## Lesson Title – How are Beef Cattle marketed?

| **Length – 45 minuets/ 3 class** |
|---|

**PA Academic Standards and Anchors Addressed –** Science

**CC.3.5.11-12.B: Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms**

**CC.3.5.11-12.E: Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.**
Math

 **CC.2.1.HS.F.4: Use units as a way to understand problems and to guide the solution of multi-step problems.**

**Science**

**CC.3.5.11-12.C: Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.**

**CC.3.5.11-12.D: Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.**


**PA Agriculture Standards and Benchmarks –** Animal Science

**9.8 Identify the organs and functions of the digestive system**
**9.9 Explain and compare digestive systems and physiology of digestion between various species**

**Objectives -** Upon completion of the lesson, students will be able to:

1.  Identify three factors affecting dressing percentage with 100% accuracy.

2.  Determine the how to calculate live and carcass weight using the average cattle dressing percentage with 100% accuracy.

3.  Calculate the yield grade of a beef carcass with 100% accuracy.

4.  Determine the affect yield grade has on the coast of beef with 100% accuracy.

5.  Identify the factors affecting beef quality grade with 100% accuracy.

6. Determine the quality grade of a beef carcass with 100% accuracy.

| **Lesson Type -** | (Informational) | Operational | Managerial |
|---|---|---|---|
| **Modalities Addressed -** | (Visual) | (Auditory) | Kinesthetic |

**Multiple Intelligences Addressed -**   (Verbal-Linguistic)   Naturalist   Musical   (Visual-Spatial)

(Logical-Mathematical)   Interpersonal (Intrapersonal) Bodily-Kinesthetic

**Essential Vocabulary –**

Dressing Percentage ,Live Weight, Live Price, Yield Grade, Quality Grade, Carcass weight, Carcass price, Back Fat, Rib eye , Marbling, KPH

**Need of Lesson –**
A course that is designed to instruct and enable (26) 10-12th grade students to be successful in the beef cattle industry, through understand the history and process of the business. As well as its economic impact on the nation's economy. Enabling them to be an active participant in the local beef industry that includes numerous purebred, commercial, and feedlot operations.

**Materials –**

1 Power Point

26- calculators

26- artificial rib eyes

2  packs - Marbling cards

8- fat calipers

8- rid eye calipers

26- index cards

26- word cards

Tap

**Resources (Community, etc)**

Mikesell, R. (2011). *Animal science biology & technology*. (third ed., pp. 160-195). Clifton Park, NY: Delmar.

**Pre-Class Set-Up –**

Set up PowerPoint & Make 26 Copies

**Bell Work** – <mark>3 minutes</mark>

1.  Assuming a carcass price of $2.09/lb., what is the difference in value of Steer A that weighs 1200 lbs with 60 % Dressing Percentage  and Steer B that weighs 1200 lbs with 75 % Dressing Percentage?

    Check : STEER A                                              STEER B

    <br>

    (Live wt.)                                      (Live wt.)

    x .____        (DP)                       x .___ (DP)

    (Carcass)                                   (Carcass)

    x_____                                  x____

    $         (Value of Carcass)              $            (Value of Carcass)

    <br>

    The difference between Steer A and Steer B ($_____ - $_____is $_____.

    **A.   720 /lb cwt. $1504.80     B.900/lb cwt.  $1881.00     difference $376.20**

2.  Have note cards placed at each students set with a dressing percentage problem on it. Then have the students switch with their side person to check each other's work. Select three at random to put their work on the board and explain.

3.  As the Students come in the door hand each of them a word related to either Dressing percentage, yield Grade, or quality grade.

**Interest Approach** – <mark>10 minutes</mark>

1.  Set up: Pass out copies of the Daily livestock report.
Paper and writing utensils (if needed).
- "I have just given you a copy of the daily live stock report. I would like you to tack a few minutes to look over it, highlight anything you are unsure of or curios about. "
- "Look up to single you are ready to move on."

    o   Give about **5 minutes**, power clap to get their attention.
- "Now pair with a partner, and compare what you have highlighted. Add the others highlight to your own copy or if you know help and explain."
- "Highlighters down to signal you are finished."

    o   Give an additional **5 minutes**, power clap to get their attention.

- "Alright let's head back to your sets."
- "Do I have any volunteers who want to share?"

  o Go around the room and read what you and your partner highlighted.

  o Ask the class to answer the following:
- "Why should you know how to read this report and why is it important. How is this related to food science?

  o Go back to the Bell work
  o Let some students share their response.
- Flow into effects on dressing percentage


2. Set up: Put up slid of a 1fat steer, 2 moderate sized steers, & 1 skinny steer. Paper and writing utensils (if needed).
- "Rank this steers in order of their $value, highest to lowest."
- "Look up to single you are ready to move on."

  o Give about **5 minutes**, power clap to get their attention.
- "Now here are four rib eyes match the rib eye to the steer it belonged to."
- "Pencils down to signal you are finished."

  o Give an additional **5 minutes**, power clap to get their attention.

- "Do I have any volunteers who want to share?"

  o Ask the class to answer the following:
- "Where you surprised by the answers? Why? What is the Key factor in determining value?"

  o Go back to the Bell work
  o Let some students share their response. Flow into YG.

. Set up: Put a rib eye on each student's desk, along with a marbling card. Have the students go around till they find the card that matches their rib eye.
Give about **5 minutes**, power clap to get their attention.
  o Give about **5 minutes**, power clap to get their attention.
  o Then have each of them share their marbling score and how they fill about this method of grading.

  o Go back to the Bell work
  o Let some students share their response. Flow into QG.

**Transition-** <mark>2 minutes</mark>

Write out several scenarios on the board. Allow students to calculate the DP and cwt. and value.

Ask the class to answer the following take volunteers if none pull a popsicle stick then popcorn around

Why should you know how to read this report and why is it important? How is this related to food science?  **5 minutes**

## Summary of Content and Teaching Strategies –

**1. Lecture/Discussion**: **27minutes**
- o   Set Up: Start Power Point –**12 minutes**

- o   Have students take notes during the power point.

- o   Have students take out a piece of blank paper, to answer six questions quiz at the end of the power point.
    - ▪  "Get out a Blank piece of paper & a Pencil"
    - ▪   "Put your Pencils down to signal you are finished."
    - ▪  "Pass your Quiz to the end of your row."

- o   Practices scenarios **15 minutes**

- o   Have students split up into groups to practice DP consolations.

- o   Give each group two different scenarios.
    - ▪  "When I say Go get into groups."
    - ▪   "GO"
    - ▪  "Now I'm giving you two scenarios  to practices with."
    - ▪  "When I say Shark-bait begin"
    - ▪  "When your group finishes have one person go to the board and writ out your answer down, showing the work."
    - ▪  "You will present to the class walking them through the steps you took to get your answer."
    - ▪   "Shark-bait"
- o   (Almanac/Encyclopedia Moment)- Give each student an almanac and asked them to explore the book for 60 to 90 seconds looking for a topic they can connect to the concepts learned in class. Students can share by giving verbal feedback to the class.

- •  **Wrap Up and Review**: **5 minutes**
    - o   Review the days objectives
    Dismiss students.

**2.Lecture/Discussion: 27minutes**
- o   Set Up: Start Power Point –12 minutes

- o   Have students take notes during the power point.

- o    Have students take out a piece of blank paper, to answer ten questions quiz at the end of the power point.
  - ▪   "Get out a Blank piece of paper & a Pencil"
  - ▪    "Put your Pencils down to signal you are finished."
  - ▪   "Pass your Quiz to the end of your row."

- o   Practices scenarios 15 minutes

- o   Have students split up into groups to practice % Fat Lean, and YG consolations.

- o   Give each student a list of different scenarios.
  - ▪   "When I say Shark-bait begin"
  - ▪    "Each of you will work individually on the problems at their desk."
  - ▪     "When you are finished raise your hand "
  - ▪   "When everyone starts to wrap up I will select the first group to go up to the board and give their answer and show their work."
  - ▪    "Shark-bait"
- o   (Bob the Weather Guy Moment)-Have students deliberate and then present an idea, concept, or process as if it  were a weather report. Challenge them to forecast what will happen, show how other people and activities will be affected, and what their latest 'Doppler Radar" explains about this idea, concept, or process.


## *Wrap Up and Review*: <mark>5 minutes</mark>
- o   Review the days objectives
- o   Dismiss students


### 3.Lecture/Discussion: 27minutes
- o   Set Up: Start Power Point –12 minutes

- o   Have students take notes during the power point.

- o   Practices scenarios 15 minutes

- o   (Jeopardy Moment) - Have Students write facts they learned under teacher-generated categories. In addition, students write the appropriate question for each fact. Teacher collects the facts, divides the class into teams, explains the procedure for the event, and facilitates a Jeopardy-type activity using the students' facts.


## *Wrap Up and Review*: **5 minutes**

- o   Review the days objectives
- o   Dismiss students.

| |
|---|
| **Learning Assessment-** 1. Almanac/Encyclopedia Moment 2. Bob the Weather Guy Moment 3. Jeopardy Moment |
| **Cognitive Connect** –<br><br>      Yesterday – Cow/calf nutrition<br><br>      Today – Dressing Percentage<br><br>      Tomorrow – Dressing Percentage |
| **Adaptations/Accommodations for Special Needs** -<br><br>Students with special needs will be accommodated based on their individual IEP. Guided notes, modified quizzes & tests, and other instructional aids will be available. Preferential seating will be available for students who need it. Various teaching methods and aids will be utilized to accommodate a wide variety of learners. I plan to work with the IEP teams as necessary to adapt to the learner's needs. |
| **Extended Classroom Activity:**<br>Research Ag careers and cultural factors that affect market pricing and its affect on consumers. |
| **FFA Activity:**<br>*Meats Evaluation and Technology CDE, students develop the skills needed for careers in the meat animal industry. During the event, members complete a evaluate beef carcasses for quality and yield grade; identify various meat cuts and place carcasses, and identify wholesale and/or retail cuts.*https://www.ffa.org/documents/learn/cde_jobinter_Job_interview_rules.pdf |
| **SAE Activity:**<br>*Agriscience Animal Systems Research - Research in the life processes, health, nutrition, genetics, management and processing of animal systems related to small animals, aquaculture, livestock, dairy, horses and/or poultry.*<br><br>*Agriscience Plant Systems Research - Research in the life cycles, classifications, functions, practices of plant systems related to crops, turf grass, trees and shrubs and/or ornamental plants.*<br><br>https://www.ffa.org/documents/prof_descriptions.pdf |

## Lesson Summary

*Which component(s) in your lesson plan are your "flex" item(s), i.e., can be lengthened or shortened to accommodate time? Explain how the component(s) can be "flexed".*

- Objective review can be shortened or lengthened depending on the amount of time need to cover the lecture. This is possible  by having a set number of (10) questions that vary in kind( high level, low, opened, close)

*Describe any adaptations and accommodations for learners with special needs that can be made in this lesson plan (see Methods chapter 12).*

- Students with special needs will be accommodated based on their individual IEP. Guided notes, modified quizzes & tests, and other instructional aids will be available. Preferential seating will be available for students who need it. Various teaching methods and aids will be utilized to accommodate a wide variety of learners. I plan to work with the IEP teams as necessary to adapt to the learner's needs.

*We learn in three modalities. Where in this lesson plan are your specific evidences of accommodating learners' modalities?*

- Auditory- Verbal directions, music to time bell work, and while students work on their plans.
- Visual – Power point, Chart,  directions and objectives posted on the board
- Kenisetic - Interest approach students will be up moving around.

*What is the highest level of cognition according to Bloom's Taxonomy that students reach in this lesson plan? Describe this occurrence.*

Synthase: Given a real production scenario students will be able to think critically to find a reasonable solution.

http://www.dailylivestockreport.com/ Get up to date Report for the Week you are teaching!

## PRODUCTION & PRICE SUMMARY                    Week Ending      11/2/2013

Source: Various USDA Agricultural Marketing Service reports. Some data are preliminary.

| | Item | Units | Current Week | Last Week | Pct. Change | Last Year | Pct. Change | YTD | Y/Y % Change |
|---|---|---|---|---|---|---|---|---|---|
| | | | 2-Nov-13 | 26-Oct-13 | | 3-Nov-12 | | | |
| | **Total Red Meat & Poultry** | mil lbs., cwe | 1,786 | 1,792 | -0.31% | 1,792 | -0.31% | 74,268 | 0.4% |
| C | FI Slaughter | Thou. Head | 624 | 618 | 0.97% | 645 | -3.30% | 27,039 | -1.6% |
| A | FI Cow Slaughter ** | Thou. Head | 119 | 119 | -0.10% | 135 | -12.37% | 5,039 | -0.8% |
| T | Avg. Live Weight | Lbs. | 1327 | 1323 | 0.30% | 1320 | 0.53% | 1,312 | 0.8% |
| T | Avg. Dressed Weight | Lbs. | 802 | 801 | 0.12% | 794 | 1.01% | 795 | 0.7% |
| | Beef Production | Million Lbs. | 499.4 | 494.1 | 1.07% | 511.1 | -2.29% | 21,404 | -1.0% |
| L | Live Fed Steer Price | $ per cwt | 132.19 | 132.23 | -0.03% | 126.17 | 4.77% | | |
| E | Dressed Fed Steer Price | $ per cwt | 209.07 | 207.77 | 0.63% | 196.37 | 6.47% | | |
| | OKC Feeder Steer, 600-700 | $ per cwt | 173.55 | 173.00 | 0.32% | 149.62 | 15.99% | | |
| & | Choice Beef Cutout | $ per cwt | 204.56 | 200.09 | 2.23% | 195.34 | 4.72% | | |
| | Hide/Offal | $ per cwt, live wt | 14.14 | 13.97 | 1.22% | 13.01 | 8.69% | | |
| B | Rib, Choice | $ per cwt | 324.69 | 318.50 | 1.94% | 306.81 | 5.83% | | |
| E | Round, Choice | $ per cwt | 178.80 | 173.26 | 3.20% | 175.72 | 1.75% | | |
| E | Chuck, Choice | $ per cwt | 176.09 | 170.63 | 3.20% | 162.40 | 8.43% | | |
| F | Trimmings, 50% | $ per cwt | 114.46 | 105.53 | 8.46% | 66.49 | 72.15% | | |
| | Trimmings, 90% | $ per cwt | 192.09 | 192.96 | -0.45% | 203.99 | -5.83% | | |
| | FI Slaughter | Thou. Head | 2,272 | 2,262 | 0.44% | 2,359 | -3.67% | 92,547 | -1.5% |
| | FI Sow Slaughter ** | Thou. Head | 59.2 | 58.0 | 2.03% | 63.8 | -7.18% | 2,353 | -2.8% |
| H | Avg. Dressed Weight | Lbs. | 208.0 | 206.0 | 0.97% | 205.0 | 1.46% | 206 | 0.1% |
| O | Pork Production | Million Lbs. | 471.3 | 466.1 | 1.12% | 483 | -2.42% | 19,057 | -1.3% |
| G | Iowa-S. Minn. Direct | Wtd. Avg. | 84.44 | 86.57 | -2.46% | 80.27 | 5.19% | | |
| S | Natl. Base Carcass Price | Wtd. Avg. | 86.53 | 88.18 | -1.87% | 81.70 | 5.91% | | |
| | Natl. Net Carcass Price | Wtd. Avg. | 88.72 | 90.46 | -1.92% | 84.00 | 5.62% | | |
| | Pork Cutout | 200 Lbs. | 93.92 | 94.65 | -0.77% | NA | | | |
| | Hams | $ per cwt | 87.13 | 86.83 | 0.35% | NA | | | |
| | Loins | $ per cwt | 96.06 | 97.73 | -1.71% | NA | | | |
| | Bellies | $ per cwt | 126.88 | 131.12 | -3.23% | NA | | | |
| | 72CL Pork Trim | $ per cwt | 80.86 | 83.45 | -3.10% | 68.57 | 17.92% | | |
| C | Young Chicken Slaughter * | Million Head | 158.8 | 158.0 | 0.51% | 153.4 | 3.53% | 6,639 | 1.1% |
| H | Avg. Weight (Live) | Lbs. | 5.82 | 6.04 | -3.64% | 5.76 | 1.04% | 5.80 | 1.1% |
| I | Chicken Production (RTC) | Million Lbs. | 702.5 | 725.4 | -3.16% | 667.1 | 5.30% | 29,284 | 3.1% |
| C | Eggs Set | Million | 193.4 | 187.8 | 2.96% | 187.1 | 3.37% | 8,539 | 2.3% |
| K | Chicks Placed | Million Head | 153.2 | 161.3 | -5.00% | 156.8 | -2.28% | 7,067 | 1.0% |
| E | 12-City Broiler Price | Composite | 88.98 | 90.17 | -1.32% | 88.58 | 0.45% | | |
| N | Georgia Dock Broiler Price | 2.5-3 Lbs. | 104.85 | 103.59 | 1.22% | 95.64 | 9.63% | | |
| | Northeast Breast, B/S | $/cwt | 132.16 | 131.26 | 0.69% | 131.1 | 0.81% | | |
| | Northeast Legs | $/cwt | 60.46 | 65.58 | -7.81% | 67.97 | -11.05% | | |
| T | Young Turkey Slaughter * | Million Head | 4.762 | 4.269 | 11.55% | 5.553 | -14.24% | 184.908 | -3.2% |
| U | Avg. Live Weight | Lbs. | 29.62 | 31.06 | -4.64% | 29.34 | 0.95% | 30.60 | 0.7% |
| R | Turkey Production (RTC) | Million Lbs. | 112.8 | 106.0 | 6.41% | 130.3 | -13.42% | 4,523 | -2.5% |
| K | Eastern Region Hen Price | 8-16 Lbs. | 102.62 | 107.00 | -4.09% | 109.58 | -6.35% | | |
| G | Corn, Omaha | $ per Bushel | 4.21 | 4.33 | -2.77% | 7.74 | -45.61% | | |
| R | DDGs, Minnesota | $ per Ton | 191.00 | 193.50 | -1.29% | 257.50 | -25.83% | | |
| A | Wheat, Kansas City | $ per Bushel | 7.33 | 7.59 | -3.43% | 8.77 | -16.42% | | |
| I | Soybeans, S. Iowa | $ per Bushel | 12.91 | 13.18 | -2.05% | 15.72 | -17.88% | | |
| N | Soybn Meal, 48% Decatur | $ per Ton | 434.60 | 457.00 | -4.90% | 504.30 | -13.82% | | |

* Chicken & turkey slaughter & production are 1 week earlier than the date at the top of this sheet.

½ sheet Dressing Percentage Handout

Dressing % Formulas – ex. 50% in formulas .50

 Carcass weight – live wt. x 100 = DP
              (_____lbs – _____ lbs) x 100 = ___
percent

Carcass weight /DP=live wt.

Live weight * DP= carcass weight

Average DP: Lambs = 50   Cattle = 62  Swine = 75

Yield Grade Handout

Table 1.

| Adjusted Fat Thickness (inches) | PYG |
|---|---|
| 0.0 | 2.0 |
| 0.2 | 2.5 |
| 0.4 | 3.0 |
| 0.6 | 3.5 |
| 0.8 | 4.0 |
| 1.0 | 4.5 |
| 1.2 | 5.0 |
| 1.4 | 5.5 |

1.      Determine the preliminary yield grade (PYG).

A carcass with no fat opposite to ribeye has a PYG of 2.00

For each .1 inch of fat add .25 to the PYG

2. Adjust for carcass weight deviations from 600 pounds.

2.      The base weight in the yield grade equation is 600 pounds. If a carcass weighs more than 600 pounds, then we increase the PYG, and if a carcass weighs less than 600, then we decrease the PYG. For each 25 pounds over 600 pounds, add .10 to the PYG

For each 25 pounds under 600 pounds, subtract .10 from the PYG

3. Adjust for percentage KPH deviations from 3.5 percent.

It has been determined that the average carcass has 3.5% KPH. If a carcass has more than 3.5% KPH, then the carcass is fatter than the average and the PYG should be adjusted up, raising the numerical yield grade. If a carcass has less than 3.5% KPH, then the carcass is leaner than average and the PYG should be adjusted down, thus lowering the yield grade.

For each 1%KPH over 3.5%, add .20 to the PYG

For each 1%KPH under 3.5%, subtract .20 from the PYG

4. Adjust for ribeye area (REA) deviations from 11.0 sq. in.

The average carcass has a ribeye area of 11 sq. in. If a carcass has a ribeye area greater than 11.0 sq. in., then it is probably more muscular then average, and the PYG should be adjusted down to lower the numerical value of the yield grade. If the ribeye area is less than 11.0 sq. in., then the carcass is probably less muscular than average and the PYG should be adjusted up.

For each 1.0 sq. in. over 11.0 sq. in., subtract .33 from the PYG

For each 1.0 sq. in. under 11.0 sq. in., add .33 to the PYG

Quality Grade Handout

**Relationship Between Marbling, Maturity, and Carcass Quality Grade***

| Degrees of Marbling | A*** | B | C | D | E | Degrees of Marbling |
|---|---|---|---|---|---|---|
| Slightly Abundant | **Prime** | | | | | Slightly Abundant |
| Moderate | | | **Commercial** | | | Moderate |
| Modest | **Choice** | | | | | Modest |
| Small | | | | | | Small |
| Slight | **Select** | | **Utility** | | | Slight |
| Traces | | | | **Cutter** | | Traces |
| Practically Devoid | **Standard** | | | | | Practically Devoid |

Maturity**

* Assumes that firmness of lean is comparably developed with the degree of marbling and that the carcass is not a "dark cutter."
** Maturity increases from left to right (A through E).
*** The A maturity portion of the figure is the only portion applicable to bullock carcasses.



Prime — Moderately Abundant, Slightly Abundant
Choice — Moderate, Modest
Select — Small, Slight