

# Iowa State University

## Agricultural Education and Studies 450 Farm Case Study

### Agricultural Education and Studies 450 Farm Mission Statement

The mission of the Agricultural Education and Studies (AGEDS) 450 Farm is to be a practical educational resource for Iowa State University and the Department of Agricultural Education and Studies demonstrating quality and sustainable production agriculture typically found in the Midwestern region of the United States. To achieve this mission, the following objectives have been articulated for the farm and class:

- to function as a student-managed farm management laboratory for students enrolled in AGEDS 450
- to be a self-supporting agricultural production entity
- to be engaged in practical and economical Midwestern production agriculture
- to develop an agricultural farming system (crops and livestock) that use farming resources (land, labor, and capital) efficiently and effectively
- to efficiently and competitively produce and market quality agricultural products
- to implement agricultural production technologies that maintain economic efficiency, agricultural sustainability, and complement cropping and livestock production activities
- to provide exposure of production agriculture to the public

### Background on the AGEDS 450 Farm

The AGEDS 450 Farm is experiential learning facility located approximately 4 miles south of the Iowa State University campus at 52097 - 260th St. Ames, IA 50011. The AGEDS 450 Farm is a 100% student-managed laboratory farm designed to support the classroom and laboratory activities of the AGEDS 450 course entitled *Farm Management and Operation*. In 1938, Dr. William Murray, Professor of Economics at Iowa State University developed the concept of the AGEDS 450 Farm. A 187-acre farm was purchased in 1942. The first class was taught, and the first crop planted in 1943. The first livestock included several bred gilts, a team of mules, and chickens. The first tractor was purchased in 1950. Later, the farm expanded and specialized in corn, soybeans, and swine production.

### AGEDS 450 Farm Production and Marketing Goals

The following production and marketing goals were developed by AGEDS 450 students. The AGEDS 450 students have the ability to evaluate, update, and alter the production and marketing goals as the landscape of agriculture evolves.

- Farming operations will be profitable 3 out of 5 years
- Three-fourths of all products marketed will be sold at a price that exceeds the average price received for those products in Iowa for that given marketing year crop yields will be above the average yield for Story County, Iowa
- Soil losses shall not exceed the soil loss guidelines for soil types found on the farm as prescribed by the Natural Resource Conservation Service
- All the crops produced will be within the top five crops produced in Iowa based upon crop acreages reported by the Iowa Crop and Livestock Reporting Service
- All the livestock produced will be within the top five livestock enterprises based upon the number sold by Iowa farmers as reported by the Iowa Crop and Livestock Reporting Service
- Livestock enterprises shall complement the cropping enterprise and contribute as value added production to the farm and utilize existing and proposed livestock buildings and facilities
- Livestock production efficiency factors will be above the average as reported by the Iowa State University Extension Service and its livestock enterprise record analysis programs
- Profits from the farm shall be retained within the farm and used to make farm improvements, acquire additional land, and upgrade equipment and facilities

**Land**

The farm currently consists of 275 acres of cropland owned and 350 acres on a cash rent or crop share arrangement. Approximately 1200-3000 acres are custom farmed for other Iowa State University farms. Custom farming is defined as providing labor and machinery services in exchange for payment. Custom machinery operations include spring and fall tillage (field cultivating and disk ripping) as well as planting corn and soybeans. Custom acres farmed vary from year to year, depending on the needs of the Iowa State University farms.

**Buildings**

<b>Structure</b>	<b>Features/Size/Capacity</b>
Classroom complex	Computer lab, farm office, kitchen, restroom, and shower (capacity 25 persons)
Farm operator's residence	Two-car garage (36' X 24')
Farm shop and machinery building	44' X 120'
Machinery shed	50' X 72'
Hog finishing building	41' X 280' (Capacity of 1200 feeder pigs)
Converted gestation barn	32' X 96' (Capacity of 400 feeder pigs)
Swine nursery	20' X 64' (Capacity of 400 nursery pigs)
Low profile machine shed	20' X 112'
Grain bin	18' diameter X 24' high (4500-bushel capacity)
Grain drying bin	27' diameter X 21' high (7500-bushel capacity)
Grain drying bin	30' diameter X 18' high (10,000-bushel capacity)
Grain bin	48' diameter X 29' high (50,000-bushel capacity)
Grain drying facility	12,000 bushel 'wet storage' capacity
Compost building	24' X 26'
Grain leg building	16' X 10' for truck storage

**Significant changes since 2013**

1. The instructional format of AGEDS 450 was changed from traditional teaching methods to Team-Based Learning (TBL) in the 2015-2016 era. TBL is now utilized as the primary instructional method for the AGEDS 450 course.
2. The roof on the converted gestation barn (32' X 96') was replaced in the summer of 2018.
3. Several repairs were completed on the swine finishing building (41' X 280') in the summer of 2019 and fall of 2019. These repairs included new curtains, two new 11-ton bulk feed bins, and other internal mechanical and equipment related repairs.
4. In the spring/summer of 2019, repairs and improvements were made in the Farm Operator's residence. These repairs and upgrades include remodel of downstairs restroom, new flooring in upstairs restroom, new heating, ventilation, and air conditioning (HVAC), and new septic pump.
5. A dirt pad/building site was added, just east of the current classroom. This pad could be utilized for a new classroom and shop combination facility. This pad is approximately 80 X 200'.
6. New grain drying facility including a wet storage bin (12,000 bushels) was added in 2015.

**About the AGEDS 450 Course**

Course Title: Farm Management and Operation

Credit: 3 semester hours

Prerequisites: Economics 235 (Introduction to Agricultural Markets)

Economics 230 (Farm Business Management)

Junior Classification

Repeatability: May be taken 3 times for credit (Fall, Spring, and Summer)

## Course Description

The AGEDS 450 farm is a 100% student-managed farming operation consisting of corn, soybeans, and swine production. The AGEDS 450 farm provides an opportunity for students to practice developing skills related to farm management and operation. During the semester, students are tasked with making business decisions related to the farming operation. To assist in the decision making and management process, students are broken into a committee structure (customs and swine, crops, public relations, machinery, finance and marketing, and buildings and grounds). Each committee works to identify challenges and develop solutions related to their specific area of the farming operation.

Principles learned in previous classes are applied to the management of the AGEDS 450 Farm. Class time is used for clarifying lectures, class discussions, committee work/reports, business meetings, guest speakers, and individual reports. The on-farm laboratory provides an opportunity to preform farm management and develop operational skills. The emphasis will be on planning, problem solving, decision-making, and implementing decisions of the class.

## Instructional Strategies

One instructional strategy utilized in the AGEDS 450 class is Team-Based Learning (TBL). TBL is designed to allow students collaborate together in teams (typically 5-6 students) to complete exams, work on content-related application activities, solve problems, and make decisions. Students are able to leverage the diverse set of skills and expertise of each team member to their advantage while working together.

Experiential Learning is also utilized as an instructional strategy in the AGEDS 450 class. During the semester, all students are required to identify a 4-hour activity related to farm management and operations. Once their activity is identified, students then plan the activity, physically complete the activity, and finally, reflect on their experience. Some of the most popular activities selected by students include but are not limited to operating farm machinery, welding, operating agriculture technology (autosteer and mapping systems), woodworking and building design, developing grain marketing plans, working with livestock, and developing financial statements.

## Course Outcomes

By participating in the AGEDS 450 capstone course, students will be able to:

- Apply prior technical content knowledge and skills of production and financial management, marketing and human relations to the daily operation and long-term strategic management of an agricultural business, namely the AGEDS 450 Farm.

This purpose will be accomplished by focusing on the five components of a capstone course:

- **Teamwork-** Be able to develop consensus building skills within small and large groups of student managers with diverse backgrounds to reach a common goal.
- **Problem Solving-** Utilize holistic approaches to solve complex problems.
- **Critical Thinking-** Apply mastery of context-specific knowledge to evaluate specific beliefs, claims, and actions.
- **Communication-** Develop and apply written and oral communication skills consistent with industry standards.
- **Decision Making-** Apply the six-step decision-making process in financial and production management settings in small and large groups of students.

## Course Objectives

1. Identify and utilize common decision-making styles to make management decisions for the AGEDS 450 Farm.

2. Determine and utilize the steps in strategic planning within the committee structure of the course to meet the overall mission of the AGEDS 450 Farm.
3. Develop long-term and short-term specific, measurable, attainable, relevant, and timely goals that support the mission of the AGEDS 450 Farm.
4. Identify areas of risk and develop and implement a risk management plan within the committee structure that protects the mission of the AGEDS 450 Farm.
5. Identify and prioritize the critical management factors affecting the AGEDS 450 Farm and apply them to the operational and strategic decision making of the farm.
6. Develop and analyze the financial documents needed to manage the AGEDS 450 Farm.
7. Analyze, recommend, and implement appropriate marketing strategies for commodities produced by the AGEDS 450 farm.
8. Analyze, recommend, and implement appropriate maintenance and repair of all buildings, grounds, machinery and equipment used to operate the AGEDS 450 Farm.
9. Evaluate, recommend, and implement action regarding all custom operations of the AGEDS 450 Farm.
10. Evaluate and implement a plan to publicize the efforts of the AGEDS 450 Farm to the AGEDS department, the College of Agriculture and Life Sciences, Iowa State University and the general public.
11. Communicate effectively utilizing appropriate written, oral, visual and electronic (WOVE) communication with peers, instructors, vendors and the general public.
12. Identify and utilize teamwork in interdisciplinary problems that impact the management of the AGEDS 450 Farm.
13. Demonstrate leadership competencies through participation in a team-based committee structure and weekly business meetings utilizing parliamentary procedure.

### Contact Information

**Skyler P. Rinker, Ph.D.**

Assistant Teaching Professor  
Professor-in-Charge, AGEDS 450 Farm  
Iowa State University

Email: [srinker@iastate.edu](mailto:srinker@iastate.edu)

**Michael S. Retallick, Ph.D.**

Professor and  
Department Chair  
Iowa State University

Email: [msr@iastate.edu](mailto:msr@iastate.edu)

Department of Agricultural Education and Studies  
513 Farm House Lane  
0201 Curtiss Hall  
Ames, Iowa 50011 USA  
Ph: (515) 294-5872

Department of Agricultural Education and Studies Website  
<https://www.ageds.iastate.edu/>

Agricultural Education and Studies 450 Farm Website  
<https://www.ag450farm.iastate.edu/>