Dear Member,

The SPI Board and Technical Sub-Committee have been working for some time on the incidence of Gonadal Hypoplasia in the breed and establishing a test to identify through DNA both those affected by the condition and those that are carriers of the condition.

To this end we have engaged in genetic research into the condition. Several dedicated breeders have assisted us to date providing both DNA samples and the funds to test those samples. We thank them for their cooperation and generosity.

Gonadal hypoplasia is characterised by uncommonly small and underdeveloped gonads. Hereditary gonadal hypoplasia is a frequent disorder in some Scandinavian cattle breeds and is found in several other breeds including Speckle Park.

In order to move forward from here more DNA samples of both affected and unaffected animals need to be studied. You might be able to help. If your herd meets the following requirement you can assist with this great leap forward for the breed.

Requirements

- 15+ white or leopard registered females
- Females must be 12 months or older
- Females are to be not in calf or less than 90 days pregnant.

Process:

Eligible females are to be palpated by an approved vet or technician noting presence or absence of Gonodal Hypoplasia. A TSU samples and photo will be taken for each animal.

If you can participate in this vital work we would encourage you to do so. Please contact Hannah Bourke CEO of Speckle Park International at info@specklepark.org

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Speckle Park International Gonadal Hypoplasia Trial Outline

What is Gonadal Hypoplasia (GH):
In simple terms the lack of or underdeveloped gonads in either a male or female.

Gonadal hypoplasia is characterised by aberrantly small and underdeveloped gonads, in both sexes. Impaired migration of primordial germ cells during embryonic development causes hereditary gonadal hypoplasia in both sexes of Northern Finncattle and Swedish Mountain cattle. Most affected animals present left-sided gonadal hypoplasia. However, right-sided and bilateral cases have also been found.

This type of gonadal hypoplasia prevails in animals with white coat colour, but further research is required. Previous studies indicated that gonadal hypoplasia is inherited in an autosomal recessive fashion with incomplete penetrance. Penetrance refers to the likelihood that a clinical condition will occur when a particular genotype is present. To show incomplete penetrance means that an animal carries the genetic variant and express the trait while others do not.

Why is GH of interest to our breed Speckle Park:
With the lack of both pairs of gonads in either a female or male, the reproductive efficiency is lost. While a GH affected animal may still have the ability to create a pregnancy, in a males the serving capacity of the bull is significantly decreased. A female will encounter irregular cycles, and with only one ovary can only cycle and create follicles and CL's on the active ovary, and hence only release a follicle to potentially become fertilised from that one side.
These affected females still have the ability to become pregnant but the time period required and number of "normal cycles/3 week periods" can be significantly extended.

GH can have lasting impacts on overall herd fertility and profitability due to the reduced reproductive efficiency of the cow and bull, potentially leading to a reduction in kilograms of liveweight produced from any given operation. Therefore, Speckle Park International are in the process of researching the prevalence with the Speckle Park breed, with an end goal of developing a genomic test to assist breeders in identifying carriers. This will not only be of great benefit to your operation but also your clients.

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Trial Objective:
The objective of the Speckle Park International GH trial is to identify the genetic markers associated with GH and potentially develop a commercial test that can identify the GH status of an animal, so SPI breeders can make informed breeding decisions

In other breeds GH and coat colour are associated together. Initial research with Dr. Jon Beever, has proven to be partly correct, with areas of further research identified. Therefore Speckle Park International are searching for suitable herds that fit within the research criteria who may be interested in assisting in the research and development of a GH test.

Speckle Park require 3 sets of samples for the initial trial:
30 White or Leopard affected females or males
30 White or Leopard unaffected females or males
An entire calf crop of as many as possible (aiming for 100+).

Breeder Trial Criteria:

- Own/Bred 15 white or leopard females in calving year Q (2019)
- Females over 12 months
- Females less than 90 days in calf at time of palpation.

Trial Process:
The following procedure is required, in the presence of a SPI Board member or SPI Technical committee member:

- Animals to be palpated or ultra-sounded by approved technician.
- Testing is to be carried out in females 12-18 months old preferably
    - Females identified at closer to 12 months are suggested to be rechecked again at 15-18 months as animals develop at different rates.
- TSU sample take
- Photo of animal taken/tag recorded.

If you can participate in this vital work we would encourage you to do so. Please contact Hannah Bourke CEO of Speckle Park International at info@specklepark.org

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