



**“SETTING A NEW STANDARD”
IMPROVING REPRODUCTIVE PERFORMANCE IN PIG HERDS**

**WORKSHOP AT RADISSON SAS HOTEL, STANSTED
THURSDAY 26TH JANUARY 2006**

The driving force behind this workshop was the significant gap in costs of production and performance between the UK breeding herd and our EU competitors. The purpose of the workshop was to provide an opportunity to share existing knowledge, debate and discuss AI, transfer best practice and to encourage the industry to appreciate the whole picture. The positive response to the invitation to attend the workshop is evidence that the industry wants to make improvements and is eager to see what strategies they should be looking at to do so. The 75 delegates, veterinarians, nutritionists, producers and other industry advisors, participated fully in good discussions and debates, which carried on through breaks and after the workshop at the end of the day. The presentations covered topics ranging from heat detection and paddock layout all the way through to boar studs and semen quality, and were presented by specialists from the UK, Netherlands, France and Germany.

BPEX Chief Executive Mick Sloyan, and Mark Wilson, Director for the Pig Industry Development, began the day by explaining the background of the BPEX programme to improve reproductive performance and how it will be implemented. Part of the BPEX strategic objectives (2006-2009) are to help the industry to improve the cost competitiveness of Great Britain (GB) to a level at least comparable with our main EU competitors, namely Denmark, France, The Netherlands and Eire. The Programme to improve reproductive performance consists of four main areas: On-farm improvement, AI standards and audit, reference laboratory and recording, and will be managed principally by Mark Wilson and implemented by Angela Cliff, who recently joined the MLC.

Mark Wilson emphasized the need to set targets. British producers by increasing the number of pigs finished per sow per year, by a suggested two pigs, would bring the GB average up to 20.1, still short of our EU competitors but at least a step in the right direction. Producers should also aim to increase the number of pigs born alive by at least one pig per litter, which would bring the GB average up to 11.7 per litter. A third key target should be to increase finishing daily live weight gains by 100g/day to 730g. These are realistic targets and achievable; if our competitors are doing better than this we must set goals to try and reach a similar, or even better, level of performance, and to do this strategies need to be put in place. As Mark brought to everyone's attention, the French have moved from 6th place in the EU costs of production in 2000 to 1st place in 2004, increasing pigs sold per sow per year from 19 to 22, British producers should therefore be positive and not look at the targets as unrealistic.

John Mackinnon – Improving reproductive performance in pig herds

John Mackinnon brought to delegates attention the period of stagnation in the GB breeding herd performance which has occurred over the last 20-30 years. This can be attributed to a number of factors including the lack of profit and investment, the

failure to take on new technology whilst our competitors take advantage of it, the impact of disease and the lack of training, which is now being addressed. Reproductive failure and poor fertility are in most cases not the result of a single cause but a complex combination of several, making diagnosis difficult. Producers and advisors frequently underestimate the cost of reproductive failure as well as the seasonal and environmental effects, when in fact it could be costing producers in the region of £70 per sow per year. John suggested some factors that should be focussed on in order to improve performance, which included basic husbandry of gilts and sows, the management of the weaning to oestrus/service interval, boar management, semen quality and storage, and timing of insemination. A key message to producers was that they should be prepared to adapt procedures in order to get the timing of insemination right.

Pieter Langendijk – Boar stimuli, follicular development and oestrus

Pieter Langendijk drew attention to the importance of the boar as a stimulus to reduce the weaning-to-oestrus interval and to facilitate heat detection. The most significant effects of boar contact result from tactile (touch) and olfactory (smell) interactions –stimulating an increase in the pulsatile release of LH. Contact between the boar and sow at mating promotes the release of oxytocin; oxytocin produces contractions that facilitate sperm transit to the ovaries and potentially aids fertilisation. Sows kept in pens surrounded by boars have been shown to be more likely to come in heat, and a higher percentage of animals in heat being detected, than those with single boar or no boar contact. Boar contact post weaning stimulates the pulsatile release of LH from the pituitary gland, which triggers growth of follicles and the start of oestrus. For the maximum effect Pieter suggested that boar contact should be introduced shortly after weaning, two to three times a day. It is important to avoid continuous boar contact however as habituation to the boar stimuli can occur.

Dorotheé Ducro-Steeverink – Farm characteristics to improve insemination strategies in pigs

Dorotheé Ducro-Steeverink discussed the management programme PIGSIS and how it can be used to develop an insemination strategy that increases the number of pigs born per sow per year. Dorotheé explained that the ideal time for insemination is during the 24 hours prior to ovulation in order to give optimal fertilisation, and that ovulation occurs around two thirds of the way through oestrus. The problem lies in knowing how long oestrus lasts, as it will vary between animals. This means that one can only look in retrospect as to whether insemination was at the optimal time. However, within a farm research has shown that oestrus duration remains fairly constant from month to month, which should enable predictions to be made. PIGSIS is a management programme that uses farm records to put an insemination strategy together. Data is collected, of the onset and end of oestrus, along with other records, and the programme can then predict the moment of ovulation and recommend insemination timings. Since individual farm data is entered, the programme will create a strategy tailored to each individual farm; this should lead to improved reproductive performance. Farms that have used the system in the Netherlands have made improvements of 1.76 pigs per sow per year on average.

Sylviane Boulot – Environmental requirements in relation to reproductive performances

The main point highlighted by Sylviane Boulot was again that reproductive performance is multifactorial. Infertility and poor reproductive performance can rarely be attributed to a single cause but the combination of many. Environmental factors,

such as light and temperature, can be manipulated to reduce the negative effects on performance. Longer days for example lead to decreased melatonin levels, and supplements can be used to compensate for this and therefore stimulate oestrus. However, this approach is costly and the problem can be improved through other means. Another common environmental problem is the different temperature requirements of the sow and piglets. Sylviane pointed out that lactating sows should ideally be housed at 16-20°C whereas suckling piglets need a much higher temperature of 30-34°C. As a result a compromise is commonly made whereby the temperature is set at around 22-25°C, which has a detrimental effect on the feed intake of sows. Having said that, it was stressed these are by no means the most important factors involved in reproductive performance, as stress, hygiene and staff also play a role. The whole environment should be considered and improvements made to each area.

Anja Riesenbeck – Troubleshooting suboptimal reproductive performance **Systematic analysis of herd management data**

Herd management programmes can be a valuable resource when investigating reproductive problems. Anja Riesenbeck, outlined how reference value analysis can be used to identify key issues and opportunities to make improvements. Data, both general and reproductive, is combined using a computer programme, with the top performing 25% of farms forming the reference pool. Graphs are produced using the data, which allows producers to clearly see how they compare with others, as well enabling them to relate current performance levels with previous years. These also help identify weaknesses and where improvements can be made. Anja did stress however the need for good record keeping, as the system relies upon accurate herd data, and the UK should perhaps look to improve this aspect of management.

John Hayden – Reproductive management in outdoor herds

John Hayden, of Integra Veterinary Services, gave a very comprehensive presentation on the management of outdoor herds, which included example pen layouts for insemination, and paddock layouts for the different stages of production. John highlighted four main principles of service management to optimise performance; these included segregating the boar from the sows the day before insemination, maximising stimulation during insemination – preferably with nose-to-nose boar contact, ensuring that stock people are prepared and ready when the sow is ready, and allowing the sow to rest after insemination. He also stressed the need to minimise stress post-insemination, which is especially important between day five and thirty. Recommendations to minimise stress included keeping the sows in one place and not mixing them, as well as keeping diets constant and making sure that vaccinations are not carried out during this period. With regard to feed, John suggested flushing sows with a lactation diet around the time of service, and then moving to 3-4 kg of dry sow diet for the following five weeks, although this does need to be tailored to sow condition. The research and experience on feeding post-mating is conflicting. Two pen layouts were described, which showed how paddocks (which need excellent fence management and double fencing) and pens could be arranged, including the holding pen, boar and service pens, as well as surrounding paddocks.

Arno van de Laar – The customer value of high quality A.I.

Arno van de Laar focussed in his presentation on the Noord Brabant boar studs and laboratories, which produce around 1.33 million doses of semen per year. In the Netherlands nearly 100% of matings are by A.I. and semen quality is of utmost importance. Arno gave an overview of the AI Noord Brabant organisation, and

highlighted the key research priorities: sperm cell quality, efficiency and biosecurity. The main goals of research were also discussed, with the focus being on increasing the genetic value of boars and selecting those with higher reproduction results and which produce more piglets per insemination, as well as the new developments in the organisation which include Flowcytometry and computer assisted semen analysis.

The BPEX workshop covered a wide range of issues and will hopefully be a catalyst for many; encouraging veterinarians, advisors and producers to take action and to put plans into practise. From the response of those in attendance at the meeting, we can be optimistic that the industry will see changes as far as AI strategies are concerned, and that reproductive performance will improve as a result, hopefully bringing our production figures more in line with our EU competitors. All aspects of reproduction and breeding herd management need to be considered, not just the insemination itself. This includes health and nutrition, boar contact, seasonality and record keeping, amongst other issues, all of which influence reproductive performance and should not be overlooked.

Linking in with this workshop is a series of wall charts, three of which are currently available on request from BPEX: Semen storage and handling, Heat detection and Timing of service.