



**BIOLOGICAL & AGRICULTURAL
ENGINEERING**
TEXAS A & M UNIVERSITY

Agricultural Systems Management

Biological and Agricultural Engineering

Russell McGee

Overview

- Background
- Curriculum
- Activities
- Careers
- Impact

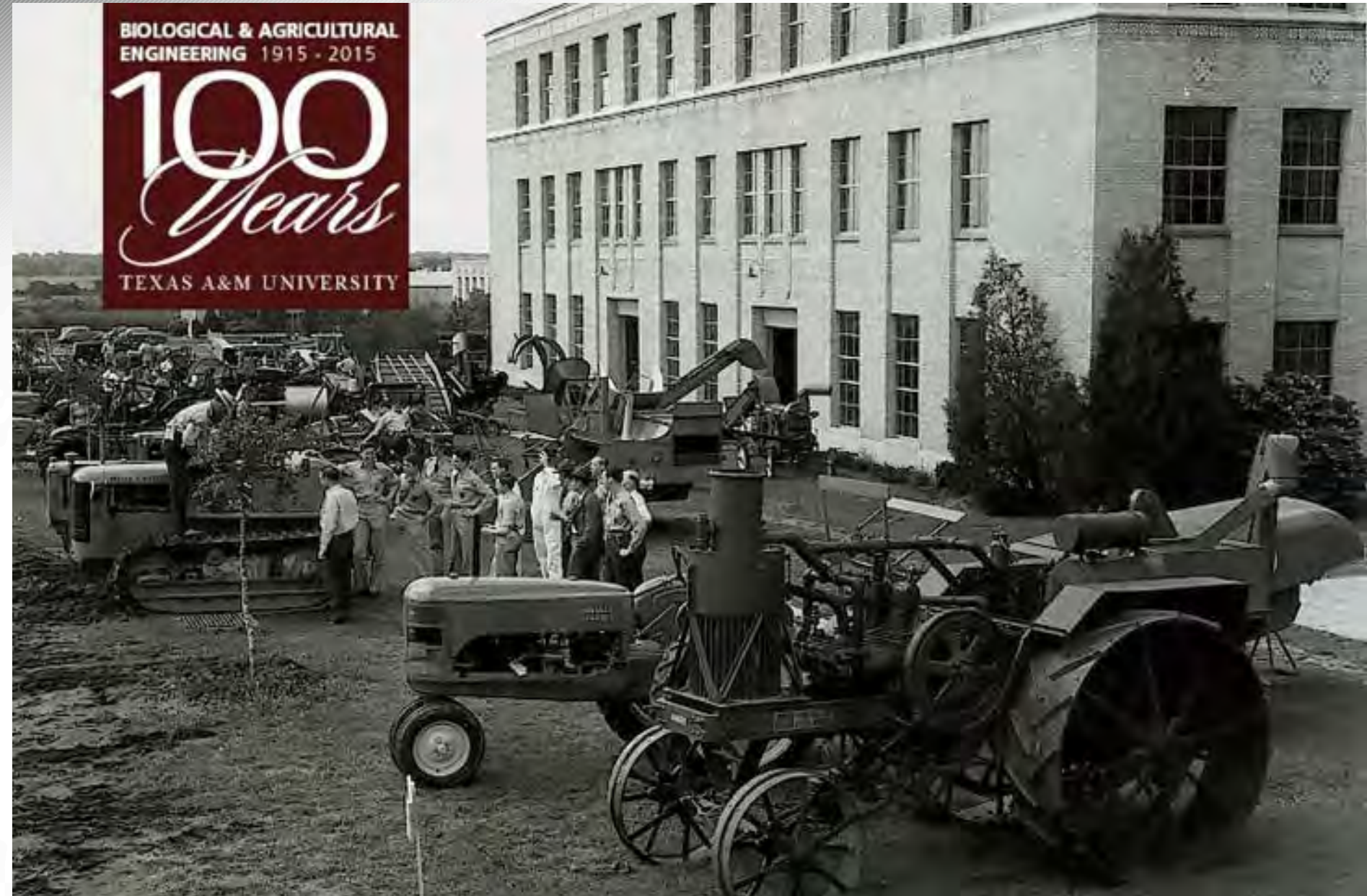




**BIOLOGICAL & AGRICULTURAL
ENGINEERING**
TEXAS A & M UNIVERSITY

Centennial 1915-2015

BIOLOGICAL & AGRICULTURAL
ENGINEERING 1915 - 2015
100
Years
TEXAS A & M UNIVERSITY



One Department, Two Majors

1915

Agricultural Engineering



2003

**Biological and Agricultural
Engineering**

1957

Mechanized Agriculture



1988

Agricultural Systems Management



Curriculum

- AGSM
- BAEN





Bachelor of Science, Core Curriculum (TAMU)

- Communication (6 hrs)
- Mathematics (6 hrs)
- **Life and Physical Sciences (9 hrs)**
- Language, Philosophy, and Culture (3 hrs)
- Creative Arts (3 hrs)
- Social and Behavioral Sciences (3 hrs)
- **American History & Political Science (12 hrs)**
- International and Cultural Diversity (6 hrs)

AGSM Degree Description

Prepare students to manage people, money and machines in the food and agricultural industries.



Typically employed as production or processing operations managers, equipment managers, or technical sales and services.



AGSM: Technical and Business

- Technological courses
 - applications-oriented, practical experience
- Machinery and power systems
- Electrical systems and electronics
- Food processing systems
- Water and natural resource management
- Business courses
 - Accounting, Economics, Marketing, Management, Law, and Finance



Minor in Business

- ISYS 209 Information Systems
- ACCT 209 Survey of Accounting
- MGMT 209 Business Gov't and Society
- MGMT 309 Survey of Management II
- MKTG 409 Principles of Marketing
- FINC 409 Principles of Finance

BAEN Degree Description

- Combination of
 - Traditional engineering design principles
 - Biological sciences
- Applied to
 - machine systems
 - food and fiber production
 - environmental quality
 - biological systems





BAEN: Engineering and Agriculture

- Engineering design of:
 - Fans, hydraulics, motors, conveying systems
 - Automatic sensors, controls, robotics
 - Renewable energy systems
 - Air and Water quality systems
 - Irrigation and drainage of rural landscape
 - Food processing and packaging systems
 - Biological materials and Nanostructures

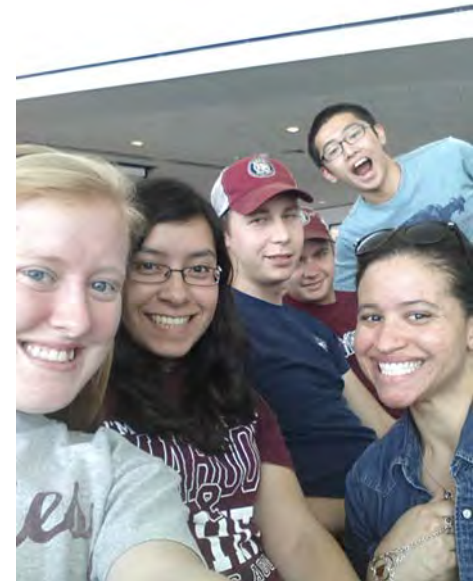


BAEN Areas of Emphasis

- BAEN students may tailor their degree
 - Environmental and Natural Resources
 - Food and Bioprocess engineering
 - Machine Systems
 - Renewable Energy
- Each interest area has its own menu of electives for specialization

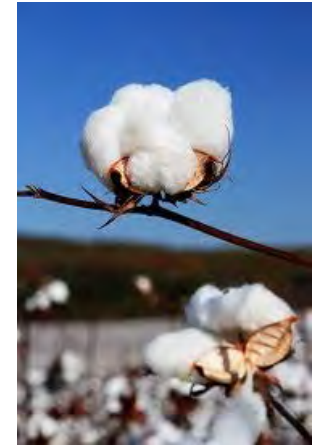
High Impact Learning

- **Internships**
- Undergraduate research
- **Intercultural Learning**
- **ASABE Extracurricular**
- Industry Tours
- **Capstone Course** client interaction



Internships

- Texas Cotton Ginners Association
- Lummus Corporation
- John Deere
- Alamo Group
- Engineering Consulting
- USDA
- TCEQ
- Plus many more



Inter-cultural Opportunities

- Belgium: Summer courses
 - AGSM 335 and 337
 - BAEN 460 and 465
- Mexico Exchange
- TAMU demographics
 - Grad student population
 - Student organizations





Student Clubs

ASABE Student Branch
Aggie Pullers

AGSM Student Club
ASABE Robotics Team



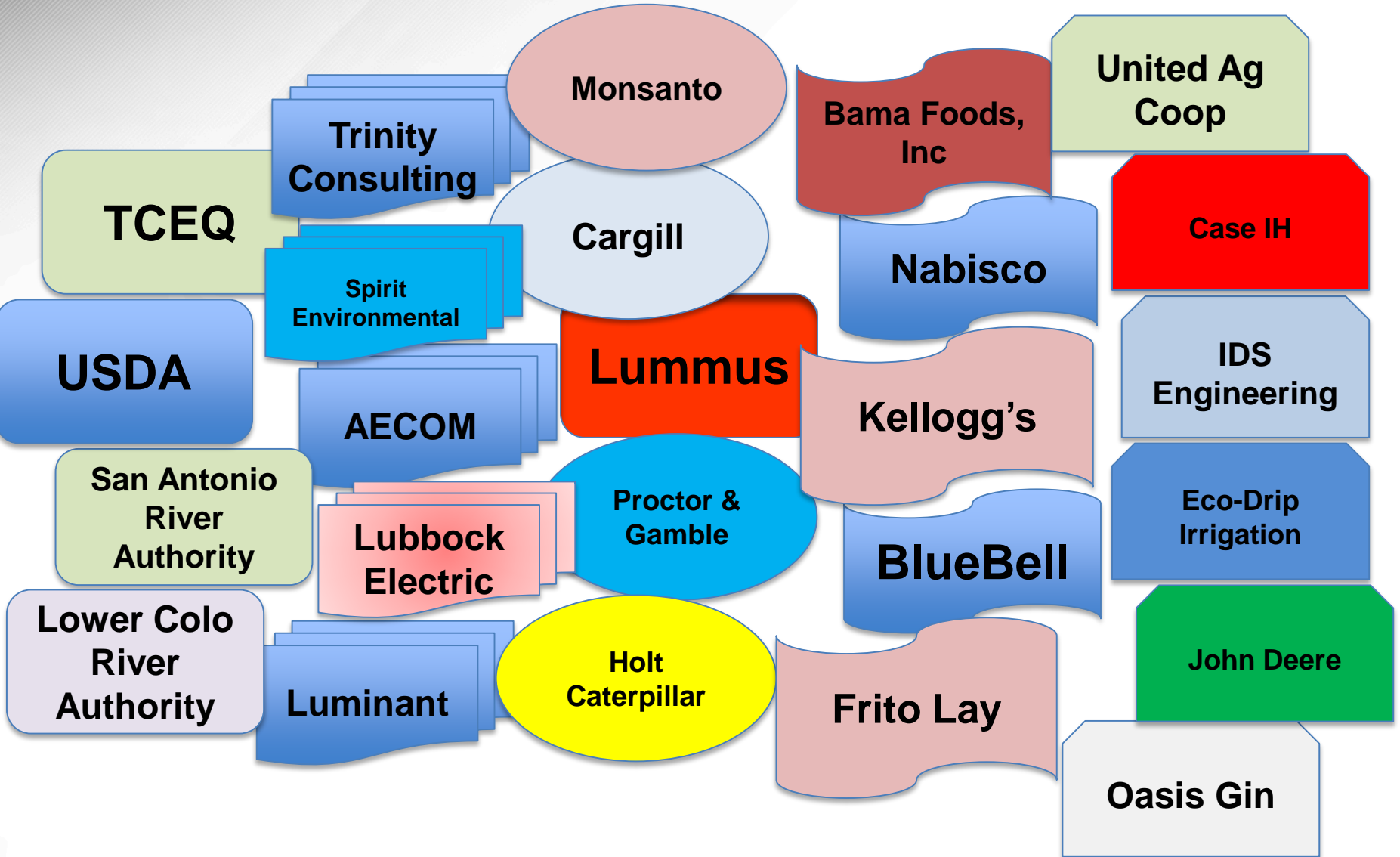
Capstone Course

- Senior year, 2 semester sequence
 - Team project
 - Integrates all coursework
 - Real world problem, with client
 - Progress reports
 - Final Report





Who hires our graduates?



BAEN Employers

- Environmental consulting firms
- Equipment manufacturers
- Crop storage and handling
- Food and feed processing
- Animal production
- Forest products
- Biotechnology
- Electric utility
- Cotton industry
- Chemical companies
- Governmental agencies



AGSM Employers

- Farm and industrial equipment
- Food processing plants
- Cotton gins
- Grain and seed companies
- Livestock feeding operations
- Irrigation companies
- Construction companies
- Manufacturers
- Others who need technical managers





AGSM Recent grad



- Texas Cotton Ginners Association internship
- Hired by United Ag Co-op, El Campo
 - Manager, Hiljee Elevator
 - 3.5M Bu, 12-15 employees, \$350K in repairs and modifications
 - Asst Manager, Hiljee Gin
 - \$400K in upgrades, air quality modifications
 - Reduced downtime installing 2nd fan on lint cleaner system



Undergraduate Advising

- Ms. Ashlea Schroeder, Undergraduate Advising
- Ms. Stormy Kretzchmar, High Impact Practices
- Dr. Patti Smith, BAEN Program Coordinator
- Mr. Russell McGee, AGSM Program Coordinator



Student feedback

- “My favorite was all the **hands-on labs...**”
- “The instructor was **helpful and cared** if I learned the material...”
- “ I liked working with a **real client...**”



- “They treated me like a **real person...**”
- “ I liked the **real-world application** and problem solving...”



Summary

- **One Department, two Majors**
 - Biological and Agricultural Engineering (BAEN)
 - Agricultural Systems Management (AGSM)
- **“Hands on” Curriculum**
 - BAEN: Engineering with Ag application
 - AGSM: Technical with Business application
- **High Impact Learning**
 - Student Clubs
 - Internships
 - Intercultural Opportunities
- **High Employability**
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<http://baen.tamu.edu>