Understanding

Homozygous and Heterozygous

Homozygous = 2 copies of the same gene e.g.: EE, ee, AA, AtAt or CrCr.

Always throws one copy of the gene to its progeny

Heterozygous = 1 copy of a gene e.g.: Ee, Aa, Ata or nCr.

Has a 50% chance of throwing the gene to its progeny.

The gene that most effectively reduces colour is of course the **cream gene = Cr.** This is because the cream gene is unique in the way it interacts with the base colours.

Homozygous = Perlino or Cremello

Heterozygous = Buckskin or Palomino.

Most, if not all other solid coloured horses appear the same whether they are Homozygous or Heterozygous. E.g. EE or Ee will give you a **black** horse, adding AA or Aa will dilute the black to give varying shades of **bay,** adding At/At or At/A or At/a will dilute the coat to give shades of **brown**.

Other colours that are referred to as dilutions of colour like **Silver/Taffy Champagne**, again do not work like the cream gene and look the same whether homozygous or heterozygous. The **Pearl** gene is different again and combines with the cream gene to give you a double dilution similar to Cremello or Perlino. Progeny from this coloured horse can only inherit the cream gene or the pearl gene, never both.