



## Particularidades de la cerda Hiperprolífica

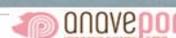
- Cerda magra
- Tamaño del lechón más variable y menor
- Duración de la gestación incrementada
- Necesidad de realizar camadas nodrizas
- Mayor desgaste en maternidad
- Edad cubrición tardía
- Incremento del porcentaje de mortalidad en cerdas
- Incremento de las necesidades de reposición

## PROBLEMAS REPRODUCTIVOS LIGADOS A LAS CERDAS HIPERPROLIFICAS



- Condición corporal
  - Composición corporal (MAGRAS)
- Balance metabólico
  - Ingesta de pienso en maternidad
  - Duración de lactación (EXCESO Y DEFECTO)
  - Número de lechones lactantes
- Involución uterina
  - Duración de lactación

## NON-INFECTIOUS REPRODUCTIVE PROBLEMS IN THE SOW: AN OVERVIEW



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Reproductive failure or failure to achieve good reproductive performance can be grouped arbitrarily in six different categories related to the stage in the reproductive cycle:

Anoestrus,  
Ovulation and egg production,  
Fertilization,  
Implantation,  
Fetal death and the mummified pig, and stillborn piglets.

Apart from infectious causes, there are many non-infectious factors related to management, nutrition and housing that may influence reproductive performance.

*Dr Philippe CHARRIER*

FIPSO Elevage



*Problemas ligados a  
la explotación de líneas de cerdas  
hiperprolíficas*

*Asociación de Veterinarios de Porcino de Aragón (AVPA),  
7 - 8 de noviembre 2007*

Un fórmula 1 con unas condiciones óptimas (ingenieros, mecánicos, carburante, neumáticos, ...)



→ Hoy en día el 10% de los mejores ganaderos de FIPSO están a más de 12 destetes por camada, es decir más de 30 lechones por cerda productiva por año.



Scea Paybou - 240 Cerdas de cebo « Cerdo de Oro desde hace 3 años »

	Año 2004	Año 2005	Año 2006
Nº destetados / cerda productiva / año	29.84	<b>30.16</b>	<b>30.57</b>
Nacidos Totales / camada	14.90	15.26	15.32
Nacidos Vivos / camada	13.60	13.92	14.05
Nacidos Muertos / camada	1.30	1.34	1.27
Destetados de la cerda	<b>12.23</b>	<b>12.31</b>	<b>12.38</b>
% pérdidas / Nacidos Totales	17.91	19.33	18.86
% pérdidas / Nacidos Vivos	10.07	11.56	11.53
Tasa de fecundación en la 1ª cubrición	91.2	92.3	90.6

## Fertilidad/Destetados

		DESTETADOS								
FERTILIDAD	PAR. CER. AÑO	10	10,5	11	11,5	12	12,5	13	13,5	14
90	2,53	25,3	26,5	27,8	29,1	30,3	31,6	32,9	34,1	35,4
85	2,49	24,9	26,1	27,3	28,6	29,8	31,1	32,3	33,6	34,8
80	2,44	24,4	25,6	26,8	28,0	29,3	30,5	31,7	32,9	34,1
75	2,39	23,9	25,1	26,3	27,5	28,7	29,8	31,0	32,2	33,4
70	2,33	23,3	24,5	25,7	26,8	28,0	29,2	30,3	31,5	32,6

## PUNTOS CRITICOS EN EFICIENCIA REPRODUCTIVA:

- Aptitud genética
- Preparación de la cerda de reposición
- Estructura de partos
- Alimentación en lactación
- Alimentación de la cerda desde el destete a la inseminación
- Gestión de la condición corporal (30-90 días)
- Protocolos de inseminación

# The DanBred Edge

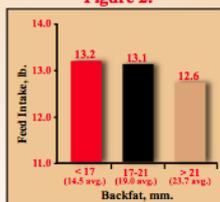
Volume 4 Issue 2  
December 2009

**Table 1. Pigs/Litter Farrowed**

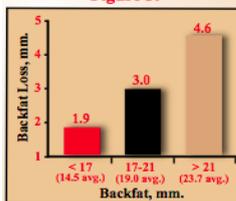
DanBred	Total Born/ Mated Female/ Year	Total Born	Live Born	Stillborn	Mummies
Top 10%	36.50	15.27	13.41	1.51	0.35
Top 25%	35.09	14.56	12.85	1.28	0.43
Top 50%	33.51	14.10	12.53	1.21	0.36
Average	31.73	13.44	12.04	1.05	0.35
Bottom 50%	30.67	13.04	11.74	0.96	0.34
SMS Average	30.55	12.81	11.63	0.91	0.27

To illustrate this point, Young et al (2004; Figure 2, 3 and 4) quantified the relationship between backfat prior to parturition, lactation feed intake, and subsequent litter size. Their data indicate that modern sow herd average should not exceed 19 mm (0.83 inch) backfat at farrowing and the optimum may be near 14 mm (0.55 inch) in order to promote lactation feed intake. Similarly, Thaker et al (2005) showed that each 1 lb. loss in bodyweight loss results in -0.03 pigs/litter. Considering that many sows lose 25 to 75 lb. in lactation, reproductive efficiency is impaired by 0.75 to 2.25 pigs/litter due to lactation intake alone.

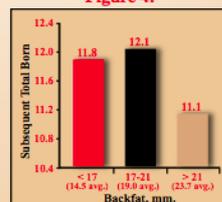
**Figure 2.**

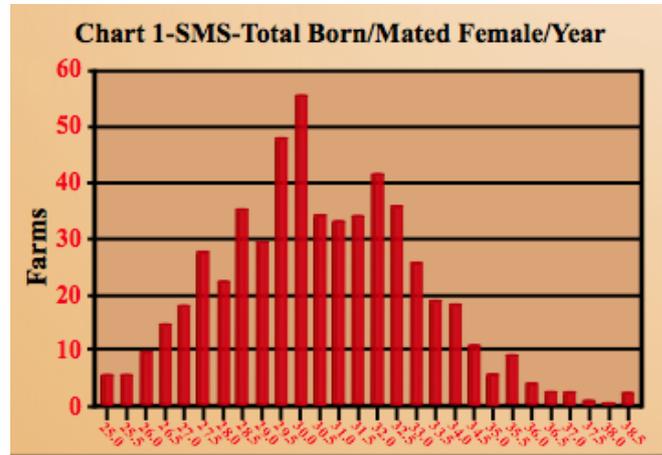


**Figure 3.**



**Figure 4.**





## NUESTRA LABOR

- Recuperar la condición corporal de forma rápida
- Gestionar la salida en celo (agrupamiento)
- Facilitar la vida a nuestras cerdas según la nueva normativa
- Preparar nuestras cerdas de reposición para una larga vida productiva
- Revisar los protocolos de inseminación

## Factors associated with return to estrus in first service swine females.

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### Abstract

models were run to determine the relative contribution of some factors to the probability of a sow returning to estrus. Return to estrus occurred in 27.8% (10/36) and 10.7% (50/469) of females remated after a previous reproductive failure and first service females

observed in parity order (PO) 0 (14.3%; 3.1-times), PO1 (20.6%; 4.9-times) and PO2 (12.7%; 2.7-times) compared to PO>2 (5.0%; reference class) females.

the return to estrus rate was not affected (P>0.05) by the number of weaned piglets (7-9; 10; 11 and 12 piglets) a lactation length (LL) of 15-19 days had 3.5-times higher odds (P<0.05) of a return to estrus than sows with LL of 20-21 days

LOSS of more than 0.5 point in BCS resulted in higher odds (P<0.05) of returning to estrus in PO1 and PO2 but not in PO>2 sows

## RECUPERACION DE LA CONDICION CORPORAL



- **Embryo survival, progesterone profiles and metabolic responses to an increased feeding level during second gestation in sows**

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Received 20 October 2011. Revised 23 November 2011. Accepted 24 November 2011. Available online 18 February 2012.

- This study describes reproductive and metabolic responses in sows fed at two different feeding levels from day 3–35 of second gestation.
- After insemination, 37 sows were assigned to one of two treatments: 1) **Control: 2.5 kg/day** of a gestation diet; 2) **Plus Feed 3.25 kg/day** of a gestation diet (+30%).
- Sow weight, back fat and loin muscle depth were measured at farrowing, weaning, start of treatment, day 14 after start treatment and end of treatment.

- Plus Feed sows gained 5.4 kg more weight and 0.9 mm more back fat and tended to be heavier at slaughter compared to Control sows (193 vs. 182 kg, P = 0.06).
- No difference in loin muscle gain was found.
- Treatment also did not affect vital embryonic survival, which was  $72.1 \pm 3.9\%$  for Control and  $73.4 \pm 3.2\%$  for Plus Feed sows, resulting in, respectively,  $15.9 \pm 0.9$  and  $15.7 \pm 0.7$  vital embryos.
- No effect of treatment on any of the ovarian, embryonic or placental characteristics was found.
- Progesterone profiles during the first month of gestation, and LH characteristics at day 14 of gestation were not different between treatments.

**In conclusion, feeding 30% more feed from day 3 till d 35 of second gestation increased weight gain and resulted in lower NEFA concentrations, but did not affect progesterone, LH or IGF-1 and embryonic and placental characteristics.**

## LARGA VIDA A NUESTRA REPOSICION



## **Developmental factors that influence sow longevity.**

J Anim Sci. 2011 Apr;89(4):1238-45.

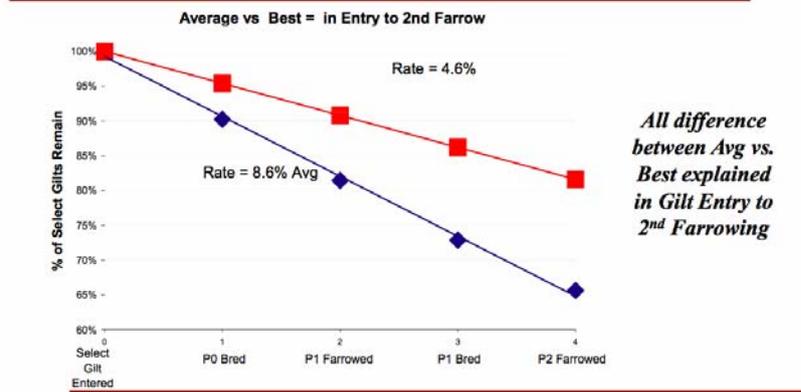
Epub 2010 Dec 23. [Hoge MD](#), [Bates RO](#).

Department of Animal Science, Michigan State University, East Lansing 48824, USA.

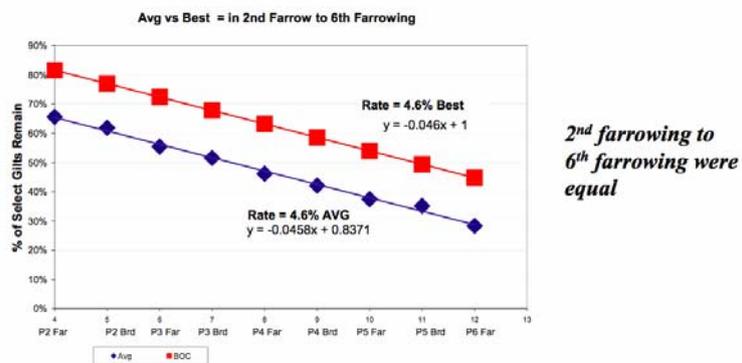
- 6 different descriptions of longevity and determined their relationship with developmental performance factors.
- Longevity definitions included:
  - stayability (probability of a sow producing 40 pigs or probability of her reaching 4 parities)
  - lifespan (number of parities a female has accumulated before culling)
  - lifetime prolificacy (number of pigs born alive during the productive lifetime of a female)
  - herd life (time from first farrowing to culling)
  - pigs produced per day of life.

- Those factors that were significantly ( $P < 0.0001$ ) associated with longevity, regardless of definition, were:
  - Age at first farrowing
  - litter size at first farrowing and last farrowing
  - number of stillborn in the first litter
  - adjusted 21-d litter weight of the first litter
  - herd type
  - backfat
  - Growth
  - Within a contemporary group, **fatter, slower growing gilts had a decreased risk of being culled.**
  - Sows that had **more pigs born alive, fewer stillborn pigs, and heavier litters at 21 d of lactation in their first litter had a decreased risk of being culled.**
  - Furthermore, **sows from nucleus herds experienced a greater risk of being culled.** Many factors affected longevity, regardless of definition.

# Smithfield U.S.A.



# Smithfield U.S.A.



# AGRUPACION DE CELOS AL DESTETE Y ESTACIONALIDAD



## **Seasonal infertility in sows: a five year field study to analyze the relative roles of heat stress and photoperiod.**

by Vincent Auvigne, Philippe Leneuve, Christophe Jehannin, Olli  
Peltoniemi, Elisabeth Sallé

The farms were situated in four French regions. The data of **22,773 batches and 610,117 sows were included.**

Seasonal infertility was defined as the relative difference between the fertility rate in 'summer' (inseminations in weeks 25-42) and 'winter' (inseminations in weeks 1-18 of the same year).

In each region, two meteorological variables were defined, based on the data of a reference weather station:

- The number of hot days (maximum temperature  $\geq 25$  degrees C) and
- Tropical days (maximum temperature  $\geq 32$  degrees C and minimum temperature  $\geq 18$  degrees C).

The mean fertility was 85%.

The median seasonal infertility was 2.8% and more than 7.1% for a quarter of farms.

Seasonal infertility differed with the year ( $p < 0.001$ ).

Seasonal infertility was significantly higher during 2003 than in the other four years, which did not differ among each other.

In the four regions, 2003 was the year with the highest number of hot days and 2007 with the least.

Our study strengthens the hypothesis of a prominent role of photoperiod in seasonal infertility and of an additional role of heat stress the hottest years.

## INFLUENCE OF CYCLE STIMULATION IN WEANED SOWS ON FERTILITY DEPEND ON SEASON

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High environmental temperatures and especially heat accumulation in body of the animals **affect the metabolism in high performance sows.**

That is important in very sensitive phases in reproduction cycle of sows like heat, pregnancy and lactation.

Young sows (gilts and primiparous sows) are more sensitive than older sows.

- Following conclusions are possible:
- The effect of cycle stimulation with 800 IU eCG in weaned sows differ depend on age of sows, season and temperature.
- Cycle stimulation with eCG in summer (July, August, September) reduces risk of low fertility in sows.
- In other seasons the positive effect of biotechnical cycle stimulation is not clear generally.
- Especially in primiparous sows there is a positive effect of biotechnical treatment in summer.
- In older sows in 3rd to 5th litter the cycle stimulation has no significant positive effect on fertility.
- In sows with more than 5 litters cycle stimulations are necessary to save a high reproduction performance generally.

## ADAPTACION AL BIENESTAR ANIMAL



## Effect of day of mixing gestating sows on reproductive fertility

01-Feb-2012

M. Hoppgood; L. Greiner; J. Connor; J. Salak-Johnson; R. Knox. 2011  
Allen D. Lemman Swine Conference.

- 1) sows maintained in stalls from weaning through the remainder of gestation (Stall, n=20/replicate);
- 2) sows housed in stalls after weaning and then mixed in groups of 58 immediately after breeding (D 3 Mix);
- 3) sows housed in stalls after weaning and mixed in groups of 58 at day 14 of gestation (D 14 Mix)
- 4) sows housed in stalls from weaning until after d 35 of gestation and then mixed in groups of 58 (D 35-Mix).

Mixing sows early at D 3-7 after breeding and during the implantation period (D13-17) can be associated with a 5-7% reduction in conception rate when compared to sows housed in Stalls or those mixed after day 35 of gestation.

Farrowing rates were also reduced as a result of mixing sows immediately after breeding on Day 3 and at the time of implantation on Day 14 when compared to sows housed in Stalls.

Mixing at Day 3 was also detrimental to farrowing when compared to mixing sows after day 35 of gestation.

Mixing sows at the time of implantation on D 14 did not reduce fertility when compared to sows that were mixed after d 35 of gestation.

These results suggest that mixing sows in the 1st or 2nd week of gestation can result in reduced conception and farrowing rates when compared to housing sows in stalls. However, as expected, **mixing sows after day 35 in gestation did not reduce conception or farrowing rates** compared to sows housed in stalls.

## MODIFICACIONES NUTRICIONALES O DE ALIMENTACION



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*Problemas ligados a  
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7 - 8 de noviembre 2007*

→ **Medidas correctoras**

*Problemas ligados a la explotación de  
líneas de cerdas hiperprolíficas*

1) Enriquecimiento de las fórmulas para cerdas

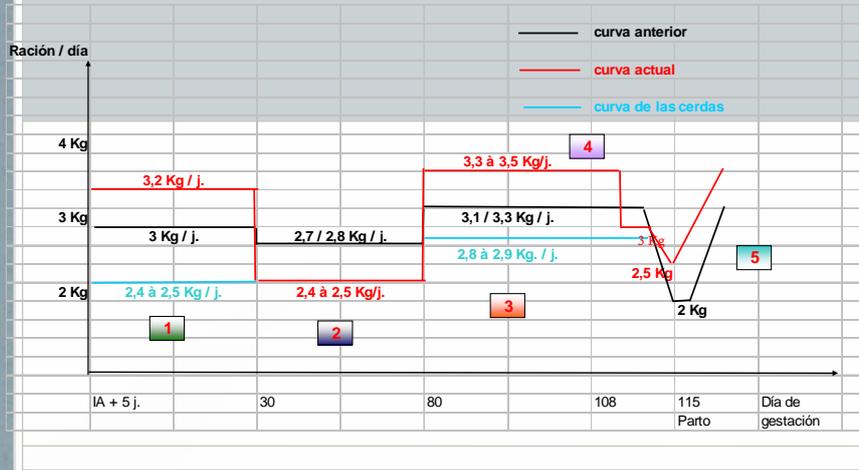
**Gestantes**

**Lactantes**

	Antes	Después	Antes	Después
<b>Energía Neta</b>	2080	2120	2250	2270
<b>Energía Digestible</b>	2950	3050	3360	3400
<b>MAT</b>	13.0	14.0	16.8	17.2
<b>Lisina total</b>	6.5	7.5	9.2	10.5
<b>Treononina</b>	-	-	4.8	6.0
<b>Celulosa</b>	7.0	6.5	6.5	5.0
<b>Vit. A</b>	8000	10250	8000	10250
<b>Vit. D3</b>	1500	2000	1500	2000
<b>Vit. E</b>	20	50	20	50

*Problemas ligados a la explotación de líneas de cerdas hiperprolíficas*

2. Modificación de las curvas de racionamiento de las cerdas en gestación



## DURACION DE LA LACTACION



## Duration of lactation, endocrine and metabolic state, and fertility of primiparous sows.

[Willis HJ, Zak LJ, Foxcroft GR.](#)

- Overall, embryonic survival, not ovulation rate, seems to be the limiting factor for potential litter size in the second parity.
- The LH, FSH, and estradiol data from the EW sows are characteristic of animals with limited follicular development and incomplete recovery of the hypothalamic-pituitary-ovarian axis.
- The integrity of the uterine environment may be adversely affected and limit embryonic survival. In CW sows, variability in metabolic state seemed to be the key factor limiting the fertility, again adversely affecting embryonic survival.

Soc Reprod Fertil Suppl. 2009;66:177-86.

## Ovarian responses to lactation management strategies.

[Soede NM, Hazeleger W, Gerritsen R, Langendijk P, Kemp B.](#)

### Source

Adaptation Physiology Group, PO Box 338 6700 AH Wageningen University, Wageningen, The Netherlands. [nicoline.soede@wur.nl](mailto:nicoline.soede@wur.nl)

### Abstract

A number of lactation management strategies can be applied to reduce negative effects of lactation on post-weaning fertility. This paper focuses on effects of lactation length, Intermittent Suckling and Split Weaning on follicle development and subsequent oestrus

It is concluded that a lactation length of less than 3 weeks still leads to suboptimal reproductive performance in our modern sows.

Further, both Intermittent Suckling and Split Weaning stimulate lactational follicle development and oestrus, but the variation in response between sows still limits practical application.

## CONCLUSIONES

- El resultado vendrá de la interacción genética-manejo-Ambiente:
  - Selección por vitalidad del lechón y homogeneidad de camadas
  - Selección por calidad placentaria
  - Selección por criterios de sociabilidad ...
  - Incremento de la atención en el periparto y parto
  - Mejoras en la gestión de la composición corporal (tratamiento individualizado, scanner...) y de la alimentación o nutrición

## CONCLUSIONES

- La hiperprolificidad se impone
- Nuestra función es facilitar las condiciones para obtener el máximo rendimiento de las cerdas
  - Espacio suficiente en maternidad y condiciones de alojamiento en gestación
  - Formación específica de los trabajadores
  - Necesidades de mano de obra
- Nuevas estrategias productivas pueden ser necesarias
  - Edad destete
  - Alimentación-nutrición específica

