Sport Aptitude Index Shows Genetic Aptitude for Sport

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Translated for THE FRIESIAN by Anneke van den Ijssel - frisian@earthlink.net

In the January 2005 issue of PHRYSO, and also on the KFPS website, you will find the latest publication of the stallion breeding values. The new index print shows breeding values for sport aptitude for the first time. This index provides information on the stallions for the two most important portions of the FPS's breeding objective: **exterior** and **sport aptitude**.

As you probably know, the breeding values for **'exterior'** are based on the linear scoring data, which become available with the registration of horses in the studbook. For sport aptitude we could use multiple information sources: ABFP, IBOP, and sport results. At first glance, it may seem obvious that for the breeding values for sport aptitude, sport data are the starting point. In practice, it's more complicated than that. The disadvantages of sport data are, as follows:

- The differences we see between horses are not highly hereditary. After all, the influence of the trainer/rider is very large.
- The number of offspring active in sport per stallion is too low still for Friesian horses to estimate reliable breeding values.
- Sport data becomes available late. A horse will be, on average, seven years of age before relevant sport data becomes available. Before there is enough relevant data available for a stallion's offspring, the stallion will be at least 13 years old.

ABFP Data Central

The disadvantages of the use of sport data led to the FPS's decision to use the ABFP data for the estimation of breeding values for sport aptitude. Research has shown that the data from the ABFP tests has a relatively high hereditary component

(degree of heredity). This is due to the fact that the horses are being tested and judged under uniform circumstances. Available information shows that there is a considerable correlation between achievements in performance tests and in sport. Important as well, is that for breeding, it's about the aptitude for sport - data that is outstandingly shown with a performance test for young horses. Another advantage to the ABFP data is that the information of the stallions' offspring becomes available at an early stage - breeding values can be estimated for the stallions at a relatively early age. At a later stage, the sport data will also be integrated in the sport-aptitude index. Meanwhile, the FPS has started with this collection of sport data for Friesian horses.

What are breeding values?
The essence of breeding value estimation is to show the genetic aptitude of a horse. Information that can be used for this is:

•Information on parents and other relatives.
•Information on the horse itself.
•Information on offspring. In practice, a reliable estimation of the genetic aptitude of a horse is only possible on the basis of (sufficient) offspring. Of course, it is necessary to sort out the differences between offspring groups on non-genetic factors. Factors for which the data are being corrected are:

- Age of the horse,
- Sex,
- Genetic level of the dams of the offspring (some stallions get more and better chances than others,
- Differences between judges.

The breeding values are compared with respect to a base point. To obtain a base point, the breeding values of all characteristics of a year are set to 100. For the exterior, the base year is 1991 and for sport aptitude it is 1998. A stallion with a breeding value of 104 for the show driving test, for example, is genetically four index points better than the average horse born in 1998. An important aspect of the breeding values is the reliability (bthb%) of the breeding value. The more offspring of a stallion included in the calculation, the more reliable the breeding value. In practice, a breeding value has to have a reliability of minimally 70%. Breeding values with a lower reliability need to be used with a certain amount of caution. The reliability is indicated with the breeding values.

No Progress for Sport Aptitude!
What kind of information does the sport aptitude index offer? In the first place, the numbers provide insight into which stallions produce offspring that are suitable (or less suitable) as riding horses, driving horses or show driving horses. Possibly of more interest is the comparison of the breeding values for the basic gaits in the exterior line (scored in hand) with the breeding values for the basic gaits in the sport aptitude line (scored on use). The stallions can then pretty much be divided into three groups. The largest group is formed by the stallions that give a comparable picture for both the basic gaits in hand and in use. The second group consists of stallions that score moderately for movement in hand, but score well for movement in use. For this group, these new numbers provide a certain amount of rehabilitation. The third group consists of stallions whose offspring show good basic gaits in hand, but do not score well in use. These stallions are always overrated for movement! It's also interesting to compare the average breeding values per birth year of the horses born between 1990 and 2002. This data shows that we have not made, or hardly made, any progress. In other words, the horses born in 1990 are genetically nearly just as good in terms of sport aptitude as the horses born in 2002! The judging of the basic gaits in the judging ring, therefore, offered little contribution to the improvement of the Friesian horse as a sport horse. This is remarkable, because research showed that the relation between the basic gaits scored in hand have a considerable correlation with the basic gaits scored in use (PHRYSO, January 2004). This is explained by the fact that the group of stallions that we have now established have been overrated in movement (in use), as explained above, have had a big influence on the population over the past decades.

Perspective
The question that remains is: How do we change the selection process to make progress in sport aptitude? An important improvement is the introduction of the performance testing as part of the testing on offspring since 2001. It goes without saying that it is too early to see the effect of this change. The breeding values for sport aptitude, that have been based on this, can subsequently contribute greatly to making the right decisions when selecting stallions. It is desirable, for this purpose, to replace the breeding values for basic gaits in hand, by the breeding values for basic gaits in use. Stallions can then be selected through the breeding values for exterior, that are based on the data of the exterior evaluations, and through the breeding values for movement, based on the data from the performance tests. In addition, it can be expected that with the introduction of the new selection system for young stallions (shown on pavement and at liberty in the cage) a better selection from this group will be made.

The Breeding Value tables include the following characteristics -

Exterior
Horse's name, number, % reliability, height, breed type, build, legs, walk, trot, total

Sport Aptitude
% reliability, walk, trot, canter, test under saddle, driving test, show driving test, willingness to work, total.