

Shaun Welsh – Northern Bacon

Nuffield Scholar – 2006

Increasing sow production and other technologies to improve efficiency in the Australian Pork Industry.



Because the land is your life.



Shaun Welsh – Northern Bacon

Many thanks to my sponsors

Incitec Pivot Limited
Nuffield Australia
Debby & Family
Bolster Family



Because the land is your life.



Shaun Welsh – Northern Bacon



Why research this topic?

High cost of production in Australia.

Why are overseas production figures better?

Are there any production processes we don't know about?



Because the land is your life.



Shaun Welsh – Northern Bacon

Why improve sow productivity?

Large capital setup cost – spread fixed costs.

Lower cost of Production (COP).

Competition from imported product.

– occupies 75% processing market.

Efficient production is required to maintain margin.

Rising costs of inputs.



Because the land is your life.



Shaun Welsh – Northern Bacon



How to measure sow productivity?

Kg sold per sow per year

**(Average slaughter weight x number pigs sold per annum)
÷ number of sows in herd**



Shaun Welsh – Northern Bacon



How to measure sow productivity?

Piglets per sow per year (PSY)

| | |
|-------------------------|-------|
| PBA | 11.1 |
| Pre-weaning Mortality | 9.0 % |
| Weaned per litter | 10.1 |
| Gestation length (days) | 116 |
| Lactation length (days) | 24 |
| WSI (days) | 7 |
| Wasted days | 10 |
| Total days | 157 |



Because the land is your life.



Shaun Welsh – Northern Bacon



How to measure sow productivity?

Piglets per sow per year (PSY)

$$365 \text{ days} \div 157 \text{ days} = 2.32 \text{ litters/sow/year}$$

$$2.32 \text{ L/S/Y} \times 10.1 \text{ weaned/litter} = 23.48 \text{ weaned/S/Y}$$

Our industry task is to wean more piglets/sow/year



Because the land is your life.



Shaun Welsh – Northern Bacon

Australia's competitive position.

Unlikely that the current high feed prices will positively change Australia's global competitiveness.

North America has advantage with feed costs.

USA increase of 60% - \$150/t for corn.

Aus increase of 80 – 100% - \$400/t for wheat.



Because the land is your life.



Shaun Welsh – Northern Bacon



Australia's competitive position.

European Union producers do not have a benefit with feed or production costs.

European Union has technical and marketing advantages, combination of higher pigs sold/sow/year and slaughter weights.



Shaun Welsh – Northern Bacon



| Indicator/Country | Denmark* | USA# | NL* | Ireland* | Australia+ |
|-------------------------------|-------------|-------------|-------------|-------------|-------------|
| COP (\$Aus/kg carcass weight) | 2.16 | 1.52 | 2.14 | 2.35 | 2.20 |
| Pigs weaned/sow/year | 26.1 | 20.0 | 24.5 | 23.1 | 21.1 |
| Pigs sold/sow/year | 24.6 | 18.1 | 23.4 | 19.7 | 19.4 |
| Carcass weight (kg) | 78.3 | 91.5 | 88.1 | 76.6 | 73.0 |
| Carcass/sow/year (kg) | 1924 | 1647 | 2062 | 1645 | 1416 |
| Feed cost (\$Aus/tonne) | 297 | 185 | 285 | 365 | 280 |
| Average Diet DE (MJ/kg) | 13.9 | 14.6 | 13.6 | 13.4 | 13.3 |
| Diet cost (Cents/MJ DE) | 2.13 | 1.27 | 2.10 | 2.72 | 2.10 |
| HFC (Carcass weight basis) | 3.79 | 3.90 | 3.54 | 3.72 | 4.20 |
| HFC (MJ DE/kg carcass weight) | 52.7 | 56.9 | 48.1 | 49.8 | 55.8 |



Because the land is your life.



Shaun Welsh – Northern Bacon

Increasing Pigs/Sow/Year ?

There are many areas that are important to maximise output, such as: wastage, genetic alignment & potential, recording systems, sound management, good facilities.

However I plan to concentrate on;

Artificial insemination,
Lactation length, and
Importation of genetic material.



Because the land is your life.



Shaun Welsh – Northern Bacon

Artificial insemination.

Uptake of 100% AI .

Implementation of a managed AI program.

Using semen that has been processed and delivered in the best possible condition.

Using Semen prior to 3 days of age.

Inseminate sows in AI stalls.

Intense standing oestrus detection.

Intense boar exposure whilst inseminating.



Because the land is your life.



Shaun Welsh – Northern Bacon

Lactation length.

Directly linked to physiological readiness to rebreed.

Rule of thumb.

Each day after 21 days will improve PBA by 0.1.

It takes 21 days for a sows uterus to involute.

Shorter lactation lengths lead to shorter oestrus and weaker LH spike, resulting in fewer eggs being shed.



Shaun Welsh – Northern Bacon

Lactation length.

However:

Weaning age in the US is 18-20 days with a very good P/S/Y.

Although their PBA is lower than the EU with mandated 28 day weaning it is better than Australia's at the same age.



Shaun Welsh – Northern Bacon

Genetics and its role in the difference.

Countries visited, USA, Ireland, Denmark, The Netherlands had similarities and differences.

Australia being closed to porcine genetics since 1986 adds to the differences.

Dr Nicoline Soede (Wageningen University) suggested investigating the ovulation rate of commercial Australian sows to make a comparison of potential pigs to be born.

EU expect 25 eggs that can result in 14 plus PBA



Because the land is your life.



Shaun Welsh – Northern Bacon



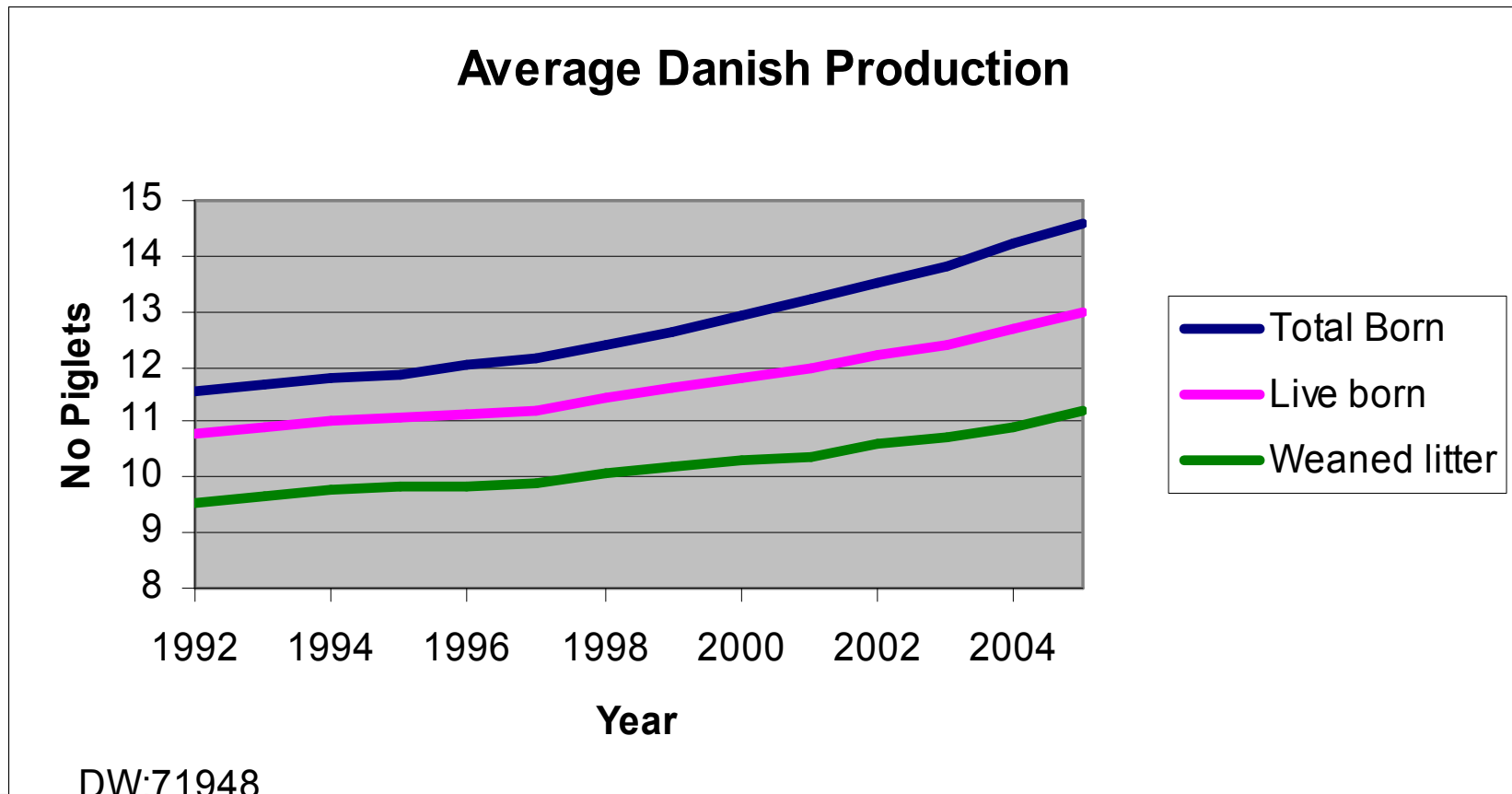
| | 1995 | 2000 | 2004 |
|--------------------------|-------------|-------------|-------------|
| The Netherlands | | | |
| <i>Total Number Born</i> | 11.5 | 12.1 | 13.2 |
| France | | | |
| <i>Total Number Born</i> | 11.4 | 12.8 | 13.5 |
| Denmark | | | |
| <i>Total Number Born</i> | 11.9 | 12.9 | 14.2 |
| Australia | | | |
| <i>Total Number Born</i> | - | - | 11.5 |



Because the land is your life.



Shaun Welsh – Northern Bacon



Because the land is your life.



Shaun Welsh – Northern Bacon

Conclusion

We need to improve P/S/Y through:

1. 100% AI
2. Lactation length min 23 - 24 days.
3. Possible investigation into importation of specific genetic material.



Shaun Welsh – Northern Bacon



Thank you



Because the land is your life.



Shaun Welsh – Northern Bacon



Any Questions?



Because the land is your life.



Shaun Welsh – Northern Bacon

Farm – On Farm Handling Optimal Housing conditions?



Because the land is your life.

