

From: [John Mullet](#)
To: [Adam Helms](#)
Cc: [Bill Rooney](#); [Patricia Klein](#)
Subject: GOAL 2; Tasks 2.1, 2.2 Milestones/Metrics
Date: Tuesday, October 13, 2009 10:34:07 AM
Attachments: [GOAL 2](#) [2.1, 2.2](#) [101209.docx](#)
[ATT00039.txt](#)

Adam,

As requested.

John

From: [Stelly David](#)
To: [Rooney Bill](#); [Klein Trish](#)
Cc:
Subject: Goal 3 Obj 4 Budget and Milestone (draft)
Date: Friday, October 02, 2009 5:35:40 PM
Attachments: [Darpa budget-oo.xls](#)

Here is a draft of "my" part -- where I am to lead the document development:

Gross budget -- insufficient room for equipment and facilities need some IDC; will keep trying to identify needs that should be here (detailed in Budget items)

Budget items --

Annual agenda -- really more a thinking facilitator than anything else needs some more work
Milestones.

Hope the file works okay for : it is exported from OpenOffice.org in MS Excel format, which most of you probably use.

It is not a finished product but is probably more than DARPA will digest anyway.

Will do more over the weekend. PLEASE LET ME KNOW IF YOU CAN READ THE FILE OK I AM RELATIVELY NEW TO THE OPENOFFICE SYSTEM.

David

From: [John Mullet](#)
To: [Bill Rooney](#)
Subject: GOAL 2: Objective 1, 2 update/questions
Date: Thursday, October 01, 2009 1:13:43 PM
Attachments: [DARPA Energy Crops Assigned Tasks.doc](#)
[ATT00007.txt](#)

Bill,

In the attached document, I outlined an experimental plan for Goal 2, objectives 1, 2 (in the text).

Trish and I have Objective 1 done and the budget is set. Let me know if you want to review it.

Take a look at what I propose for Objective 2. Based on this plan, I am thinking the following personnel/supplies will be needed.

Years 1, 2.

Rooney - GS, student workers (to help with core collections, population development).
+ supplies, travel, etc.

Mullet - 1GS, 1PD, student workers (genotyping, phenotyping, etc.)
+ supplies

+ 5-10% time for bioinformatics (Klein)

+ Equipment?

Years 3-5

Continue the above budget items

+ 1 additional GS- Rooney

+ 1 additional GS- Mullet

+ part time Technician?

depends on budget

If this is approximately correct, then I will get a draft budget done for us to review.

Thanks,

John

From: [Owens, Vance](#)
To: [Doolittle, James](#)
Cc: [Baldwin, Brian](#); [DoKyoung Lee](#); [Owens, Vance](#); [Rooney, William](#); [Voigt, Thomas](#); [Davis, Adam](#); [Funnell-Harris, Deanna](#); [Pedersen, Jeff](#); [Richard, Edward](#); [Rob Mitchell \(Rob.Mitchell@ars.usda.gov\)](#); [Venuto, Brad](#); [Karlen, Doug](#)
Subject: herbaceous quarterly report
Date: Thursday, October 22, 2009 11:40:24 AM
Attachments: [RFP-Herbaceous-Qtrly-report-October-2009.docx](#)

Dr. Doolittle:

Attached is the herbaceous group quarterly report for the period 1 July – 30 Sep. 2009. Please let me know if you have any questions or comments.

Thanks,

Vance

Vance Owens
Plant Science Department
South Dakota State University
1110 Rotunda Lane North
244C SNP, Box 2140C
Brookings, SD 57007

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**Sun Grant-DOE Regional Feedstock Partnership
Herbaceous Biomass Feedstock Development
Quarterly Report**

Not for Distribution

Herbaceous Group Lead: V.N. Owens

Project Period: 1 July – 30 September 2009

Overall Objective: Establish and perform replicated field trials of diverse herbaceous biomass feedstocks at different locations for assessing potential expansion of these feedstocks as a bioenergy resource.

Switchgrass: V.N. Owens, South Dakota State University, Switchgrass Coordinator

Collaborators: E. Heaton, IA; J. Fike, VA; D. Bransby, AL; D. Viands, NY; R. Farris, OK; R. Mitchell, NE

Objective: Establish and perform replicated field trials of switchgrass to gather biomass production and sustainability data that documents biomass yield at different regional locations for assessing potential expansion of switchgrass as a bioenergy feedstock resource.

Status: We are in the second year of a five-year study. Approximately 25% of the planned activities have been completed.

Planned activities

Planned activities for the reporting period included monitoring of existing switchgrass stands, preparation for fall harvest, continued upload of location data on the ORNL Sharepoint website, and a meeting of the switchgrass group in Brookings, SD.

Actual Accomplishments

1. **Stand establishment:** Stands were monitored at each site. The replanted AL location failed to establish successfully. Plans are being made to plant again in 2010 in a new location in AL.
2. **Sharepoint:** All collaborators have registered on the sharepoint website and a standardized excel template for switchgrass data upload has been developed and sent to Chris Abernathy at ORNL. Meta data and other data from some sites has been uploaded to sharepoint for this progress report.
3. **Group meeting:** The switchgrass group (OK was unable to attend) met 29-30 Sep. in Brookings, SD. Several items were accomplished including: finalizing the switchgrass data template for upload to Sharepoint, clarifying harvest plans for 2009 including sample collection procedures, detailing submission of samples to INL for possible future chemical characterization, field tours of switchgrass and other biomass plots in the area, discussion of successes/challenges at each location.

4. **Sustainability:** Further sustainability work is being done at the SD location. Water and gas measurements were taken at the SD location during the reporting period.

Explanation of Variance: The AL site was replanted in 2009 but with little success. Discussion for this site at our meeting in Brookings, SD in Sep. focused on replanting in a different location in AL in 2010.

Plans for Next Quarter: Switchgrass will be harvested at most locations during the coming quarter and new data uploaded to Sharepoint. Samples will be submitted to INL for future potential chemical characterization.

Publications / Presentations/Proposals Submitted:

A panel paper including all the species in the herbaceous group was presented by species leads at the World Congress on Industrial Biotechnology and Bioprocessing in Montreal, QC, Canada in July.

Miscanthus: T. Voigt, University of Illinois, Miscanthus Coordinator

Collaborators: Stacy Bonos (NJ), Roch Gaussoin (NE), and David Williams (KY)

Reporting Period: April 1, 2009 – June 30, 2009

Objective: Establish and perform replicated field trials of *Miscanthus x giganteus* (*M. x g.*) to gather biomass production and sustainability data that documents biomass yield at different regional locations for assessing potential expansion of *M. x g.* as a bioenergy feedstock resource.

Status: We are in the second year of a five-year study and in 2009, and less than 25% of the planned activities have been completed.

Planned Activities: Planned activities July - September 2009 included collecting 2nd year *Miscanthus x giganteus* growth and morphological data at the five sites (IL, IN, KY, NE, and NJ), controlling weeds in the plots, continuing collecting data in the Sustainability study in IL, and beginning analysis of soil samples collected in 2008. In an ongoing task, we continue to improve the accuracy of MiscanMod, a model used to predict *Miscanthus x giganteus* growth and yields in the U.S. as additional data from this study, and other studies becomes available and can be incorporated into the model.

Actual Accomplishments: In 2008, all five sites were planted, fertilizer applied, weeds controlled, soil samples collected, and biomass samples submitted to INL. In April - June 2009, after determining the % survival at each site (Table 1), replanting occurred at the IL and NE sites as needed, fertilizer was applied, and weeds were controlled. The KY and NJ are collecting 2nd year morphology growth data (Table 1). Through June 2009, there appears to be no nitrogen response in any plots in the study (Table 1).

At IL, the Sustainability study has commenced. Soil gas, temperature, and moisture data are being collected from each plot and soil analysis will commence during the October - December period as this year's funding became available in July – September period.

During the July – September period, the PI visited the IL, KY, NE, and NJ sites. All sites are performing well and 2nd year *Miscanthus x giganteus* growth and morphological data is being collected (Table 2) at the KY, NE, and NJ sites.

Explanation of Variance: The IN site has dropped out of the study due to poor winter survival at that site and a scheduled personnel change in early 2010; cooperator Zachary Reicher is moving to the University of Nebraska as his spouse has accepted a Department Head position there. A fifth site will be added in 2010, most likely in the Southeastern U.S. where *Miscanthus x giganteus* appears to be well adapted. Complete, second-year morphology and growth data is not being collected in 2009 in IL due to the replanting that occurred, however comparative morphological data from Illinois collected in October is shown in Table 3.

Plans for Next Quarter: During the October – December period, plot harvests will take place and growth and morphological data will be analyzed.

At IL, soil gas, temperature, and moisture data will be collected and analyzed for the Sustainability study, and soil analysis will commence.

The Species Leader will speak about the DOE Sun Grant *Miscanthus x giganteus* Bioenergy Field Trials in one University of Illinois class and at the University of Kentucky Turfgrass fall seminar.

Publications/Presentations/Proposals Submitted: In July, the Species Leader spoke about the DOE Sun Grant *Miscanthus x giganteus* Bioenergy Field Trials at the University of Kentucky Turfgrass Field Day in Lexington, KY and at two presentations in Montreal, one at McGill University and the second at the World Congress on Bioindustry and Biotechnology. In August, the IL plots were displayed at the University of Illinois Energy Farm Open House and the Species Leader hosted a biomass feedstock booth at the Farm Progress Show in Decatur IL.

Table 1. 2008-09 overwinter survival and 2009 morphology data at five sites in the *Miscanthus x giganteus* Bioenergy Field Trial.

Site	2008- 09 Survival (%)	Obvious N Response?	Approximate Height (m) July 2009
IL	17	no	1.8 + .75 ¹
IN	33	NA	NA
KY	99	no	2.6
NE	79	no	2.2 + .2 ¹
NJ	100	no	2.6

¹ At IL and NE, these are the approximate heights of the surviving 2008 plants + the heights of the replanted 2009 plants.

Table 2. Differences in height and tiller number averages of five second year *Miscanthus x giganteus* plants in plots receiving different N amounts in Lexington, KY; Mead, NE; and Adelphia, NJ in September 2009.

	0 kg N/ha	60 kg N/ha	120 kg N/ha
Lexington, KY			
Average Height (M)	3.1	3.1	3.1
Average Tiller #	39.1	38.8	36.5
Mead, NE			
Average Height (M)	2.7	2.9	3.0
Average Tiller #	45.5	42.8	45.0
Adelphia, NJ			
Average Height (M)	3.3	3.4	3.3
Average Tiller #	34.3	40.1	40.35

Table 3. Differences in height and tiller averages of five first year and five second year *Miscanthus x giganteus* plants in plots receiving different N amounts in Urbana, IL in October 2009.

	0 kg N/ha	60 kg N/ha	120 kg N/ha
Year 1 Plants			
Average Height (M)	1.6	1.9	1.6
Average Tiller #	14.8	20.2	21.8
Year 2 Plants			
Average Height (M)	3.2	3.7	3.1
Average Tiller #	36.8	28.0	31.6

Energycane: B. Baldwin, Mississippi State University, Energycane Coordinator

Collaborators: Bill Anderson (ARS Tifton GA) Brian Baldwin (MSU Starkville MS), Jimmy Ray Parish (MSU Raymond, MS), E. Charlie Brummer (UGA Athens GA), Ken Gravois (LSU St. Gabriel LA), Juerg Blumenthal (TAM College Station, TX), Ted Wilson (TAM Beaumont, TX), Goro Uehara (UH Waimanalo [Oahu]).

Objective: Establish and perform replicated field trials of energycane to gather biomass production and sustainability data that documents biomass yield at different regional locations for assessing potential expansion of energycane as a bioenergy feedstock resource.

Reporting Period: June 30 to October 1, 2009

Status: (on time)

Task :

1. **Planned Activities:** Monitor growth characteristics/morphology. Assess field for survival. Apply appropriate management practices to ensure maximum crop growth.
2. **Actual Accomplishments:** The management of the plots has proceeded according to schedule. Plants of all entries are growing well at most sites at the current time. Excessive rainfall at Starkville, MS and St Gabriel LA have set yields (as measured by height) behind.

The Beaumont site is a year behind on its fields. (See variance).

Herbicide was applied in the fall and late spring for weed control. Fertilizer was applied according to soil test. Weather data are being logged at research sites. Height measurements have commenced at all sites.

Material Transfer Agreement and planning for shipments of seedcane to Hawai'i has been finalized. Germplasm has been tested for virus and other pathogens (required before importation to Hawai'i). Testing has been complete. Billets will be cut and shipping is imminent.

3. **Explanation of Variance:**
Beaumont Site, 1 year delay in field expansion. Hurricane Ike (2008) and accompanying tornados caused severe damage to the Beaumont Station and the seed cane crop. The same hurricane leveled cane at Houma LA. Seed cane and the machinery to open furrows for planting was not available until spring. (Cane is fall planted.)
4. **Plans for Next Quarter:** Height measurements will continue to be made on bi-weekly intervals. Plant heights will continue to be taken. %Brix readings will continue until harvest – November at most sites.

Energycane should be arriving at the Waimanalo Expt. Station, on Oahu. That material will be extensively propagated to establish a replicated field trial there.

Publications / Presentations/Proposals Submitted:

A panel paper including all the species in the herbaceous group was presented by species leads at the World Congress on Industrial Biotechnology and Bioprocessing in Montreal, QC, Canada in July.

Sorghum: W.L. Rooney, Texas A&M University, Sorghum Coordinator

Objective: Establish and perform replicated field trials of energy sorghums to gather biomass production and sustainability data that documents biomass yield at different regional locations for assessing potential expansion of sorghum as a bioenergy feedstock resource.

Planned Activities:

1. Harvest, collect data and biomass samples from the 2009 cropping season.
2. Complete analysis of 2008 data and submit to Oak Ridge National Labs.

Actual Accomplishments:

1. Trials partially completed in most of the locations in the country. The sorghum trial in Corpus Christi, Texas was never planted due to extreme drought throughout 2009. All other locations were planted and grown and data will be collected. At this time, approximately ½ of the locations have been harvested; the remainder should be completed by the end of October.
2. Data collected from 2008 was compiled and submitted to Oak Ridge National Labs. (See attached Table).
3. Samples from 2008 were scanned and prepared for shipment to INL.

Explanation of Variance: Lack of funding is causing problems at some locations. Drought at some locations may reduce yield.

Plans for Next Quarter: Prepare for harvest.

Publications / Presentations/Proposals Submitted:

A panel paper including all the species in the herbaceous group was presented by species leads at the World Congress on Industrial Biotechnology and Bioprocessing in Montreal, QC, Canada in July.

Table 1. 2008 Agronomic performance of different sorghum hybrid across locations.

Location	height	fresh yield		dry yield		Dry	Brix
Entry	cm	MT/ha	ton/ac	MT/ha	ton/ac	Matter	%
<u>Corpus Christi</u>							
22053	167.6	29.5	13.2	15.0	6.7	0.50	.
84G62	147.3	31.4	14.0	13.5	6.0	0.45	.
Graze-N-Bale	254.0	69.9	31.2	23.0	10.3	0.39	.
M81-E	243.8	62.2	27.7	21.3	9.5	0.37	.
Grazeall 3	203.2	35.0	15.6	10.3	4.6	0.39	.
Sugar T	223.5	44.8	20.0	14.4	6.4	0.33	.
Isd	93.3	9.9	4.4	5.6	2.5	0.14	.

College
Station

22053	187.3	28.4	12.7	12.8	5.7	0.52	10.6
84G62	127.0	21.2	9.5	11.0	4.9	0.47	14.0
Graze-N-Bale	273.1	47.2	21.1	29.1	13.0	0.52	12.7
M81-E	241.3	43.8	19.5	23.1	10.3	0.53	13.4
Grazeall 3	200.0	27.0	12.0	13.9	6.2	0.51	15.4
Sugar T	244.5	33.2	14.8	16.0	7.1	0.44	10.7
lsd	36.9	6.6	3.0	6.7	3.0	0.16	7.2

Mississippi

22053	274.7	22.8	10.2	7.2	3.2	0.31	.
84G62	70.3	11.1	5.0	5.0	2.2	0.45	.
Graze-N-Bale	362.0	41.8	18.6	11.4	5.1	0.27	.
M81-E	262.4	36.3	16.2	10.4	4.6	0.29	.
Grazeall 3	197.5	21.4	9.5	9.6	4.3	0.45	.
Sugar T	255.3	27.3	12.2	8.4	3.8	0.31	.
lsd	31.5	5.2	2.3	2.4	1.1	0.04	.

Kentucky

22053	.	11.5	8.1	6.2	2.8	0.35	12.9
Graze-N-Bale	.	14.4	6.4	4.5	2.0	0.32	10.8
M81-E	.	21.4	9.5	8.0	3.6	0.38	9.1
Grazeall 3	.	9.1	4.1	4.3	1.9	0.47	11.8
Sugar T	.	6.0	2.7	2.6	1.2	0.43	10.8
lsd	.	12.4	2.0	2.4	1.1	0.03	4.3

North Carolina

22053	.	38.4	17.1	11.7	5.2	0.31	8.0
Graze-N-Bale	.	55.0	24.5	14.1	6.3	0.26	11.0
M81-E	.	22.9	10.2	7.2	3.2	0.33	17.5
Grazeall 3	.	11.1	4.9	5.1	2.3	0.46	9.8
Sugar T	.	34.4	15.4	10.0	4.5	0.3	7.5
lsd	.	15.7	7.0	3.7	1.6	0.48	4.1

Kansas

22053	341.9	45.9	20.5	24.7	11.0	0.54	.
Graze-N-Bale	339.9	74.4	33.2	19.5	8.7	0.26	.
Grazeall 3	276.2	37.8	16.9	27.1	12.1	0.71	.
Sugar T	341.2	68.3	30.5	15.7	7.0	0.23	.
lsd	19.9	11.1	4.9	4.8	2.2	0.06	.

Conservation Reserve Program (CRP) Land: D.K. Lee, University of Illinois, CRP Coordinator

Collaborators: Ezra Aberle (ND), Keith Harmony (KS), Chengci Chen (MT), Carl Jordan (GA), Robert Kallenbach (MO), Gopal Kakani (OK)

Reporting Period: July 1 – September 30, 2009

Objective:

Perform replicated field trials on CRP land to gather biomass production and sustainability data that documents biomass yield at different regional locations for assessing potential of CRP land as a bioenergy feedstock resource

Status: We are in the second year of a five-year study and 35% of planned activities have been completed.

Planned Activities: continue CRP management work from the last year.

ND: Species composition measurement and peak standing crop biomass harvest

KS: Peak standing crop biomass harvest

MT: Biomass sample collection and preparation

GA: End of growing season biomass harvest and soil analyses

MO: Biomass sample collection and preparation and end of growing season biomass harvest

OK: Peak standing crop biomass harvest

Actual Accomplishments:

ND-Warm season mixture:

The peak standing harvest was swathed 9/3/09 and baled 9/6/09.

KS-Warm season mixture:

The peak standing crop harvest for the second year was finished. Combined over both 2008 and 2009 at the peak standing crop harvest during the summer, the addition of 50 lb N/acre was more efficient at providing extra yield per pound of nitrogen added compared to the 100 lb N/acre treatment (9.5 lbs dry matter/lb N, vs. 6.6 lb dry matter/lb N). Dry weight rank sampling was finished in June, and the change in switchgrass and sweetclover composition from 2008 to 2009 for the peak standing crop and the after frost harvest that occurred in 2008. Switchgrass composition was directly related to yield, especially at the peak standing crop harvest in 2008 and 2009. Greater switchgrass composition resulted in greater dry matter yield ($r^2=0.70$ in 2008, $r^2=0.47$ in 2009). Sweetclover composition in 2009 decreased the most with peak standing crop summer harvest in 2008 compared to the after frost harvest of 2008, and sweetclover composition declined rapidly with increased fertilizer rates.

MT-Cool season mixture:

The first harvest of biomass was done on June 26, 2009. The actual accomplishments of this quarter include: Identify and separate plant species in the biomass samples taken from each treatment plot. The species composition of the CRP biomass was determined by weighing and calculation the proportion of each species. Plant samples were also ground for future chemical

analysis. Plant samples were packaged and are ready to be ship to Idaho National Laboratory. The CRP biomass yield for each fertilizer treatment was calculated. Data will be entered into the data base managed by ORNL.

GA-Cool season mixture

End of Growing Season (EGS) Biomass Harvest: Biomass Subsample Processing and Moisture Analyses: This biomass harvest, while expected in late September, was not conducted as expected due to a shift in our regional climate from drought to an extended period of intense and constant rainfall. Virtually no opportunities arose in which a sufficient window of clear weather was predicted so as to allow for the planning and implementation of harvest activities. A beneficial aspect of the wet weather was that it was matched by temperatures sufficient to stimulate the growth of targeted cool season grasses such as the Tall Fescue that dominates the phenological structure of our research plot.

Baseline Soil Analyses (pH/electric conductivity (EC), Phosphorous (P), Potassium (K), Total Nitrogen (TN), Soil Organic Carbon (SOC): Baseline soil No baseline soil analyses were carried out as expected due to budgetary negotiations between fiscal managers at the University of Georgia, South Dakota State University, and the Department of Energy. However, funding was made available to the UGA research team on September 1st, 2009. On October 13th, 2009 Josh Egenolf contracted the Analytical Chemistry Lab at the University of Georgia to carry out the soil analyses.

MO- Cool season mixture:

Biomass samples were collected from the bales harvested at the peak standing crop and completed the preparation for chemical analysis. We are waiting for late autumn harvest. It was delayed due to weather conditions.

OK- Warm season mixture:

Peak standing crop harvest was completed on Sept 9th 2009. Sub samples were collected from the windrows. Fresh weight of both round bales and sub samples were recorded in the field. The sub samples were dried and dry weights were obtained. The samples are ground and ready to be sent for analysis. Percent dry matter varied from 54-60%. Plot yields varied from 1500 lbs/acre to 4700 lbs/acre.

Explanation of Varian

GA and MO: Due to the weather conditions in GA and MO, the end of growing season harvest is delayed.

Plans for Next Quarter: Continue collecting field data and complete biomass harvest for the second year.

Publications / Presentations/Proposals Submitted:

A panel paper including all the species in the herbaceous group was presented by species leads at the World Congress on Industrial Biotechnology and Bioprocessing in Montreal, QC, Canada in July.

Matthew Keene Jones

Profile

A hard working intelligent high school student who is searching for a university with top professors, a support staff to help with the transition from high school to college as well as a highly involved student life with many organizations and recreational activities to help provide balance and create life-long friendships and memories. I am specifically looking for a college that offers hands-on experiences in a field of study with opportunities for internships and life applications.

Education

Katy High School

Katy Independent School District

Katy, TX

Academic Achievements

- Current GPA 3.67
 - Pre-AP and AP Classes taken in all core academic areas of study
 - Senior Classes include: AP Statistics, AP English, AP Economics, AP Government, AP Psychology, Advanced Orchestra, Varsity Athletics
- Class Rank – Top 25% (Class of 620 students)

School Organizations

Football

- August 2006 – Fall of 2010 (State Champions 2007, 2008)

Orchestra

- Viola section leader (all four years), violin/fiddle, beginning cello student
- Social Committee Co-Chair 2009-10
- Student Aid to Director
- Lettered Junior Year

Honors and Awards

- Outstanding Freshman Class Musician- Orchestra
- Most Helpful Male Student- Orchestra
- Most Advanced Solo Division- Highest Rating (Gold Medal)
- 2008 Varsity Football State Champions Division II (UIL Medal)

Work Experience

Next Level Athletics- Nike Sparq Training

- Summer 2009 – Taught 8-11 year olds football basics and athletic training

Volunteer Experience

Kingsland Baptist Church

- Missions Trips – (worked directly in the field to assist community)
 - Blackshear, GA; Houston, TX - August 2007
 - Philadelphia, PA; Katy, TX- August 2008
- Vacation Bible School- (fourth grade teacher assistant)- August 2007
- Houston/Galveston-Stavanger Sister City Society: Stavanger, Norway (fiddle group) – August 2007

From: [Helms, Adam](#)
To: [wlr@tamu.edu](#); [stelly@tamu.edu](#); [Mullet, John E.](#); [ssearcy@tamu.edu](#); [jwrichardson@tamu.edu](#); [jmgould@ag.tamu.edu](#); [pklein@tamu.edu](#); [Russell Jessup](#); [thomasson@tamu.edu](#); [Nael El-Hout](#); [wnelson@ceres.net](#); [Juerg Blumenthal](#)
Cc: [Simpson, Shay](#); [Spurlin, Shayna](#); [Nelson, Michelle](#); [Bridges, Brenda](#); [Avant, Bob](#); [McCutchen, Bill](#)
Subject: Highest Priority: DARPA Energy Crops
Date: Tuesday, October 06, 2009 9:17:41 PM
Attachments: [DARPA RD Proposal SemiFinal.doc](#)
[DARPA MILESTONES AND DELIVERABLES Master.doc](#)
[Narrative MD example.doc](#)
Importance: High

Good evening:

Today we met with Dr. Giroir and he gave us some advice for moving forward with the DARPA-Energy Crops Proposal. Perhaps the most relevant was how we proceed with the Milestones & Deliverables document and the discussion of the Milestone vs. Deliverable vs. Metric and how DARPA likes these presented – whether for the entire project, per goal or per task. Bob, Shay and I had a lengthy discussion about this very topic when we returned and how we felt it should best be presented.

From: [Moore, Liz](#)
To: [undisclosed-recipients:](#)
Subject: IBR Review - finish consensus discussion
Date: Thursday, October 01, 2009 6:04:13 PM

Reviewers:

Here are the times (all Mountain) that I'm available tomorrow and next week:

10/2 - before 9, 11-12, after 5
10/5 - before 9, 11-1, after 3
10/6 - before 9, 11-1, after 5
10/7 - before 9, 11-1 (prefer not this time), after 5
10/8 - before 9, 11-1 (prefer not this time), after 5
10/9 - before 9, 11-12, after 4

I have no problem meeting anytime between 7am-7pm, just let me know what works for you.

Thanks,

Liz

Liz Moore
Project Officer
U.S. Department of Energy
Golden Field Office
Phone: 303-275-4769
Fax: 303-275-4753
email: liz.moore@go.doe.gov

From: [Lloyd Nelson](#)
To: [Bill L Rooney](#)
Cc: [Steve Brown](#)
Subject: Intercross Release Proposal
Date: Monday, October 19, 2009 9:35:52 AM
Attachments: [Intercross release proposal A.doc](#)

Hello Bill,

Please find enclosed a release proposal for Intercross turf-type annual ryegrass.

I suggest the following for reviewers

Robert Harald Walker
Auburn University
walkerh@auburn.edu

Kevin Kenworthy
University of Florida, Gainesville
Kenworth@ufl.edu

Ambika Chandra
Texas AgriLife Research
a-chandra@tamu.edu

H. Wayne Philley
Mississippi State Univ.
wphilley@pss.misstate.edu

Regards,

Lloyd

L. R. Nelson
Regents Professor & Ryegrass Breeder
Texas AgriLife Research
Texas A&M System
Texas AgriLife Research and Extension Center at Overton
P.O. Box 200
Overton, TX 75684
lr-nelson@tamu.edu
Tel. no: 903-834-6191
Cell no: 903-245-7459

PLANT MATERIAL RELEASE PROPOSAL

Date: October 15, 2009

Crop: *Lolium multiflorum* Lam.

1. Proposed name or identification: '**Intercross**' intermediate ryegrass
2. Designation of name in development stages: TXR2007-TF-PR-A.
3. Primary features or advantages: Intercross turf-type intermediate ryegrass has improved leaf color and leaf fineness and has a more dwarf growth habit than Axcella and Panterra.
4. Plant Variety Protection YES X NO
5. Seed-amount available and date: Approximately 300 pounds on September 1, 2009.
6. Proposed seed distribution: Intercross has been licensed by Turf Merchants, Inc. located in Tangent, Oregon. Approximately 100 acres of seed production has been planted for the 2009-2010 growing season.
7. To TFSS for increase and distribution: NO
Small samples distributed by Breeder: NO

Exclusive: YES

Royalty: YES. Contract is presently being negotiated.
8. Provisions: Contract pending
9. Suggested Fees: (for breeding or genetic stock): Seed will not be available.
10. Supportive documents attached:
 - Release proposal: Yes
 - License Agreement: Pending
 - Proposed Distribution List: No
 - Draft-Variety Leaflet: No
 - Registration Article to Crop Science: In preparation

11. Submitted: October 19, 2009

Breeder	Date	Unit Head	Date
L. R. Nelson		C. R. Long	

RELEASE PROPOSAL FOR TXR2007-TF-PR-A TURF-TYPE

ANNUAL RYEGRASS

L. R. Nelson and Jim Crowder

TXR2007-TF-PR-A was the experimental designation for a turf-type intermediate ryegrass (*Lolium multiflorum* Lam.) developed by Texas AgriLife Research. The name 'Intercross' has been selected for TXR2007-TF-PR-A and will be use hereafter in this release proposal. Intercross is a diploid ryegrass where $2n = 2x = 14$ chromosomes. Intercross should be labeled as an intermediate ryegrass, indicating it has some characteristics of an annual and some characteristics of a perennial ryegrass. The line has been evaluated in turf overseeding trials at Overton for the past two years. Data has also been collected for Plant Variety Protection in a PVP nursery at Overton, Texas.

Main Attributes

- Intercross has a darker green leaf color compared to Axcella, Axcella 2, Panterra and Gulf. Darker leaf color is more evident late in spring (April).
- Turf quality ratings are good from November until early May and then decline.
- Transition of Intercross is similar to Panterra and Axcella 2, and much earlier than most intermediate or perennial ryegrass cultivars.

Description of Intercross

Intercross is a turf-type "intermediate" ryegrass. Annual and perennial ryegrass are generally differentiated by three main and several minor characters. Annuals have awns and perennials do not. Root tips (10 days after germination) of annuals typically fluorescence under a dark light, and perennials do not, and annuals have rolled leaf veneration and perennials are folded. When considering turf grass, perennials are normally shorter or dwarfier, have narrower and shorter leaves, and have a darker green leaf color. Perennials act as a perennial in a cooler environment; however in Texas perennials die in June or July, while annuals die in May. Therefore in overseeded warm-season turf, perennials often are too competitive and can damage

the permanent warm-season turf-grass. Intermediates are derived from crossing an annual with a perennial. Ryegrass is a cross-pollinating species, so isolation blocks are used to control source of pollen. Several generations of selection are required to stabilize the desired characters, otherwise the breeding line and its' progeny will be very variable. Intercross is an intermediate type and has some characteristics of both annuals and perennials. Intercross has narrow leaves with dark green color, however it has rolled leaf vernation, and roots are about 90% fluorescent.

Plant characters which differentiate Intercross from recent Texas AgriLife Research releases are shown in Table 1. Intercross differs from Panterra by having less tillers/plant, but is similar to Axcella and Axcella 2. Plant height of Intercross was 81 cm, which was shorter than Axcella, and Panterra, but taller than Axcella 2. Intercross is much shorter than the forage type 'Gulf' ryegrass, or the old turf cultivar Froghair. Flag leaf collar height of Intercross was 44 cm and it also was lower compared to Axcella and Panterra, but higher than Axcella 2. Flag leaf length of Intercross was 46 cm, which was less than Axcella, but longer than Axcella 2, and similar to Panterra. Leaf sheath length of Intercross was 39 cm which was less than Axcella and Panterra, and just 2 cm longer than Axcella 2. Heading date of Intercross is 14 days later than Axcella and Panterra, but similar to Axcella 2.

Breeding History of Intercross

Intercross comes from a cross of Axcella x 01-ARG (intermediate) made by Don Floyd from Pickseed West, Inc., at Albany, Oregon during the growing season of 2000-2001. In 2001-2002 seed of the F1 was grown in rows at Overton and allowed to cross-pollinate. In 2002-2003 this germplasm was grown as a space plant population at Overton. Sixteen plants with dark green leaves and good turf quality were transplanted to pots near the greenhouse for cross-pollination. These plants were inoculated for crown rust and 3 plants were susceptible and were removed, leaving 13 plants to cross-pollinate and produce seed which was labeled TXR2004-TF-1. In 2003-2004, seed of TXR2004-TF-1 was sent to the Oregon State Seed Testing Laboratory and screened of seedling fluorescence. Non-fluorescent seedlings were returned to Overton and planted in a space planted nursery. Plants not exhibiting good turf characteristics and those with long awns were removed prior to pollination. Remaining plants cross-pollinated and produced seed and seed was labeled TXR2004-TF-PR. In 2004-2005, seed from this population was again screened in the Oregon State Seed Testing Laboratory and non-fluorescent seedlings were

returned and planted in a space planted nursery. Plants with best uniform dwarfy and good turf-grass quality were allowed to cross-pollinate and produce seed. Seed from 25 early maturing plants were bulked. This bulk was labeled TXR2005-TF-PRES. In 2005-2006, 300g of seed were sent to Turf Merchants, Inc. at Tangent, Oregon, grown in rows and increased for seed. Fifty-one pounds of seed was returned from Oregon and labeled TXR2007-TF-PR-A and is the germplasm described in this release proposal and is to be named 'Intercross' intermediate ryegrass.

Performance of Intercross

Tables 2 through 7 provide information on turf quality of Intercross compared to several annuals, and an intermediate control (PSG-QT) and a perennial ryegrass (Brea) variety. Turf color of Intercross in 2008 was good and similar to Panterra and Axcella 2 until the April 14 rating when Intercross had a higher or better color rating (Table 2). This indicated that it holds its color longer in the late spring. Intercross's color rating was not as good as PSG-QT or Brea, two very good cultivars. In 2009 (Table 5), the color rating of Intercross was better than Panterra and Axcella 2 in both February and April ratings. It was equal to LH08, an intermediate and slightly less than Brea. For turf height (5 days after mowing at 2.5 cm), Intercross was not different from Panterra, Axcella 2 or PSG-QT, but was taller than the perennial Brea (Table 2). Intercross was much shorter than the forage-type variety Gulf. Tables 3 and 6 provide a turf quality (on a 1 to 9 rating, where 5 = acceptable and 9 =best) information at 2 week intervals throughout the season. Turf quality of Intercross was very good throughout the season until May when quality began to diminish and by late May quality was poor. Turf quality of Intercross in 2008 compared favorably with Axcella 2 and Panterra and the intermediate PSG-QT; however was rated lower than Brea at several of the dates. In 2009 (Table 6), Intercross had higher turf quality ratings compared to Axcella and Axcella 2, but was similar to Panterra. It was similar, but slightly better than intermediate LH08 throughout the growing season. Tables 4 and 7 provide information on transition date (death) of both the ryegrass entry and regrowth or transition of green bermudagrass back into to the turf sod. The transition date on Intercross in 2008 (Table 4) began in early May and by May 8, was at 43% living and by May 28 it was reduced to 13 %. The transition percentages of Intercross were not significantly different from Axcella 2 or Panterra; however, it appears that Intercross had a low number of plants surviving

into June. Both the PSG-QT (intermediate) and Brea (perennial) transitioned out from mid-May until late June. In 2009 (Table 7), Intercross transitioned somewhat later, starting in mid-May and by June 12, only had 4% of plants remaining. It was slower to transition than the annuals Axcella 2 and Panterra in 2009. It also transitioned somewhat slower than LH08 intermediate ryegrass in 2009. It did transition faster than BREA perennial ryegrass. In regard to transition of bermudagrass back into turf in 2008, transition was similar to the after the annuals (Table 5). Compared to BREA and PSG-OT, Intercross allowed about 2 weeks earlier green-up, or transition of bermudagrass. In 2009 the transition of bermudagrass back into turf after Intercross was later than after annuals, but earlier than BREA perennial ryegrass.

Table 1. Plant characters in which Intercross differs from other ryegrass genotype in 2007-2008 nursery.

Genotype	Number tillers/plant	Plant height cm	Flag Leaf collar cm	Flag Leaf length cm	Leaf Sheath length cm	Heading Date
Intercross	125	81	44	46	39	May 4
Axcella	116	95	51	53	46	April 21
Axcella 2	102	75	39	35	37	May 2
Panterra	167	93	51	46	44	April 21
TXR 2004-TFEM	91	80	40	38	39	-
Gulf	117	96	54	60	47	April 27
Froghair	81	100	58	53	49	-
Mean	114	89	48	47	43	-
LSD (0.05)	27.3	4.3	2.7	2.9	1.8	-

Data recorded in plant variety protection nursery at Overton in 2007-2008 season.

Table 2. Overseeded turf plots at Overton, Texas, 2007-2008. Data reported are percent stand, turf color ratings, turf height and turf density.

Entry	Ryegrass Type	% Stand 21 Nov	Turf Color 9 Jan	Turf Color 17 Mar	Turf Color 14 Apr	Turf Ht cm 26 Feb	Turf Density 14 April
Gulf	AR	93	4.0 ^a	4.0 ^a	4.7 ^a	5.7 ^b	4.7 ^a
Axcella	AR	93	5.0	5.0	4.3	4.7	4.7
Axcella 2	AR	95	6.7	6.3	5.3	3.3	6.0
Panterra	AR	80	6.0	6.0	5.0	4.7	5.3
Intercross	IR	85	6.3	5.7	6.0	4.3	6.3
TXR2004-TF-EM	AR	85	6.7	6.0	6.7	4.3	6.3
PSG-QT	IR	87	8.0	8.0	8.0	3.7	8.3
Brea	PR	83	8.0	8.0	7.0	3.0	8.7
Ck (Not overseeded)	--	0	1.0	0.0	1.0	0.0	1.0
Mean		78	6.0	6.0	6.0	4.0	6.0
LSD		14	0.94	0.68	1.55	1.30	1.06

^aTurf color and turf density were rated on a 1 to 9 rating where 9 was best.

^bTurf height was measured 5 days after mowing and is in centimeters.

Experiment was overseeded on 23 October 2007. AR = annual ryegrass, PR = perennial ryegrass and IR = intermediate ryegrass. Annual ryegrass was seeded at 18.5 lb/1000 sq ft. Perennial ryegrass was seeded at 15.6 lb/1000 sq ft.

Table 3. Turf quality ratings on a 1 to 9 scale where 9 = best. Trial was located at Overton, Texas in 2007-08.

Entry	Type	Turf Quality Rating (1-9) on Following Dates									
		21 Nov	6 Dec	14 Jan	8 Feb	26 Feb	17 Mar	14 Apr	1 May	15 May	22 May
Gulf	AR	7.0	5.3	5.0	4.7	5.6	4.6	5.0	4.6	4.0	4.7
Axcella	AR	7.3	6.3	6.0	6.7	5.7	5.7	5.3	4.3	4.7	4.3
Axcella 2	AR	8.0	7.0	6.3	6.7	7.3	6.7	6.0	6.3	5.7	5.0
Panterra	AR	6.7	6.3	6.3	6.0	7.0	6.3	5.3	5.3	5.0	4.7
Intercross	IR	7.0	6.0	5.6	6.0	6.7	6.3	5.3	4.7	5.3	4.7
TXR2004-TF-EM	AR	7.0	6.7	5.7	6.3	6.7	6.7	5.7	5.3	5.3	4.7
PSG-QT	IR	7.0	6.7	5.7	6.3	7.7	7.3	7.0	7.0	7.0	7.0
Brea	PR	7.7	7.3	6.3	6.3	7.3	7.3	8.0	7.3	7.7	7.3
Ck (not overseeded)		3.0 7.0	1.0 6.0	1.0 6.0	1.0 6.0	1.0 7.0	1.0 6.0	1.0 6.0	1.0 5.0	2.7 6.0	2.6 5.0
Mean		1.5	1.2	0.79	1.9	1.7	1.6	0.8	0.9	0.8	0.9
LSD (0.05)											

Experiment was overseeded on 24 October 2007. AR = annual ryegrass, PR = perennial ryegrass and IR = intermediate ryegrass.

Table 4. Percent ryegrass (RG) and percent bermudagrass (BG) in plots on different dates during transition period at Overton, Texas in 2008.

Entry	1 May		8 May		15 May		22 May		28 May		10 June		18 June	
	%	%	%	%	%	%	%	%	%	%	%	%	%	%
	RG	BG	RG	BG	RG	BG	RG	BG	RG	BG	RG	BG	RG	BG
Gulf	90	7	46	33	33	37	10	53	10	63	0	88	0	98
Axcella	83	7	53	32	33	37	5	50	3	67	0	92	0	100
Axcella 2	96	3	63	33	43	38	8	40	13	63	0	85	0	95
Panterra	88	10	40	35	35	40	10	52	5	77	0	97	0	100
Intercross	90	7	43	35	33	37	17	47	13	67	2	88	0	97
TXR2004-TF-EM	87	4	40	32	30	40	8	50	10	57	0	90	0	95
PSG-QT	99	1	94	4	93	6	83	12	87	13	43	37	8	45
Brea	99	1	96	4	96	4	90	6	85	12	43	40	10	47
Ck (not overseeded)	0	22	0	60	0	63	0	65	0	68	0	97	0	100
Mean	82	7	53	30	44	34	26	42	26	55	10	80	2	87
LSD (0.05)	6.4	5.1	12.6	13.3	12.3	14.3	9.8	10.2	13.8	19.5	21.4	22.1	12.0	18.8

Experiment was planted on 23 October 2007.

Table 5. Overseeded turf plots at Overton, TX 2008-09. Data reported are percent stand and turf color for two dates.

Variety	Ryegrass Type	% Stand 24 Nov	Turf Color 11 Feb	Turf Color 22 Apr
Gulf	AR	93.7	4.3 [†]	3.7 [†]
TXR2004-TF-EM	IR	94.0	6.0	5.3
Axcella	AR	83.3	5.3	4.3
Axcella 2	AR	86.7	5.3	4.7
Panterra	AR	94.3	5.7	4.7
LH08	IR	93.0	6.3	7.0
Intercross	IR	90.0	6.7	7.0
BREA	PR	88.3	7.7	8.0
Ck (not overseeded)	-	0.0	1.0	1.3
Mean		81	6.0	6.0
LSD (0.05)		8.9	0.8	0.8

[†]Turf color was rated on a 1 to 9 scale where 9 = best. Experiment was overseeded on 22 Oct, 2008; AR = annual ryegrass, seeded at 18.5 lb/1000 sq ft, IR = intermediate ryegrass seeded at 18.5 lb/1000 sq ft, and PR = perennial ryegrass seeded at 16.5 lb/1000 sq ft.

Table 6. Turf quality ratings at Overton, TX in 2008-09. Ratings were on a 1-9 scale, where 9 = best.

Variety	Ryegrass Type	Turf Quality 26 Nov	Turf Quality 9 Dec	Turf Quality 8 Jan	Turf Quality 29 Jan	Turf Quality 11 Feb	Turf Quality 8 Mar	Turf Quality 26 Mar	Turf Quality 6 Apr	Turf Quality 22 Apr	Turf Quality 5 May	Turf Quality 22 May
Gulf	AR	4.3	5.7	5.3	4.3	3.7	4.3	4.7	4.0	4.3	4.3	3.3
TXR2004-TF-EM	IR	5.7	7.3	6.7	6.7	7.0	6.7	6.3	6.7	6.7	6.3	4.0
Axcella	AR	4.3	5.3	5.3	5.3	6.0	5.7	5.0	5.0	5.0	5.0	4.0
Axcella 2	AR	5.0	5.7	5.7	5.3	5.7	6.0	6.0	6.0	5.7	5.7	3.3
Panterra	AR	6.0	6.7	6.7	7.3	7.3	7.3	6.3	6.3	6.0	5.7	3.7
LH08	IR	6.0	6.3	6.3	6.0	6.3	6.0	6.7	7.0	7.7	7.7	5.0
Intercross	IR	5.0	5.7	6.7	7.3	7.3	7.0	7.0	7.3	7.7	8.0	5.3
BREA	PR	4.7	5.0	6.7	6.0	6.3	4.7	6.3	6.0	8.0	8.0	6.3
Ck (not overseeded)	-	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	2.3
Mean		5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	5.0
LSD (0.05)		1.2	1.3	1.2	1.4	1.2	1.5	1.1	1.4	0.8	0.7	1.0

[†]Experiment was overseeded onto a bermudagrass sod on 22 Oct 2008. AR = annual ryegrass, IR = intermediate ryegrass, PR = perennial ryegrass.

Table 7. Transition of ryegrass to bermudagrass at several dates at Overton, TX in 2009. % RG = percent ryegrass and % BG = percent bermudagrass at the date shown.

Variety	1 May		7 May		14 May		22 May		1 June		12 June	
	% RG	% BG	% RG	% BG	% RG	% BG	% RG	% BG	% RG	% BG	% RG	% BG
Gulf	95	4	91	5	62	15	38	37	2	63	0	83
TXR2004-TF-EM	96	3	89	7	15	28	7	35	0	78	0	85
Axcella	93	6	85	8	27	37	2	53	0	75	0	92
Axcella 2	97	2	85	8	33	30	5	45	2	83	0	97
Panterra	94	3	82	8	17	33	2	47	0	67	0	90
LH08	100	0	97	1	82	12	60	18	5	47	0	60
Intercross	100	0	98	2	90	7	73	16	25	40	4	67
BREA	100	0	100	0	95	5	75	13	47	27	17	42
Ck (not overseeded)	0	15	0	15	0	47	0	50	0	80	0	95
Mean	97	3	91	5	53	21	33	70	11	60	3	77
LSD (0.05)	3	2	6	3	22	12	26	19	16	19	9	15

Experiment was planted on 22 Oct 2008.

From: [Lloyd Nelson](#)
To: [Steve Brown](#); [Bill L Rooney](#)
Subject: Intercross Ryegrass
Date: Tuesday, October 27, 2009 1:40:06 PM
Attachments: [Objective Description of Intercross.doc](#)
[Intercross Registration article.doc](#)

Bill and Steve,

I have already sent the Release Proposal to you Bill. Attached is the Objective Description and a draft of the Registration paper for Intercross. Therefore please attach to your file for Intercross.

Do you have a date for the PRC meeting?

Best Regards,

Lloyd

L. R. Nelson
Regents Professor & Ryegrass Breeder
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Cc: [john M Yohe](#)
Subject: INTSTORMIL Program Review
Date: Friday, October 09, 2009 4:56:10 PM
Attachments: [Milestones 5th Yr.docx](#)

INTSORMIL PIs,

USAID will be appointing an External Evaluation Panel (EEP) to review the INTSORMIL Program in Yr 4. The purpose of the evaluation is to determine whether the agreement will be terminated at the end of the 5th year or whether the agreement will be continued for a second 5 year period. To assist the Panel in their review our AOTR has requested that we submit for each project a list of (1) Program objectives, (2) Targets/indicators for each objective listed and (3) Milestones (what we expect to achieve by Yr 5 (2011) for each target/indicator. This information will be utilized by the EEP as one component of the review. To compile the list I have taken what you have previously submitted (if you have) and tried to select milestones that can be measured by the Panel and which we believe can be achieved. Please review the Milestones on the attached table for your respective project and indicate any changes that you want to make. Where there are "X"s please insert a number. In reviewing your milestones please keep in mind that we want to limit the Objectives and milestones selected to only a few key ones for each project and we need to select milestones that you can document as we have been told to expect random audits by the USAID Inspector General's Office. Thus, if you don't agree with what I have listed for your project please indicate changes and send me your comments by Friday, October 16 at the latest.

Thanks,

Short

E. A. "Short" Heinrichs
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2. INDIVIDUAL PROJECT PERFORMANCE AND PRODUCTIVITY

Projection of achievement of Targets/indicators and Milestones of each project in accord with workplans by Yr 5

Project	Program objectives1-8	Targets/ indicators	Milestones (5th year)
Sustainable Plant Protection Systems			
KSU 101 <i>"Grain molds, mycotoxins and stalk rots of sorghum and millet"</i> John Leslie, Kansas State University	1. Supply chain/market development	Grain quality improvement by reducing toxin content	Recommendations to manage pathogens developed and disseminated to farmers in their local language
	2. Nutrition, health and grain quality	Identify target toxin-producing fungi which reduce sorghum and pearl millet yield and lower grain quality	List of key toxin-producing fungi in Mali, South Africa and Uganda sorghum and pearl millet developed
	8. Capacity building via short term and degree training	Participants trained in degree programs, Fusarium Laboratory workshops and Scientific Writing short courses.	X M.S. and PhD. degrees granted, X scientists trained in Fusarium Laboratory workshops and X persons trained in Scientific Writing short courses.
WTAM 101 <i>"Ecologically based management of sorghum and pearl millet insect pests in Africa and the U.S."</i> Bonnie Pendleton, West Texas A&M University	4. Develop and disseminate information on the management of biotic stresses to increase grain quality in the field and in storage	Efficient pest management tactics (IPM packages) developed	Four varieties with insect resistance released

		Increased tolerance to grain insects and pathogens in storage	20% decrease in insect-damaged grain in project sites
Sustainable Production Systems			
KSU 104 <i>"Integrated soil, water, nutrient and crop management strategies for improving productivity in sorghum and millet-based cropping systems"</i> P.V. Vara Prasad, Kansas State University	3. Increase the stability and yield of sorghum and pearl millet through crop, soil and water management while maintaining or improving the natural resources of soil (land) and water.	Increased and stable grain yields (Integrated Crop and Soil Management [ICSM] components identified).	Identification of ICSM components that would provide 30% yield increase if adopted in project areas. Baseline: 980 kg/ha in low production areas.
		Improved crop, soil and water management (integration of ICSM components into packages)	60% of farmers in project areas adopting some components of the ICSM practices
UNL 101 <i>"Crop, soil and water management to optimize grain yield and quality for value-added markets in eastern & southern Africa"</i> C. Wortmann, University of Nebraska	3. Increase the stability and yield of sorghum and pearl millet through crop, soil and water management while maintaining or improving the natural resources of soil (land) and water.	Increased and stable grain yields (Integrated Crop and Soil Management [ICSM] components identified).	Identification of ICSM components that would provide 30% yield increase if adopted in project areas in Uganda.
		Improved crop, soil and water management (integration of ICSM components into packages)	50% of farmers in project areas in Uganda adopting some components of the ICSM practices
Germplasm Enhancement and Conservation			
ARS 101	2. Improve the food	Higher grain quality	Ten millet varieties with

“Breeding pearl millet with improved performance, stability, and resistance to pests”. Jeff Wilson, USDA	and nutritional quality of sorghum and pearl millet to enhance marketability and health	(high digestibility) cultivars selected	high grain quality developed and released
	6. Genetic resources and biodiversity	Higher yielding genotypes selected	More than 400 African and Indian pearl millet acquisitions will be entered into the U.S. National Plan Germplasm System increasing U.S. holdings by 36%
PRF 101 “Breeding sorghum with improved resistance to Striga and drought” Gebisa Ejeta, Purdue University	4. Integrated Striga management strategies	Parental sorghum lines with Striga resistance developed	X parental lines with Striga resistance developed and provided to breeders
		Striga resistant varieties adopted by farmers	X Striga resistant varieties adopted by farmers and resistant varieties grown on X acres
PRF 104 “Developing sorghum for improved grain quality, agronomic performance and resistance to biotic and abiotic stresses” Mitch Tuinstra, Purdue University	2. Improve the food and nutritional quality of sorghum and pearl millet to enhance marketability and consumer health	Higher grain quality (high digestibility) cultivars selected	One ALS-herbicide tolerant food-grade cultivar that can be used as a parent to breed food-grade hybrids
	5. Enhance the stability and yield of sorghum and pearl millet through the use	Stable yielding genotypes released	Four stable yielding genotypes released

	of genetic technologies		
		More efficient water use by genotypes (decrease in drought damage)	Eight drought tolerant genotypes released
TAM 101 <i>"Breeding sorghum for improved grain, forage quality and yield for Central America"</i> W. Rooney, Texas A&M University	5. Enhance the stability and yield of sorghum and pearl millet through use of genetic technologies.	Stable yielding genotypes	Four stable yielding genotypes released.
		More efficient water use by genotypes (decrease in drought damage)	Six drought tolerant genotypes released
TAM 102 <i>"Breeding sorghum for improved resistance to biotic and abiotic stresses and enhanced end-use characteristics for southern Africa"</i> Gary Peterson, Texas A&M University	4. Develop and disseminate information on the management of biotic stresses in an integrated system to increase grain yield and quality	Efficient pest management tactics packages (IPM packages developed)	Three varieties with genetic resistance to insect released for use in an IPM package in either southern Africa or the U.S.
	5. Enhance the stability and yield of sorghum through the use of genetic technologies	Stable yielding genotypes developed	Five stable yielding genotypes released in southern Africa and the U.S.
Crop Utilization and Marketing			
KSU 102 <i>"Enhancing the utilization and marketability of sorghum and pearl millet through improvement in grain quality, processing procedures and</i>	1. Facilitate the growth of rapidly expanding markets for sorghum and pearl millet	Increased use of sorghum as a feed source	A 200% increase in the use of sorghum as a feed source in project areas where there has been little to poultry industry e.g. southern

<i>technology transfer to the poultry industry”</i> Joe Hancock, Kansas State University			Niger. Baseline: \$0
	2. Improve the food and nutritional quality of sorghum and pearl millet to enhance marketability and consumer health	Higher grain quality (high digestibility by poultry) cultivars selected	Nutritional deficiencies in poultry diets decreased by 25%
	7.Partnerships and networking	Develop partnerships with relevant stakeholders engaged in the improvement of sorghum and millet production	Networks developed including key feed companies, poultry producers, research scientists and students at institutes in Mali, Burkina Faso, Niger and Nigeria and collaborative research with Nigerien scientists
OSU 101 <i>“Market development in support of sorghum and millet farmers in Tanzania and Zambia”</i> J. Mark Erbaugh and Donald Larson	1. Facilitate the growth of rapidly expanding markets for sorghum and pearl millet	Increased farmer incomes	Farmer incomes in project sites increased by 10%
		Increase in markets for sorghum as a feed source	A 25% increase in markets for sorghum as a feed source in project area
	7. Partnerships and networking	Effective partnerships with relevant stakeholders developed	Effective partnerships developed including private industry, farmers’ associations, NGOs, CG Centers, technology transfer agencies and national research programs

PRF 102 <i>"Product and market development for sorghum and pearl millet in West Africa"</i> Bruce Hamaker, Purdue University	2. Improve the food and nutritional quality of sorghum and pearl millet to enhance marketability and consumer health	High grain quality varieties developed and released	Two high grain quality varieties developed and released
		Increased nutritional quality of sorghum and pearl millet-based foods (high starch digestibility)	Nutritional deficiencies in sorghum-based foods decreased by 10% in project areas
	7. Partnerships and networking	Effective partnerships with relevant stakeholders developed	Working collaboration in Senegal, Mali and Niger with IER, ITA, NGOs e.g. Sasakawa Global 2000, ICRISAT and 10 entrepreneurs (women processing groups) in northern Mali (Mopti/Gao)
PRF 103 <i>"Development of the input and product markets in West Africa for sorghum and millet"</i> John Sanders, Purdue University	1. Facilitate the growth of rapidly expanding markets for sorghum and pearl millet	Increased yields and incomes	Yields of sorghum increased from 1.0 t/ha to 1.5 t/ha and millet increased from 0.6 t/ha to 1.3 t/ha in project sites in Mali, Niger and Senegal
		Increased number of participants (farmers) and hectares in demonstration sites in Mali	Number of participants and ha of demonstration plots in Mali to be increased from 1,000 in 2008 to 3,000.
	7. Partnerships and networking	Effective partnerships with relevant	Increased number of collaborators e.g. research

		stakeholders developed	agencies,,extension agencies, NGOs, farmers' associations, millet food producers, poultry industry and feed mixing industry
TAM 103 <i>"Product and market development for sorghum and pearl millet in southern Africa and Central America"</i> Lloyd Rooney, Texas A&M University	1. Supply chain/market development	Stimulate the use of sorghum as a substitute for wheat in processed foods in El Salvador	Increased number of bakers using sorghum as a partial substitute for wheat in El Salvador
	2. Nutrition, health and grain quality	Develop and demonstrate the unique attributes of potential Super Health Sorghums to improve the overall image and marketability of sorghum in foods and nutraceuticals	The development of a hybrid/variety with high levels of unique phytochemicals and bioactive compounds with health promoting properties
UNL 102 <i>"Building a sustainable infrastructure for product development and food entrepreneur/industry technical support: a strategy to promote increased use of sorghum and millet in East Africa"</i> David Jackson, University of Nebraska	1. Supply chain/market development	Stabilized farmer/family incomes by increasing the number of new food products created and women impacted	Increased number (X) of food products developed
			Increased number of entrepreneur (X) (women food processors) businesses established or existing entrepreneurs upscaled

From: [Kathy Ferguson](#)
To: [Amir M Ibrahim](#); [Kevin Crosby](#); [Steve Hague](#); [Terry J Gentry](#); [Dirk Hays](#); [C. Wayne Smith](#); [Dave Stelly](#); [Scott Finlayson](#); [Bill L Rooney](#)
Subject: Itinerary for Ana Hale
Date: Monday, October 12, 2009 9:21:25 AM
Attachments: [HaleItinerary.pdf](#)
[Kathy Ferguson.vcf](#)

Attached is the itinerary for Ana Hale - Candidate for the Plant Geneticist Position in Weslaco. Please mark your calendars for the time you will be meeting with her.

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

Interview Itinerary
Dr. Ana Hale
Candidate for the Plant Geneticist position - Weslaco
October 13 -14, 2009

Tuesday, October 13, 2009

Arrive College Station @ 4:14 pm Continental flight: CO 9582

Hawthorne Suites – University Dr., College Station, Conf. #44644

Picked up at airport and delivered to hotel by: Kevin Crosby

6:30 pm Dinner meeting – Kevin Crosby

Wednesday, October 14, 2009

7:00 am Breakfast meeting – Wayne Smith (drop off at Wells Fargo)

8:15 am Meet with H.R. at Wells Fargo

9:15 am Picked up from Wells Fargo by: Terry Gentry

9:30 am Preparation for seminar

10:00 am Seminar presentation (45 minutes) and discussion

11:00 am Visit with Faculty room 440 or

Tour of Facilities with

12:00 pm Lunch meeting – Wayne Smith

1:30 pm Dave Stelly – New Beasley Lab

2:00 pm Bill Rooney – Foundation Seed

2:30 pm Dirk Hays – Heep 220D

3:00 pm Scott Finlayson – Heep 220B

3:30 pm Amir Ibrahim – Heep 430C

4:00 pm SCSC Seminar

5:00 pm Dinner meeting: Steve Hague

6:00 pm Delivered to airport by: Steve Hague

Depart College Station @ 7:15 pm Continental flight: CO 9560

From: [Chalmers, Ester A](#)
To: wlr@tamu.edu
Cc: GHodnett@ag.tamu.edu
Subject: Laboratory re-inspection evaluation for building 955
Date: Thursday, October 08, 2009 4:30:54 PM
Attachments: [Rooney - PI All Corrected.pdf](#)
[Rooney, William L..pdf](#)

Dr. Rooney,

Please see attached.

If you have any questions, please let me know.

Thank you,
Ester A. Chalmers
Environmental Safety Specialist
Texas A&M University
Environmental Health and Safety
4472 TAMU
979-845-4373

To: Dr. William L. Rooney
Professor
Soil and Crop Science
2474 TAMU

From: Ester A. Chalmers
Environmental Safety Specialist
Environmental Health & Safety
4472 TAMU

Date: October 8, 2009

Re: Follow-up Laboratory Inspection Summary Report
Greenhouse-Headhouse, Building 955

Follow-up inspections were conducted on October 2, 2009 for the laboratory facilities located in the building referenced above. These inspections were conducted to verify that Deficiencies have been corrected.

The attached Laboratory Inspection Report lists laboratory safety violations found during the initial inspection and the date each were corrected. *Please note that only items identified as Deficiencies were verified during re-inspection.* Items of Concern are expected to be corrected expediently at the discretion of the principle investigator. Items listed as Information are meant to provide information that can be used to make the lab safer for personnel and/or emergency responders.

Deficiencies noted in the initial inspection report have been corrected. The inspection reports have been updated accordingly. "Corrected Dates" will appear on those deficiencies that have been corrected.

Thank you for your efforts in ensuring a safe laboratory environment for Texas A&M University faculty, staff, students, and visitors.

Cc: Mr. George Hodnett

ENVIRONMENTAL HEALTH AND SAFETY DEPARTMENT

LABORATORY SAFETY EVALUATION

DEPT: **Soil & Crop Sciences**

PI: **William L. (Bill) Rooney**
Inspector : **Ester Chalmers**

Inspection Date(s)	Building Num/Name and Lab/Room(s)	Inspected	Inspection Date(s)	Building Num/Name and Lab/Room(s)	Inspected
7/16/2009	0955 GREENHOUSE-HEADHOUSE	103	7/16/2009	0955 GREENHOUSE-HEADHOUSE	104
7/16/2009	0955 GREENHOUSE-HEADHOUSE	104A	7/16/2009	0955 GREENHOUSE-HEADHOUSE	106
7/16/2009	0955 GREENHOUSE-HEADHOUSE	108	7/16/2009	0955 GREENHOUSE-HEADHOUSE	108A

01. Laboratory Security

No unsafe conditions observed

02. Electrical Safety (NFPA Code)

No unsafe conditions observed

03. Fire/Life Safety (NFPA Code)

Item : *Combustibles stored within 24 inches of the ceiling (Item of Concern)*

Recommendation : *Remove combustible items that are stored within 24 inches of the ceiling.*

Regulation : *NFPA 1.10.19.3*

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	108A	GREENHOUSE-HEADHOUSE		

Item : *Bicycles observed in building (Information)*

Recommendation : *Bicycles are prohibited in buildings.*

Regulation : *NFPA 101.3.3.121*

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	103	GREENHOUSE-HEADHOUSE		

04. Safe Lab Practices

Item : *Inadequate hand-washing facilities (Item of Concern)*

Recommendation : *Provide adequate facilities for hand-washing (e.g. soap, paper towels, running water)*

Regulation : *29 CFR 1910.1030*

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	108	GREENHOUSE-HEADHOUSE		

Item : *Empty bottles are not defaced (Item of Concern)*

Recommendation : *Deface all empty bottles before re-use to prevent confusion over contents.*

Regulation : *25 TAC 295.6*

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	106	GREENHOUSE-HEADHOUSE		

Any questions? Call the Environmental Health and Safety Department at 845-2132.

[ANSI - American National Standards Institute, EPA - Environmental Protection Agency, NFPA - National Fire Protection Association, TCEQ - Texas Commission on Environmental Quality, TDH - Texas Department of Health]

ENVIRONMENTAL HEALTH AND SAFETY DEPARTMENT

LABORATORY SAFETY EVALUATION

DEPT: **Soil & Crop Sciences**

PI: **William L. (Bill) Rooney**
Inspector : **Ester Chalmers**

04. Safe Lab Practices

Item : Housekeeping needed (Item of Concern)

Recommendation : Housekeeping in this area needs to be improved. Dispose of clutter, including unnecessary boxes, old equipment, and trash.

Regulation : 29 CFR 1910.22(a)(1)

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	106	GREENHOUSE-HEADHOUSE		This violation was noted during the last evaluation but has not been corrected.
7/16/2009	108	GREENHOUSE-HEADHOUSE		

05. Physical Hazards

No unsafe conditions observed

06. Fume Hood/Biological Safety Cabinet

Item : Chemicals stored in fume hood/biological safety cabinet (Item of Concern)

Recommendation : Remove chemicals stored in fume hood/biological safety cabinet.

Regulation : Prudent Practices 1995, pages 73, 180

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	104	GREENHOUSE-HEADHOUSE		

07. Personal Protective Equipment/Eyewash/Showers(ANSI Standards,TDH HazCom Act)

Item : Inadequate eyewash (Item of Concern)

Recommendation : Provide an ANSI-approved continuous-flow eyewash (a squeeze bottle eyewash is not adequate).

Regulation : ANSI Z358.1-2004

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	104	GREENHOUSE-HEADHOUSE		Please contact Alvin Walker at 845-3047 or a-walker4@tamu.edu for information on an appropriate type.
7/16/2009	108	GREENHOUSE-HEADHOUSE		Contact Alvin Walker at 845-3047 or a-walker4@tamu.edu for information on an appropriate type.

Any questions? Call the Environmental Health and Safety Department at 845-2132.

[ANSI - American National Standards Institute, EPA - Environmental Protection Agency, NFPA - National Fire Protection Association, TCEQ - Texas Commission on Environmental Quality, TDH - Texas Department of Health]

ENVIRONMENTAL HEALTH AND SAFETY DEPARTMENT

LABORATORY SAFETY EVALUATION

DEPT: **Soil & Crop Sciences**

PI: **William L. (Bill) Rooney**
Inspector : **Ester Chalmers**

07. Personal Protective Equipment/Eyewash/Showers(ANSI Standards,TDH HazCom Act)

Item : Emergency shower/eyewash has not been tested (Information)

Recommendation : EHS will test the emergency shower/eyewash.

Regulation : ANSI Z358.1-2004

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	104	GREENHOUSE-HEADHOUSE		Inspector has notified the appropriate personnel within EHS to have the emergency shower/eyewash station tested.
7/16/2009	108	GREENHOUSE-HEADHOUSE		Inspector has notified the appropriate personnel within EHS to have the emergency shower/eyewash tested.

Item : Improper work attire, or personal protective equipment (Item of Concern)

Recommendation : Use appropriate PPE for work being performed (safety glasses, lab coat, gloves, etc). Ensure lab personnel are wearing appropriate clothing in lab (no shorts, bare midriffs, long hair, dangling jewelry or open-toed shoes).

Regulation : 29 CFR 1910.132

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	104A	GREENHOUSE-HEADHOUSE		Noted lab personnel was wearing shorts.

08. Chemical Storage (NFPA Code, TDH HazCom Act)

Item : Flammable chemicals found in household refrigerator/freezer or walk-in cooler (Deficiency)

Recommendation : Remove flammables stored in household refrigerator/freezer or walk-in cooler. Flammable chemicals needing refrigeration must be kept in a flammable materials or lab-safe refrigerator/freezer.

Regulation : NFPA 45.12.2.2

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	103	GREENHOUSE-HEADHOUSE	10/2/2009	Noted that the flammable chemicals were in the hallway refrigerators and freezer.

Item : Improper dating of chemicals (Item of Concern)

Recommendation : Date chemicals when received and again when opened. If date of acquisition or opening is unknown, back-date to the oldest known date for a reference point, e.g. Pre-2001.

Regulation : NFPA 45.9.2.3.4, NIOSH Publication 2007-107

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	103	GREENHOUSE-HEADHOUSE		Continue dating all chemicals.
7/16/2009	104	GREENHOUSE-HEADHOUSE		
7/16/2009	108A	GREENHOUSE-HEADHOUSE		

09. Waste Disposal (EPA/TCEQ Regulations)

No unsafe conditions observed

Any questions? Call the Environmental Health and Safety Department at 845-2132.

[ANSI - American National Standards Institute, EPA - Environmental Protection Agency, NFPA - National Fire Protection Association, TCEQ - Texas Commission on Environmental Quality, TDH - Texas Department of Health]

ENVIRONMENTAL HEALTH AND SAFETY DEPARTMENT

LABORATORY SAFETY EVALUATION

DEPT: **Soil & Crop Sciences**

PI: **William L. (Bill) Rooney**
Inspector : **Ester Chalmers**

10. Autoclave (TCEQ Regulations)

No unsafe conditions observed

11. Cryogenic Liquids

No unsafe conditions observed

12. Warning Signs/Labels (TDH HazCom Act)

Item : *Improper labeling of secondary container (Item of Concern)*

Recommendation : *Ensure that all containers are labeled to indicate contents; even those that contain water or are a part of equipment or experiments.*

Regulation : *29 CFR 1910.1200(f)(9)*

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	103	GREENHOUSE-HEADHOUSE		<i>Noted that in storage room, a squirt bottle and spray bottles were not labeled.</i>
7/16/2009	104	GREENHOUSE-HEADHOUSE		<i>Noted a bottle and carboy were not labeled.</i>
7/16/2009	104A	GREENHOUSE-HEADHOUSE		<i>Noted a spray bottle was not labeled.</i>

Item : *Emergency contact information is not posted (Item of Concern)*

Recommendation : *Post emergency contacts and off-hour phone numbers on all outer doors.*

Regulation : *TAMU Safety Manual 11-2*

Inspection Date	Lab/Room	Building Name	Date Corrected	Comments
7/16/2009	103	GREENHOUSE-HEADHOUSE		

13. Laser Safety

No unsafe conditions observed

14. Teaching Laboratories

No unsafe conditions observed

Additional Notes :

Noted that room 106 is a dark room that is not in use. Also noted sink hose is long. Recommend cutting it so that it is flush with the top of the sink.

Any questions? Call the Environmental Health and Safety Department at 845-2132.

[ANSI - American National Standards Institute, EPA - Environmental Protection Agency, NFPA - National Fire Protection Association, TCEQ - Texas Commission on Environmental Quality, TDH - Texas Department of Health]

From: [C. Wayne Smith](#)
To: [Bill L Rooney](#)
Subject: Leo
Date: Thursday, October 15, 2009 10:35:16 AM
Attachments: [REDACTED] [grad std.doc](#)
[C. Wayne Smith1.vcf](#)

Bill,

I think the attached letter will serve as the funding letter required by [REDACTED]. If you agree, then please modify if necessary, print, and you and [REDACTED] sign. We need a copy of the signed letter.

Thanks,

cws

C. Wayne Smith
Professor, Cotton Breeding
Associate Department Head
Department of Soil and Crop Sciences
2474 TAMU
Texas A&M University
College Station, TX 77843-2474
979.845.3450
cwsmith@tamu.edu

From: [John Mullet](#)
To: [Bill Rooney](#)
Date: Thursday, October 01, 2009 1:16:11 PM

Just letting you know I will be out of town starting 4pm today until Sunday night.

John

From: [Patricia Klein](#)
To: [Seth Calder Murray](#)
Cc: [Bill Rooney](#); [John Mullet](#)
Subject: Maize primers
Date: Thursday, October 01, 2009 4:57:25 PM

Seth

I believe that Susan Hall transferred all of Monica's maize primer stocks to your lab either late last week or early this week. I am not sure what your plans are for these primer stocks, but I am working with Bill on some of his wide hyb work. We would like to screen some material using maize markers from across the genome. I was hoping that I might be able to obtain some of the primer stocks from you for some of the SSRs that Monica had worked with. Would that be possible? I don't need much of each stock but it sure would save me time and money to use what might be available here vs having to order from scratch.

Thanks
Trish

Dr. Patricia Klein
Associate Professor
Institute for Plant Genomics and Biotechnology
TAMU 2123
Texas AgriLIFE Research
Texas A&M University
College Station, TX 77843-2123

phone: 979-862-6308
fax: 979-862-4790

From: [Tim Trop](#)
To: [Bill Rooney](#)
Subject: Maui biofuel project
Date: Thursday, October 08, 2009 11:25:59 AM
Attachments: [IMG_0030.JPG](#)
[ATT00068.htm](#)

Bill

The landowner on Maui, HCS, has us persuaded that the rockiness of some fields may well be a problem for growing grain sorghum. We are meeting today with HARC at HCS's suggestion to do field trials. They already have stations in place on HCS property. Also they have done tests there on sweet sorghum . So now I need to figure out how to analyze whether a major portion of the 35000 acres is too rocky for sorghum. I would like your input on how to proceed. We also have an issue with topography and use of center pivot irrigation.

Tim Trop



From: [Stelly David](#)
To: [Rooney Bill](#); [Mullet John](#)
Cc: [Stelly David David M.](#); [Adam Helms](#); [Shayna Spurlin](#); [Avant Bob](#)
Subject: Milestones etc
Date: Monday, October 12, 2009 5:36:24 AM
Attachments: [Milestones - Rooney-DS2.doc](#)
[ATT00007.htm](#)
[Milestones - Rooney-DS2.doc.pdf](#)
[ATT00010.htm](#)

BILL AND JOHN:

Attached is a revised set of milestones, deliverables and metrics, following Bill's document as the starting point (but see below ... However, I think these metrics are too good (too numerous), according to Brett's suggestions). I strived to standardize the types of statements, and use numbers where possible.

My biggest concern is that this is more detailed in terms of metric elements than was suggested DARPA wants. Brett suggested just 1-2 per major objective. Ours are more thorough than that, but may not be conducive to facile interpretation and approval. On the other hand, such reduction will not allow for very meaningful coverage. Nevertheless, below, I try to do that, using just 2 categories --- one mostly directed toward clonal breeding and one potentially more for seed-related aspects (also very relevant to clonal breeding).

Note, the numbers may go way up, but so far, we are running about 3/10 of seed being chosen for transplanting, so the numbers of seedlings has to date been much lower than the numbers of seed. (That ratio is perhaps expected to rise, but for now is low. I was not sure how best to handle that in terms of % calculations, etc., for the reader). On the other hand, producing 10K seed/yr should not pose a problem -- if we have appropriate facilities and conditioned canes.

DAVID

-

-

From: [Nilesh Dighe](#)
To: [Linda Dykes](#)"Irooney
Cc: [Bill Rooney](#); [Rooney, Lloyd W](#)
Subject: Model for Grain
Date: Tuesday, October 06, 2009 8:45:08 AM
Attachments: [Model Stat.xls](#)
[Anthocyanins_lab vs predicted.gif](#)
[Phenols_Lab vs Predicted.gif](#)
[Tannins_lab vs predicted.gif](#)
[WetChem_LR_Grain.xls](#)

Linda-

I just finished building models for the three grain-quality traits (Tannins, Total Phenols, & Anthocyanins) on the testing set that you had wet chemistry on. The preliminary data looks very promising. The R squares for all the three built models were above 95%. Please see the attached excel file for the detailed stats. The excel files also includes stat for Lab vs Predicted values. I am also attaching graphs for Lab vs Predicted values for the three traits.

Also attached is an excel file that includes codes for the samples used in the test.

Please let me know if you have any questions.

Nilesh

From: [David Baltensperger](#)
To: [Chersty Harper](#); [Omar Samonte](#); [Amir M Ibrahim](#); [Abdul Razack Mohammed](#); [Arlene Pacheco](#); [Ben Beyer](#); [Dirk Hays](#); [Daniel J Packer](#); [Girisha Ganjegunte](#); [Jason Baker](#); [John L Jifon](#); [Kevin Crosby](#); [Kerry Mayfield](#); [Leo Hoffmann](#); [Ndambe Nzaramba](#); [Ravindra Devkota](#); [Robert Braun](#); [Russell W Jessup](#); [Steve Hague](#); [San Gao](#); [Jarvis Miller](#); [Richard Mason](#); [John E Mullet](#); [sethmurray@neo.tamu.edu](#); [Allen Knutson](#); [b-borden@tamu.edu](#); [Charles Simpson](#); [C Wayne Smith](#); [Daniel J Ebbale](#); [Dennis Genovesi](#); [Dariusz Malinowski](#); [Daryl Morishige](#); [Jerry Michels](#); [Gary Odvody](#); [Gary C Peterson](#); [Gerald Smith](#); [Hae Jeen Bang](#); [Johnny Bible](#); [Julio S Bernal](#); [Mark Burow](#); [MC Engelke](#); [Mickey Frank](#); [Seiichi Miyamoto](#); [David Stelly](#); [Wenwei Xu](#); [Bill Rooney](#); [Yiqun Weng](#);
[REDACTED]
Subject: NC-7 report
Date: Sunday, October 04, 2009 10:50:45 PM
Attachments: [Texas A&M University.xlsx](#)

Colleagues,

I have been requested to develop the following summary based on feedback from those in our system receiving germplasm from NPGS. Please provide me with a brief impact statement from your work with the germplasm that was provided to you and any publications that have resulted from germplasm that has been distributed by the system in the past 3 years. I need to get the report in by early November so your prompt response is appreciated. Please keep it simple and utilize relative broad impacts--not something for each line, but how all the material was used or the value from one particular line that excelled. Thanks in advance.

1. Submit a 1-page (or less) narrative describing a portion of your research programs as it relates to germplasm and include a description of any outcomes or impacts.
2. Submit a listing of relevant referred publications and thesis/dissertations completed since 2007.
3. In the near future, a summary table of requests to the NPGS from scientists at your institution will be provided to you. Please contact appropriate scientists and ask them for a short impact statement regarding their research using NPGS germplasm. This is not restricted to NCRPIS-provided germplasm.

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

ORNO	SITE	SHIPPED	ITEMS	FINAL_COOP
190582	S9	1-Oct-07	6	Jifon, J., Texas A&M University Research Center
190595	NE9	3-Oct-07	1	Jifon, J., Texas A&M University Research Center
190622	S9	4-Oct-07	20	Jessup, J., Texas A&M University (TAMU)
190709	S9	11-Oct-07	129	Rooney, W., Texas A&M University
190773	COT	12-Oct-07	5	Gannaway, J., Texas Agr. Exp. Sta.
191002	S9	25-Oct-07	5	Smith, G., Texas A&M University
191135	NC7	6-Nov-07	4	Xu, W., Texas A&M University
191335	NSGC	14-Nov-07	1	Weng, Y., Texas Agricultural Experiment Station
191499	NSGC	24-Nov-07	4	Weng, Y., Texas Agricultural Experiment Station
191508	W6	30-Nov-07	12	Smith, G., Texas A&M University
191857	COT	12-Dec-07	20	Hague, S., Texas A&M University
191932	NC7	17-Dec-07	117	Xu, W., Texas A&M University
191963	S9	20-Dec-07	5	Crosby, K., Texas A&M University
192059	MAY	19-Dec-07	3	Jifon, J., Texas A&M University Research Center
192231	S9	9-Jan-08	2	Miller, Jr., J., Texas A&M University
192728	S9	17-Jan-08	2	Mullet, J., Texas A & M University
192837	W6	24-Jan-08	525	Ibrahim, A., Texas A&M University
193038	S9	6-Feb-08	49	Harper, C., Texas A&M University
193149	S9	12-Mar-08	2900	Rooney, W., Texas A&M University
193150	S9	12-Mar-08	600	Rooney, W., Texas A&M University
193274	S9	27-Feb-08	579	Odvody, G., Texas A&M University
193338	NC7	11-Feb-08	7	Mayfield, K., Texas A&M University
193690	COT	26-Feb-08	2	Smith, C., Texas A&M University
193754	COT	28-Feb-08	2	Smith, C., Texas A&M University
193909	COT	5-Mar-08	12	Dighe, N., Texas A&M University
194397	NSGC	20-Mar-08	37	Frank, P., Texas AgriLife Research Station
194516	NSGC	26-Mar-08	2	Devkota, R., Texas A&M University
194717	COT	2-Apr-08	4	Knutson, A., Texas A&M Research and Extension Center
194894	COT	9-Apr-08	59	Hague, S., Texas A&M University
194897	COT	9-Apr-08	16	Hague, S., Texas A&M University
194998	COT	14-Apr-08	1	Hague, S., Texas A&M University
195025	W6	16-Apr-08	30	Michels, J., Texas A&M University
195048	COT	16-Apr-08	10	Smith, C., Texas A&M University
195145	S9	18-Apr-08	2	Simpson, C., Texas A&M University
195230	COT	22-Apr-08	1	Hague, S., Texas A&M University
195288	S9	1-May-08	4	Crosby, K., Texas A&M University
195289	S9	1-May-08	9	Crosby, K., Texas A&M University
195457	W6	6-Jun-08	11	Malinowski, D., Texas A&M University
195544	NSGC	6-May-08	2	Pacheco, A., Texas A&M University
195695	NC7	14-May-08	2	Morishige, D., Texas A&M University
195717	S9	29-May-08	12	Morishige, D., Texas A&M University
195760	COT	15-May-08	2	Beyer, B., Texas A&M University
195784	NC7	16-May-08	1	Olson, S., Texas A&M University
195819	S9	22-May-08	3	Burow, M., Texas A&M University
195876	NSGC	27-May-08	28	Frank, P., Texas AgriLife Research Station
195894	GSOR	27-May-08	1	Ebbale, D., Texas A&M University

195939 S9	29-May-08	1 Hague, S., Texas A&M University
196068 NC7	20-Jun-08	20 Baltensperger, D., Texas A&M University
197194 W6	6-Jun-08	9 Smith, G., Texas A&M University
197296 S9	13-Jun-08	17 Morishige, D., Texas A&M University
197570 S9	26-Jun-08	1 Genovesi, A., Texas AgriLife Research - Dallas
197620 S9	2-Jul-08	19 Rooney, W., Texas A&M University
197723 NC7	8-Jul-08	4 Hays, D., Texas A&M University
197913 S9	28-Jul-08	276 Morishige, D., Texas A&M University
197932 S9	28-Jul-08	412 Morishige, D., Texas A&M University
198055 NC7	4-Aug-08	9 Morgan, G., Texas A&M University
198076 NC7	31-Jul-08	3 Mayfield, K., Texas A&M University
198139 S9	8-Aug-08	10 Bang, H., Texas A&M University
198326 NC7	14-Aug-08	4 Bang, H., Texas A&M University
198331 W6	20-Aug-08	13 Mason, R., Texas A&M University
198358 S9	19-Aug-08	7 Bang, H., Texas A&M University
198362 W6	14-Aug-08	1 Bible, J., Texas A&M University
198376 NSGC	22-Aug-08	8 Baker, J., Texas Agric. Exp. Station
198468 S9	26-Aug-08	494 Morishige, D., Texas A&M University
198504 COT	27-Aug-08	17 Beyer, B., Texas A&M University
198509 S9	26-Aug-08	1 Simpson, C., Texas AgriLife Research and Extension Center
198517 S9	4-Sep-08	123 Morishige, D., Texas A&M University
198692 W6	10-Sep-08	528 Ibrahim, A., Texas A&M University
198775 NC7	9-Sep-08	3 Bernal, J., Texas A&M University
198799 S9	11-Sep-08	6 Peterson, G., Texas AgriLife Research
198827 NC7	6-Oct-08	8 Bernal, J., Texas A&M University
198947 NC7	22-Sep-08	24 Smith, G., Texas A&M University
199007 S9	23-Sep-08	1 Burow, M., Texas A&M University
199021 NC7	3-Oct-08	39 Murray, S., Texas A&M University
199221 S9	15-Oct-08	273 Rooney, W., Texas A&M University
199273 COT	7-Oct-08	71 Sheehan, M., Texas AgriLife Research & Extension Center
199402 S9	15-Oct-08	8 Odvody, G., Texas A&M University
199499 S9	22-Oct-08	1 Peterson, G., Texas AgriLife Research
199618 S9	29-Oct-08	28 Rooney, W., Texas A&M University
199825 NSGC	5-Nov-08	3 Samonte, S., Texas A&M University
199834 MIA	9-Oct-08	91 da Silva, J., Texas A&M Ag. Exp. Station
199963 S9	18-Nov-08	13 Ganjegunte, G., Texas A&M University
200244 S9	1-Dec-08	1 Mullet, J., Texas A & M University
200316 S9	8-Dec-08	1 Ganjegunte, G., Texas A&M University
200367 NC7	23-Dec-08	302 Murray, S., Texas A&M University
200524 W6	17-Dec-08	7 Engelke, M., Texas A&M University
200718 NC7	13-Mar-09	27 Xu, W., Texas A&M University
200751 S9	6-Jan-09	1 Smith, G., Texas A&M University
201020 S9	13-Jan-09	346 Morishige, D., Texas A&M University
201305 W6	23-Jan-09	6 Smith, G., Texas A&M University
201423 GSOR	4-Feb-09	4 Samonte, S., Texas A&M University
201723 NC7	6-Feb-09	10 Smith, G., Texas A&M University
201845 S9	12-Feb-09	470 Morishige, D., Texas A&M University

202040 S9	27-Feb-09	2513 Rooney, W., Texas A&M University
202104 NC7	19-Feb-09	21 Murray, S., Texas A&M University
202326 S9	17-Mar-09	1948 Rooney, W., Texas A&M University
202552 S9	16-Mar-09	8 Odvody, G., Texas A&M University
202625 NC7	6-Mar-09	5 Hays, D., Texas A&M University
202795 MAY	25-Feb-09	1 Miyamoto, S., Texas Agrilife Research & Ext. Center
202929 W6	17-Mar-09	31 Michels, J., Texas A&M University
202958 NSSL	17-Mar-09	1 Hague, S., Texas A&M University
202971 NC7	17-Mar-09	47 Hague, S., Texas A&M University
203039 S9	23-Mar-09	7 Braun, R., Texas AgriLife Research Center
203091 NSGC	24-Mar-09	1 Harper, C., Texas A&M University
203114 GSOR	30-Mar-09	1 Harper, C., Texas A&M University
203504 NSGC	13-Apr-09	1 Hays, D., Texas A&M University
203545 NC7	7-Apr-09	1 Weers, B., Texas A&M University
203573 GSOR	10-Apr-09	1 Tag, A., Texas A&M University
203593 S9	13-Apr-09	4 Peterson, G., Texas AgriLife Research
203761 S9	15-Apr-09	1 Bang, H., Texas A&M University
203967 MIA	21-Apr-09	9 Gao, S., Texas Agrilife Research Center
203981 NSGC	22-Apr-09	10 Frank, P., Texas AgriLife Research Station
204162 NSGC	28-Apr-09	1 Hays, D., Texas A&M University
204171 COT	28-Apr-09	1 Hague, S., Texas A&M University
204210 COT	28-Apr-09	85 Hague, S., Texas A&M University
204375 NSGC	5-May-09	4 Frank, P., Texas AgriLife Research Station
204377 GSOR	8-May-09	2 Frank, P., Texas AgriLife Research Station
204586 NR6	15-May-09	89 Nzaramba, M., Texas A&M University
204663 COT	18-May-09	1 Beyer, B., Texas A&M University
204665 NC7	21-May-09	1 Bernal, J., Texas A&M University
204672 S9	20-May-09	39 Peterson, G., Texas AgriLife Research
204679 NE9	3-Jun-09	56 Bang, H., Texas A&M University
204752 S9	28-May-09	4 Burow, M., Texas A&M University
204871 NSGC	27-May-09	6 Mohammed, A., Texas A&M University
204945 NSGC	2-Jun-09	1 Hays, D., Texas A&M University
204995 W6	9-Jun-09	7 Gnanamanickam, S., Texas AgriLife Research Center
205037 S9	4-Jun-09	15 Crosby, K., Texas A&M University
205073 NSGC	15-Jun-09	6 Harper, C., Texas A&M University
205587 S9	6-Jul-09	384 Hall, S., Texas A&M University

From: [Avant, Bob](#)
To: [Anna J Fox](#)
Cc: [Judy Young](#); dbaltensperger@ag.tamu.edu; bmccutchen@tamu.edu; [Bill Rooney](#)
Subject: Nomination Materials for 2009 Vice Chancellor's Awards in Excellence for Bill Rooney
Date: Monday, October 26, 2009 10:28:52 AM
Attachments: [Rooney.doc](#)
[NOMINATION FORM rva.doc](#)

Anna,

Attached is the nomination form and a draft of the letter I prepared for David Baltensperger. Jeff Dahlberg, Richard Hamilton, and Bill McCutchen will be preparing letters of recommendation.

I will be traveling for the next three weeks and will only be checking emails periodically. Please advise me if I need to do anything else.

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

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

From: Judy Young [<mailto:j-young@tamu.edu>]
Sent: Wednesday, October 14, 2009 11:46 AM
To: Avant, Bob
Subject: Fwd: Call for Nominations - 2009 Vice Chancellor's Awards in Excellence

Oct. 14, 2009

TO: Bob Avant

I appreciate your willingness to assist in the preparation of a nomination packet for Bill Rooney. As discussed by phone the nomination will be for Research (on campus) award. All needed information is in the attached material. I talked with Bill Rooney and he will be visiting with you by phone since both of you are traveling. We appreciate your assistance.

Mike Chandler

Nomination Form

2009 Vice Chancellor's Award in Excellence Program

NOMINEE (or name of team) Dr. William (Bill) Rooney

(First Name, Middle Initial, Last Name)

DEPARTMENT, CENTER, UNIT OR DISTRICT Soil and Crop Sciences**AWARD CATEGORIES** *(Check only one)*

Teaching Awards

- ☐ Undergraduate teaching
☐ Graduate teaching
☐ Student counseling and relations
☐ Graduate student teaching

Research Awards

- ☒ Research (on campus)
☐ Research (off campus)
☐ Research team
☐ Graduate student research (on/off campus)

Extension Education and Service Awards

- ☐ Agriculture and natural resource programs
☐ Family and consumer sciences programs
☐ 4-H & youth programs
☐ Specialist serving state, region, or county
☐ Extension team

Support Personnel Awards

- ☐ Administrative support (on campus)
☐ Clerical support (on campus)
☐ Clerical/administrative support (off campus)
☐ Research support (on campus)
☐ Research support (off campus)
☐ Technical/Extension support (on campus)
☐ Technical/Extension support (off campus)

Professional Services Awards

- ___Special Services
___Forester (Texas Forest Service)

Partnership Awards

- ☐ System Academic Partnership
☐ Industry/Agency/University/Association

Diversity Award

International Involvement Award

Administration Award

NOMINATOR Robert V. Avant, Jr., P.E.

NOMINATOR'S MAILING ADDRESS 100C, Centeq Building, 1500 Research Parkway, College Station

NOMINATOR'S PHONE # 845-2980, 512/422-6171 (cell) **E-MAIL** bavant@tamu.edu

DEPARTMENT OR UNIT NAME Corporate Relations **DATE** October 26, 2009

CHECK-LIST FOR A SUCCESSFUL NOMINATION (v)

- ___ Nomination form (*use prescribed form provided on award website*)
- ___ Vita Form (*use prescribed form provided on award website; limited to 2 pages for individual award or 4 pages for team award*)
- ___ Publications List (*required for research nominations; optional for teaching, extension, partnership and diversity nominations; use prescribed form provided on award website*)
- ___ Letter of nomination (*2 page limit; from department head, unit administrator or awards committee chair*)
- ___ Letters of Support/Recommendation (*no more than three letters; one-page maximum each*)
- ___ Compile nomination in order as listed above (*nomination form, vita form, publications, letter of nomination, letters of support*)
- ___ Save in one file (.PDF file format) as follows: Award Category-Name of nominee.pdf (*Research-John Jones.pdf*)
- SUBMIT ONE (1) ELECTRONIC FILE TO VCoffice@ag.tamu.edu no later than noon on Wednesday, November 4.**

(NOTE: Late applications or changes in the nomination package after the deadline are not permitted. Separate attachments such as resumes, biographical information or publications should not be included and will not be considered.)

DRAFT FOR Dr. Baltensperger

November 1, 2009

Vice Chancellor's Awards Committee
College of Agriculture and Life Sciences
Texas A&M University
College Station, Texas

It is with great pleasure that I nominate Dr. William "Bill" Rooney for the 2009 Vice Chancellor's Awards in Excellence for the On-campus Research category. Bill is Professor of Plant Breeding and Genetics in the Soil and Crop Sciences Department. He received his Ph.D. at the University of Minnesota in 1992 after receiving B.S. and M.S. degrees at A&M. Bill has both teaching and research appointments.

His teaching responsibilities include graduate advising (AGRO 691) and AGRO 642 – Plant Breeding II a 3 credit hour course graduate level course on statistical and genetic issues in plant breeding. He also teaches AGRO 306, an undergraduate course on production agriculture. He has received excellent student evaluations. Bill has served as chair or co-chair for 12 M.S. students and for 12 PhD. students as well as serving on the committee of 26 other students who have completed graduate degrees. At the current time, he serves as a chair or co-chair for 7 graduate students and is on the committee of 5 other graduate students.

Bill has one of the strongest research programs in terms of funding in the College of Agriculture and Life Sciences with support from such diverse sources as Ceres, Chevron, Sorghum Producers Checkoff Board, Texas Advanced Technology Research Program, U.S. Agency for International Development, USDA-NRI, US DOE, and NSF. His sorghum breeding and genetics research focuses on three areas: a) research and publication in the genetics of important traits in sorghum and sorghum germplasm; b) germplasm development and application in U.S. and world sorghum production systems; and c) the training of graduate students in plant breeding and genetics using the sorghum breeding program as a platform. The results and germplasm feed directly in to the sorghum breeding program and the goal of the sorghum breeding program is to develop and release sorghum germplasm that is improved for use as grain sorghum, forage sorghum and more recently as a bioenergy crop.

The interest in sorghum as a bioenergy feedstock has grown exponentially in the past three years. In 2007, Bill received a \$5 million sponsored research agreement with Ceres to develop bioenergy sorghum and since 2008 approximately 75% of all the breeding nursery plots have been devoted to bioenergy line development. Bill is a strong

proponent of multi-unit, cross discipline team research and has developed critical collaborations with faculty from other academic departments at Texas A&M and at Texas AgriLife Research Centers that involve over \$30 million in existing or proposed sponsored research projects in the area of strategic bioenergy crops. In the past ten years, his program has had seven releases which included one population, one parental line, and twenty germplasms and some have been utilized by private industry in commercial grain, forage sorghum hybrids, and bioenergy sorghums.

Bill is a member of Crop Science Society of America Journal, Agronomy Journal, Sorghum Improvement Conference of America, and the USDA Sorghum Germplasm Committee, is Associate Editor, Field Crops Research, and is Chairman, Texas AgriLife Research Plant Release Committee. He has 66 refereed journal publications, 6 book chapters, 11 station publications, 12 invited, conference or symposium proceedings, 17 abstracts/papers, and over 100 presentations at producer and commodity meetings.

Bill is an excellent educator, researcher, and communicator. He is in demand as a presenter at numerous national and international meetings and is recognized as one of the leading experts in the world in sorghum development for feed, food, forage, and fuel uses. He is frequently asked by administration to meet with major corporate sponsors and has a unique ability to communicate highly complex technical processes to corporate executives in a way that relates to their bottom line. Bill is respected by his students in class, student workers, graduate students, faculty, staff, and administration and his diplomacy is appreciated throughout the Texas A & M Agriculture family. I strongly recommend Dr. Bill Rooney for the 2009 Vice Chancellor's Awards in Excellence for the On-campus Research. Please feel free to contact me if you have any questions.

Sincerely,

David D Baltensperger
Professor and Head

From: [Plant breeding activities and graduate students at TAMU](#) on behalf of [C. Wayne Smith](#)
To: TAMU-PLANTBREEDING@LISTSERV.TAMU.EDU
Subject: October Plant Breeding Bulletin
Date: Tuesday, October 06, 2009 9:07:18 AM
Attachments: [Plant Breeding Bulletin October 09.pdf](#)
[Plant Breeding Bulletin October Nelson.doc](#)
[C. Wayne Smith1.vcf](#)

Attached is the October Texas A&M Plant Breeding Bulletin. Dr. Lloyd Nelson has had a distinguished career and made significant contributions to plant improvement. I hope that you enjoy reading about his accomplishments.

Regards,
Wayne

C. Wayne Smith
Professor, Cotton Breeding
Associate Department Head
Department of Soil and Crop Sciences
2474 TAMU
Texas A&M University
College Station, TX 77843-2474
979.845.3450
cwsmith@tamu.edu

TEXAS A&M PLANT BREEDING

October 2009



Dr. Lloyd Nelson began his career with Soil and Crop Sciences at the Texas AgriLife Research and Extension Center at Overton in 1976. He has co-advised graduate students and served on several graduate students committees. He initially conducted plant breeding in soft red winter wheat for grain and forage yield improvement, and annual ryegrass (*Lolium multiflorum*) for forage production. Much of his early wheat research was focused on fungal diseases of wheat in the high rainfall region of east Texas, such as leaf rust, powdery mildew, and glume blotch (*Stagnospora nodorum*). This research effort resulted in the release of germplasm having partial resistance to *S. nodorum*. He also served as a consultant on Septoria diseases in Brazil, Argentina, Bolivia, Paraguay, Uruguay and Chile. He has written a chapter in *Advances in Agronomy* (Vol. 44) entitled "Breeding Wheat for Resistance to *Septoria nodorum* and *Septoria tritici*". Located in east Texas, Lloyd has and continues to have a deep interest in forage potential of small grains. He has conducted forage clipping evaluations on wheat, oats, rye, and triticale for the past 33 years. Oftentimes these forage clipping experiments have been ideal environments for epidemics of powdery mildew, leaf rust, and stem and stripe rust. Disease data gathered on experimental lines has often been useful to the Texas small grain breeders from dryer areas of Texas. He has cooperated closely with all small grain breeders in Texas and adjoining states to evaluate their advanced lines for forage potential and disease resistance. This cooperation has resulted in Lloyd being listed as a co-author in the release of many small grain cultivars over the past 30 years.

Lloyd's research since 1995 has concentrated on breeding annual ryegrass for improved forage potential and improving the turfgrass quality of annual ryegrass. Gulf ryegrass, released by in 1963 by R.M. Weihing at the Beaumont Center and expressing improved Crown Rust resistance, was the leading annual ryegrass grown by Texas producers from the mid 1960s until the early 1990s. However, Gulf would often winterkill when grown in central and north Texas. Lloyd made a 3-way cross between Gulf (for its crown rust resistance), cultivar Marshall for winter hardiness, and an experimental ryegrass derived out of Dr. Ethan Holt's (retired Texas A&M Plant Breeder) program which had high forage yield potential in 1976 that provided progeny that lead to the selection of TAM 90 annual ryegrass. The

progenitor of TAM 90 was grown at the Texas AgriLife Research and Extension Center at Amarillo with the cooperation of Dr. Kenneth Porter and screened for winter hardiness and also was screened at the Research Station at Angleton for crown rust resistance. TAM 90 was released in 1990 and became a highly successful annual ryegrass cultivar for Texas.



More recent forage breeding efforts involved the release of tetraploid ryegrass cultivars. Earlier cultivars, such as Gulf and TAM 90 are diploids. Germplasm derived from TAM 90 was treated with chemicals to effect a doubling of chromosomes from 14 to 28. This 4x germplasm was crossed with other 4x germplasm to produce new populations. Selections for superior forage producing lines were screened at Overton and Beaumont, Texas for forage yield potential and crown rust resistance. This research resulted in the release of TAMTBO and Tetrapro cultivars and his latest release, TXR2006-T22 will be named Nelson and marketed by Wax Seed Company.

Dr. Nelson began selecting dwarf type ryegrass germplasm for its potential as a cool season turfgrass in the early 1990s. Forage type ryegrass cultivars such as Gulf and TAM 90 were and are far too vigorous and fast growing to be used for overseeding warm season turfgrass. After several years of testing his first turf annual ryegrass cultivar was released in 2000 as Axcella. While Axcella was greatly improved for dwarfiness, it did not have the desirable dark green color found in most perennial ryegrass cultivars. Subsequently, he released Panterra turf ryegrass in 2003 and Axcella 2 in 2006. Both cultivars were significantly improved for color, leaf fineness, and other turf quality traits. These cultivars are used to overseed warm season turf on football and soccer fields and to provide a green turf year around. Panterra ryegrass has been overseeded on Kyle Field and the soccer field at Texas A&M University. He anticipates the release of Intercross ryegrass in 2009, which is a cross between Axcella and an Intermediate height ryegrass. Intercross ryegrass is similar to some perennial ryegrass cultivars except that it will transition out, or die, as an annual ryegrass so as not to damage the perennial warm season turf. Presently he has crossed annuals with perennial ryegrass and is selecting for turf quality comparable to perennial, yet with a transition date similar to a late annual.

Another objective of his annual ryegrass turf breeding program is to breed for tolerance to high salinity soils and irrigation water. Grant funds provided by USGA are supporting screening of ryegrass germplasm both in the greenhouse and in the field at Pecos, Texas. Greenhouse screening methods include growing ryegrass in cone-tainers placed in high salinity water in salt tanks. This technique has been modified presently whereby germplasm is being grown in soil in flats which are immersed in salt water every 3 days to simulate high salinity. Salt concentration is gradually increased over time until severe salt damage can be recorded on each entry.

You can find more information on Dr. Lloyd Nelson's breeding program at <http://overtan.tamu.edu/ryegrass> Dr. Nelson can be contacted at lr-nelson@tamu.edu.

Monsanto supported PhD Graduate Assistantships:

Texas A&M University Department of Soil and Crop Sciences and Monsanto announces the availability of Monsanto Ph.D. Graduate Assistantships in Plant Breeding. Applicants must have earned a minimum 3.5 GPA on their M.S. course work, demonstrated an aptitude for research, and meet all other requirements for admission to Texas A&M, including completion of the GRE. Successful candidates will be required to register for nine hours of course work each fall and spring semester and six hours during the summer. Annualized salary is \$ 24,000, all tuition and required fees are paid by the assistantship, and group health insurance is available. Dissertation research will be in the area of crop improvement through the application of breeding and genetics. Additional information and application protocol can be found at <http://soilcrop.tamu.edu> or by contacting Dr. Wayne Smith, Soil and Crop Sciences, 2474 Texas A&M University, College Station, TX 77843-2474, (979-845-3450 or cwsmith@tamu.edu).

Please direct comments concerning this bulletin to Wayne Smith, cwsmith@tamu.edu or 979.845.3450.

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October 2009



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Please direct comments concerning this bulletin to Wayne Smith, cwsmith@tamu.edu or 979.845.3450.

From: [Rene Clara](#)
To: [Bill Rooney](#); [Joan Frederick](#)
Subject: PCCMCA expenses
Date: Monday, October 05, 2009 2:36:12 PM

I already have the trip expenses to the PCCMCA meeting of all the person. I want to know if I send them by courier to Dr. Bill or directly to Joan.

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: [REDACTED]

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