



NEWSLETTER

February 2006

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BOAR MANAGEMENT

One of the most neglected areas of pig research and nutrition is the working boar. It is essential that boars are properly managed after all they are "half the breeding herd". Often little attention is paid to the boar unless they simply won't mate. Without good working boars it is difficult to keep the continuous flow of pregnant sows coming into the farrowing shed. It is important therefore to take some steps in the care and management of a herd boar that will help eliminate sources of trouble and give you maximum service.

Purchasing Replacement Boars

When purchasing replacement boars ensure they are sourced from suppliers who can provide superior animals through their genetic selection programs and herd health programs. Attention should be given not only to their genetic merit but their structural soundness also, particularly their feet and legs. It is important to purchase boars six to eight weeks before their services are required. This gives the young boars time to mature, even though they can reach puberty as early as 110 to 125 days of age, there is a considerable delay before they are capable of fertilising an egg.

Nutrition

Boars should be fed enough of a balanced diet to maintain a healthy condition. Over fat, thin or run down boars lack drive and libido resulting in poor performance. Research has shown that higher feeding rates lead to more sperm production however boars fed too much had structural problems and some needed culling. There is also no advantage in terms of conception rate and numbers born alive in feeding more than the recommended levels if they are housed properly. Table one shows some suggested feeding rates (kg)* for working boars used three to six times weekly and housed in thermo neutral conditions (21°C–31°C)**.

	Bodyweight (kg)				
	150	200	250	300	350
Maintenance	1.70	2.20	2.50	2.85	3.20
Used for 3 services per week	2.15	2.45	2.75	3.00	3.40
Used for 6 services per week			3.40	3.60	3.80

Table One: Suggested feed requirements for working boars (kg/day).

* Diet with 13 MJ DE/kg and 14-16% protein.

** Feed an extra 100 gm per day for every 1°C that temperature drops below 21°C.

Each boar's physical condition and frequency of use should be taken into account when determining feeding rate.

Housing and Environment

The code of practice states that boars in pens used for mating should have 6.25m² per boar with a maximum length of the shortest side being 2m. The flooring in the breeding pen should not be slippery. Injuries can result from a boar slipping on a greasy surface. If a boar falls over, they may associate this with stress and refuse to mate when next called upon.

The optimum temperature to house boars in is 15°C–30°C. Boars exposed to at least 3 days with temperatures greater than 30°C should be considered "at risk" of experiencing negative consequences of heat stress. The effects can include poorer semen quality, decreased interest in mating and lower sperm counts. Semen quality can often take six weeks to recover to an acceptable stan-

Congratulations.....

Well done to Kellie Anset and her husband Darren on the safe arrival of their first daughter Imogen Cayli, born January 30th. We wish them all the best.





Humidity also needs to be taken into consideration. For instance, if the humidity is greater than 90% a temperature of 25°C is like being exposed to a temperature greater than 30°C. To minimise the impact of heat stress on spermatogenesis, cooling systems should be placed where boars are housed and activated 2-5°C below the critical temperature for heat stress.

Semen Evaluation Service

Chris Richards & Associates have recently re-released a technique that will allow boar semen on commercial piggeries to be examined for fertility indicators. This has coincided with the addition of Dr Bernie Gleeson to the team who has a keen interest in reproductive technologies. The Semen Evaluation Laboratory has been utilised by a number of boar studs in the past to evaluate the quality of semen from boars collected for artificial insemination purposes. This service is also available to commercial boars, using a collection kit that enables collection and preservation of boar semen from the vagina of sows.

Boars are often observed to have poor fertility when reproductive parameters such as an increase in returns or low litter size occur. By the time these

problems are detected a considerable amount of time and money has gone into the boar and these sows. The service offered by Chris Richards & Associates enables boar semen to be evaluated at regular intervals to ensure that from a microscopic level, the boar fertility is sound.

Semen from commercial herd boars can be collected using the "Semen Retrieval Kit". The kit, which can be used on both sows and gilts can be purchased from Chris Richards and Associates which includes instructions and instruments to retrieve and extend the semen. This process collects the semen in the cervix and vagina, so there is no risk in affecting the success of the mating.

The samples are examined using phase contrast microscopy

and other analytical equipment to assess motility, morphology, and bacterial content.

To manage the risk in your boars and learn more about the "Semen Retrieval Kit", contact Dr Bernie Gleeson at Chris Richards & Associates on 03 5442 6142.



Sow Longevity Seminar held at DPI - Bendigo

In early December Don Levis and Paul Hughes spoke on sow longevity and lifetime performance. Dr Don Levis from the University of Nebraska spoke first. His topic was entitled "Economical and Biological Evaluation of Sow Longevity". The talk concentrated on replacement rates, reasons why replacement animals are needed and what impact this has on the herd and its overall performance.

Dr Levis indicated that poor sow longevity leads to larger replacement pools and increased costs. There is the initial purchase, developing and acclimatising, disease risk, poorer maternal production from younger sows and poorer performance of offspring from first parity females (reduced ADG, higher mortality etc.) He believes that you need to maintain your herd at an average of parity 4. Using U.S figures for feed, buildings etc. he calculated that sows in a farrow to finish operation need to remain in the herd until they reach 3rd parity before they recover their purchase cost and 4th parity in a breed to wean situation. He used a template developed by Dr Ken Stalder at Iowa State University. This spreadsheet is available at: <http://www.ipic.iastate.edu/subjects.html>

General breeding herd management including selection criteria, housing, feeding and staff inputs were also covered.

Dr Paul Hughes spoke on "Managing 21st Century sows for performance and longevity". He discussed how traditional gilt management principles may not be as relevant today as modern gilts have been bred for different traits. He talked about pre puberty, feeding and how this all effects litter size. The factors affecting potential litter size are: Ovulation rate, embryo survival rate and foetal survival rate.

Another area Paul discussed was body composition, gestation live weight, gestation and lactation feed intake and the effects these parameters have on reproductive performance.

For more information on the talks presented please contact the office for a copy of the power point presentations.

Housing and Air Quality

There have been many studies done in the past showing how air quality affects the health and well being of pigs.

The air quality in a building depends on a number of factors including the stocking rate, air space/capacity of the shed, air temperature and fluctuations, amount of air movement, concentration of gases (ammonia, hydrogen sulfide and carbon dioxide), dust levels, concentration of bacteria in the air and the physical lay out of pens and fixtures.

As the number of infectious organisms and the pigs' exposure to them increases, there is an increased risk of disease. Control of the environment therefore must constantly be aimed at reducing these levels.

Bacteria and viruses can be spread by airborne dust and droplets. In dry airborne dust, most infectious organisms die but their toxins can still be harmful to the pig when inhaled. Aerosol droplets containing organisms dry out rapidly at low humidity and the organisms die. At middle range humidity, the droplets don't dry and the organisms remain viable and infective. At very high humidity, droplets and dust pick up water, increase in size and are precipitated out of the air.

The smaller the dust particle or air droplet, the more likely the pig will inhale these deep into their lungs. The larger ones tend to be filtered out in the nose, throat or upper airways of the lungs.

Pigs not in all-in-all-out systems are more vulnerable to respiratory and enteric diseases as these organisms can be shed into the environment by older pigs already there. The most harmful time for this to happen is when weaners enter a continuous flow shed at a time when their immune systems are not fully developed and the benefits from the antibodies received from the sow's colostrum start to wane.

The pigs immune system can be further compromised by mixing, moving, stress, overcrowding, inadequate nutrition and high levels of irritant effluent gases. Increased ventilation helps in reducing gases but does not have much effect on airborne dust and droplets. Reducing stocking rate and avoiding overcrowding have the biggest effect on improving air quality. The following tables can be used as a guide for air quality.

Air Quality Targets for Risk Reduction

Climate	Suckers	Weaners	Growers/ Finishers	Dry Sows	Lac Sows
Air temperature	32-36°C for the first 48 hrs reducing to: 30-32°C for rest of 1st week. 28-30°C in 2 nd week 26-28°C in 3 rd week 24-26°C in 4 th week	3-week weaning: 26-28°C 4-week weaning: 24-26°C reducing to: 22-24°C at 8 weeks	16-26°C aim for: 20-24°C	15-26°C aim for: 18-24°C	12-24°C aim for: 18-22°C
Air movement	Minimal (use creep area with walls on 3 or 4 sides and a roof or cover)	Minimal 0.15m/sec if temp. is OK	0.2m/sec if temp. is optimal. Up to 0.5m/sec if temp. is elevated	As for growers	As for growers
Humidity	60-80% creep area must be dry	60-80% weaner pens must be dry	60-80% use sprays to maintain temp.	60-80% use sprays or drippers to maintain temp.	60-80% use drippers to keep sows cool

Risk Factor	Ammonia	Hydrogen sulfide	Carbon dioxide	Total dust	Respirable dust	Bacteria
Target Levels	< 10 ppm (20 ppm max.)	< 5ppm	<3000 ppm (aim for <1500 ppm)	2.4 mg/m ³	0.23 mg/m ³	100,000 CFUs/m ³

It also needs to be kept in mind the occupational health and safety risks associated with high levels of gases. For example hydrogen sulfide is potentially toxic to humans.

If you would like more information on the tests available to measure the air quality in your piggery, contact one of the vets at the office.

Chris Richards Group of Companies

144 Murphy Street,
Bendigo VIC 3550
P.O. Box 2388
Bendigo Delivery Centre,

We're on the Web!!
www.chrisrichards.com.au



Phone: 1800 426142
Fax: 03 54426119
Email: admin@countryvet.com.au



Phone: 1800 426142
Fax: 03 54426119
Email: admin@countryvet.com.au

DIARY DATES

May 4th-5th, 2006

Chris Richards and Associates Partnership Program Conference, Gold Coast

May 4th-7th, 2006

Pan Pacific Pork Expo Gold Coast Convention Centre



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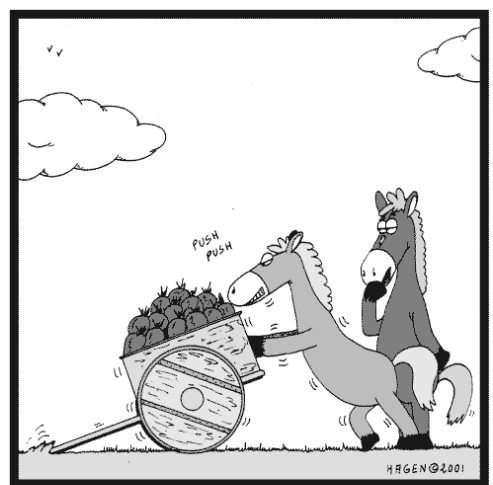
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Cartoon Corner



Hang on... We must be doing something wrong...
How does the saying go again?