

Productive Performance in a Breeding Sow Herd in Kanagawa Prefecture of Production Year 1991

Supol Luengyosluechakul Takeo Sakai

Kunimasa Nishiyama

Abstract

A retrospective study of productive performance of year 1991 in a pig farm of 355 breeding sow in Kanagawa Prefecture/Japan reveals that from the total of 9226 piglets born, there were 8398 piglets born alive, the average of piglets born per litter is 11.5, whereas that of piglets born alive per litter is 10.5. At the weaning age of 26.2 days, the piglets gain the weight of 5.6 kg with a relative good result of 9.4 piglets wean per litter (compare to Thailand). Total piglets wean were 7368. Finally piglets wean/sow/year was 20.8 with a number of 2.25 litter/year on average.

Key words : Productive Performance, Breeding sow

¹ Faculty of Vet. Sci., Chulalongkorn Univ. Bkk. 10330.

² Faculty of Agriculture and Vet. Med., Nihon Univ., Kanagawa 252, Japan.

³ Fujisawa Uchimodo, Kanagawa 252, Japan.

Introduction

Kanagawa Prefecture is one of the most intensive pig production areas in the central part of Honshu Island/Japan. It lies southward and faces the Pacific Ocean. The yearly national demand for both high-quality and high-quantity meat leads to a self-improving farm management system, which is based on proven elite animal breeds and lines. Furthermore, several agricultural mutual aid groups and swine associations play an important role in providing farmers continuously with supporting technical know-how with an aim of achieving the goals of each enterprise.

Materials and Methods

A farm of 355 breeding crossbred of Landrace X Large White sows on production divided into 2 houses and 28 Duroc Jersey boars on service is conducted with fully automatic devices and machines; e.g., a feeding system, housing, air circulation and temperature control, waste and sewage water treatment. Original computer softwares with some modifications have been written and used for years for analysing data collected from each individual sow card. There are records of mating, from both boar and sow, determining their performances of production in farrowing and nursing houses, weaning in nursery and the daily observations on morbidity, mortality, any case incidence and other clinical manifestations among each age groups. In the breeding herd, vaccination programs against swine fever, parvovirus, Japanese encephalitis, transmissible gastroenteritis, erysipelas and atrophic rhinitis are given regularly and/or conditionally. Vaccination against Aujeszky's disease was introduced some years ago to the breeding sows and the fattening pigs at period end of starter. Since then the production figures as a whole have been increased surprisingly. The farm intends to rear all weaning piglets up to market weight hogs, with very few exceptions of selling out or buying in starter pigs. Quarantine stations are provided for all replacement gilt at 1-2 months before installation. Since the high cost of man power is growing rapidly, it allows a staff limit of 6 people working full time on the farm, with a couple of part time workers.

Results

The monthly figures and average values of reproductive performances shown in Table 1, 2 and 3 reflect the efficiency of the managing system, feed and feeding aspects, and the genetics of the animals themselves. It consists of several activities, originates from the breeding unit, farrowing together with nursing unit and weaning unit or nursery as well.

Discussion

1. Some points should be mentioned as outcomes from a study of this farm. The number of total newborn piglets born per litter are of relative high values (11.1-12.4 with the average of 11.5). The number of piglet born alive is still high even with the presence of stillbirth (loss of 833 or about 9%). Care during farrowing and hyoiatric should be invested, but it is a problem of labor cost.

2. Moderate evidence of some morbidity of various clinical signs and symptoms lead to loss during suckling period (10.6-44.8% with the average of 22.4%). Causes of morbidity found are mainly crushing, enteritis from various etilogies and, of course, pneumonitis. Weak piglets, congenital abnormalities and underweights are also included under this category. The total loss of suckling piglet is 1025 or about 12.2%, with the average loss per month of 86.3 piglets. Appropriate veterinary intervention here could therefore alleviate the loss during this period. Intensive care is unavoidable.

3. Considering the number of 20.8 piglets weaned per sow per year at 26.1 day of nursing, we find relative high production of sow instead of morbidity rate of suckling in farrowing house. Twenty-six days after birth piglets develop their body weight to 5.6 kg on average. Milk replacer and other substituents are of major function in practice for these cases.

4. Almost at optimum age the Duroc Jersey boars are used in service. Boars at their age produce semen of highest quality, are physiologically alert and have a good libido at mating. Excess number of boars is shown in terms of sow per boar ratio, only 12.7 (instead 15-20 in other practices).

5. Replacement gilts are installed regularly parallel to culling system of senile sows which brings the whole herd to optimum age of highest yield. We find 101 replacement gilts all year round, which is equivalent to 28.5% of total sow on production. Culling of senile and non productive male and female are of useful value.

6. High percentage of parturition reflects the above average of non return rate and low number of remate sows. It implies good status of herd health, non suspected of malnutrition or inadequate of feeding system or other complication during gestation period. The only thing to be clarified is the period of open sow day which takes too long (5.2-13.1 with the average of 9.2 day). Probably the heavy production breed requires proportionally more days after weaning for the next estrus. Shortening of open sow day could be tried by complete nutritive values of sow's feed e.g. a supplement of fortified vitamins and minerals.

7. Lastly, the most important components are the animal's genetics, which is derived from

good selection, and, of course, good management of health conditions within the farming system, and occasionally the prompt solving of any problem occurring in the running the farm.

Acknowledgements

The authors wish to express a sincere thank to the RRIAP, Nihon University for the full support under the academic exchange program and would like to thank Assoc. Prof. Dr. Amara Prasitrathasint, Chulalongkorn University for her technical assistance.

References

- Andrew, J. J. 1986. Neonatal diarrhea in pigs : Pathogenesis and general therapeutic approaches. In : Current Veterinary Therapy. Food animal practice 2. J. L. Howard ed., W. B. Saunders Co., Philadelphia, p. 113-115.
- Blood, D. C., Radostits, O. M. and Henderson, J. A. 1983. Diseases of Newborn. In : Veterinary Medicine. London : Bailliere Tindall p. 85-131.
- Radostits, O. M. and Blood, D. C. 1985. Herd health : A textbook of health and production management of agricultural animals. W. B. Saunders Co., Philadelphia. p. 456.
- Thrusfield, M. 1986. Health and productivity schemes. In Veterinary Epidemiology. Butterworths, p. 206-214.
- Wilson, M. R. 1986. Enteric colibacillosis in neonatal swine. Current veterinary the Food animal practice 2. Philadelphia : In J. L. Howard J. L. W. B. Saunders Co., p. 115-117.

Table 1 : Breeding and farrowing performance of the herd.

Data of performance	Production month of the year												Average ± SD
	1	2	3	4	5	6	7	8	9	10	11	12	
Sow on production	351	348	353	358	358	363	363	360	361	348	347	352	355 ± 6
Replacement gilt (101)	3	5	9	6	15	20	17	13	7	3	1	2	8.4 ± 3.4
Boar on service	28	28	27	26	26	27	28	28	29	29	28	29	27.8 ± 1.1
Replacement boar (30)	1	2	2	2	3	4	4	3	3	2	3	1	2.5 ± 1.0
Sow : boar ratio	12.5	12.4	13.1	13.8	13.8	13.4	13.0	12.9	12.4	12.0	12.4	12.1	12.8 ± 0.6
Total mating (875)	55	81	81	67	76	62	81	70	73	84	74	71	72.9 ± 8.6
Total farrowing (800)	65	77	71	58	54	77	85	54	70	59	71	59	66.7 ± 10.1
Percent farrowing	87.8	89.5	92.2	93.5	90.0	97.5	97.7	91.5	92.1	92.2	97.3	93.7	92.7 ± 3.2
Total piglet born (9226)	792	887	790	667	671	907	998	606	778	663	803	664	769 ± 119
Average born /litter	12.2	11.5	11.1	11.5	12.4	11.8	11.7	11.2	11.1	11.2	11.3	11.3	11.5 ± 0.4
Total born alive (8393)	715	812	716	605	601	832	912	552	719	618	725	586	699 ± 111
Average born alive	11.0	10.5	10.1	10.4	11.1	10.8	10.7	10.2	10.3	10.5	10.2	9.9	10.5 ± 0.4

() means total number from year 1991

Table 2 : Nursing (lactating) performance of sow.

Data of performance	Production month of the year												Average ± SD
	1	2	3	4	5	6	7	8	9	10	11	12	
Total sow wean (786)	47	69	81	66	49	72	74	72	57	69	65	65	65.5 ± 10.0
Total piglet wean (7368)	463	738	806	596	473	632	626	609	525	653	629	618	614 ± 97.9
Average piglet wean	9.9	10.7	10.0	9.0	9.7	8.8	8.5	8.5	9.2	9.5	9.7	9.5	9.4 ± 0.7
Percentage wean	100.0	95.6	95.3	91.8	90.8	80.4	79.4	77.9	87.5	92.1	93.7	94.8	89.9 ± 7.1
Litter size kg	57	61	57	49	52	50	44	45	51	51	60	60	53.1 ± 5.8
Average wean weight kg	5.6	5.7	5.7	5.4	5.4	5.7	5.2	5.3	5.5	5.4	6.2	6.3	5.6 ± 0.3
Average suckling day	28.9	24.2	25.3	26.8	28.5	26.0	23.6	25.4	26.0	25.7	26.7	27.6	26.2 ± 1.6

() means total number from year 1991

Table 3 : Other performances include morbidity and mortality.

Data of performance	Production month of the year												Average	
	1	2	3	4	5	6	7	8	9	10	11	12	± SD	
Open sow day	12.3	5.2	7.9	12.9	9.6	13.1	10.3	7.6	9.9	5.8	8.4	7.7	9.2±	2.6
Piglet wean/sow/year	17.2	25.0	27.8	19.6	16.1	20.5	20.3	20.6	17.1	22.8	21.3	20.7	20.8±	3.3
Litter/year	2.41	2.60	2.45	1.91	1.84	2.50	2.76	1.83	2.28	2.06	2.41	1.97	2.25	
Mortality in suckling from birth %	16.4	15.7	13.9	18.0	16.5	20.2	30.9	20.7	25.6	9.5	13.3	13.4	17.8±	5.9
Mortality in sow and gilt	0	1	0	0	1	2	0	0	1	1	0	2	Total	8
Mortality in boar and young boar	0	0	0	0	0	0	0	0	0	0	0	0	Total	0
Piglet with clinical sign and symptoms %	19.6	18.7	17.3	22.0	19.7	25.3	44.8	26.1	34.3	10.6	15.3	15.54	22.4±	23
Sow with clinical signs and symptoms %	0.0	0.3	0.0	0.0	0.3	0.6	0.0	0.0	0.3	0.3	0.0	0.6	0.2±	0.23
Fattener/sow/year	17.9	18.6	20.9	18.3	14.9	18.9	15.4	18.4	25.3	18.3	18.4	19.8	18.8±	(2.6

() means total number from year 1991

Data of performance	Production month of the year												Average	
	1	2	3	4	5	6	7	8	9	10	11	12	± SD	
Total sow wean (786)	47	69	81	66	49	72	74	72	49	81	66	47	69	81
Total piglet wean (7368)	403	738	806	2066	473	632	626	609	629	629	629	618	618	618
Average piglet wean	9.9	10.7	10.0	9.7	8.8	8.8	8.5	8.5	9.2	9.2	9.2	9.2	9.2	9.2
Percentage wean	100.0	92.8	92.3	91.8	90.8	80.4	79.4	77.9	87.2	92.1	92.7	94.8	94.8	94.8
Litter size kg	27	61	27	49	22	20	44	21	21	21	21	21	21	21
Average wean weight kg	2.6	2.7	2.7	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.4
Average suckling day	28.9	24.2	22.3	26.8	28.2	28.0	23.8	22.4	26.0	22.7	26.7	26.7	26.7	26.7

() means total number from year 1991