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# National Swine Improvement Federation Ultrasound Certification Workshops

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130 (P < .10) days of age (Table 2). Concentration of FSH declined (P < .01) with age, but line by age interaction was not significant.

Concentration of FSH in plasma is regulated by feedback of ovarian hormones on the hypothalamus, the control center for secretion of gonadotrophin hormones and the anterior pituitary gland which secretes FSH. Other workers have found that there is little ovarian regulation of FSH synthesis in gilts before 50 days of age. Because lines I and C differed at 50 days the mechanism by which selection altered plasma concentration of FSH is probably due to differences in FSH synthesis.

Concentration of FSH in line I gilts was approximately 25 percent greater than in line C gilts. A genetic correlation between ovulation rate and FSH close to 1.0 would have to exist to cause a difference this large. Therefore, plasma FSH concentration in young gilts may be a useful predictor of ovulation rate. It is more easily measured than ovulation rate and, therefore, could be more easily incorporated into a selection program.

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# National Swine Improvement Federation Ultrasound Certification Workshops

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## Summary and Implications

*Twenty-three people participated in two National Swine Improvement Federation ultrasound certification workshops in January 1995. Each participant's ability to predict backfat and loin muscle area on live market hogs was determined. IBP Inc,. Madison, Nebraska cooperated in the collection of carcass data for certification purposes. Nine participants were certified for backfat and loin eye readings and eight participants qualified for certification of backfat only. The workshops provided the pork industry with additional expertise in the use of ultrasonic measurements to determine backfat and loin muscle area on live swine.*

## Introduction

Ultrasonic measurement is a viable method to estimate backfat thickness and loin muscle area in the live pig. However, accuracy of ultrasonic estimates are technician dependent. The National Swine Improvement Federation (NSIF) has implemented programs to standardize ultrasonic measurements for these traits. The first of these programs was held at Iowa State University in the spring of 1994. Two programs were offered at the University of Nebraska in January 1995. The purpose of the workshop was to evaluate the participants ability to predict carcass data, the repeatability of their measurements and the bias of the live measurements as compared to carcass data.

## Methods

The two workshops held in Nebraska were jointly sponsored by the Nebraska SPF Swine Accrediting Agency and the University of Nebraska Animal Science Department. Facilities for the workshop were provided by the SENEK Testing station located at Wymore, Nebraska. The pigs used in the practicum were involved in a study conducted by cooperators in the Nebraska SPF program.

The workshops consisted of an educational training session, a scanning practicum for participants, and a written exam. The educational program included the topics of anatomy of the pig, fat and muscle deposition patterns, NSIF recommendations for ultrasound measurements, proper probe placement, discrepancies of live and carcass data, and the use of NSIF adjustment factors. Program presenters included Dr. Dennis E. Burson, Extension Meat Specialist; Dr. Thomas E. Long, Extension Swine Specialist, and Dr. Thomas E. Socha, Manager Nebraska SPF Swine.

Pigs used for measurement by the participants were selected by John McKeever, SENEK Station Manager and Doyle Wolverton, Extension Livestock Specialist. Fifty pigs were scanned in random order by each participant. Participants submitted their first round results before to the second scanning. Pigs were randomized again for a second scanning by the participants. Pigs were shipped directly to IBP Inc., Madison, Nebraska for slaughter the next day. Fat thickness and loin muscle area were collected on the carcasses after a 24-hour chill by carcass officials, Dr. Dennis E.

**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.

# PigCHAMP Summary of 1994 Reproductive Herd Performance

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### 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 percentiles, 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