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## PigCHAMP Summary of 1994 Reproductive Herd Performance

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**Table 1. Carcass information for the two workshops.**

Trait	Mean	Standard Deviation	Minimum	Maximum
First Workshop (50 hogs)				
Hot carcass wt, lb	166.6	7.6	154	186
Tenth rib fat, in	1.08	0.24	0.6	1.78
Loin muscle area, sq in	5.45	0.65	4.12	6.65
Second Workshop (50 hogs)				
Hot carcass wt, lb	171.9	7.4	153	193
Tenth rib fat, in	0.90	0.32	0.48	1.98
Loin muscle area, sq in	5.99	1.03	3.55	7.95

Burson and Brian Demos, Graduate Research Assistant.

Certification was granted to technicians who meet specified criteria for prediction of carcass data, repeatability of ultrasound measurements, bias and if they demonstrated proficient knowledge concerning the use of ultrasound and performance data.

The statistics used to evaluate a technician's ability to predict carcass measurements and repeatability of ultrasonic measurements were the

standard deviations of prediction, standard deviations of the difference and the bias, which is the average difference between live and carcass measurements. The standards for these statistics were:

- Standard deviation of prediction.
  - Tenth rib backfat 0.15 in.
  - Loin muscle area, tenth rib 0.50 sq. in.
- Standard deviation of the difference.
  - Tenth rib backfat 0.10 in.
  - Loin muscle area, tenth rib 0.40 sq. in.

Bias.

- Tenth rib backfat 0.15 in.
- Loin muscle area, tenth rib 0.05 sq. in.

### Results

The carcass information for the pigs used in the two workshops are listed in Table 1. Both workshops were conducted with pigs that were market weight and varied in backfat and loin muscle area.

A total of twenty-three individuals participated in the two workshops. Nine individuals were granted certification for both backfat and loin muscle area and eight individuals were granted certification for backfat only. Six individuals did not meet the certification requirements.

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# PigCHAMP Summary of 1994 Reproductive Herd Performance

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**Barb Cox**  
**Angela Baysinger<sup>1</sup>**

## Summary and Implications

*A summary of 51 swine herds in the western cornbelt that used PigCHAMP as their reproductive record system during 1994 was completed. This summary documents the wide range in performance that existed among herds. Using 10th and 90th percen-*

*tiles, farrowing rate ranged from 69.1% to 88.1%, pigs weaned per litter from 8.1 to 9.8, and litters per mated female from 1.76 to 2.36. Overall reproductive performance, reported as pigs weaned per mated female per year, ranged from 14.8 to 22.4 with a 50th percentile value of 19.3. These results can be used for planning and decision making purposes in individual swine enterprises.*

## Introduction

PigCHAMP is a swine production

records software program developed at the University of Minnesota. Although there are many other excellent computer software programs for producer use, PigCHAMP remains one of the most widely used programs by industry advisors.

A challenge for individual producers and their advisors is interpretation of the various reports generated by a record system. The "Performance Monitor" is the most widely used report from PigCHAMP, giving producers and advisors a one-page overview

(Continued on next page)



of the biological performance of the reproductive herd. While advisors and producers use individual herd performance records to solve problems and set production targets, there is a need for summary information across a number of herds keeping records on the same system.

Advisors, lenders, and others associated with the swine industry are often faced with the challenge of estimating “normal” or “realistic” production for situations such as cash-flow projections and pig-flow projections. In many situations, producers, investors, and advisors are interested not only in the “normal” or average values, but also what a producer can expect if everything goes right, or what a producer can expect if disaster strikes.

### Data Collection

Veterinarians in Nebraska, Iowa, Missouri, Kansas, Colorado, and South Dakota who were members of the American Association of Swine Practitioners were contacted in late May, 1995 for the names and addresses of producers using PigCHAMP for sow productivity records. Producers identified in this manner were individually contacted for permission to use data from the 1994 production year. As of September 15, 1995, 61 herds had submitted data files for inclusion in the data set (Table 1).

After conversion to PigCHAMP v3.05, the data from each herd were examined for accuracy and completeness. Herds were excluded from the data summary if:

- 1) ending female inventory differed from average female inventory by 20% or more
- 2) farrowing rates were 100% for three consecutive months
- 3) the weaning to first service interval was less than four days
- 4) the percent of females mated by seven days postweaning was greater than 96%

**Table 1. Geographic distribution of herd data bases evaluated.**

State	No. Herds	
	Submitted	Included
Colorado	4	3
Iowa	19	17
Kansas	23	19
Missouri	1	0
Nebraska	14	12
Total	61	51

- 5) preweaning mortality was less than 5%
- 6) female culling rate was not between 20 and 80%

These culling rate and inventory criteria were established to avoid including herds in the data set that had recently repopulated or herds that were expanding and had a large percentage of gilts in the female inventory.

### Results

The 10th and 90th percentile values are reported in Table 2, rather than minimum and maximum values. The 10th and 90th percentiles give an indication of the best or worst values for a production parameter, depending on whether a high or low value is desirable, and minimizes the impact of outlying data points on the values reported. The 50th percentile value represents the median value for the 51 herds in the data set. Twenty-five herds

have lower values for the production parameter and 25 herds have higher values.

The average value is the mean for all 51 herds and may differ from the 50th percentile if the data are skewed or if there are a few outlying data points. An example is the wean-to-first-service interval. While the 50th percentile is 7.0 days, the mean of 7.6 days reflects at least one herd that appeared to skip an estrus cycle for all females at weaning when rebreeding (28.6 day interval) and two herds that appeared to skip an estrus cycle for first parity females (14.7 and 12.2 day intervals).

Many producers submitting data did not record gilt entry dates. In many cases, females were not entered into herd inventories until a breeding (service) occurred. Therefore, the data presented in Table 2 are per mated female, not per inventoried female, which is the method used for the Nebraska Swine Enterprise Record results which appear elsewhere in this publication.

Litters per mated female per year was quite variable among the herds in this data set. The average number of litters per mated female was 2.12, with a range of 1.76 to 2.36.

For herds in this data set, females averaged 10.2 pigs born live per litter farrowed in 1994 with 80% of the herds (10th to 90th percentile) reporting 9.4 to 11.1 live born pigs. Pigs weaned per litter was 8.9 with a range

**Table 2. Rankings of 1994 reproductive performance from 51 herds using PigCHAMP.**

Item <sup>a</sup>	Percentile			Average
	10th	50th	90th	
Litters weaned, no.	301	822	2013	
Parity of farrowed sows, no.	2.0	3.3	4.1	3.2
Farrowing rate, %	69.1	77.7	88.1	77.3
Pigs born live/litter farrowed, no.	9.4	10.1	11.1	10.2
Preweaning mortality, %	7.6	12.5	17.1	12.2
Pigs weaned/litter farrowed, no.	8.1	8.9	9.8	8.9
Age at weaning, days	18.4	21.2	26.2	21.6
Pigs weaned/mated female/yr, no.	14.8	19.3	22.4	18.9
Litters/mated female/yr, no.	1.76	2.20	2.36	2.12
Wean to first service interval, days	5.1	7.0	9.8	7.6

<sup>a</sup>Each item sorted independently of all other items.



of 8.1 to 9.8 pigs.

The combination of litter size and litters per year is reported as pigs weaned per mated female per year and is often considered the single best measure of reproductive biological efficiency. While the average was 18.9 pigs per mated female, the range was 14.8 to 22.4 pigs (10th to 90th percentile).

These results verify the great variation in biological performance that exists in swine herds in the western

cornbelt. Possible causes of this variation include such items as genetic source, facilities, planned production schedules, disease, and management. The use of 10th and 90th percentiles is not meant to imply that producers should strive at all costs to attain the better reproductive efficiency these values represent. Rather, producers are encouraged to consider these values as reasonable performance limits with the understanding that optimal financial

efficiency may mean less than maximum reproductive efficiency.

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## 1995 Nebraska Swine Enterprise Records Program Results

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### Summary and Implications

*Data from cooperators participating in the Nebraska Swine Enterprise Records and Analysis Program were summarized for the period January to June 1995 and July 1, 1994 to June 30, 1995. Results continue to show significant variability in production and financial parameters among individual swine enterprises. The results indicate that efficient, well managed swine enterprises can be profitable and competitive in a dynamic industry.*

Average values of several production and financial parameters for farrow-to-finish, and farrow-to-feeder pig enterprises for the first six months of 1995 are given in Tables 1 and 2. Also included in the far right column of each table is annual data from July 1, 1994 through June 30, 1995. In addition to the overall averages for each enterprise type, averages for the high 1/3 profit group and low 1/3 profit group are listed for the farrow-to-

Table 1. Selected items for farrow-to-finish enterprises.

Item	January 1 to June 30, 1995			July 1, 1994 to June 30, 1995
	Average	High 1/3 profit	Low 1/3 profit	
Number of farms	37	12	12	20
Profit/cwt pork produced	\$4.75	\$11.32	-\$2.07	-\$1.22
<b>Total cost/cwt pork produced</b>	<b>\$40.99</b>	<b>\$36.63</b>	<b>\$44.20</b>	<b>\$39.69</b>
Total variable cost/cwt pork produced	\$35.76	\$33.24	\$38.46	\$35.52
Fixed cost/cwt of pork produced	\$5.24	\$3.39	\$5.74	\$4.17
Total feed expense/cwt pork produced	\$24.27	\$23.12	\$25.47	\$24.05
Average cost of diets/cwt	\$6.61	\$6.38	\$6.79	\$6.44
Feed/cwt pork produced, lb	368	362	377	373
Pigs weaned/female/year, no.	17.9	18.3	16.3	17.6
Pigs weaned/crate/year, no.	78.4	81.3	79.2	76.6

Table 2. Selected items for farrow-to-feeder pig enterprises.

Item	January 1 to June 30, 1995			July 1, 1994 to June 30, 1995
	Average	High 1/3 profit	Low 1/3 profit	
Number of farms	11	4	4	8
Profit/cwt pork produced	\$2.61	\$13.38	-\$7.55	-\$10.24
<b>Total cost/cwt pork produced</b>	<b>\$63.16</b>	<b>\$60.39</b>	<b>\$64.87</b>	<b>\$66.56</b>
Total variable cost/cwt pork produced	\$53.16	\$51.32	\$55.44	\$54.56
Fixed cost/cwt of pork produced	\$10.00	\$9.07	\$9.43	\$12.00
Total feed expense/cwt pork produced	\$30.80	\$27.05	\$34.41	\$30.64
Average cost of diets/cwt	\$7.91	\$7.61	\$8.20	\$8.34
Feed/cwt pork produced, lb	389	357	419	368
Pigs weaned/female/year, no.	17.2	18.7	15.3	18.2
Pigs weaned/crate/year, no.	89.6	98.5	81	100.3
Average weight of feeder pig sold, lb	50.2	53.9	46.5	49.8

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