More Good Things are Happening in the Department of Grain Science & Industry!!!

GSI State of the Department Seminar Manhattan, Kansas April 30, 2010

Dr. Dirk E. Maier Professor and Head
THANK YOU!!!

CONGRATULATIONS!!!
KSU Milling Industry Department –
A PRACTICAL DEPARTMENT

• "The Department of Milling Industry is one of the most practical and beneficial departments in the college, none the less so because it is unique in the West and almost so in the United States. Particularly appropriate is it that such a department should be in existence in the wheat growing state of Kansas. It represents not only public service on the part of the college as an institution but also public service on the part of the students who are prepared by the department to do efficient work for the benefit of Kansas and her people."

- Published in The Kansas Industrialist, the weekly newspaper of the Kansas State Agricultural College, which was the name of Kansas State University when this article was published on May 30, 1914.
Vision for K-State’s Grain Science & Industry Department

“The global education, research and technology transfer leader for the grain & plant-based food, feed, fiber, fuel and bio-products supply chains.”
“Good is the enemy of great!”
- Jim Collins
Good to Great...

- Transformation of an organization from good to great is a process of build up followed by break-through, broken into three broad stages:
  - Disciplined people
  - Disciplined thought
  - Disciplined action
Disciplined People…

- Level 5 Leadership
  - University/College administrators
  - Department head
  - Committed faculty
  - Experienced staff
  - Student leaders

➤ Focus is on building a great organization
➤ Ambition is for the cause, the organization, the work to be done
New K-State Administration

Dr. Kirk Schulz
President

Dr. Ron Trewyn
Vice President for Research

Dr. April Mason
Provost &
Senior Vice President

Dr. Gary Pierzynski
Interim COA Dean &
Interim KSRE Director

Centennial
Grain Science & Industry
1910~2010
Disciplined People…

• First **Who** then **What**
  – Full contingent of the right faculty expertise
  – Optimum mix of support staff expertise & experience
  – Undergraduate and graduate students with whom we can partner to successfully complete their BS, MS and PhD degrees
  – Committed stakeholders who support us through thick and thin

➤ Focus on having the right people on the bus and in the right seats
Staff Changes

Brenda Heptig
Undergraduate Student Services Coordinator

Liz Savage
Human Resource Specialist

Brandi Miller
Distance Education Program Coordinator

Naaz Yasmin
Business Office Accounting Specialist

Rick Umscheid
Business Manager

Heather Markson
Department Head Administrative Assistant
Faculty Excellence Recognition

- 2009 Commerce Bank Outstanding Teacher Award @ Kansas State University
- COA Fall 2009 Commencement Speech

Prof. Dave Krishock
Bakers National Education Foundation
Instructor of Baking
Science & Management
Faculty Excellence Recognition

2010 AACC International Young Scientist Award

Dr. Sajid Alavi
Associate Professor of Grain Science & Industry
Faculty Excellence Recognition

2010 AACC International Fellow Award

Dr. David Wetzel
Professor of Grain Science & Industry

Elite group of K-State Professors who are AACCI Fellows: Ponte, Hoseney, Seib, MacRitchie, Lookhart, Walker
Faculty Excellence Recognition

American Feed Industry Association Distinguished Service Award

Dr. Keith Behnke
Professor of Feed Science & Management

Elite group of K-State Professors who are AFIA Hall of Famers: Shellenberger, Pfost, McElliney, Schoeff
Faculty Excellence Recognition

2010 IAOM Thaddeus B. Bownik Outstanding Service Award

Dr. Jeff Gwirtz
G.M. Ross Associate Professor of Milling Science & Management
Achievements and Recognitions

Hyma Gulya
PhD Brabender Fellowship

Daniela Nath deOlivera
MS Brabender Fellowship

Liming Cai
2010 National Starch Outstanding PhD Graduate Student

E Xi
2010 National Starch Outstanding MS Graduate Student
Achievements and Recognitions

Sarah Butler
2010 Outstanding Senior
BSM Student

Kelsie McGie
2010 Outstanding Senior
MSM Student

Dr. Dick Hahn Student
Leadership Awardee
“Nothing is more important in changing an attitude of a team than honesty. I’ve never been a believer in saying, “Everything is good.” I believe in being positive, but I believe more in being honest!”

- Coach Bill Snyder
Disciplined Thought…

• Confront the Brutal Facts
  – Lack of financial discipline
  – Indebtedness and spending beyond our means
  – Living off our past glory
  – Taking stakeholder support for granted
  – Neglecting importance of our teaching mission
  – Failing and antiquated facilities (incl labs, classrooms)

→ Identifying and acknowledging our weaknesses and threats to our future success
Our BIG Budget Challenge…

How did we deal with ~$350,000 in funding cut in FY’10 and what about FY’11?

• Gave up three faculty positions for FY’10
  – protected faculty, staff, GRAs/GTAs, operating funds
• No further budget cut expected for FY’11 but…
  – obtained permission to refill 2 faculty positions open due to retirements of Drs. Behnke and Haque
  – plan to rehire Bob Bennett as part-time recruiter
  – Huseyin Dogan will continue as Instructor
  – will need to hire replacement for Sam Hanni
  – need additional Instructor to support MSM program
Alumni, Friends & Stakeholder Support...
Disciplined Thought…

• Hedgehog Concept
  – See updated vision and mission statements
  – See our top initial priorities
  – See our Strategic Plan

➔ Being the best we can be at what we are best at in the world
➔ Being deeply passionate about what we do
➔ Building on our strengths; taking advantage of new opportunities
Mission of K-State’s Grain Science & Industry Department

“To educate students and professionals, conduct innovative research, transfer new technologies and knowledge, offer high-quality outreach programs and services to meet the needs of the global grain & plant-based food, feed, fiber, fuel and bio-products supply chains.”
Initial / Continued Priorities

- Grow our student enrollment
- Grow our research enterprise
- Grow our outreach efforts
Strategic Plan Themes (DRAFT)

1. Educate undergraduate and graduate students, and industry professionals.
2. Conduct innovative basic and applied research, and transfer new technology and knowledge to end users.
3. Offer high-quality outreach programs and services to meet domestic and international customer needs and stakeholder expectations.
4. Recruit, retain, reward and develop high quality faculty, and professional and classified staff.
5. Develop, maintain and utilize state-of-the-art facilities and equipment.
Strategic Plan Themes (DRAFT)

1. **Educate** undergraduate and graduate students, and industry professionals.
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4. Recruit, retain, reward and develop high quality **faculty**, and professional and classified **staff**.
5. Develop, maintain and utilize state-of-the-art **facilities** and equipment.
6. Broaden **funding** base and improve financial stewardship.
“The Next Generation of Professionals for the Global Grain & Feed Industry”
New Student Enrollment - Fall 1997-2009

Fall of each Year

New Student Number

Baking Science
Feed Science
Milling Science
Total

F09 = 57
Keys to Increasing UG Student Enrollment in Grain Science & Industry

- **Partnership** btw K-State GSI and the Grain Industry
  - realize recruitment and retention of future employees starts by helping to fill the MSM, BSM and FSM pipelines at K-State
- Intentional and systematic recruitment plan
  - effective recruiting strategies; “Every one recruit one!”
  - Brains for Grains Recruitment and Scholarship Program
- Scholarship support
  - need to continue to grow scholarship pool
- Employment opportunities
  - Need internship opportunities and full-time job offers

➤ More Out-of-State Recruiting Events…

May 17, 2010 – Mill Museum, Minneapolis, Minnesota
Fall 2010 – Chicago Area Agricultural High School
Fall 2010 – Cereal City, Battle Creek, Michigan
A Model of a successful interdisciplinary program in conjunction with international perspective, distance education and strong industry engagement & advocacy

- Food Science
- Animal Sciences
- Human Nutrition
- Biological & Ag Sciences
- Engineering Technology
- Basic Sciences (Chemistry, Physics, Math)
- Social Sciences
- Communication

Core Grain Sciences
- Cereal Chemistry
  - Grain Quality
  - Operations
  - Sanitation
  - Milling
  - Baking
- Bioprocessing
- Feed Technology

Industry Engagement & Advocacy

Strong Undergraduate Programs

Research & Graduate Programs

Internationalized Curricula & Programs and Distance Education
Study Abroad: Swiss Milling School

Mary Gleason
SMS’09; MSM’09

Megan Holton
SMS’10; MSM’10

Other Study Abroad Students: Kehley Pfrang (Austria); Caitlin Powell (Australia); Austin Bosse (Ireland); Ryan Baker & Ethan Miller (Czech Republic)
Student Competitions: Next BIG Thing

2009 – 1st, 2nd, 3rd place in product category
2010 – 2nd place in product category
Grain Science Undergraduate Student Enrollment
Fall 1998-2009 (Fall’09: 41%F vs 59%M)

Total = 200

Total = 184
Some of our Outstanding Graduate Students
Grain Science Graduate Student Enrollment - Fall 1998-2009

(F’09: 50%F vs 50%M)

F09 = 45
2009 IGP Accomplishments

• 25 courses conducted at IGP Conf Center
  – 486 course participants
  – from more than 51 countries
GEAPS-KSU Distance Education Program - Participants

- Participants = 600 from 17 countries
- Individuals = 451
- Organizations = 224
- Companies with most enrolled:
  - CGB = 26
  - Cargill = 23
  - The Andersons = 22
  - Bunge / Bunge Milling = 20
- Most courses completed:
  - Jim Rossman, Kokomo Grain Co = 5
Strategic Plan Themes (DRAFT)

1. **Educate** undergraduate and graduate students, and industry professionals.
2. **Conduct innovative basic and applied research**, and **transfer** new technology and knowledge to end users.
3. Offer high-quality **outreach** programs and services to meet domestic and international customer needs and stakeholder expectations.
4. **Recruit**, retain, reward and develop high quality **faculty**, and professional and classified **staff**.
5. Develop, maintain and utilize state-of-the-art **facilities** and equipment.
6. **Broaden funding** base and improve financial stewardship.
GSI Patents Issued

• Since the KSU Research Foundation was started in 1942, the faculty in the GSI Department has accounted for about 24% of patents issued to KSURF
  – 51 out of 217 U.S. Patents
  – our faculty is ~1% of the KSU faculty
• 1st patent issued in 1954 to Miller & Johnson
• most patents issued to Dr. Paul Seib (20)
• IP licensing generates ~$60,000/year for dept
  – most profitable patent generated $400,000 to the dept
# Extramural Funding Support

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<td>$24,476,049</td>
<td>$34,905,715</td>
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Areas of Expertise
Grain & Feed Operations & Processing

Dr. Keith Behnke
Dr. Leland McKinney
Prof. Fred Fairchild
Dr. Sajid Alavi
Dr. Subramanyam Bhadriraju
Dr. Dirk Maier

Feed Manufacturing, Ration Formulation, Extrusion, Petfoods, Aquafeeds, Process Efficiency, Grinding, Mixing, Biorefinery Operation, Identification, Quality, Preservation, Stored Product Protection, Segregation, Marketing, Rapid Analysis, Safety & BioSecurity
Milling & Extraction

Dr. Jeff Gwirtz
Dr. Hulya Dogan
Dr. Ekramul Haque
Prof. Chris Miller
Prof. Huseyin Dogan

Milling, Component Extraction, Purification, Characterization, Dry-fractionation
Cereal & Bakery Sciences

Dr. Jon Faubion
Dr. Rebecca Miller
Prof. Dave Krishock
Dr. Yong-Cheng Shi
Dr. David Wetzel

Biobased Products & Bioenergy

Dr. X. Susan Sun
Dr. Sajid Alavi
Dr. Ron Madl
Dr. Praveen Vadlani

Nonfood Products, Biomaterials, Biopolymers, Enzymes, Fermentation, Extrusion, BioEthanol, Formulation & Prototype Development
Strategic Plan Themes (DRAFT)

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4. Recruit, retain, reward and develop high quality faculty, and professional and classified staff.
5. Develop, maintain and utilize state-of-the-art facilities and equipment.
2009 Wheat Quality Survey Description

- Approximately 120 wheat samples collected from across Kansas
- Elevator managers collect a representative wheat sample of their area
- The samples are evaluated for end-use quality
- Harvest information is made available to domestic and international wheat buyers to promote Kansas wheat
AFIA-KSU Feed Manufacturing Short Courses

AFIA-KSU Feed Manufacturing Distance Education Program
International Center for Grain Industry Operations @ K-State

• **Purpose:** The International Center for Grain Industry Operations will serve as the primary partner to the international grain industry in providing a current, complementary and comprehensive knowledge resource for the world of grain industry operations and processing.

• **Partners:** GEAPS, Grain Handling & Processing Companies, Iowa State University, Purdue University, USDA-ARS CGAHR, AFIA, NAMA, …
Strategic Plan Themes (DRAFT)

1. Educate undergraduate and graduate students, and industry professionals.
2. Conduct innovative basic and applied research, and transfer new technology and knowledge to end users.
3. Offer high-quality outreach programs and services to meet domestic and international customer needs and stakeholder expectations.
4. Recruit, retain, reward and develop high quality faculty, and professional and classified staff.
5. Develop, maintain and utilize state-of-the-art facilities and equipment.
Faculty Retirements (June 2010)

Dr. Ekramul Haque
Professor of
Milling Science & Management

Dr. Keith Behnke
Professor of
Feed Science & Management
Faculty Positions

• 3 open faculty positions were cut to meet 10% FY10 budget cut
  – all three in Cereal Science
• 2 eligible for retirement
• 2 retirements for end of FY10
  – Milling/Grain Science (Haque) ➔ Search Committee established
  – Feed Science (Behnke) ➔ will be replaced by Dr. Leland McKinney
  – Grain/Feed Extension & Research (McKinney) ➔ Exploring targeted hire
• 1 Research Assistant Professor added for FY10 (R. Miller)
• 1 Instructor added to support UG teaching (Hus. Dogan)
• 1 Instructor position re-filled
  – Buhler Instructor of Milling (C. Miller)
    • supports MSM teaching program (70%) and IGP (30%)
• 1 more Instructor needed to fully support MSM program needs

➔ Strategic hiring of 5-7 new Faculty in next 1-5 yrs
Strategic Plan Themes (DRAFT)

1. **Educate** undergraduate and graduate students, and industry professionals.

2. Conduct innovative basic and applied **research**, and **transfer** new technology and knowledge to end users.

3. Offer high-quality **outreach** programs and services to meet domestic and international customer needs and stakeholder expectations.

4. Recruit, retain, reward and develop high quality **faculty**, and professional and classified **staff**.

5. **Develop, maintain and utilize** state-of-the-art **facilities** and equipment.

6. Broaden **funding** base and improve financial stewardship.
GSI North Complex on Kimball Ave

(View from top of East Stadium)
estimated $12.5 million project
- $2 million lead gift by Mr. Ron Kruse
- $0.5 million cash from grain, feed and biofuels industry so far
  - plus >$2.5-3 million in equipment commitments
- Seeking $5 million in NBAF relocation funds from State of Kansas
- Seeking additional $2.5-3 million cash and equipment from domestic and international grain, feed, biofuels and animal nutrition industry and allied trades

Project Timeline:
Summer 2010 – complete fund raising
Oct 2, 2010 – break ground as part of Centennial Celebration
Envisioned GSI North Complex
Strategic Plan Themes (DRAFT)

1. Educate undergraduate and graduate students, and industry professionals.
2. Conduct innovative basic and applied research, and transfer new technology and knowledge to end users.
3. Offer high-quality outreach programs and services to meet domestic and international customer needs and stakeholder expectations.
4. Recruit, retain, reward and develop high quality faculty, and professional and classified staff.
5. Develop, maintain and utilize state-of-the-art facilities and equipment.
Centennial Celebration Initiative

- Increase scholarship support for our students
  - Goal: $50,000
    - $20,000 MSM; $20,000 BSM; $10,000 FSM
- Improve learning environment for our students
  - Goal: $500,000
    - Renovate Shellenberger class rooms (301, 311, WA09)
    - Establish a Student Collaborative Work and Study Area (FT202)
- Establish Two (2) Endowed Faculty Chairs
  - Goal: $5,000,000
    - National funds to support *unique programs* with national impact
    - National funds to supply *future talent* for the grain industry
    - **NEW**: Jim & Carol Brown Endowed Professorship in FSM ($1 million)

Centennial Celebration Weekend – October 1-2, 2010
American Society of Baking

Ben Reusser
Kelsey Fairfield
Jill Kovacic
Carter Wands
### 2009-2010 GSI Undergraduate Student Scholarships

<table>
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<th>Program</th>
<th>#</th>
<th>Amount</th>
<th>Average</th>
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<td>BSM</td>
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<td>$87,825</td>
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<td>MSM</td>
<td>38</td>
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<td>FSM</td>
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<td>$ 803</td>
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<td>121</td>
<td><strong>$175,555</strong></td>
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Faculty Recognition & Sustainability

Dr. Jon Faubion
Charles D. Singleton
Professor of Grain Science & Industry

Dr. Jeff Gwirtz
G.M. Ross Associate Professor of Milling Science & Management

Prof. Dave Krishock
Bakers National Education Foundation Instructor of Baking Science & Management

Prof. Chris Miller
Bühler Instructor of Milling Science & Management
Jim & Carol Brown
Endowed Professorship in
Feed Science & Management

Jim Brown
$1 million Deferred Gift Donor
Clay Center, Kansas
Don Wilbur
Endowed Professorship in
Stored Product Protection

$2.5 million Endowed Gift Target
Joint with Dept of Entomology
NAMA
Endowed Instructor of Milling Science & Management

$2.5 million Endowed Gift Target
Budget Information
Disciplined Action…

- Culture of Discipline
  - Being good stewards of our resources
    - Being effective and efficient
  - Committed to excellence in everything we do
  - Approaching challenges with a can-do attitude
  - Taking advantage of opportunities
  - Thinking **marathon** rather than sprint
  - Consistently delivering what we promise and when

- Operating with academic freedom, collegiality, creative thinking and an entrepreneurial spirit
Disciplined Action…

• The Flywheel
  – No single defining action
  – No one killer innovation
  – No miracle moment
  – No one single person

 ➔ Relentlessly pushing a giant, heavy flywheel in one direction, turn upon turn, building momentum until a point of breakthrough, and beyond
**Strategic Plan Themes (Top Goals)**

1. **Educate** undergraduate and graduate students, and industry professionals
   - increase quantity & quality of UG & graduate students
   - increase out-of-state UG students (Brains for Grains; dist ed courses)
   - strategic dist ed partnerships with industry

2. Conduct innovative basic and applied research, and transfer new technology and knowledge to end users
   - increase grants, contracts & IP royalty income

3. Offer high-quality outreach programs and services to meet domestic and international customer needs and stakeholder expectations
   - build on / expand IGP success
Strategic Plan Themes (Top Goals)

4. Recruit, retain, reward and develop high quality faculty, and professional and classified staff
   – fill 2 open faculty positions ASAP
   – pursue GEAPS Endowed Chair opportunity
   – pursue NAMA Milling Instructor opportunity

5. Develop, maintain and utilize state-of-the-art facilities and equipment
   – get new feed mill/biorefinery built
   – pursue North Complex completion

6. Broaden funding base and improve financial stewardship
   – encourage and support entrepreneurial efforts
“Greatness is largely a matter of conscious choice, and discipline!”
- Jim Collins
“Nothing in the world can take the place of persistence. Talent will not; nothing is more common than unsuccessful men with talent. Genius will not; unrewarded genius is almost a proverb. Education will not; the world is full of educated derelics. Persistence and determination alone are omnipotent. The slogan “Press On” has solved and will always solve the problems of the human race!”

- President Calvin Coolidge
“Leaders & Knowledge for the Global Grain Industry”