

An Update of the History of the Ag 450 Farm at Iowa State University 1980–2016

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Authors' note: In 1983, an ISU thesis "Student management and history of the Ag 450 Farm at Iowa State University" was written. This article updates the history of the ISU Ag 450 Farm using the same headings and updating the tables. Each of the authors served as instructors for Ag 450 and that experience significantly impacted their careers in agriculture and higher education.

Introduction

Since 1943, the Ag 450 Farm has been an ISU teaching farm managed by students enrolled in an undergraduate course, the AgEdS 450 (Ag 450) Farm Management and Operation. The term "Ag 450" refers to both the class and the farm at ISU, unless specified. The formation, beginnings, and original purpose of Ag 450 are covered in the 1983 thesis.

The story of Ag 450 is primarily a story of learners in a real-time agricultural setting. Ag 450 is a vibrant group of learners including the students, instructors, and farm operators, all involved in the learning process of farm management in action with a real farm, real situations, real weather, real markets, and real personalities.

Organization of Ag 450. Key to Ag 450 is the student decision-making process, which has continued from the beginning of the class to the present. The structure of the class in

making decisions has been built around committees that report to the whole class to make decisions. Recently, the class size has grown to over 50 students per semester. In order to accommodate the larger classes, a revisited organization or structure of Ag 450 using learning teams has been employed.

The importance of small group work, solving problems, analyzing farm data, and making decisions as vital factors in farm management instruction was expounded by founding instructor W. G. Murray. The importance of these aspects is supported in frameworks for capstone courses. Larry Trede, former instructor, was interested in specific experiential learning activities contained within the Ag 450 Farm. He concluded that course graduates regarded teamwork, group decision-making skills, exchanging ideas, and being responsible for their own learning as beneficial to them in their first professional position.

Currently, AgEdS 450 meets three times weekly. The entire class meets each Tuesday at an on-campus classroom for two hours. The lab portion, which meets on the farm each Wednesday and Thursday, is four hours in length. Half of the students are enrolled in the Wednesday lab, and the other half are enrolled in the Thursday lab. During the first class meeting, students are assigned to learning teams consisting of five to seven students. The majority of class time is spent making decisions and applying course content to the living laboratory—the Ag 450 Farm.

The advent of email, cell phones, and social media have allowed the students to readily communicate outside of class. This

technology has enhanced student interaction and generally benefited the Ag 450 learning experience.

Instructors. The role of Ag 450 instructors continues to be the coordinator of team learning. The instructor's responsibility is to create the structure and environment for learning to occur in groups or teams and to keep the learning on schedule. This role has not changed since the beginning of Ag 450, however, each instructor has a unique personality and a somewhat distinctive approach. A current list of all past Ag 450 instructors is shown in Table 1.

The instructor also must forge a close working relationship with the farm operator. This relationship should be a positive, high trust bond and understanding to allow the students to question and to make decisions during the course. Then, the instructor and operator must maintain the Ag 450 Farm business during the breaks and startup periods.

The change to semesters from the quarter system in the early 1980s benefited Ag 450 because the students' time in the class increased from 12 to 16 weeks.

The Ag Studies Department and the Farm Operation curriculum merged with the Agricultural Education Department in 1989 to form the Agricultural Education and Studies Department. Since that time, the Ag 450 instructors have had a field of expertise primarily in agricultural education, which is a departure from the past where instructors came from a variety of agricultural disciplines.

Graduate students have played a major role with Ag 450. At times, the instructor was a graduate student. At other times, graduate students assisted the instructor with the class.

University relationship. The Ag 450 Farm operates much like a private business. Since 1981, Ag 450 has operated with a checking account for purchasing, which is independent of ISU regulations. Ag 450 Farm has their own insurance and accounting. Also, Ag 450 has an ISU revolving account to pay salary and benefits and intramural expenses. The account is reimbursed by the Ag 450 checking account. Ag 450 also works with the ISU Treasurer's office for short term credit. This overall arrangement has worked well to bring realism to the class while keeping Ag 450 under the ISU umbrella.

Outreach. In the past, field days were used to keep the students in touch with the farm after they had finished the course. This important task is now primarily met with email, a website, elections newsletters, and active advocacy campaigns via popular social media platforms (e.g., Facebook, Twitter, and Instagram). Feedback from previous students also is utilized in directing the content and structure of the course. Field days are no longer held at the Ag 450 except for special anniversaries. For example, on the 60th anniversary in 2003, a celebration was held at the Ag450 Farm with speakers and tours. Speakers included Dean of Agriculture, Catherine Wotecki, and the Ag 450 Farm student coordinator, Scott Snider. A similar event was held in 1993 at the 50th anniversary of Ag 450.

The Ag 450 Farm/class has been featured extensively in the agricultural press including Wallace's Farmer, Iowa Farmer Today, and IPTV's Market-to-Market. The students also host numerous visitors and farm tour groups.

Farm operators. The farm operator is a critical position for the Ag 450 program to succeed. Frequently, the farm operator is not only the continuity for the operation with regularly changing student management, but

also the informal spokesman and informal teacher for the students. Since 1992, the Ag 450 Farm has been fortunate to have Greg Vogel as farm operator. Mr. Vogel fully appreciates the Ag 450 learning process and under his care the farm has flourished. Table 2 shows the Ag 450 Farm operators and their tenure.

Student farm work. Ag 450 students carry out physical activities involved in operating a farm as well as required hours to get acquainted with the course. In the past, students were required to spend eight hours outside of class time working at the farm to become familiar with previous decisions and general farm policies. Now, students are required to complete ten additional hours outside of class time to fulfill that same expectation.

Ag 450 Farm. The Ag 450 Farm continues to be a reflection of the students' decisions as well as their education and the technology of the times. It also continues to be the "composite of the ideas of many people" involved with the course. Somewhat remarkably, the Ag 450 Farm has flourished.

Currently the Ag 450 Farm has a net worth of \$4.5 million compared with \$1 million in 1981, which is a 450 percent increase in 35 years or about 13 percent growth in net worth annually. The Ag 450 Farm improvements are shown in Table 3.

Since 1981, the Ag 450 Farm "owned" land has increased to 284 acres consisting of the "Home Farm" 146 acres, the "Annex" 46 acres, the "Brooks Farm" 51 acres, and the "Ringgenberg Farm" 39 acres. The Brooks Farm was purchased in 1984 and is about a mile west of the Home Farm. The Ringgenberg Farm was acquired in 2009 and is contiguous with the Home Farm to the north. Ag 450 was able to acquire the Brooks

and Ringgenberg Farms by purchase and trade, respectively.

Ag 450 has rented cropland from the nearby ISU Research Park, ISU Research Farms, and the ISU Animal Resource Station. Ag 450 also has done extensive custom field work for ISU Research Farms and ISU-affiliate Committee for Agricultural Development (CAD). Crop production now is solely corn and soybeans. In 2016, Ag 450 had approximately 600 acres of corn and soybeans. This compares with about 170 acres of corn in the late 1970s and early 1980s. In addition, the Ag 450 Farm performed about 800 acres of custom field operations for ISU and CAD.

Livestock. Production in the late 1970s and early 1980s focused on a farrow-to-finish swine operation that marketed about 1,000 pigs annually. In 2006, the class voted (16-yes and 15-no) to sell the sow herd and started custom feeding feeder pigs in 2007 with Swine Graphics. The Ag 450 Farm currently markets approximately 5,200 market hogs annually.

Also, in the years since 1981, the Ag 450 Farm sold their beef cow herd and discontinued feeding beef cattle. Swine is currently the Ag 450 Farm's sole livestock enterprise.

Conclusion

Ag 450 is unique to Iowa State and a similar course is not known. The "one true test of education is in its application; in Ag 450, the application is in the decision-making process." Applying management principles has been a focus of the Ag 450 course since its inception, and the burden of success or failure in making such decisions rests upon the shoulders of the students.

Table 1. Ag 450 instructors.

Years	Instructor	Field
1943-1944	W. G. Murray	Agricultural Economics
1944-1949 ^a	J. M. (Milt) Holcomb	Agricultural Education
1947-1950	A. T. (Alf) Odegaard	Agricultural Education
1950 ^b	L. M. Thompson	Agronomy
1950-1951	S. K. (Ken) Oakleaf	Agricultural Economics
1951-1954	Robert L. Skinner	Animal Science
1954-1965 ^c	J. J. Wallace and J. L. (Jack) Alexander	Agricultural Economics Agricultural Economics
1966-1969	Neil Patrick	Agricultural Economics
1969-1970 ^d	Philip Gibson	Agricultural Economics
1971-1974 ^d	Dale Weber	Animal Science
1974-1976	J. L. (Jack) Alexander	Agricultural Economics
1976-1977	L. Craig Harris	Agricultural Economics
1977-1980	Ronald J. Herr	Agricultural Economics
1980-1984 ^d	Mark S. Honeyman	Animal Science
1984-1987	Stewart Galloway	Animal Science
1987-1988	Randy Madden	Agronomy
1988-1989	Joe Dunn	Animal Science
1989-1991	Richard (Rich) Hall	Agricultural Education/Animal Science
1992-1995	W. Wade Miller	Agricultural Education
1996-2004	Larry D. Trede	Agricultural Economics
2004-2007	Charles R. Steiner	Agricultural Education
2007-2008	Tyler Schau	Agricultural Education
2008-2013	Thomas H. Paulsen	Agricultural Education
2013-2014	Dustin Perry	Agricultural Education
2014-2016	Andrew (OP) McCubbins	Agricultural Education
2016	Greg Vogel	Agricultural Education
2017-	Robert Frutchey	Agricultural Education

^aIn 1948 and 1949, two classes of Ag 450 were offered on two separate farms with two instructors.

^bL. M. Thompson taught Ag 450 for a short time in 1950 prior to S. K. Oakleaf and was responsible for the farm in 1951 prior to R. L. Skinner. At that time, L. M. Thompson was professor-in-charge of Farm Operation curriculum.

^cFrom 1954 through 1965, J. J. Wallace and J. L. Alexander shared teaching responsibilities of Ag 450. Wallace taught some quarters and Alexander taught others. They also managed the Iowa State University Agricultural Foundation farms.

^dInstructors who had been enrolled in Ag 450 as undergraduates.

Table 2. Ag 450 Farm operators.

Years	Operator
1943-1951	Roy Picht
1951	Charles Perdue
1951-1952	Lloyd Olson
1952-1956	Hugo Plant
1956	Don Cox
1957-1973	Boyd Brink
1974-1975	Ricky Bozwell
1975-1977	Steven Legvold
1977	Michael Christensen ^a
1981-1985	William Connolly ^{a,b}
1985-1990	Bruce Knoke
1990-1992	Craig Taylor
1992-	Greg Vogel

^aOperators who had been enrolled in Ag 450 as undergraduate students.

^bRoger Leininger was a second farm employee from 1984 to 2003 followed by part-time employment until 2016.

Table 3. Improvements to the Ag 450 Farm.

Year	Improvement
1959	Farm house
1964	Cattle shed
1965	Swine shed
1966-1967	Four-bin grain system with grain leg, 18,000 bu capacity (remodeled 1971 to add grain dump)
1970	Ten-ton scale and livestock handling facility
1970	Pole machine shed, 44 ft x 60 ft
1973	Concrete stave silo, 18 ft x 60 ft
1974	Cargill swine growing and finishing unit
1977	Farrowing house, 22 stalls
1978	Nursery addition to farrowing house, 200 head
1983	City of Ames water brought to farm
1984	Used grain bin, 10,000 bu
1986	Feed mix mill and shed (used until 2003)
1987	Classroom building
1988	Machine shed 50 ft x 72 ft
1993	Open front livestock building
1993	Six used grain bins, 18,000 bu total
1995	Double garage added to residence
1995	Wireless internet antenna on leg
1995	Barn fire (total loss)
1996	Nursery (400 head capacity)
1996	Remodel farrowing house (32 stalls)
1997	Swine finishing unit (1,200 head capacity)
1997	Cargill swine unit razed
2003	Remodeled open front livestock building (see 1993) into confinement gestation unit
2003	Computer lab and office added to classroom (see 1987)
2007	Remodel gestation unit (see 2003) to finishing unit (360 head capacity)
2007	Grain bin (50,000 bu capacity)
2009	Addition to machine shed (44 ft x 60 ft)
2009	College shop
2014	Removed cattle shed
2015	Continuous flow grain dryer and grain bin (12,000 bu capacity)