Presentation

- #3 in Ag college for amount spent from grants
- Also urban applications
  - Lawn water
- Incoming students come in unbalanced between Ag and Biosystems Engineering
  - After a semester that flips
- Don’t keep all of them
  - Often move to a different ag degree
- Some ME majors moving to these programs

To what do you attribute the jump in grant dollars?

- Strength in biofuels capacity
- National contacts in climatology
- A lot of proposals
  - About 70
- USDA has been funding climate recently
- Water will be a significant issue for the State
- Corn Council will be investing in the future
- What about the water lab
  - Substantial biofuels equipment

Is it joint teaching and research?

- Primarily research
- Currently
  - 10 masters
  - 9 Ph.D.s
- Where would you like to be?
  - Would like to have more Ph.D.s
    - Help with research more

Could you get to a place to have a stand-alone Ph.D.?

- Yes, would like that
- It’s a very flexible degree program
- If got to 20-25 could go stand-alone
• It would be easier to recruit if had a different name
• Do Ph.D. students all get masters first?
  o Yes

Climate grad students
• Have to be creative of what they do with them
• Don’t have enough resources to do more with climate?
  o Maybe if partnered with SDS of M

Challenges with Research/Scholarship?
• Federal money is tighter
• Competition is elevated
• Private foundations are also tighter
• Losing some ground to some competitors
• Because we are in niche areas
  o Do ok in these places
  o Bigger schools aren’t doing this work
• Lab facilities are limited
• Have an entity ready to give us equipment but have no place to put it
• Visited NASA Energy Incubation team
  o Need help to develop large research/teaching proposal to attract them
• Need to diversify funding sources
  o Based on relationships
• International student recruitment
• Do grad assistantships come from grants or base funding?
  o 4 come from Extension with base funding
  o Rest are from grants
• Don’t lay intellectual property claim to senior design

Have a vacancy from a retirement
• Will start search in Fall

How about gender balance?
• Light on female side
• Had 2-3 students graduate in past year
  o Are at top of the job market
What is the relationship with the College of Engineering?
- Tie is to the ABET accreditation
- All engineering curriculum changes go through the College of Engineering
- Is there potential for more interdisciplinary work?
  - Always could be more work to be done
  - On the research side collaborate with other research departments on campus
  - Do you have undergrads participate with research?

Library
- Elsevier journals titles missing
- Key journals missing
- Have to ask colleagues to send them
- Like ILL but run up against limits
- Interface is clunky from Aberdeen through InsideState for online research

Establish research collaborations with other faculty on campus
- Then they leave
- Are there plans to improve faculty recruitment & retention?
  - Salaries aren’t competitive
  - Trying to address this and other issues
- College of Ag is doing a lot of work to get right sized
- Base funding and grants are both competitive
- We’ve tried to improve competitive offers but then we get behind on salaries
- Have tried to improve the workload for faculty
- Also challenged with start-up funds and keeping facilities and equipment up

Dairy Science has been successful turning to industry and developing a Dairy Council
- Other departments may need to do this

State will be putting more money into health care
- This takes money away from other things like extension, etc.
Agricultural & Biosystems Engineering
Food & Bio-Renewable Processing

Agricultural & Biosystems Engineering
Animal Production Systems
General Information

<table>
<thead>
<tr>
<th>Role</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>14</td>
</tr>
<tr>
<td>NFE</td>
<td>6</td>
</tr>
<tr>
<td>Ext. Field Spec.</td>
<td>1</td>
</tr>
<tr>
<td>CSA</td>
<td>4</td>
</tr>
<tr>
<td>GRA</td>
<td>19</td>
</tr>
<tr>
<td>Student Hourly</td>
<td>13</td>
</tr>
<tr>
<td>Visiting Scientist</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>58</strong></td>
</tr>
</tbody>
</table>
General Information
Research

External Funds Actually Spent by Agricultural & Biosystems Engineering Faculty

Total Grant Balance
$2,779,152
General Information
Research

70 Different Projects
Supporting:
9 PhD Students
10 MS Students

Looking Forward
Extension

Livestock Numbers:
Dairy
Beef
Swine
Looking Forward
Extension

Livestock Numbers: Air Quality (inside)

Looking Forward
Extension

Water Management: Tile Drainage

Map data ©2012 Google, INEGI Imagery ©2012 TerraMetrics
Looking Forward
Extension

AN ACT

ENTITLED, An Act to establish the Regional Watershed Advisory Task Force.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF SOUTH DAKOTA:

Section 1. There is hereby established the Regional Watershed Advisory Task Force. The task force shall consist of the following fourteen members:

Looking Forward
Research

Intellectual Property

Sawdust  Crude bio-oil  Catalysts  Upgraded bio-oil  Bio-char
Looking Forward
Research

Intellectual Property

- Gasoline
- Diesel
- Jet Fuel

Sawdust  Crude bio-oil  Catalysts  Upgraded bio-oil  Bio-char

Looking Forward
Research

Intellectual Property

- Soil Amendment
- Water filtration
- High performance battery

Sawdust  Crude bio-oil  Catalysts  Upgraded bio-oil  Bio-char
Looking Forward
Research

Intellectual Property

- Corn Stover
- Switchgrass
- Any cellulose source

Sawdust  Crude bio-oil  Catalysts  Upgraded bio-oil  Bio-char

Looking Forward
Research

Intellectual Property

Combine Fires: Cause & Prevention
Looking Forward
Research

Challenges

Space for additional graduate students to conduct research

Looking Forward
Teaching

Challenge – Increase Undergraduate ABE Enrollment

- Social Media
- Out of State Students
- H.S. Science Teachers
- International Connections in China
Looking Forward
Teaching

Challenge – Increase Undergraduate ABE Enrollment

- Strengthen Industry Connections
- Center for Plant Operations
- Center for Decision Agriculture

Looking Forward
Teaching

Challenge – Increase Undergraduate Enrollment

<table>
<thead>
<tr>
<th>Admitted Freshmen</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>MN</td>
</tr>
<tr>
<td>NE</td>
</tr>
<tr>
<td>SD</td>
</tr>
<tr>
<td>CO</td>
</tr>
<tr>
<td>WI</td>
</tr>
<tr>
<td>IA</td>
</tr>
<tr>
<td>PA</td>
</tr>
<tr>
<td>MI</td>
</tr>
<tr>
<td>MD</td>
</tr>
<tr>
<td>KS</td>
</tr>
<tr>
<td>AZ</td>
</tr>
<tr>
<td>NC</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Looking Forward
Teaching

Do a better job of getting the word out to future students that our program is “hands-on” and well connected to industry.

Questions?
Questions?