# STUDENT INVOLVEMENT IN TEACHING SELECTED LESSONS OF BEEF CATTLE PRODUCTION

by

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To his wife, Sherry, the author expresses his appreciation for her patience, understanding and encouragement.

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# CHAPTER I

## INTRODUCTION

The basic rationale of this study was that teachers of Vocational Agriculture must strive to keep their class presentations up to date and their students interested. The purpose of this report was to (1) provide the teachers of Vocational Agriculture in Kansas with a procedure for causing student involvement in the teaching of beef cattle selection, feeding, slaughtering, and carcass evaluation; (2) involve students with beef cattle selection, feeding, slaughtering, and carcass evaluation; (3) compare the change of scores of the students in a pre and post test exercise which was developed by the author of this report to measure general beef cattle knowledge; and (4) to demonstrate to students the "New Look" in slaughter beef cattle production.

It was the general plan, of this study, to involve students in the purchase and study of four steer calves of different physical type. The classroom study of the calves was not particularly emphasized. Normal, routine class presentations were held, including lessons which had no relevance to the specific cattle themselves. The study of the cattle was carried throughout the school year, beginning on their purchase date, and all livestock lessons concerning beef selection, feeding, slaughtering and carcass evaluation

were related to the four steer calves.

## I. LIMITATIONS

Variables which were considered as having an effect on the accuracy of this data are: (1) The Hawthorn effect. Although the students were not told they were being studied until after the post test; it was assumed that some knowledge of the nature of the activity was present. (2) Although the measurements of the four steer carcasses are detailed, the measurements were not intended to be a major factor on the pre and post test scores. The detailed data collection was considered to be a logical climax to insure the students' involvement in carcass evaluation. (3) It was realized that any junior students' test score may have been effected by the fact that although essentially the same lessons in slaughter beef production were taught one year earlier, without live cattle, students would have used the information in varying amounts depending on their home background. No method was developed to determine how much the material was used, therefore, it was impossible to consider student retention of the slaughter beef cattle instruction.

## II. ASSUMPTIONS

It was assumed in this study that: (1) interclass discussions did take place. It was further assumed to be

impossible, under field conditions, to prevent the intermingling of human friends; (2) all subjects had received no advance notice of either the pre or post test; (3) some students would have a better background and, therefore, might tend to score higher on the pre and post test; (4) all subjects in the test group were of the same average ability as the other group since the entire Vocational Agriculture class was used in both groups.

## III. DEFINITION OF TERMS

Certain terms used in this study were set aside for special definition. The definitions used may or may not have been those in common usage at the time of the study.

"New Look". For the purposes of this study the term "New Look" was considered to refer to slaughter beef cattle which were longer, larger, firm finished, somewhat more upstanding and contained a high percentage of muscle. The older opposing viewpoint was one which generally consider the correct kind of slaughter beef cattle to be low set, short coupled, mellow finished and short legged.

Hawthorn effect. For the purposes of this study the term "Hawthorn effect" was used to describe the tendency for subjects to react more favorably in a situation in which they realize they are part of an experiment.

Cutability. For the purposes of this study, cutability was defined as the amount of retail cuts which come from the chuck, rib, loin, and round on a carcass.

Yield grade. For the purposes of this study, yield grade was defined as the U. S. D. A. grade assigned to carcasses which designates a number of 1, 2, 3, 4, or 5. The lower number indicated a carcass of higher cutability.

## CHAPTER II

## REVIEW OF SELECTED RELATED LITERATURE

As a part of the preliminary planning stage of the study a review of related literature was made in the Winfield High School agricultural library and the personal library of the author of this report. The objective of the review of literature made for this study was to determine how necessary it was for high school students to learn about present demands for slaughter beef.

No studies were found which compared or discussed methods and results of teaching the "New Look" in beef cattle to high school students.

Certain articles were selected which had some relationship to the central theme of the study and herein reviewed.

The need for educators, who were involved in training future beef production personnel, to be up to date was clearly pointed out by Harold F. Crow, an Ohio grocery chain buyer, when in April, 1962, he answered the question, What do retailers want? He said, "A well proportioned carcass yielding at least 78 per cent marketable meat in retail cuts." He further stated, "Many choice cattle we are forced to buy have show type characteristics--too much emphasis on highly finished cattle, full of guts and fat. A pound of

fat costs you more to put on than a pound of lean too."[1]

The necessity of this type of training for students was strengthened by the statement made by Professor Harlon Ritchie of Michigan State University when he told a meat conference in 1967 that, "If a judging team were to base their decision on five year old standards, they would not fare very well in today's contests."[2]

Dr. Harold J. Tuma had said, "The future for beef depends on production of a quality product."[3] Dr. Tuma[4] listed two other reasons for producing a high quality, meaty steer: (1) Packers are now breaking cattle into wholesale cuts. In addition to breaking, they are trimming these wholesale cuts to a constant outside fat cover and removing excess bone, and (2) Packers are beginning to break cattle into trimmed, oven-ready or retail cuts. This indicated the packers readiness to pay a premium price for the high quality beef carcass.

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[1]"What's New for Beef," Successful Farming Magazine, Vol. 60, No. 4 (April, 1962), p. 17.

[2]"A New Look at Judging," The National Future Farmer, Vol. 16, No. 1 (October-November, 1967), 56-57.

[3]Harold J. Tuma, "Beef Quality for the Future," The Kansas Agricultural Situation, Vol. 44, No. 12 (May, 1968), p. 4.

[4]Harold J. Tuma, "Beef Packers Making Big Changes," The Drovers Journal (May 23, 1968).

One beef producer, Ben Davidson,[5] has indicated that higher prices for quality beef are being paid. He pointed out that it is fairly common for buyers to bid a dollar less per hundredweight for heavy cattle sold for the dressed market than for lighter carcasses. He said, "When it costs quite a bit more to produce a heavier carcass and then get penalized a cent a pound for it, it's easy to figure the heavier cattle can show a loss of ten dollars or more per head when comparing feeding the same cattle to lighter weights."

One individual packing company has deemed the necessity of repraising the slaughter beef outlook quite important. This particular company completed tests in 1967 which used five hundred yearling steers on a feeder selection research program.[6] The purpose of this research was to determine how effectively feeder steers could be selected for cutability.

In the study, selections were made and different groups were separated. The researchers found that a higher percentage of the carcasses which received a low yield grade were from the group expected to have a higher cutability. This would indicate that with training, cattle could be selected for cutability.

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[5]Less Barton, "They Feed for Market Demand," National Livestock Producer, Vol. 46, No. 2 (December, 1967), 11.

[6]"Feeder Selection for Yield Works for Them," The Drover Journal, (October 5, 1967).

## CHAPTER III

## PROCEDURE

At the outset of the study, a personal loan was secured by the teacher of Vocational Agriculture for the purpose of buying the calves and feed. The borrowed money was the personal business of the teacher and students were not necessarily aware of that fact. Prospective buyers of cut-up, packaged and frozen beef were selected and a total of nine different people agreed to purchase the processed meat. All meat was sold by the side with two people sharing one of the sides. The preliminary measure of selling the meat, by oral contract, was deemed necessary to insure being able to pay the personal loan against both the calves and feed for them.

One sophomore student agreed to keep and care for the animals on his home farm. It was necessary to secure permission from the boys' parents, who also agreed to take care of the cattle when the boy could not. The cattle were fed on a self feeder so actual time spent by the student was held to a minimum.

A pre test was developed by the teacher and administered to the sophomore class prior to the day the cattle were delivered to the cooperating student's farm. The test was designed to obtain a score relative to the individual students general beef knowledge concerning selection terms,

selection factors, slaughter terms, livestock feeding, feeder cattle grades, slaughter cattle grades, carcass evaluation and retail beef cut prices. It was assumed, by the teacher, that it would be necessary for the student to be well versed in feeder and slaughter cattle production if he were to expect a score of 60 or above out of 100 possible points. Individual pre test scores for the sophomore group were given in Table I (Appendix). A comparison of the pre and post test scores for the sophomores and juniors was given in Figures 1 and 2 (Appendix). A copy of the test used for both pre and post exercises was assigned to the first seven pages of the appendix.

The Junior Class of Vocational Agriculture were pre tested five days after the sophomore group. It was decided by the teacher to give the Junior Class the same pre test one day later than the sophomores, however, an ice storm caused most of the Junior Class to be absent from school and since the entire class of both groups was used, the test was postponed. The pre test given the Junior Class was identical to the one given the sophomores. Both the pre and post tests were administered to both groups during a regular two hour class period. In no case did the test require over one hour to complete. The purpose of testing the class of Junior students was to compare, with the sophomores, the scores of a group of students who had received essentially the same

instruction one year previously without being involved with live cattle. Individual scores for the Junior group were given in Table II (Appendix).

The cattle were selected and purchased from a local farmer. They were weighed on a local elevator scales and delivered to the farm of the cooperating sophomore where they were placed on feed consisting of milo and alfalfa pellets. It was desirable to attempt to keep actual feed costs low due to the factor of borrowed capital. It was noted that because the cattle were to be used to teach differences between different types of calves, the final selection, of the calves, was made by the teacher. It was desirable to have student reaction and ideas, but the final selection of the calves purchased was not the decision of the students.

At the outset, each steer was given a letter and name designation. A verbal description of each steer was developed by the teacher.

Steer A, Red Neck, was a rangy calf which was long and evidenced a considerable amount of growthiness and natural muscling. In addition, he was an upstanding calf which was not particularly wide as viewed from the front or rear.

Steer B, Roman Nose, was a shallow bodied calf that was particularly heavy in the brisket. He was very upstanding and high in the rear flank. When viewed from the rear, this calf evidenced the narrowest rear quarter of any steer involved

in the study. He was narrow down the top and displayed a lack of natural muscling.

Steer C, Sneaky, was a blocky calf which was believed by the teacher to be very muscular and meaty. This steer displayed more natural balance and depth than any steer in the study.

Steer D, Horned, was the fattest calf of the study when purchased. He displayed a considerable amount of wastiness in the throat and middle. This calf evidenced no particular natural thickness due to muscling.

During the ensuing 139 total days, which is the number of days between the pre and post test, and 96 teaching days, two days out of every week were associated with shop work. The total days which were then available for livestock lessons was fifty-eight.

Regular livestock lessons were taught with no particular emphasis placed on additional method. All livestock lessons, however, when applicable, were associated with the four calves employed for this study.

General livestock lessons were planned, by the teacher, around the following major headings:

(1) Beef selection

(2) Feeds and feeding of beef cattle

(3) Beef slaughtering

(4) Beef carcass evaluation

(5) Meats identification

(6) Beef carcass cutup

(7) Beef wrapping and freezing

(8) Retail prices of retail cuts.

The details of the above lessons were not included as a part of this report because local conditions and needs will require each teacher to develop his own schedule and lessons.

At the end of seventy-eight days on feed, calves B and C were slaughtered. One day later calves A and D were slaughtered. The particular slaughter date for each calf was developed and determined by the teacher to facilitate a close comparison between the different types of steers by the students.

Each calf was viewed by the students prior to slaughter and a cattle estimate sheet was completed by each student. The sheet developed for this purpose was shown in Figure 3 (Appendix).

The calves were slaughtered, by the students, in the Winfield High School meats laboratory under the direct supervision of the teacher of Vocational Agriculture. A sheet was developed to record data at slaughter time. This sheet is shown in Figure 4 (Appendix).

Photographs were developed showing the slaughter of the cattle and during the ageing process each carcass was photographed showing different views. The first picture was

a dorsal view of the two sides being held together by students. The second was taken of the two sides together showing the internal area of the carcass. The third was taken of the two sides together showing the external area of the carcass. After ribbing each carcass, photographs were taken of each rib eye. During carcass cutup, a photograph comparison of one T-bone steak from each carcass was made. Final pictures showing a comparison of fat trim, hamburger amounts, and bone trim were taken. All measurements were completed when possible, before photographing the subject so that signs showing measurements could be included.

Near the end of the ageing process, the rib eye of each carcass was exposed and students were given a chance to evaluate each carcass. At this time, Animal Husbandry personnel from Kansas State University were used to determine official carcass data measurements. The carcass date sheet for recording this data is shown in Figure 5 (Appendix).

Each carcass was cutup by using essentially the same procedure. Since students completed all of the cutup work, it was assumed by the teacher that some variation would be expected. All carcass cutup was completed under the direct supervision of the teacher of Vocational Agriculture. Complete weights of all wholesale cuts were recorded. The sheet for recording wholesale cuts weight data is shown in Figure 6 (Appendix).

A general cattle information sheet was developed, by the teacher, to aid in the record keeping process. The sheet used for recording general cattle information is shown in Figure 7 (Appendix).

A sheet was developed, by the teacher, to aid in the recording of all feeds data. The sheet used for this data collection is shown in Figure 8 (Appendix).

To complete the carcass evaluation, each sophomore student studied the computed percentages of the total cold carcass weight represented by each wholesale cut. Also included in this study of the carcass was the price per pound of each retail cut coming from a particular wholesale cut area, and the total value of the total weight of the retail cuts from that particular wholesale cut area. The sheet developed by the teacher for recording the wholesale cuts value data is shown in Figure 9 (Appendix).

A financial statement of cattle was developed for each calf by the teacher to aid in the recording of final financial data. The sheet used for recording the data is shown in Figure 10 (Appendix).

# CHAPTER IV

## FINDINGS

The purposes of this study were to (1) provide the teachers of Vocational Agriculture in Kansas with a procedure for obtaining student involvement in the teaching of beef cattle selection, feeding, slaughtering and carcass evaluation; (2) to involve students with beef cattle selection, feeding, slaughtering and carcass evaluation; (3) compare the change of scores of the students in a pre and post test exercise which was developed by the teacher to measure general beef knowledge; and (4) to demonstrate to students the "New Look" in slaughter beef cattle production.

It was found that by following the procedure of this paper, student involvement could be achieved when teaching beef cattle selection, feeding, slaughtering, and carcass evaluation.

A comparison of the pre and post test mean scores of sixteen sophomore Vocational Agriculture students, at Winfield High School, showed a difference of 27.06 points higher out of a possible 100 points. It was observed that the mean score on the pre test was 45.0 points out of 100 points possible, and the mean score on the post test was 72.06 points out of a possible 100 points.

It was observed that during the same period of time

twelve members of the Junior class of Vocational Agriculture students, who had received essentially the same instruction one year previously without the involvement of the live cattle, showed a difference in their mean score, on an identical test, of 2.83 points higher out of a possible 100 points possible. The mean score on the pre test for the Junior group was 53.50. On the post test the mean score was 56.33.

## I. RECOMMENDATIONS

It is recommended that a follow up study be made to determine what the mean score would be on the sophomore group after one year had passed since their instruction involving live cattle.

It was recommended that if any teacher should decide to use this procedure for causing student involvement in teaching beef lessons; that teacher should decide what and when each selected area of slaughter beef production should be taught so that it will fit his particular needs.

It was observed that the same procedure could be used if a cooperating farmer would allow the marking of cattle in his private feed lot. The cattle could possibly be observed in a public slaughtering facility, if careful planning was exercised. This would enable the school without meats processing facilities to conduct this demonstration.

It was also recommended that if possible, all money

used for steer and feed purchase should come from the accounts of the local school.

The purpose of the study was reviewed and compared with the findings. It was found that the purpose of the study was accomplished by: sending the procedure of this study to the State Supervisor of Vocational Education in Agriculture, and by submitting the procedure for publication in a national magazine for teachers of Vocational Agriculture; observing and recording a score on an objective test; subjectively observing student reaction to the slides taken of the live cattle and their carcasses.

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# APPENDIX

Vocational Agriculture 11
Test Over Beef Selection

Name _____

1. (14 Points)

Which of the following terms designate "the best" when considering steers sold as feeder cattle ready for the full feed lot. Write True if the term designated "the best".

_____ Beefier

_____ More Beef Type

_____ Shorter Coupled

_____ Heavier Muscled

_____ More Compact

_____ Lower Set

_____ Shorter Legged

_____ Blockier

_____ Deeper

_____ Typier

_____ Long Bodied

_____ Upstanding

_____ Short Neck

_____ Wide Top

2. (6 Points)

If you were to select feeder calves weighing about 700 pounds, which one of each pair of factors is the <u>most important to consider</u>? Write A or B.

____ A. General Appearance B. Weaning Weight

____ A. General Appearance B. Performance Record of Dam

____ A. Thickness B. Fat Covering

____ A. Larger Frame B. Compact Size

____ A. Muscling B. Short Coupled

____ A. Heavy Middle B. Longer Legged

3. (15 Points)

Which of the following terms designate "the best" when considering steers sold to packers as fat market cattle. Write true if the term designates "the best".

_____ Short

_____ Blocky

_____ Meatier

_____ Stretchier

_____ More Compact

_____ Thicker

_____ Shorter Legged

_____ Shallow Bodied

_____ Mellow

_____ Trimmer Middle

_____ Firmer Finish

_____ Correctly Finished

_____ Very Fat

_____ Wasty Brisket

_____ Heavy Muscled

Vocational Agriculture 11
Test Over Beef Selection Name _____

4. (12 Points)

___ Thin beef cattle used for wintering on roughage and summering on pasture are called (a) Feeders (b) Stockers (c) Baby Beef (d) Steer Calves.

___ Which class of market cattle, (a) Feeders (or) (b) Stockers is ready for a grain fattening ration?

___ Beef cattle that are being fed all the feed that they can eat without waste are on what kind of "feed". (a) Starting (b) Full (c) Part (d) Complete.

___ Should a farmer buy his cattle for fattening in the (a) Fall or (b) Spring.

___ The primary purpose of a well fed carcass of beef is to provide (a) Fat (b) Offal (c) Meat (d) Steamed Bone Meal.

___ Should the rear flank of a good beef animal be (a) High or (b) Low.

___ The highest priced cuts of meat on the beef animal are found on what part of the carcass? (a) Loin (b) Rib (c) Round (d) Plate.

___ Scattered lumps of fat on the well fed beef animal are called (a) Patchiness (b) Firm Finish (c) Correct Finish (d) Under Finish

___ Should the flesh of a well finished beef animal be (a) Firm or (b) Flabby.

___ Does the fat cattle market always stay about the same? (a) Yes (b) No.

___ At the present time which kind of cattle sell the best? (a) Prime Fat Cattle (b) Choice Fat Cattle (c) Good Fat Cattle (d) Standard Fat Cattle.

___ Beef type refers to which of the following.
(a) The breed of animal with which you are working.
(b) An ideal combining all the characteristics which contribute to the animals usefulness for a special purpose.
(c) The factors such as health, pedigree, and performance records which tell the worth of an animal for sale purposes.

Vocational Agriculture 11
Test Over Beef Selection

Name _____

5. (10 Points)

Match the following.

| | | | |
|---|---|---|---|
| ____ | Roughage | a. | Protein |
| ____ | Growth | b. | Miligrams |
| ____ | Concentrate | c. | 20# ration per day |
| ____ | Fattening | d. | Market weight |
| ____ | Vitamin | e. | Diethylstilbestrol |
| ____ | Free Choice | f. | Therms |
| ____ | Urea | g. | Silage |
| ____ | Hormone | h. | Slaughter grade |
| ____ | Choice | i. | A |
| ____ | 1,000 | j. | Salt |
| | | k. | Milo |
| | | l. | Protein Supplement |

6. (8 Points)

List in order the slaughter grades of steers.

_____

_____

_____

_____

_____

_____

_____

_____

Vocational Agriculture 11
Test Over Beef Selection Name _____

7. (6 Points)

List in order the grades for feeder cattle.

_____

_____

_____

_____

_____

_____

8. (10 Points)

Fill in the blank with the correct answer. What percentage of the total carcass weight is found in the following areas?

Round _____

Loin _____

Flank _____

Rump _____

Chuck _____

Rib _____

Brisket _____

Foreshank _____

Short Plate _____

Kidney Knob _____

Vocational Agriculture 11
Test Over Beef Selection Name _____

9. (2 Points)

The hindquarters represent approximately ____% of the carcass value.
The forequarters represent approximately ____% of the carcass value.

10. (2 Points)

___ Which steer, A or B, as described below, would have the greatest dressing per cent?

Steer A . . . A small steer being compact and low set with considerable fat.
Steer B . . . A larger framed, larger boned steer being trim and higher in the flank.

___ Which steer, A or B, as described below, will probably get fat quicker?

Steer A . . . A low set, short coupled, compact steer.
Steer B . . . A taller steer, being longer and stretchier throughout.

11. (4 Points)

On the average only ____% of the live weight in a steer is beef, the balance being by-products or waste.

The average yield, or dressing per cent, for the prime grade is ____%.

The average yield, or dressing per cent, for the choice grade is ____%.

The average yield, or dressing per cent, for the good grade is ____%.

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Test Over Beef Selection

Name _____

12. (11 Points)

What is the retail price of each of the retail cuts of beef listed below. Your answer will be counted correct if you are within 2¢ either way.

_____ Round Steak

_____ Sirloin Tip Roast

_____ Sirloin Steak

_____ Hamburger

_____ Arm Pot Roast

_____ Rib Roast

_____ T-Bone Steak

_____ Blade Pot Roast

_____ Rump Roast

_____ Stew Meat

_____ Rib Steak

TABLE I

THE INDIVIDUAL PRE-TEST SCORES FOR SOPHOMORES

| Name | Score (possible 100 points) |
|---|---|
| Mike B. | 53 |
| Bradd | 52 |
| Bruce | 49 |
| Tom | 45 |
| Steve K. | 37 |
| Mike I. | 47 |
| David K. | 42 |
| Calvin | 46 |
| Mark | 51 |
| David R. | 38 |
| Floyd | 34 |
| Roger | 41 |
| Steve T. | 45 |
| Kenneth | 37 |
| Rex | 48 |
| Rick | 55 |
| | Mean Score = 45.00 |

TABLE II

THE INDIVIDUAL PRE-TEST SCORES FOR JUNIORS

| Name | Score (possible 100 points) |
|---|---|
| Terry | 48 |
| Gregg | 65 |
| Eric | 43 |
| Kendal | 70 |
| Eddie | 36 |
| Steve | 62 |
| Keith | 44 |
| Marty | 45 |
| Mickey | 47 |
| Max | 52 |
| Doug | 59 |
| Dean | 61 |
| | Mean Score = 53.50 |

TABLE III

THE INDIVIDUAL POST-TEST SCORES FOR SOPHOMORES

| Name | Score (possible 100 points) |
|---|---|
| Mike B. | 79 |
| Bradd | 76 |
| Bruce | 88 |
| Tom | 81 |
| Steve K. | 66 |
| Mike I. | 83 |
| David K. | 66 |
| Calvin | 81 |
| Mark | 74 |
| David R. | 56 |
| Floyd | 62 |
| Roger | 62 |
| Steve T. | 55 |
| Kenneth | 63 |
| Rex | 79 |
| Rick | 82 |
| | Mean Score = 72.06 |

TABLE IV

THE INDIVIDUAL POST-TEST SCORES FOR JUNIORS

| Name | Score (possible 100 points) |
|---|---|
| Terry | 45 |
| Gregg | 63 |
| Eric | 45 |
| Kendal | 70 |
| Eddie | 56 |
| Steve | 76 |
| Keith | 44 |
| Marty | 45 |
| Mickey | 49 |
| Max | 67 |
| Doug | 56 |
| Dean | 60 |
| | Mean Score = 56.33 |

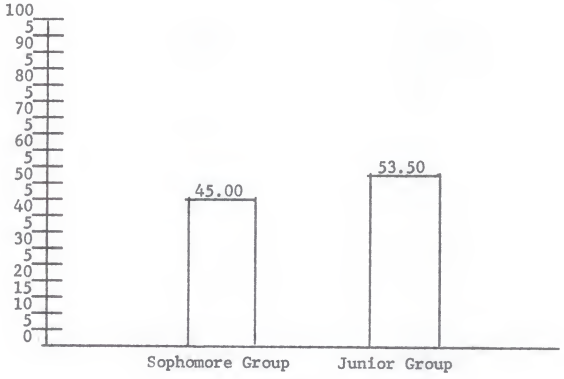


FIGURE 1

A COMPARISON OF AVERAGE PRE-TEST SCORES
FOR THE SOPHOMORE GROUP AND
THE JUNIOR GROUP

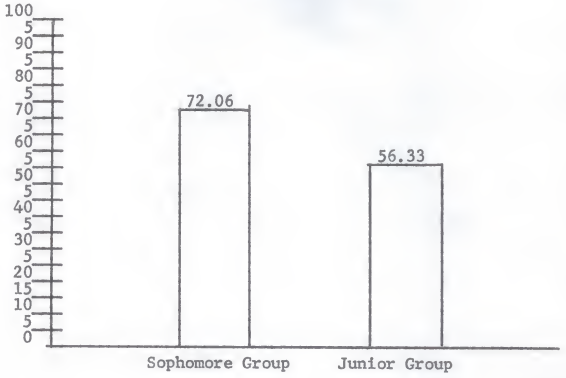


FIGURE 2

A COMPARISON OF AVERAGE POST-TEST SCORES
FOR THE SOPHOMORE GROUP AND
THE JUNIOR GROUP

Each individual should fill out an estimate sheet for each animal slaughtered. These estimates will aid the individual and correlate observations relative to the live animal with observations to be made on the carcass after slaughter.

Name of Student _____

Date _____

Cattle Letter _____

| | |
|---|---|
| Estimated Weight _____ | Actual Weight _____ |
| Estimated Grade _____ | Actual Grade _____ |
| Estimated Dressing % _____ | Actual Dressing % _____ |
| Estimated Fat Thickness Over Rib Eye _____ (Range of .1-1.4 inches) | Actual Fat Thickness Over Rib Eye _____ |
| Estimated Yield Grade _____ (Range 1-5) | Actual Yield Grade _____ |

Student Comments:

FIGURE 3

CATTLE ESTIMATE SHEET

Record all weights as pounds net.

Name of Student _____

Date _____

Cattle Letter _____

Live Weight _____

Blood Weight _____

Legs and Hoof Weight _____

Hide Weight _____

Heart Weight _____

Liver Weight _____

Entrails Weight _____

Tail Weight _____

Tongue Weight _____

Head Weight _____

Total Weight of Slaughter Offal and Edible Organs _____

Hot Dressed Weight Side A (right side as viewed dorsally from front) _____

Hot Dressed Weight Side B (left side as viewed dorsally from front) _____

After 24 Hours Cold Dressed Weight Side A _____

After 24 Hours Cold Dressed Weight Side B _____

Dressing % _____

Cooler Shrinkage _____

FIGURE 4

DATA SHEET AT SLAUGHTER TIME

Complete this sheet for each carcass studied.

Name of Student _____

Date _____

Cattle Letter _____

Confirmation Grade _____

Maturity _____

Final Grade _____

Hot Dressed Weight _____

Fat (inches over rib eye between 12th and 13th rib) _____

Kidney and Pelvic Fat Estimated Percentage _____

Rib Eye Area Measured _____

Yield Grade _____

Estimated Percentage Prime Cuts _____

FIGURE 5

CARCASS DATA SHEET

Complete this sheet for all carcasses studied. Record all weights as net weight. *Not used in totalling.

Name of Student _____

Date _____

Cattle Letter _____

| Side A (Right Side as Viewed Dorsally From Front) | Side B (Left Side as Viewed Dorsally from Front) |
|---|---|
| Fore Quarter Pounds _____ | Fore Quarter Pounds _____ |
| Rear Quarter Pounds _____ | Rear Quarter Pounds _____ |
| Kidney Pounds _____ | Kidney Pounds _____ |
| Heart, Kidney, Pelvic Fat Pounds _____ | Heart, Kidney, Pelvic Fat Pounds _____ |
| Chuck Pounds _____ | Chuck Pounds _____ |
| Rib Pounds _____ | Rib Pounds _____ |
| Plate Pounds _____ | Plate Pounds _____ |
| Brisket and Foreshank Pounds _____ | Brisket and Foreshank Pounds _____ |
| Flank Pounds _____ | Flank Pounds _____ |
| Sirloin Tip Pounds _____ | Sirloin Tip Pounds _____ |
| Loin Pounds _____ | Loin Pounds _____ |
| Rump Pounds _____ | Rump Pounds _____ |
| Round Pounds _____ | Round Pounds _____ |
| *Bones From Hamburger Trims Pounds _____ | *Bones From Hamburger Trims Pounds _____ |
| *Fat as Trimmed From Carcass Pounds _____ | *Fat as Trimmed From Carcass Pounds _____ |
| *Bone Dust From Saw Pounds _____ | *Bone Dust From Saw Pounds _____ |

FIGURE 6

WHOLESALE CUTS WEIGHT DATA

Complete all information for each calf.

Name of Student _____

Date _____

Cattle Letter _____

Purchase Date _____

Purchase Weight _____

Price Paid Per Pound _____

Individual Cost _____

Interest Paid on Calf _____

Hired Labor on Calf _____

Feed Cost Per Calf _____

Slaughter Date _____

Live Slaughter Weight _____

Days on Feed _____

Total Individual Gain _____

Individual Gain in Pounds Per Day _____

Individual Feed Cost Per Pound of Gain _____

Individual Total Costs of Labor and Feed Per Pound Per Gain

_____

FIGURE 7

GENERAL CATTLE INFORMATION SHEET

Name of Student _____

Date _____

| Date | Kind of Feed | Amount | Price | Total Cost |
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FIGURE 8

FEED COST DATA SHEET

Complete for each calf to be studied. Retail prices will be current and supplied by the instructor. Weights are to be total of side A and B.

Name of Student _____

Date _____

Cattle Letter _____

| Item | Weight in lbs. | Per cent of Cold Dressed Weight | Retail Price Per lb. | Total Value |
|---|---|---|---|---|
| Kidney | | | | |
| Heart, Kidney, & Pelvic Fat | | | | |
| Chuck | | | | |
| Rib | | | | |
| Plate | | | | |
| Brisket & Foreshank | | | | |
| Flank | | | | |
| Sirloin | | | | |
| Loin | | | | |
| Rump | | | | |
| Round | | | | |
| Bones | | | | |
| Fat Trim | | | | |
| Bone Dust | | | | |

FIGURE 9

WHOLESALE CUTS VALUE DATA SHEET

Complete one for each calf.

Name of Student _____

Date _____

Cattle Letter_____

Price Per Pound Meat Sold _____

Total Pounds Meat Sold _____

Total Price Received for Calf _____

Total Cost of Calf _____

Total Interest for Calf _____

Total Labor in Calf _____

Total Feed for Calf _____

Total Processing Cost _____

Total Expense in Calf _____

Total Profit or Loss from Calf _____

Total Value Retail Cuts _____

Total Live Value at Slaughter (.25) _____

Difference in Value _____

FIGURE 10

FINANCIAL STATEMENT OF CATTLE

# STUDENT INVOLVEMENT IN TEACHING SELECTED LESSONS OF BEEF CATTLE PRODUCTION

by

GARY EDWARD JARMER
B. S., Kansas State University, 1964

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AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1968

The purpose of this study was to (1) provide the teachers of Vocational Agriculture in Kansas with a procedure for obtaining student involvement in the teaching of beef cattle selection, feeding, slaughtering, and carcass evaluation: (2) involve students with beef cattle selection, feeding, slaughtering, and carcass evaluation; (3) compare the change of scores of the students in a pre and post test exercise which was developed by the author to measure general beef cattle knowledge; and (4) demonstrate to students the "New Look" in slaughter beef cattle production.

The procedure for the study involved a personal purchase of four beef steers, weighing approximately 800 pounds. Prospective buyers of cut-up, packaged beef were secured and one sophomore student agreed to keep and care for the calves. A pre test, designed to measure general slaughter beef cattle knowledge, was administered to two separate classes of high school Vocational Agriculture students. The test class was sophomores, the others were juniors.

The cattle were selected, purchased and delivered to the cooperating student's farm. Each calf was named and given a letter designation which helped to identify him.

Regular teaching continued with all lessons concerning slaughter beef cattle selection, feeding, slaughtering, and carcass evaluation relating to the four steers being used as a teaching device.

The cattle were slaughtered and processed by the students and an extensive carcass evaluation study was initiated. Complete photographs were taken on 35 mm slide film to be used for further educational purposes.

After the carcass evaluation was complete, a post test was administered to both separate classes and the results were recorded. It was found that the sophomore group of students, who were involved in the teaching of selected slaughter beef cattle lessons, using live cattle, had raised from the mean score on the pre test of 45.0 points to a mean score on the post test of 72.06 out of a possible 100 points. This was an increase of 27.06 points on the test. The mean pre test score for the junior class, who had received essentially the same instruction, one year earlier, without the live cattle, was 53.50. The post test mean score for the junior class was noted to be 56.33 out of a possible 100 points. This was an increase of 2.83 points.

It was recommended that a follow-up study be made in one year to determine the test scores of the sophomore test group after one year has elapsed.

It was also recommended that local cooperating farmers could help conduct this procedure if careful planning was exercised.

The purpose of the study was reviewed and compared with the findings. It was found that the purpose of the study

was accomplished by: Sending the procedure of this study to the State Supervisor of Vocational Education in Agriculture, and by submitting the procedure for publication in a national magazine for teachers of Vocational Agriculture; observing and recording a score on an objective test; subjectively observing student reaction to the slides taken of the live cattle and their carcasses.