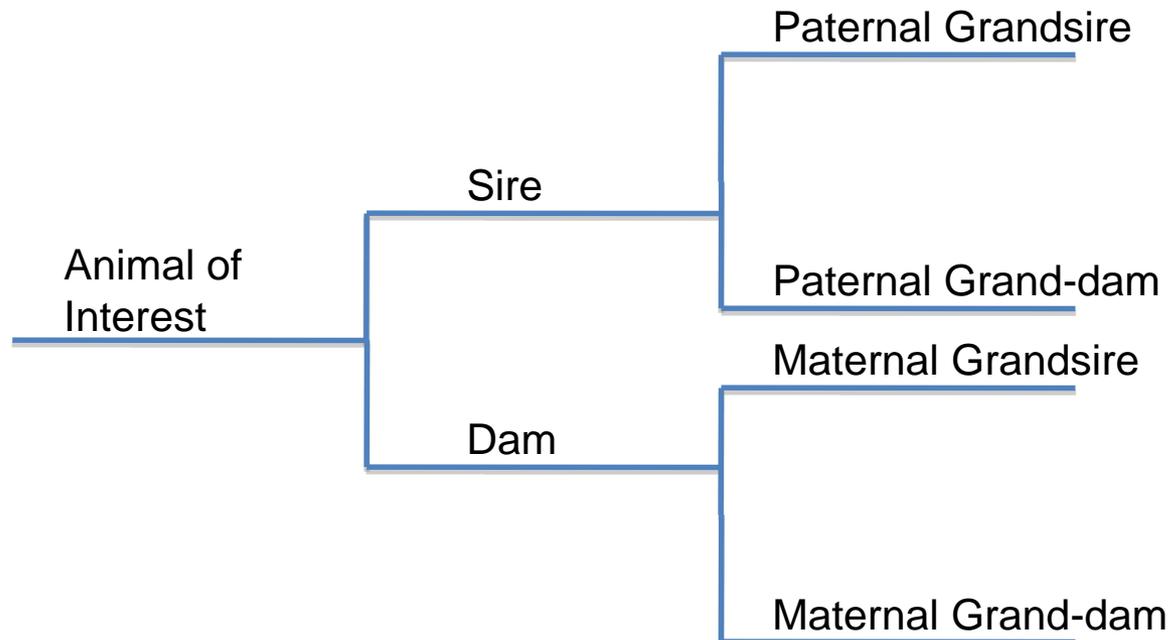**Principles of Agricultural Science – Animal**
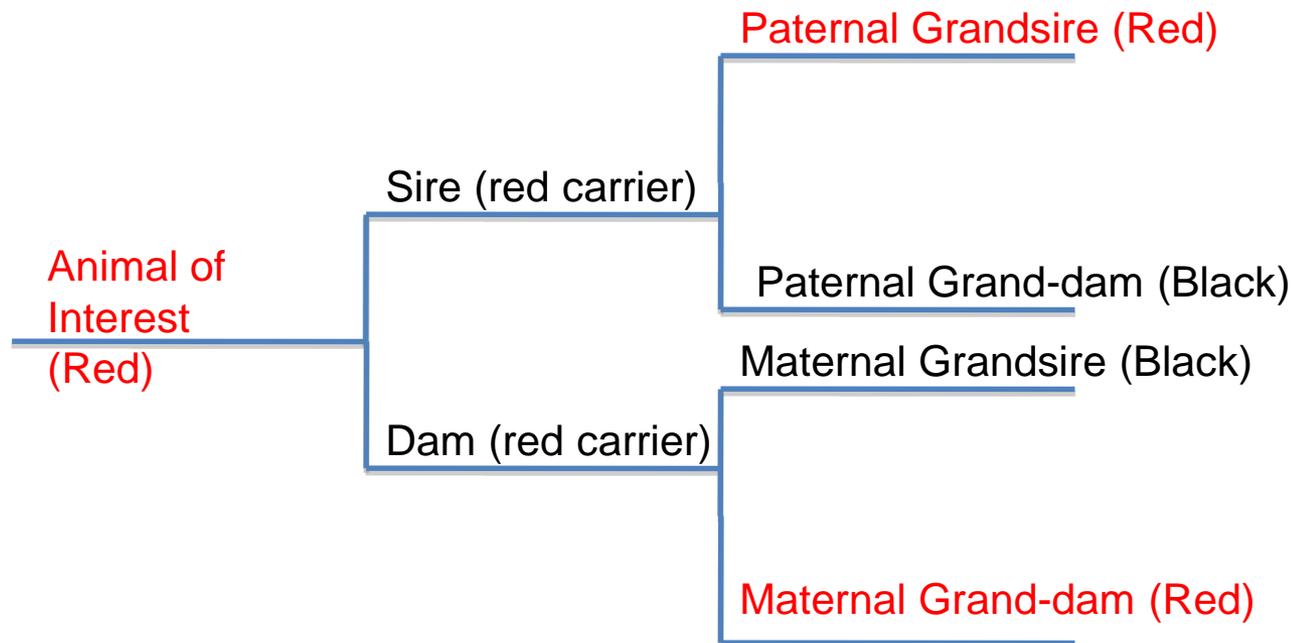
Pedigrees

Unit 7 – Lesson 7.2 Predicting Genetic Inheritance

Pedigrees

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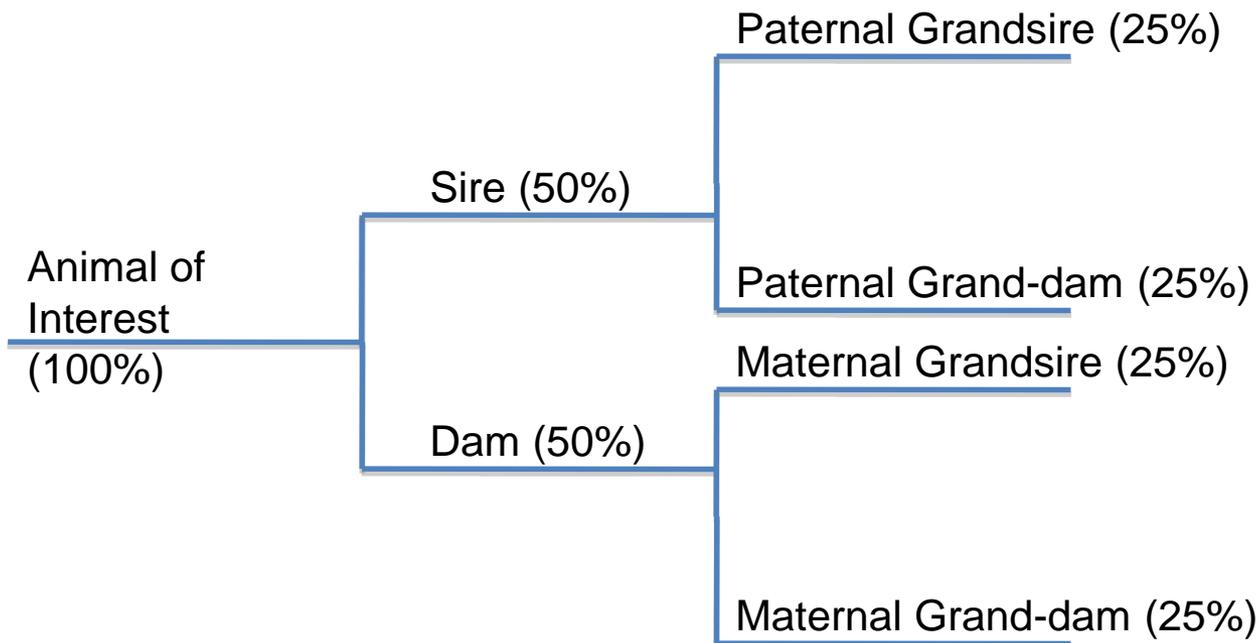- Sire and his ancestors on top
- Dam and her ancestors on bottom

Paternal Grandsire

Sire

Animal of Interest

Paternal Grand-dam

Maternal Grandsire

Dam

Maternal Grand-dam

Pedigrees and Inheritance

- Pedigrees help track genes

```
                                          Paternal Grandsire (Red)
                        Sire (red carrier)
  Animal of
  Interest                                Paternal Grand-dam (Black)
  (Red)
                                          Maternal Grandsire (Black)
                        Dam (red carrier)

                                          Maternal Grand-dam (Red)
```

Pedigrees and Inheritance

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

Paternal Grandsire (25%)

Sire (50%)

Paternal Grand-dam (25%)

Animal of
Interest
(100%)

Maternal Grandsire (25%)

Dam (50%)

Maternal Grand-dam (25%)

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 ¼ that the grandson will inherit the red coat color gene.

References

Armstrong, J. (1997). *Pedigree analysis: Bloat in the standard poodle*. Retrieved from http://www.netpets.org/dogs/healthspa/pedigree.html.

Bell, J. (2008). *The ins and outs of pedigree analysis, genetic diversity, and genetic disease control*. Retrieved from http://siriusdog.com/bell-pedigree-analysis-genetic-diversity.htm.