

## ASA Presentation Notes Lesson 7.2

Unit Name: Unit 7 - Genetics

Lesson Topic: Lesson 7.2 Predicting Genetic Inheritance

Presentation on: Pedigrees

Pedigrees.

- Visual method of tracking ancestry.
- Sire and his ancestors on top.
- Dam and her ancestors on bottom.

Pedigrees and Inheritance.

- Pedigrees help track genes.
- Identify the percentage of each ancestor's genes in the animal of interest.

Calculations with Pedigrees.

- **Q** – A grandsire carries a red coat color gene, what are the odds that his grandson will inherit that gene?
  - Assume all other animals in the pedigree are homozygous black.
- **A** – Twenty-five percent (25%) or  $\frac{1}{4}$  that the grandson will inherit the red coat color gene.

Calculations with Pedigrees.

- **Q** – The paternal grandsire and the dam are both carriers of the red coat color gene, what are the odds that the animal in question will be born red?
- **A** –
  - Odds of receiving gene from grandsire are  $\frac{1}{4}$
  - Odds of receiving gene from dam are  $\frac{1}{2}$
  - Odds of receiving genes from both sides are.
    - $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$

Summary.

- Qualitative traits predicted by the Punnett Square method.
- Quantitative traits predicted by:
  - Ratios.
  - EPDs.

- Economic Indexes.
- Genomics.
- Pedigrees help track genes.

## ASA Reflection Page

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.