

Comparing the European Warmblood Breeding Systems to New Zealand Conditions

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When we analyse the results of the 2008 Olympic Games for dressage and show jumping, we see that horses which scored highly in the different disciplines came from different, predominantly

European, studbooks. Table 1 summarizes the studbooks of the horses that were in the top ten individual rankings in the Olympic Games 2008.

	Show jumping	Dessage	Total by studbook
KWPN	5	2	7
Hanover	1	5	6
Belgian wb	2		2
Westphalen	2		2
Swedish wb		2	2
Russian wb		1	1

Table 1. Studbook registrations of the top 10 horses in Olympic dressage and show jumping.

It appears that these studbooks have produced horses who successfully compete at the highest level. So in this article we will have a closer look at how they achieved these outstanding results, and what this might mean for New Zealand.

To get an idea of the number of horses in the main breeding countries in Europe, figure 1 represents the number of Warmblood foals born per studbook by country in 2001. Obviously, the

largest number of Warmblood horses can be found in Germany, followed by the Netherlands, France and Ireland. Interestingly, in Germany the Warmblood population is divided among different smaller studbooks (each yellow bar being a different studbook), and if we then order the studbooks by size, we find that the KWPN is the largest studbook, followed by Selle Français, Hanover, Westphalia and Holstein.

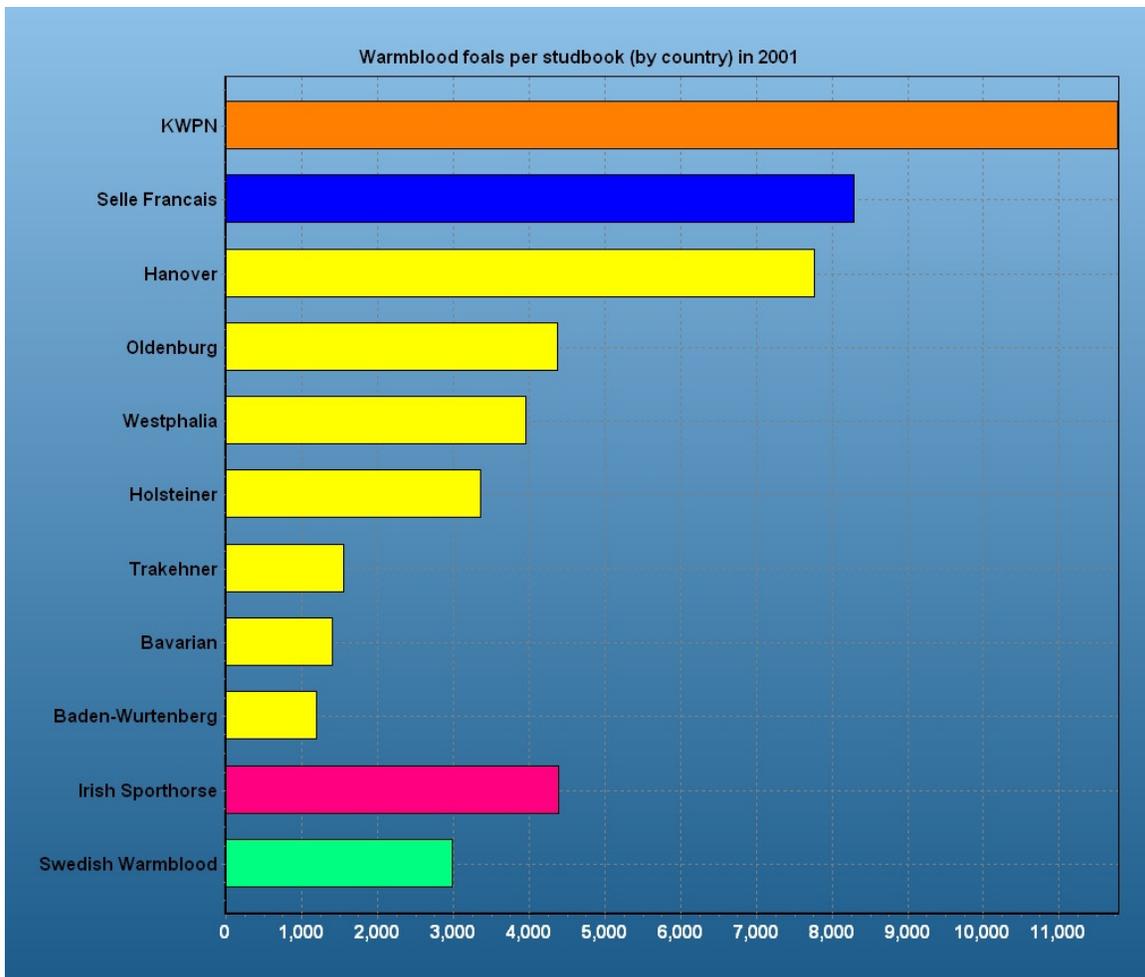


Figure 1. Number of foals born per studbook in the main European warmblood breeding countries.

In a study that was carried out by Koenen, a questionnaire was sent out to the different studbooks, asking to give a mark between 1 and 10 for how important they considered different breeding objectives. The results for the main breeding objectives are given in figure 2. Since the sole objective of studbooks is to achieve genetic progress in the different traits, it is obvious that

there is a differentiation among them in the type of the horses they produce. For example Holstein and Selle Français specialise in show jumpers, Trakehner specialise in dressage and Hanover and KWPN specialise in both. It is also worth noting that the importance of health and conformation in the breeding goal is judged differently among the studbooks.

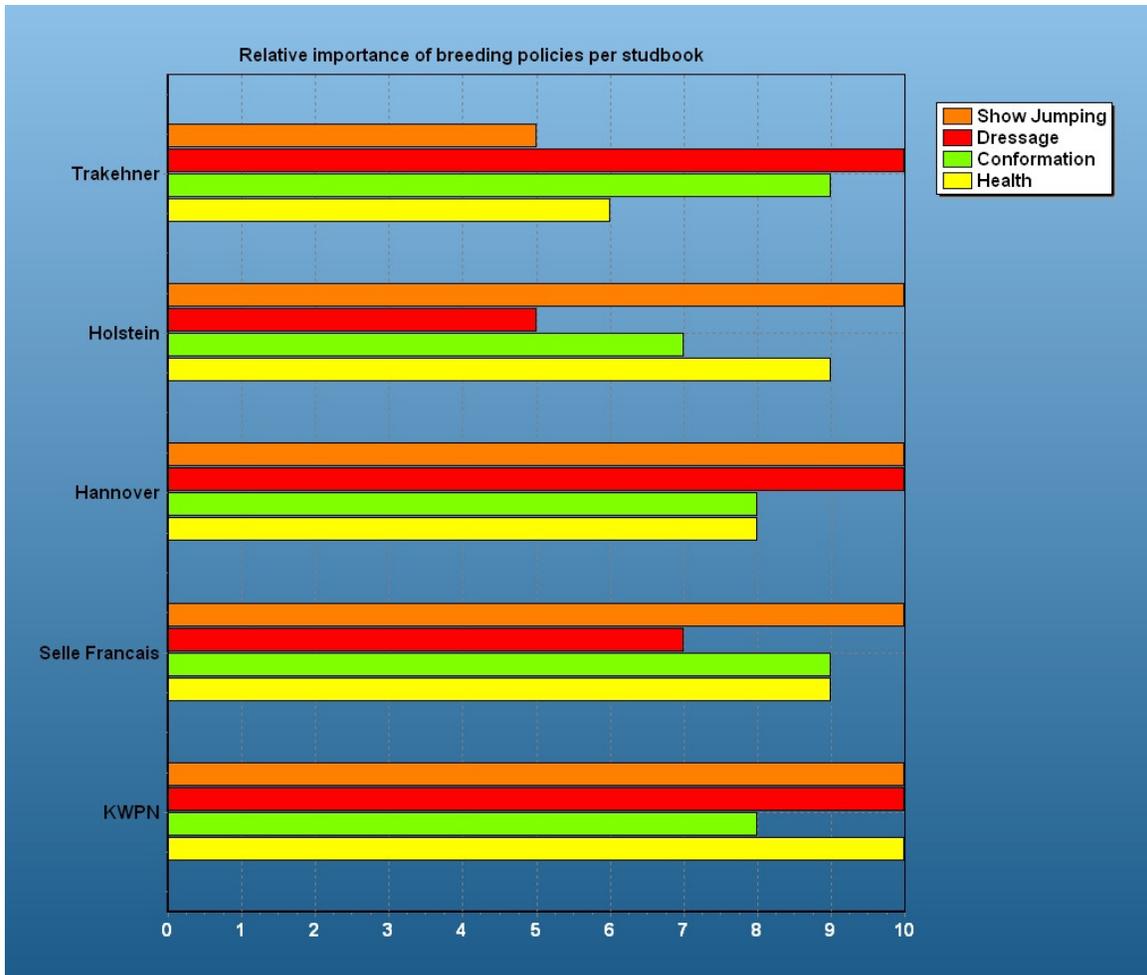


Figure 2. Relative importance of different breeding objectives in various studbooks.

Before the Second World War, Europe had many local horse breeds, some of which were bred as multi-purpose horses. They were the lighter built horses who were capable of doing light agricultural work, towing carriages, and riding. A number of these breeds developed into specialized riding horses, which were used for sports like show-jumping and dressage. They were crossed with thoroughbreds, to improve temperament, create more movement, increase jumping ability and generally

to produce a lighter built horse. These developments occurred more or less in parallel in the different European countries, with Germany and the Netherlands taking the lead. At the time, fairly traditional breeding methods were used, and largely subjective judgment was the norm. Later, individual horse tests were developed, but at the time it was still unknown whether these made sense from a genetic point of view.

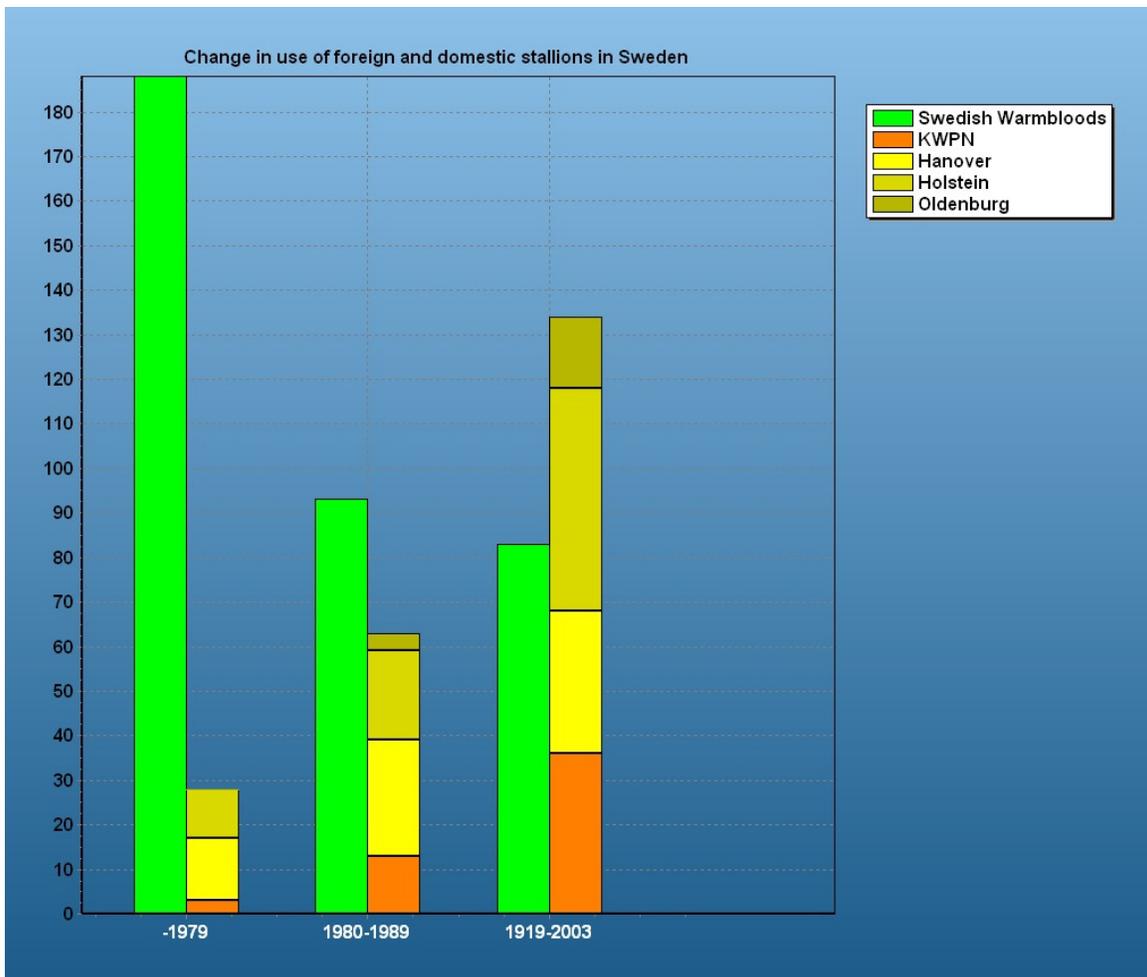


Figure 3. Use of stallions other than local ones in Sweden in the period before 1979 to 2003.

Groundbreaking work was done in the Netherlands in the late 80's, early 90's by Dr. H. Huizinga, who established a system of breeding values for show jumping and dressage for the KWPN, which was followed up with more research about the genetic relationships of traits measured at an early age and later performance. The acquired know-how was used to revise the system of

selection and testing of young stallions, and a better genetic gain was achieved by putting these methods in place. At the same time, similar research was carried out in Germany where breeding systems were put in place using their findings. Over time, similar developments took place in other regions like France and the Scandinavian countries.

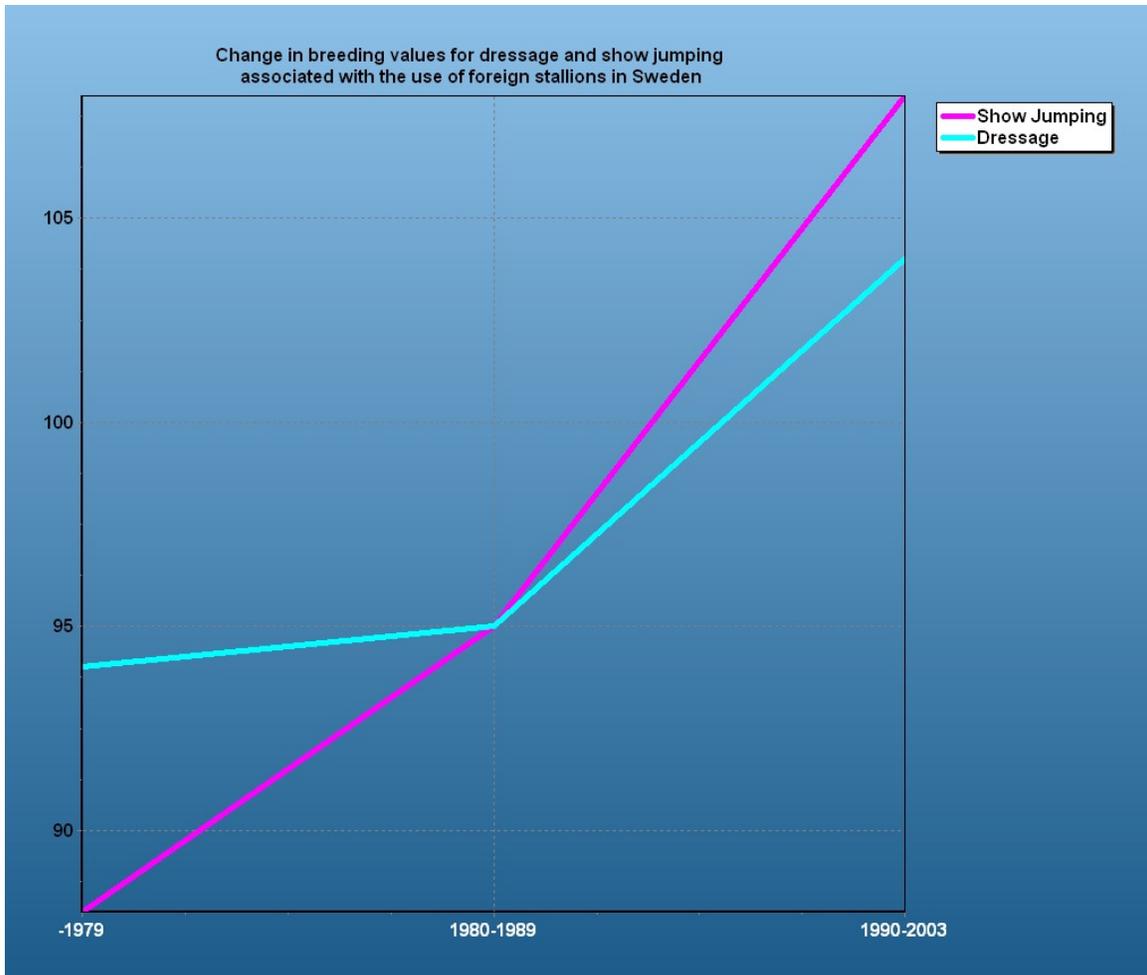


Figure 4. Genetic improvement achieved in Sweden in the period before 1979 to 2003

In most countries, the different studbooks were kept closed, meaning they only allowed breeders to choose stallions approved within the studbook. The KWPN and the Scandinavian studbooks however adopted another policy, where they allowed breeders to breed to stallions of other, accredited studbooks. They approved the studbooks that followed the same breeding goal as themselves, eg a healthy sport horse with a good conformation that is capable of performing at the highest level. Using this policy, they didn't limit themselves to the gene pool of their

own country or studbook, but they mingled genes of other populations into their own. This way, it was easier to improve on traits which would otherwise have taken more generations if it could only be achieved by selection within their own population. The Swedish Warmblood Studbook provides a good example, they started to use stallions from studbooks other than their own in the early 90's. Figure 3 represents the number of stallions of different origin used in their population and the associated decreased use of their own stallions. Much of this was achieved using chilled semen, as this

can be easily and timely transported within Europe. The effect on the average breeding value of their horses is shown in fig.4 which demonstrates that they have improved the quality of their horses in a small amount of time using the best stallions from other studbooks. Another approach to establish a world-class gene pool was taken in the USA and Canada, where many breeders joined the KWPN. As the regional organization grew, they established their own studbook, and they now use the KWPN breeding system under license. They imported horses from the Netherlands and bred to stallions which were either approved or recognized (eg stallions from within the studbook or from accredited studbooks). They are now effectively a stand-alone Warmblood studbook with their own selection and testing policy, closely associated with the KWPN in the Netherlands. As we know from the Olympics, the North Americans have done very well with KWPN show jumpers.



Figure 5. Tangelo vd Zuuthoeve. A KWPN approved stallion with a Selle Français background

Although New Zealand is geographically far away from Europe, we can still make use of the proven genetics developed over there, either through the use of imported stallions, or imported frozen semen.

If we adopt breeding policies similar to the KWPN and the Swedish Warmblood Studbook and if we consistently use stallions that have either an established high breeding value for either sport, or a pedigree of parents with a high breeding value, within a few generations our horses can appear also on the list of the World Breeding Federation of Sport Horses.



Figure 6. Berlin. A KWPN approved stallion with a Holstein background.

In order to achieve this, we will also need a breeding system ourselves, which means that we keep track of the performance of our horses, their speed of progress, their pedigree and methods to compare horses relative to each other. If we all stand behind the common goal of producing the best possible horses, and join our efforts, New Zealand can become a producer of top quality sport horses.

About the author

Responsible for the formation and running of Dutch Horses Unlimited, alongside his wife, horse trainer and instructor Nicole Bours. Ane Visser's extensive experience in setting up breeding programmes for horses has gained a high visibility in The Netherlands. Now in New Zealand, he hopes to contribute to the genetic progress in the population of NZ sport horses. To this end, he and his wife have imported their breeding stock into NZ.