

NADIS disease bulletins are written specifically for farmers, to increase awareness of prevalent conditions and promote disease prevention and control, in order to benefit animal health and welfare. Farmers are advised to discuss their individual farm circumstances with their veterinary surgeon.

Boar Usage

Back in the 1980's when artificial insemination usage was more the exception than the norm for mating sows, the major issues for boar usage were avoiding overuse and maintaining consistent usage with particular care to avoid favouritism. Many herds now utilise AI in one form or another (total use, "top up", on farm collection) and the emphasis has shifted to avoiding underuse and avoiding carrying excessive cost. As always when dealing with the pig unit, one can only operate to guidelines rather than to hard and fast rules – a biological system is always vulnerable to unpredictable variation. There is also a need to differentiate between maximum, minimum and optimum use.

It is worth trying to understand some basis physiological facts about sperm production before trying to apply guidelines.

Semen is made up of sperm – produced in the testes – and seminal fluids produced in the accessory glands. Sperm takes up to 8 weeks to reach maturity following initial cell division and the testes operate as a production line with sperm at all stages of development. It, therefore, follows that if anything happens to the boar to damage this system, it can take up to 8 weeks for new mature sperm to be produced. Heat, disease and toxins can do such damage.

In the average boar, the daily rate of manufacture of sperm is exceeded by the number of sperm shed in an ejaculate. Therefore, the boar has to accumulate sperm over several days to build up sufficient resources to provide a complete ejaculate. In experimental studies, sperm resources in boars have been totally exhausted by collecting semen on 5 consecutive occasions 12 hours apart and by daily collection over 6 days. Whilst these levels of use are unlikely in a controlled service environment, they are highly likely in the outdoor "self service" arrangement.

Conversely if the boar does not serve for 10 days or more the likelihood will be that the stored sperm will have de-generated to the point where the next ejaculate will be substandard.

The ability of the boar to produce a full ejaculate is age dependent. Sperm can be produced from boars of 5 months old or younger but it is unlikely in most cases that a reliable ejaculate would be produced before 7 months old. However, maturity is unlikely to be achieved before 14 months, by which time it would be appropriate to use the boar to his maximum. In most boars, semen production will reduce with ageing beyond 2 years, although they may not occur early enough in life to be of practical significance – most boars being culled due to size, aggression or genetic drag before this de-generation occurs.

The numbers of boars required on a unit will not only depend on the number of sows and gilts to be served but the age range of the boars and sows (more boars will be needed in a young herd), the weaning and serving pattern (twice weekly weaning tends

to spread out serving through the week avoiding concentrating boar use into 2 or 3 days) and the amount of AI used.

Over the years, the following guidelines for boar use have been applied with apparent success:-

- 1) Young boars 7-9 months – 1 ejaculate per week.
- 2) Boars 9-12 months – 2 ejaculates per week with a minimum 48 hour interval.
- 3) Boars 12-14 months – 3 ejaculates per week. If only 24 hours intervals are used, a full 7 day recovery period is needed.
- 4) Adult boars more than 14 months old – 4 ejaculates per week spread through the week with no less than a 24 hour interval between 2 “jumps”. If 2 ejaculates are made within 2 days, a 48 hour rest period is needed.
- 5) Any boar not ejaculating for 10 days must be regarded as suspect and that mating covered by another boar (or discarded).
- 6) For semen collection on farm, the rule of thumb applied at collection centres of an optimum interval of collection of 5 days is appropriate.

Costs

If one assumes:-

- 1) Purchase cost of boar £800 written off over 2 years.
- 2) Average number of matings per week through life = 3 i.e. 304 ejaculates.
- 3) Feed/water cost = 50p per day = £365.00 for life.
- 4) Cost to produce one ejaculate (without labour and housing costs) = £3.83.

These costs should be borne in mind if using purchased AI for top up serving. Many units use AI for 50% of matings and yet retain the “usual” complement of 1 boar per 20 sows and gilts. As a general rule, for every 3-4 doses of AI used, the number of stock boars should be reduced by 1, obviously allowing for the smaller herd having a minimum requirement.

It must be stressed that there will be wide though unidentifiable, variance between boars – some thriving on vastly increased use over the figures given whilst others would be totally exhausted by these levels of use.

On any farm with supervised service, it is necessary:-

- 1) To record and take notice of weekly boar usage.
- 2) Use breeding result records to assess service programmes and boar usage on a regular basis and adjust husbandry practice accordingly.

Mark White BVSc DPM MRCVS

Copyright © NADIS 2001