The key constructed by my class is as follows:

1. Letter containing no curved strokes...2
1a. Letter containing at least one curved stroke...6
2. Uppermost portion of letter consisting of a horizontal stroke...3
2a. Uppermost portion of letter consisting of vertical or diagonal strokes...5
3. Letter containing three horizontal strokes...E
3a. Letter containing two horizontal strokes...4
4. Lowermost part of letter a horizontal stroke...I
4a. Lowermost part of letter a vertical stroke...F
5. Uppermost portion of letter consisting of two vertical, parallel strokes...H
5a. Uppermost portion of letter consisting of two diagonal, intersecting strokes...A
6. Letter completely surrounding one or more spaces...7
6a. Letter not completely surrounding a space, all interior portions of letter being continuous with surrounding area...8
7. One curved stroke and one vertical stroke enclosing one interior space...D
7a. Two curved strokes and one vertical stroke enclosing two interior spaces...B
8. Open part of letter facing to the right; each stroke either entirely straight or entirely curved...9
8a. Open part of the letter facing to the upper left; a single stroke partially curved and partially straight...J
9. A single curved stroke...C
9a. A curved stroke combined with two straight strokes...G

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TEACHING METHOD REPORT

Improving Swine Farrowing Instruction

Roger D. Walker

Introduction

The farrowing process in swine is vitally important to the profit-loss picture in a swine operation. It is certainly worthwhile to save as many pigs as possible at farrowing, and agricultural educators who deal with the subject must convey the proper procedures in handling the sow and litter during this crucial period.

Students should be instructed in methods of handling the baby pigs at birth, such as, resuscitation, delivery assistance, treating the navel, cross-fostering, providing heat and making sure that the pigs receive colostrum and establish a teat order. In addition, proper handling of the sow must be covered.

Few would argue that the best way to teach swine farrowing practices is to allow a hands-on approach. Many post-secondary schools follow this approach and attest to the value of allowing students to observe and take part in the farrowing process.

Walker is an assistant professor of Animal Science at the University of Minnesota Technical College, Waseca, MN.

Previous Farrowing Instruction Method

We at the University of Minnesota Technical College, Waseca, also follow the hands-on approach to teaching farrowing techniques, however, the method of instruction has recently been altered to improve its efficiency. Students in swine production at UMW are divided into groups and each group is assigned the responsibility of caring for a sow and her litter. Their charge is to prepare the farrowing room, clean the sow for entry into the farrowing crate, feed the sow, clean the crate daily and watch for evidence of impending parturition. When parturition is imminent, students are to be prepared to assist the sow during farrowing.

Previously, if a group was lucky, its sow farrowed during the daytime and most group members could attend, however, more than likely, the sow would farrow at night and into the wee hours of the morning and bleary eyed students would assist her in shifts, not all of them seeing what was going on. Educational efficiency was lacking, but there was nothing that could be done to change the course of natural farrowing.

Prostaglandins

The legalization of prostaglandins for swine has allowed us much greater freedom in the scheduling of farrowing. Prostaglandins are naturally occurring substances that provide for several vital functions in animals. One prostaglandin, F_2-alpha, has a luteolytic effect on female reproduction and is used in several species to synchronize estrous. This allows several females to be bred at the same time and provides for better utilization of time and facilities at parturition. Prostaglandin F_2-alpha is commercially marketed under the name Lutalyse® by Upjohn.

The use of Lutalyse® for estrous synchronization in swine has not been very effective. However, the drug has proven to be extremely reliable in the termination of pregnancy in swine when injected at day 110 or later in the approximately 114 day gestation period. This allows swine producers with good breeding records to effectively group farrowings, thus providing for better efficiency in building use, time management, cross-fostering capabilities, reducing baby pig mortality, more uniform litters and ultimately in rebreeding the sows because they are on a more uniform reproduction cycle.

All of this is very worthwhile to most swine producers and provides for some graphic examples in an educational setting. However, the foremost benefit to education is that students can more readily attend farrowings when Lutalyse® is used. Hence, a more efficient and effective setting is produced for the classroom.

Prostaglandin Based Instruction Method

With the availability of Lutalyse® for swine, the swine farrowing laboratory at UMW is much better organized. Farrowing is not left to chance, more students are able to attend and certain procedures are explained better because there are more baby pigs

available in a shorter time. For example, cross-fostering of pigs could only be covered in a limited way before. Now, with all litters at approximately the same age, large and small litter sizes can be equalized. Also, with all litters being born at the same time, more students can observe the reviving of the occasional pig that needs assistance. Or more students can have a chance to deal with the problem sow, or perhaps realign or pull a pig when the need arises. The students' responsibilities before and after farrowing have not changed, however, Lutalyse® allows for a more intense farrowing instruction.

Conclusion

The benefits of planned farrowing by using prostaglandins are readily evident for the swine producer and should be discussed fully in the swine production course. However, what the student may not realize is that by using prostaglandins in the swine laboratory, he or she receives a much more detailed education in swine farrowing. The procedure has certainly benefited students and instructors at UMW.

ANALYSIS

Job Placement and Career Advancement of Ag Graduates

Joe T. Davis, Lori E. Garkovich and Loys L. Mather

Introduction

Undergraduate education in agriculture has undergone numerous changes over the years in response to the ever changing nature of the agricultural sector. Universities have responded to these changes by revising curricula, developing new methods of delivery, and addition of new programs designed to better prepare graduates for their role in the work force. The forecast is for even more change in the agricultural sector in the future. Johnson and Wittwer have indicated that the changes projected in the next fifty years will require substantial increase in the use of highly skilled farm workers, entrepreneurs, civil servants and research scientists in both the public and private sectors. It is projected that overall annual demand for college graduates with expertise in the food and agricultural sciences will exceed the available supply by 13 percent during the 1980's (National Association of State Universities and Land-Grant Colleges, 1983).

Among the purposes of undergraduate education is one to prepare students for productive roles in the agricultural sector. This training is expected to culminate in the student's securing a job in the area in which they have been trained. However, we in the University community often lose track of the development and career patterns of our students after they receive their undergraduate degrees. We are often unaware of the contribution of our training to the student's acquisition of a job or career advancement. Moreover, we are not aware of the career changes which occur over subsequent years. As a result, our assessment of how our curricula contribute to the career success of our students is grounded in how we think the work world functions as opposed to how those involved experience it.

This article reports on a survey conducted by the University of Kentucky College of Agriculture's Curriculum Review Committee. The survey was a means of involving our former students in an evaluation of the undergraduate curriculum. The survey was a means of better understanding the nature of employment for which we prepare our students and eliciting their views on how successful we have been in preparing them for entry into and advancement in their career.

The Survey and the Sample

A mail survey was conducted of the graduates of the University of Kentucky College of Agriculture. The survey was sent to approximately 2000 members of the College of Agriculture's Alumni Association. The single round of mailings produced a sample of 457, for a response rate of 23 percent. The sample is composed primarily of males (85%), with the most recent group of graduates having the largest number of women respondents (28%). Three quarters of the total sample are employed full time, yet this ranges from a low of 21 percent among those who graduated prior to 1943, to a high of 97% among those who graduated between 1974 and 1978.

Table 1: Distribution of Respondents by Year of Graduation and Undergraduate Major

	Pre 1944	1944-1953	1954-1963	1964-1973	1974-1978	1979-1983	All Years
Respondents	74	68	63	80	72	100	457
Major				Percent of Total			
Ag. Economics	10.9	13.2	20.6	22.5	20.8	25.0	19.3
Ag. Education	13.5	20.6	20.6	8.8	12.5	10.0	13.8
Ag. Engineering	—	—	—	5.0	2.8	2.0	1.8
Agronomy	12.1	17.7	12.7	11.3	12.5	15.0	13.6
Animal Sci.	37.8	32.4	23.8	40.0	25.0	12.0	27.8
Food Sci.	—	1.5	—	—	1.4	4.0	1.3
Forestry	—	—	—	3.8	5.6	5.0	2.6
Home Economics	18.9	10.3	14.3	5.0	1.4	0	7.7
Horticulture	2.7	1.5	3.2	1.3	8.3	9.0	4.6
Prod. Agriculture	1.4	—	—	—	8.3	8.0	3.3

Davis and Mather are associate professors of Agricultural Economics and Garkovich is associate professor of Sociology at the University of Kentucky.