



## Pedigrees 101: the production record

Know how to read pedigrees so your next investment proves to be a smart one.

by Matt Lippert

**I**F YOU have worked with a few daughters of a bull or a cow family, the mere mention of their name may give away how you would expect them to look, behave, or produce. Still, variation between siblings can be vast, and, unless you have seen many, your impression may not be that accurate.

If you are new to the business and are purchasing animals for a herd or as part of a youth project, you may not be familiar with today's common sires and cow family names. Even if you have been around a long time, with thousands of bulls sampled each year, it is impossible to know about all of them. Fortunately today, pedigrees provided by breed associations and found in sale catalogs often contain a great deal of performance information and estimates of genetic characteristics that can provide valuable information — but only if you know what you are reading!

There was a time before the wide use of classification and DHI programs when pedigrees provided the basic outline of ancestry information and very little additional data. Today, there is a wealth of information. You may be tempted to gloss over some details and rely on name recognition — like what bull was Premier Sire at a major show. That route puts you back to where we were a century ago. Don't pass on the useful information provided on the pedigree by failing to learn the meanings of all the numbers.

### Pedigree basics

The male side of the ancestry is always on the top, and animals of the same generation are listed in the same column. An industry standard is the three-generation pedigree shown in the figure at right.

If a young dam, the granddam may be the

first chance for the female line to express itself. Does she have sound type? Longevity? Is she part of a deeper cow family?

Especially since embryo transfer has enabled cows to produce many offspring, breeders have developed very impressive female lines with many generations of high type and high production. Animals with these solid pedigrees command higher prices when

the sire information. Shottle x Oman x Durham is an example of a Holstein sire stack.

### So what do all the numbers mean?

For this article, let's just tackle the production record. The core of production pedigrees is the lactation record. It is used so often that it is often taken for granted. Production records typically take a format similar to: 3-02 2x 305 26,800 3.8 1,018 3.1 831

Let's add some postscripts to clarify what it indicates: 3 years-2 months, 2x 305 days, 26,800 (pounds) milk, 3.8 percent fat, 1,018 (pounds) fat, 3.1 percent protein, 831 (pounds) protein.

The numbers tell a story. It is about a cow that calved when she was 3 years and 2 months of age and was milked twice daily for 305 days and gave 26,800 pounds of milk that averaged 3.8 percent fat and 3.1 percent protein. Doing the math of pounds of milk multiplied by the butterfat and protein content, the cow produced 1,018 pounds of fat and 831 pounds of protein.

Experience would also add that this cow likely has calved her second time (calving initially as a 2 year old) and is more likely a Holstein than a Jersey due to the high production and lower components. To make records easier to compare, they are often standardized. In this case, the cow is likely to have milked longer before completing her lactation, but it is easier to compare records of the same length. 305-day records are the industry standard (10 months), records longer than one year (365 days) are not published.

How is a person to know if a record is good, not good at all, or exceptional? This comes from experience. A helpful tool to get this experience quickly is to compare records to breed average information, such as data we gathered from AgSource Cooperative Services (based on their customers). For example, a 305-day production average for a Holstein was

Generation 1	Generation 2	Generation 3
<b>Individual animal</b> genetic information performance information	<b>father (sire)</b> genetic information	<b>paternal grandsire</b> genetic information
	<b>mother (dam)</b> genetic information performance information	<b>paternal granddam</b> performance information
		<b>maternal grandsire</b> genetic information
		<b>maternal granddam</b> performance information

sold. A deep pedigree demonstrates consistent outstanding performance. An animal with many outstanding generations in the pedigree may provide marketing value when you sell from the family. Keep in mind, however, the actual genetic contribution of these distant relatives is quite small.

Backed by hundreds or thousands of daughter records, genetic estimates of males can be very accurate, much more so than for females. Today, genomic analysis of an animal's DNA can also provide valuable information. Even with genomic information, the gold standard is an extensive progeny test program based on Predicted Transmitting Ability (PTA). Many pedigrees are abbreviated to just the sire stack because of the much higher accuracy of

25,625 M, 3.6 P, 3.0 F. For Jerseys it was 17,653 M, 4.6 P, 3.6 F. Both are based on 2x milking.

While one record is informative, a collection of many records from an individual cow documents a lifetime of good fertility, longevity, and profitability. Many dairy cattle breeders especially value lifetime credits because they understand the importance of lifetime performance. However, a promising calf from a young cow should not be faulted if the rest of the pedigree indicates good things. As our breeds improve, often the best genetics available come from younger animals.

Proper care of an animal takes the same effort for a good one as those that are not so good. Not everyone goes to a cattle sale with the same preferences. This means, when armed with good information, there is likely to be an opportunity for you. Do your homework beforehand to help ensure that you are happy with your investment long after sale day.