

Accelerating Genetic Improvement.

by Adrian Stewart

The 4th of July is now upon us in alpaca land, which means the Parade of Champions Auction near Portland in Oregon. The four sponsoring farms are *Pacific Crest Accoyo America*, *Crescent Moon Ranch*, *Alpacas de la Patagonia* and *Latah Creek Alpacas*. Between them, these breeders have won over 180 colour and reserve colour championships in 2005 and 2006. So while alpaca breeders in the UK were heading to the Royal Show, alpaca breeders in North America (and from overseas) were heading to the Accoyo Norte Centre.

This year the auction saw 77 alpacas go under the hammer for a grand total of \$3.27 million (£1.77m) giving an average price of \$42,468 (£23k). The highest selling male was Accoyo America Sinbad at \$205,000 (£111K) purchased by a partnership of Michele and Stuart Ray of *Catalpa Creek Alpacas*, and Lindy and Paul Huber of *Seldom Scene Farm* and the highest selling female Accoyo America Amity at \$125,000 (£68k) purchased by Nancy Wright of *Always Accoyo Farm*.

No new world records were established but its true to say that the high-end alpaca market is very much alive and well here in North America. The next big event is the Breeders Choice Sale at *Magical Farms* on October 7th.

Just down the road from the Accoyo Norte Centre is *NorthWest Alpacas*, home of Mike Safley and the *Ideal Alpaca Community* (IAC). While Mike needs no introduction, the Ideal Alpaca Community he is establishing is less well known but is nothing short of a revolution in the making and in the fullness of time will transform alpaca breeding.

Mike first wrote about the IAC back in 2003 in his second book, *Ideal Alpacas from Myth to Reality*. Some people dismiss the IAC, mistakenly believing it to be all about the promotion of Studmaster males.

Studmaster is the name given by the IAC to their reference herdsires and while herdsires are an important element of the IAC, they are only one element of a sophisticated and powerful initiative that will, over time, greatly accelerate the improvement of alpacas.

Many alpaca breeders currently use pedigree, as documented on the ARI certificate, for their primary breeding selection tool. Admittedly, it is a more solid basis than just phenotypic appearance alone. However, the value of pedigree by itself as a selection tool to determine superior stock remains greatly overrated by the majority of alpaca breeders in North America.

To my mind, the strength of the IAC lies in its focus on the alpaca as a fibre-producing animal, which together with the scientific testing of alpaca fibre samples will lead to the establishment of expected progeny differences (EPDs) for all alpacas in the IAC herd.

So what are EPD's? An alpaca EPD is an estimate of the genetic merit of an alpaca for a single trait. In other words the EPD is the anticipated difference between the average performance of all alpacas in the herd for a given trait and the performance of a given alpacas progeny for that same trait.

Establishing EPDs is no mean feat. It requires participating breeders (IAC members) to embrace an agreed alpaca breed standard, use common herdsires, make breed selections based on heritable traits that are of commercial benefit together with the meticulous collection, recording and sharing of data. Finally, the larger the herd, the better, which is why the members' alpacas are pooled to create a very large virtual herd.

The IAC is designed to help alpaca breeders identify the best genetic stock for their breeding programs. The IAC will also give breeders reliable information that they can use to advertise and sell their breeding stock. EPDs have been used extensively in the dairy, beef cattle and pig industry for many years and more recently with sheep. The IAC will be the first implementation of EPDs in the alpaca industry.

The IAC system will work through the member breeders to deliver across-flock EPDs. Breeders use these EPDs to guide them in their selection and genetic improvement programs. An alpaca breeder who is a member of the IAC will receive reports on the genetic values for every animal in a herd, based on the performances of those animals and all the animals that are genetically related to them, over many years and a variety of local conditions. By using EPDs, an alpaca breeder can make genetic improvements efficiently and reliably. EPDs allow a breeder to rank all his or her alpacas by genetic value, identify high-producing replacements, and cull poor-producing animals.

An EPD is reported in the normal units of a trait, such as +0.5 inches (for staple length) or -0.3 microns (for fibre diameter). It is important to note that *an EPD value is not a ratio or an index*. EPDs are expressed as deviations (+ or -) from the average population value, which is considered to be zero. Therefore, EPDs always have a positive (+) or negative (-) sign in front of them.

The positive and negative symbols do not always mean *better* or *worse* -- it depends on the trait. For example, a Mean Staple Length EPD of +0.5 inches is good, but a Fiber Diameter EPD of -0.3 microns can also be good (smaller diameter fiber, which is more valuable to fine wool producers). Not only can we compare alpacas with positive and negative EPDs, but we can also use EPD values to compare animals that both have positive EPDs. For example, a stud with a Mean Staple Length EPD of +1.0 is good, but a different stud with a Mean Staple Length EPD of +2.0 is better. EPDs may take a little getting used to, but once you get the hang of them, they give the most objective and reliable estimation of genetic value possible.

In a truly ideal world, this initiative would include the whole North American alpaca herd but politics and the long running debate over a breed standard make that a pipe dream. However, maybe the opportunity exists in the United Kingdom for a national alpaca improvement programme using EPDs now that would be an exciting prospect.

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