Australian Warmblood Horse Association Limited
ABN 56 063 906 150

Australian Warmblood Horse Association Ltd (AWHA LTD)

Statement on Fragile Foal Syndrome (FFS)

Recently there has been a lot of focus by Breeders and some Studbooks in the Northern Hemisphere concerning a genetic disorder known as Fragile Foal Syndrome (FFS) due to the confirmed death of a warmblood foal in the US and in Denmark, and the growing commercial availability to test for this condition.

The AWHA Ltd would like to make its members aware of this condition, encourage all breeders to test for this condition, and advise our members of proposed changes to the AWHA Ltd Breeding Guidelines to be tabled at our next Federal Annual General Meeting (AGM).

Fragile Foal Syndrome (FFS) is an inherited genetic disorder which can be found in Warmbloods and less frequently in other sport horse breeds, and a low carrier frequency of the FFS mutation has been identified in Thoroughbred and Knabstrupper horses. A horse can either be **clear** of this genetic disorder (N/N), a **carrier** (N/FFS), or **affected** (FFS/FFS).

No evidence has been presented which proves that a **carrier's** athletic or breeding performance is negatively impacted by this condition. In fact, there are **many successful carrier's** competing in various disciplines at an International level as well as many successful Internationally recognised breeding horses. Thus it is the AWHA Ltd position that the commercial value of **carrier** horses should not be adversely impacted by this genetic disorder, nor should their status within the AWHA Ltd Studbook be negatively affected by the reporting of this condition.

Whilst current evidence shows that the occurrence of this genetic defect is low within the breeding population, the AWHA believes that Breeders should be aware of this condition, test their Breeding stock, and avoid **carrier** to **carrier** matings due to the devastating consequences if a live **affected** foal is born, as well as the negative commercial consequences to both stallion and mare owners resulting from abortions or still births of **affected** foals.

In order to assist our Breeders to make informed decisions, the AWHA Ltd is proposing a change to the AWHA Breeding Guidelines, and they will be presented at our next AWHA Federal AGM as follows - all Mares and Stallions presented for AWHA Ltd Classification from 1st July 2019, are required to be DNA tested for FFS and their results will be recorded in the AWHA Ltd Studbook records. Stallion results will also be published on the AWHA Ltd Stallion Directory, so that Mare owners are able to make informed decisions when selecting a Stallion to breed to.

AWHA registered horses are **NOW** able to receive a discount for DNA testing of FFS, through the Practical Horse Genetics lab, whose testing process has been validated via an independent source. The cost of this test has been reduced to $48 AUS per horse. You will need to enter this code onto the application form - **AWHAFF**
Please note: if using this code, test results will be forwarded to the AWHA Federal Registrar.

The AWHA Ltd recommends that all AWHA Breeders test their mares and stallions prior to the commencement of this breeding season. The DNA test comprises of taking a hair sample from either the underside of the horse's mane or the dock of their tail. If taking samples from multiple horse's, please ensure that you wash your hands in between taking hair samples, so as to avoid cross contamination of the samples.

Statement from World Breeding Federation for Sport Horses (WBFSH).

Additional Information on FFS -

It is currently understood that the majority of embryos which are **affected** by this disorder are aborted by the mare, or result in still births. However there have been incidents reported of live births, with the foal presenting extreme skin fragility resulting in lesions, tears (or worse) with normal contact in its surroundings, fragile mucous tissue resulting in extensive lesions within its body, and abnormal or excessive extension of joints beyond their normal range of motion resulting in injury. Newborn foals have to be euthanized for humane reasons, due to the poor prognosis for an untreatable condition.

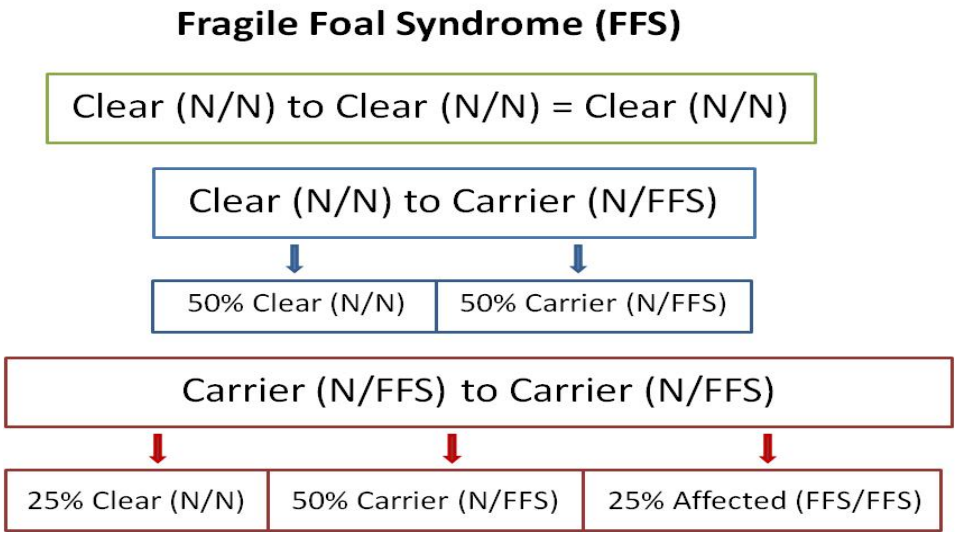
In order for a foal to be **affected** - both its sire and dam must be **carriers**. Research is ongoing in terms of identifying the percentage of the breeding population of Warmblood horses which are **carriers**, however based on current data it is believed that it is somewhere between 9% to 11%.

Genetic inheritance -

If breeding a **clear mare** to **a clear stallion** -
- there is a 0% chance of conceiving an **affected** or **carrier** foal.

If breeding a **clear** mare/stallion to a **carrier** stallion/mare -
- there is a 50% chance of conceiving a **clear** foal, and
- there is a 50% chance of conceiving a **carrier** foal.

If breeding a **carrier mare** to a **carrier stallion** -
- there is a 25% chance of conceiving an **clear** foal, and
- there is a 50% chance of conceiving a **carrier** foal, and
- there is a 25% chance of conceiving an **affected** foal.



Sources -

BMC Veterinary Research

UC Davis Veterinary Medicine

Links -

Hilltop Farm Inc FAQ

WBG - WFFS Awareness Group

Practical Horse Genetics