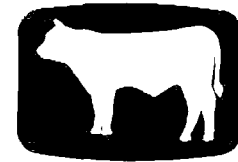


# Teaching Beef Production:

## *"Different Strokes For Different Folks"*



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### Introduction

We now have students of a different kind majoring in agriculture. A recent survey of animal science students at the University of Missouri College of Agriculture showed that 45 percent of the freshman class was female and over 50 percent indicated they were from a small town or urban background. Also, over 50 percent indicated no experience with either 4-H or FHA. Approximately 64 percent of the students indicated that less than 25 percent of their family's income was from agriculture. With respect to beef cattle, 54 percent indicated considerable interest in beef cattle, yet over 64 percent indicated little experience with that species.

Surveys in the Beef Production and Management Course the last five years have shown that 35-40 percent of the students taking the course have very little or no experience with beef cattle. A summary of a skills survey, shown in Table 1, indicates the level of experience of students in the course.

Students realize they need experience before completing their degree; and most are willing to work at getting the experience, as evidenced by the formation of a club "Students for Practical Agriculture" at UMC. This group was formed to attempt to give students more "hands-on" experience in the practical arts of agriculture.

The challenge to provide practical experience is ours as teachers and is greatest in production and management courses. Students without experience indicate that they do not understand terminology and have difficulties relating to production practices. For example, it is difficult to discuss factors influencing weaning weight of calves when a high percentage of the students do not know what creep feeding is. Yet students who have farm experience often lose interest in class if too much material geared to non-farm students is covered.

This article discusses some of the approaches used at UMC to allow each student in Beef Production and Management to be exposed to new and challenging material.

### Discussion

The Beef Production and Management class at UMC is a three-hour senior course with prerequisites of nutrition and genetics. It consists of two hours of lecture and a two-hour lab each week.

The first day in class is spent characterizing the student. A survey form is used to determine the background and the area of interest of the student. Information derived includes years farm experience, years

beef experience, previous courses related to beef production, level of experience at various skills, type of beef cattle operations interested in, breed preferences and also expectations of the course.

**Division of Labs.** The information is then used to categorize the students into two or three experience levels. The number of levels is dependent upon number of teaching assistants available and availability of cattle for use in lab, although the key factor is range of variation in the class. The students are initially divided into two groups. If the "experienced" group contains a large number (25-30 percent) of students with experience in all areas of beef production who will probably work with beef cattle upon graduation and have a strong academic background, then a third group is set up for those students.

**Term Projects.** Special projects are used almost every semester. These vary from farm plans to term papers. Farm plans have three different options and are assigned according to the interest of the student. The first is simply a cow-calf operation. It can be purebred or com-

Table 1. Skills Survey Summary

Skills	Percentage*				
	1	2	3	4	5
Caught or haltered	11	10	12	26	40
Roped	11	36	19	30	12
Restrained mechanically	3	11	11	17	57
Led or driven	3	11	2	20	63
Trimmed for show	36	29	16	11	8
Exhibited at show	25	36	10	15	12
Determined age by teeth	27	33	20	15	3
Tattooed ear	25	17	17	22	16
Ear tagged	11	13	16	16	44
Branded	31	36	11	13	11
Castrated (knife)	16	13	31	18	23
Castrated (other)	33	21	19	10	15
Trimmed hooves	27	28	19	16	11
Injections (intramuscular)	3	11	16	15	55
Injections (other)	11	11	17	17	43
Implanted	36	18	16	16	15
Drenched	33	20	16	16	15
Given boluses	26	15	8	18	34
Dehorned	26	26	29	11	10
Helped at parturition	16	7	16	21	40
Helped young nurse	16	7	11	21	42
Milked cow	8	8	8	33	44
Pregnancy tested	18	28	38	10	6
Artificially inseminated	26	33	23	11	7
Treated pinkeye	16	6	4	23	36

\* Approximate percentage of students checking skill level

1- never seen demonstrated

2- seen demonstrated

3- helped but never performed skill

4- performed once or twice

5- feel competent in skill

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mercial. If the commercial option is chosen it can include crossbreeding. A second is a cow-calf operation with backgrounding or cattle feeding flexibility. The use of a crossbreeding system is required. The third program is again a cow-calf operation but with emphasis on a cattle feeding component, with crossbreeding required and artificial insemination encouraged.

In the event that farm plans are not required, other special projects are set up, again dependent upon the experience and interest of the student. Examples of projects that have been used are as follows:

- 1) Classification of purebred cow herd. One semester a group of students evaluated the Angus herd. They set up a visual classification system and scored all the cows, studied the performance records and progeny records, and categorized each animal as elite, average, or cull classification. They then studied the Angus sire evaluation information and chose bulls to use on each of the cows.
- 2) Options for weaned calves. One group of students interested in commercial cow-calf production used the spring calf crop to evaluate options in the fall for managing the calves after weaning. They scored the calves using the new feeder grades and then tried to determine the best management system for the calves. This included feeding programs with projected market weights and dates, with a complete budget.
- 3) Routine management practices. A group of less experienced students spent several lab periods at the farm observing, performing, and discussing daily management practices. This included estrus detection, palpation of pregnant and open cows, helping deliver calves, restraining cattle, and other skills.
- 4) Microcomputer utilization in selection programs. Students were required visually to score cows and calves at weaning. They were then given performance records on the cows and told to cull a certain percent. The performance records then were put on a microcomputer program, and a program which permitted the student to use several different selection indices was written.
- 5) Term papers. Adequate time and cattle have been lacking during a couple of semesters (particularly during the winter). The alternative to special projects was a paper written to give the student more detailed information on a given subject. This approach is used only as a last resort.

**Ghost Herds.** An approach used early in the course, and later discarded because of time required, was to give each student a "herd" of cows. With the availability of microcomputers, the ghost herds may be used again. Each student for a herd of 50 cows with complete performance in-

formation and raw data on a current calf crop. The herd was used in lab exercises for students to calculate performance data (adjusted 205 day weight, adjusted 365 day weight, ratios, frame scores, MPPA's, and expected genetic progress). In addition, year round feeding programs were established and rations formulated for the herd. This approach gives the lab exercises a sense of reality and allows the students to think through the exercises rather than simply go through the mathematics. The type of herd is determined by the term project chosen so the lab exercises become part of the farm plan.

**Mock Show and Sale.** The most popular lab component of the course has been a mock show and sale. Cattle, usually freshly weaned calves, are brought into the UMC Livestock Center for two weeks. The less experienced students are assigned a calf with two people to an animal. Their responsibility is to break the calf to lead and prepare it for show. The experienced students are divided into three groups. One group puts on the show by setting up classes and getting judges. Another group puts together a catalogue, and the third group manages the sale which includes sale order, ringmen, and other arrangements.

This event serves as a learning exercise, but more importantly it gives the students a great deal of confidence in working with animals and accepting responsibility. It is interesting to watch the students take the halter of the calf for the first time and then see them two weeks later when they enter the ring for the show. It is sometimes a toss-up to determine who has learned the most — the student or the calf. This approach can be used as an alternative to the actual sales conducted at some schools.

**Practical Skills.** Approximately one third of the labs are held at the Beef Cattle Farm. Although UMC does not have a defined teaching herd, there are usually cattle available for ear tagging, tattooing, and branding. Students are divided into their respective groups at the farm. The less experienced students might ear tag and tattoo calves while the more experienced students freeze-brand cattle. The less experienced students might use cattle handling equipment while the more experienced students discuss details of research in progress.

### Summary

Enrollment in the College of Agriculture at the University of Missouri-Columbia includes a high percentage of students without farm experience. Students in the Beef Production and Management class at UMC are divided into lab groups based on experience and interest.

Activities are set up for the students according to that grouping. The activities include farm plans structured for each group, use of ghost herds in lab exercises, and a mock show and sale. Special activities such as classification of cattle according to visual and performance standards, studying management options with a group of weaned calves, and performance of routine management skills are also used for the specific group.