Pollinating bags billed at \$85.00/1,000 (special quantity and bulk ordering available at reduced pricing).

Annual Puerto Rico Import, Export and Seed Production License Fee: \$350.00/Customer.

1/20<sup>th</sup> Acre Grow Out \$115.00/sample (Sorghum) (\$200.00/sample (Corn) customer furnishes all supplies and labor except planting and normal cultural crop care.

1/10<sup>th</sup> Acre Grow Out \$230.00/sample (Sorghum) (\$400.00/sample (Corn) customer furnishes all supplies and labor except planting and normal cultural crop care.

1/5<sup>th</sup> Acre Grow Out \$460.00/sample (Sorghum) (\$800.00/sample (Corn) customer furnishes all supplies and labor except planting and normal cultural crop care.

Seed quantities not guaranteed. “Act-of-God” pro-rated to stage of growth at time of loss.

**All Seed must be safened and a phytosanitary certificate must accompany all seed sent to Puerto Rico.**

All nursery planting seed must be packaged in 2 3/8” x 4 1/4” coin envelopes with 1/4” hole in flap and the top of packet stapled below the hole. Nursery planting packets will be available at no charge from Crosbyton Seed Company. Seed storage packets for returning nursery seed are the customer’s responsibility or will be billed with the final

billing after harvest. Prices include land and planting, all chemicals and application. All rates are based on normal planting dates of late November – early December in Puerto Rico all other planting dates or special requests will be priced on a case-by-case basis.

Local, part-time, labor is available at the rate of \$12.50/hour billed through Crosbyton Seed Company. Pollinating and harvest supplies may be available on site and/or can be ordered from Crosbyton Seed Company in advance. A Stationary Plot Thresher/Sheller is available. All seed leaving Puerto Rico requires a U.S.D.A. inspection before shipment.

Terms for Service: 10% of projected project cost prior to planting, 40% “at stand” and the balance due at harvest and final billing.