

Genotype vs. Phenotype:

By Cliff Kelsey, Starcastle Shire Horses

In the horse world, you will often hear “Pedigree is everything”. I agree that when purchasing a breeding horse or making breeding decisions, a good pedigree is critical. However, “Phenotype” is also critical.

“Genotype” is basically the pedigree or the ancestral genetic makeup. Horses get 50% of their genes from the sire and 50% from the dam. It is important to understand that pedigrees have limitations. Thinking that pedigree is the paramount consideration is a common mistake.

“Phenotype” is the physical appearance of the horse. Remember, “what you see is what you get.” First, train your eyes to recognize good confirmation and conformation faults. Then trust your eyes and remain critically objective, regardless of any pre-conceived notions about pedigree.

The pronouncement of a “good pedigree” is never more than someone’s opinion of the aggregate of all of the names in that horse’s pedigree. As for individual names in a pedigree, in most cases the assessment of any name in a pedigree is someone else’s opinion of how good or bad that individual horse was. Unfortunately, the person offering an opinion has most likely never seen that horse or studied any good conformation photos of that horse, or seen video. Often, that opinion is hear-say passed on from person to person and (like rumors on the grapevine) the truth may be questionable. The magnitude of “how good” or “how bad” is always subjective opinion.

Show records can be helpful in how good a certain horse may have been. However, in the Shire world the number of Shires in each class is usually quite small. As such, show records are of limited value.

Winning Grand Champion Shire Stallion award is a minor accomplishment, when only 2 mature stallions are exhibited at the show.

Fortunately for new or younger breeders, there are a few breeders with several decades of experience and have travelled to several States and Provinces to see many shows and breeding operations. They will have seen in person many of the horses whose names appear in a pedigree, perhaps 5 or more generations back in time. That allows for a much more knowledgeable assessment of perhaps most of the names in a pedigree. Seasoned breeders can be a good source of opinions. Those opinions are most valuable if that person has actually seen the ancestral horse in person.

“Phenotype” is the “acid test” of pedigree. “Phenotype” is how the horse actually looks. It allows us to assess the quality of conformation, the anatomical proportions (a.k.a. “balance”) which determine the correctness and athleticism of motion, as well as the usefulness and durability of the horse for its intended purpose.

If any horse shows conformational faults, poor movement or poor anatomical proportions, it is absolutely certain that those bad traits are a product of poor

genes coming to light from somewhere in that horse's pedigree. If a horse has a "great pedigree, but it's offspring show poor conformation, that proves the pedigree is not as great as you were told.

Many sellers will speak with eloquent passion and confidence about the strength of the pedigree of a horse that they are attempting to sell. They may attempt to persuade you overlook some fault in a horse and purchase it due to the purported strength of pedigree. New breeder can be blinded by naïve enthusiasm and believe that claims of a "great pedigree" as the gospel truth, when it is often a well-spoken marketing pitch.

Pedigrees are much like horses. There are no perfect horses, and there are no perfect pedigrees. I have spent countless winter evenings over many years researching pedigrees of Shires on both sides of the Atlantic. Most of the pedigrees that I look at contain many horses for which I hold a favourable opinion, some horses for which I have a negative opinion and also other horses that I am not familiar with. Opinions about pedigrees are always subjective.

Genetic faults visible on a current horse can come to the surface from a few generations back in a pedigree that was described as "very good". It is possible that the source of the negative trait was some lesser known ancestor.

Pedigree strength can be tested to a limited degree by line-breeding. Most people frown upon line-breeding. However, as a tool used by an experienced breeder, line breeding can help to uncover bad genetic traits that may otherwise

remain hidden. Line-breeding can be used to help prove or disprove the strength of a pedigree. For the good of the breed, anyone who chooses to use line breeding should also be diligent enough to cull any bad results from the gene pool.

As a breeder it is a diligent best-practice to study and become as familiar with pedigrees and bloodlines in the Shire gene pool. However, for the good of your breeding program and the good of the breed, please always remember the importance of Phenotype when considering your acquisition and breeding decisions.

As with most things in life there are exceptions to almost every rule. In considering pedigrees, I may not have seen a specific stallion in person. If however I have seen several of his offspring and consider them all to be quite good, then my opinion for that stallion will be high even though I did not see him in person.

To pre-position yourself to better assess pedigrees, it is good to collect as many pictures as you can of Shires from Shows, online or from magazines, etc. and stockpile them for your own personal reference. In that way, when a horse's name pops-up, you may have a picture of that stallion or mare, which will help your consideration of a pedigree. Seeing horses in-person is always best, but good well-stood-up "conformation pictures" or video can be very helpful.

Remember that Genotype and Phenotype should both play a big role in your Shire acquisition and breeding decisions.