ASA Presentation Notes Lesson 7.2

Genetics.
- The study of heredity.

- Useful in both explaining and predicting the occurrence of important traits in animals.

Two Types of Traits.
- Qualitative.

    - Traits are easily observed and called "Either – or" traits.

    - Example: A bovine either has horns or it is polled, which is without horns.

- Quantitative.

    - Traits are measurable.

    - Example: Growth rate is measured on a scale.

    - Example: Mature height is measured with a ruler.

Qualitative Traits.
- Traits that are easily seen and controlled by a single gene pair.

- Gene expression is not altered by the environment.

- Ex: The coat color in Angus cattle.

Quantitative Traits.
- Expression controlled by **more than** one gene pair.

- Expression can be modified by environmental factors.

- Measurable.

- Trait is measured by degrees depending on the mix of genes.

    - Ex: Growth rate may be measured in pounds of weight gained each day. Resulting growth rate may be very low, very high, or anywhere in between.

Heritability of Qualitative Traits.
- Performance = Genetics + Environment.

- Heritability = The percent of performance controlled by genetics.

- Selection works best on highly heritable traits.

Separating Genetics from Environment.

- Contemporary Group Ratios.

- Expected Progeny Differences.

- Economic Indexes.

- Genomics (New).

- All may be used to select animals with the best genetics for important traits.

Contemporary Group Ratios.
- Compares animals of the same gender and approximate age raised under the same environmental conditions.

- Ratio = The performance of an animal divided by the group average, multiplied by 100

Contemporary Group Ratios Example.
- Boar #1 Average Daily Gain (ADG) = 2.8 pounds/day.

- Pen average = 2.6 ADG.

- Boar #1 ratio = (2.8/2.6)x100 = 107.7

  ○ Boars near 100 are "average"

- Animals with higher ratios likely to sire faster gaining offspring.

List 5 key points that are important to remember from this presentation.

1.

2.

3.

4.

5.

List 3 ideas or concepts that this new information has in common with previous things learned.

1.

2.

3.

List questions or ideas that remain unclear about the information presented that should be asked for clarity at the appropriate time.