

EFFECT OF DIFFERENT TYPES OF PROTEINS ON THE REPRODUCTION PERFORMANCES IN SOWS

Maria N. Kleisiari

Pr. ATEI of Larissa, 40200 Ellassona, Greece e-mail: mdbouzoukis@yahoo.com

Introduction

It is possible to increase the ovulation rate by feeding rations containing more supplies of energy and nutrients. This practice is known as “flushing” and is based on the observation that the number of ovarian follicles reaching maturity and as a consequence of the fertilizable ova is increased when sows are fed high energy rations for 8 to 14 days before mating. Sows already in a very good body condition do not respond to flushing.

Body condition expresses the amount of fat depots of the organism containing the reserve of passive energy possible to be used when one or another function must be more intensive. Also, the number of embryos dying in the first 3 weeks after fertilization may increase unless high-energy rations are suppressed one day after mating. Most pig men are applying this knowledge.

There are discussions concerning the importance of the nature of the proteins used in sow feeding. Protein is essential for life. Animal body gain is done of proteins, sows milk contains proteins. Surplus of protein in the diet is used as an energy source, in which case the cost of feeding becomes very high. At the same time protein surplus can cause kidney disease. Deficit of protein in the diet determines low performances and when declines under the maintenance needs it becomes dangerous for the health and the life of the animals.

In the idea to instead some proteins of the diet with some others cheaper without changing the balance of the sow an experiment has been provided.

Material & methods

The model of this experiment was a very simple one. Three groups of 16 sows each were fed during a reproduction cycle on balanced diets differing in the source of protein: one diet was based on fish meal protein and yeast; the second one contained Soya bean meal extracted and the third sunflower meal extracted. The recipe of the combined feed used is enlisted in table 1.

Food was given twice a day as dry compound feed. For the first 21 days after mating sows received 2.8 kg per day, as flushing procedure, for the next 7 weeks they received 2.2 kg per day and for the last 6 weeks before parturition they received again 2.8 kg of food per day,

to sustain fetuses growth. They were mated to the same group of boars within 5 days after weaning. Sows have been mated twice in the same estrus with two different boars.

Table 1. Composition of combined feed used to test effect of different proteins in sows feeding

Feed stuffs	Composition of receipts (%)		
	A	B	C
Maize	50	50	50
Barley	24	24	24
Wheat bran	14	12	6
Yeast, dried	5	0.5	2.5
Soya bean meal, extracted	-	11	-
Sunflower meal, extracted	-	-	15
Fish meal	4.5	-	-
Calcium phosphate	1.0	1.0	1.0
Calcium carbonate	0.5	0.5	0.5
Premix	0.5	0.5	0.5
Salt	0.5	0.5	0.5

Results

In the table 2 the results of the first farrow are presented.

Table 2. Reproduction performances of sows fed on different types of proteins

Reproduction indices	Measure units	Denomination of groups		
		A	B	C
Number of sows	heads	16.0	16.0	16.0
Number of mated sows	heads	16.0	16.0	16.0
Returns in heat	numbers	3.0	4.0	4.0
Conception rate	%	81.2	75.0	75.0
Total mean number of piglets born	number	9.1	9.0	9.0
Mean number of live born piglets	number	8.8	8.7	8.7

Discussion

In accordance to our inquiry and experiments, the following practical feeding recommendations should be:

- From two weeks before mating and one day after mating add to the basic daily feed, for flushing, 2 or 3 kg. of high energy combined feed containing 650

to 750 TDN and 15% to 20% crude protein;

- One week before mating in gilts and 3 or 2 days before weaning in suckling sows, give a booster dose of vitamins, which can be administrated in the feed, in the drinking water, or by injection. In large industrial units sows are grouped to farrow in the same week so only gilts must be considered in relation with the data of the previous heat

- Avoid to stress gilts and sows by frequent changes of diets or by any one else known cause of stress.

- Breeding sows and gilts must be fed using well balanced diets increasing the quantity of provided feed at least one month before the end of the pregnancy.

Conclusion

There is strong evidence that the different sources of protein didn't influence the reproduction performances if diets were equally and well balanced.

References

1. Avery Denis (1999) - *Modern agriculture versus eco-activists*. Pig Progress no. 7/1999
2. Brent G. (1992) - *The Pigmans Handbook* - - Farming Press Books, Wharfedate Road, Ipswich IP1 4LG, United Kingdom
3. Best Peter (1999) - *Talking pork* - Pig international no. 29/1999
4. Bogdan A. T. et alii (1999) *Tratat de Reproductie si Insamantari artificiale la Suine* I.S.B.N. 973 - 9305 -08 - 3 Editura Tehnica Agricola Bucharest Romania
5. Bourdon R. M. (1997) - *Understanding animal breeding* - Prentice Hall, Colorado State University Press
6. Burlacu Gh. (1985) - *Metabolismul energetic la animalele de ferma* -Editura Ceres - București
7. Crampton E. W. (1952}, *Design for Comparative Feeding Trials. Techniques and Procedures in Animal Production Research*. American Society Science.
8. Dinu I. coord. (1982) - *Dictionar enciclopedic de zootehnie* - Editura Ceres - București
9. Dinu I. sj colab. (1990) - *Tehnologia cresterii suinelor* - Editura Didactica și Pedagogica - București
10. Dinu I. și colab. (1997) - *Tendinte mondiale privind creșterea suinelor* -Lucrari știintifice UȘAMV București, seria D, vol. XXXIX
11. Dinu I. și colab. (2000) - "*Tendinte și predictii privind creșterea suinelor la inceputul mileniului al treilea*" - Analele Institutului National de Cercetare - Dezvoltare pentru Cresterea Porcilor "ROMSUINTEST" -Peris Teza de doctoral, Institutul Agronomic N. Balcescu - Faciltatea de Zootehnie – Bucuresti
12. English P. et alii (1993) - *The Growing and Finishing Pig: Improving its Efficiency* - Farming Press Books, Wharfedate Road, Ipswich IP1 4LG, United Kingdom
13. Pent W. et alii (1986) *Genetic parameter estimates for reproductive traits of male and female littermate swine* - Oklahoma Agricultural Experimental Station - Journal of Animal Science
14. Goss J. (1994) - *Think outdoors* - Pig International - no. 8/1994
15. Hafez E. S. E. editor (1962) - *Reproduction in Farm Animals* - Lea & Febiger - Philadelphia
16. Hoffman F. (1970)- *La Roche and Co. Ltd. Basle*
17. Katzaunis N. K., Spais A. B. (1998) - *Hyrotrophya* - Ekosis Synchrony Pevieo - Tsessaloniky
18. Katzaunis N. K., (2000) - *Gheorghya ktinotrophia* - Aferoma Hyrotrophya - No. 8/2000
19. Kirchgessner et al. (1970) - *Deutsche landwirtschafts-gesellschaft*
20. Lucas RH (1967) - *Agricultural Research Council, G. B.*
21. Moroney M. J. (1964) - *Facts from Figures*. Penguin Books.
22. Paraschivescu M., Tibara Dana (1989) - *Directii de cercetare in genetica și reproductia animalelor pentru creșterea eficientei folosirii furajelor* -Analele IBNA vol. XIV- Bucuresti
23. Paraschivescu M., Kleisari Maria (2003) - *Breeding schemes for commercial reproduction farms* - Manuscript
24. Paraschivescu Maria (2001) - *Influenta Microclimatului asupra Reproductie la Suine* - Editura Universitas Company - Bucures.ti
25. Stravoiany V. (1999) - *Diatrophy Anaptisomenon Hyeron* - Tsessalonihy
26. Stravoiany V. (1999) - *Diatrophy Hyeron Anaparchoes* - Tsessalonihy
27. Stravoiany V. (2000) - *I Galaktoparaghy sta Hyeron* - Tsessaloniky
28. Stravoiany V. (2000) - *Shemata Genetickis Velitiousis sta Hyrina* -Tsessaloniky
29. Tacu A. (1968) - *Metode Statistice in Zootehnie si Medicina veterinara* -Editura Agro-Silvica - Bucuresti
30. Stoica I. (1997) *Nutritia si Alimentatia Animalelor*. I.S.B.N. 973 -96539 -7 -9 Editura CORAL SANIVET - Bucharest - Romania.
31. Zinten H. (1971) - *The nutrition of breeding sows and piglets*-Information Service- Roche
32. *** (1967) - *Agricultural Research Council Buletin* - Great Britain
33. *** (1968)-*National Academy Of Sciences* - US A
34. *** (2000) - *Memento de l'eleveur de pore* - Institut Technique du porc-