

Segregated Early Weaning (SEW) of Pasture-farrowed Pigs

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Summary and Implications

Segregated early weaning (SEW) works well with pasture-farrowed pigs. The SEW pasture-farrowed pigs weighed about the same as conventionally weaned pigs at 9 weeks of age with lower death losses (about 2% less). For the period 5–9 weeks of age the SEW pigs gained more rapidly and were more efficient converting feed to live gain than pigs weaned at 5 weeks of age and moved to an open-front shelter. However, costs were presumably higher for the SEW pigs because of higher labor costs from multiple feedings per day, higher-priced pig feed for early weaned pigs, higher utility costs, and the added cost of a nursery unit.

Based on the results of this trial, SEW is compatible with pasture farrowing. However, pasture farrowing may not be as compatible with the mechanics of SEW. For example, because pasture farrowing is seasonal, the SEW nursery may not be kept full at all times. This would reduce the throughput, the number of pigs through the unit, which would increase the fixed building costs per pig. A new approach of putting newly weaned 2-week-old, 10-lb pigs directly into a finishing unit would partially alleviate this situation or lower fixed cost SEW nurseries are needed that then could be used on a seasonal basis.

On the other hand, the technique of early weaning pasture-farrowed pigs has the potential of extending the farrowing season while reducing piglet mortality and minimizing the negative effects of weather extremes.

By its nature, a one-litter pasture-farrowing system may benefit less from SEW than other more intensive or continuous pig production systems. In a one-litter system considerable age segregation of pigs occurs on the farm at all times. The sows are sold after weaning. At most times throughout the year the pigs on the farm are the same age. If the herd already has a high health status, the advantages of SEW are much less.

Therefore, SEW will work for pasture farrowed pigs but herd health status and overall SEW costs need to be carefully evaluated. A cost comparison of SEW for pasture-farrowed pigs is elsewhere in this report.

Introduction

A new technology available to pork producers is segregated early weaning (SEW). When pigs are weaned early (<21 days) and segregated by age their health status

is improved. The SEW procedure allows the pigs to express more fully their genetic potential for growth and lean gain. By coupling SEW with outdoor farrowing, beginning producers may more easily gain entrance to swine production because capital requirements would be lower than when using a conventional farrowing building. For example, a beginning farmer could buy farrowing huts, avoiding the high cost of a new farrowing facility, and invest in an early weaning nursery unit. At the same time the producer would be learning a new technology. If the coupling has advantages, the length of the outdoor farrowing season (spring to fall) could possibly be extended and farrowing huts could be used more intensively.

Pasture or outdoor farrowing is a viable alternative system compared with conventional, indoor farrowing by using farrowing crates. Granted, outdoor farrowing is seasonal in Iowa, but because the majority of pig production is year-round indoors, the seasonal marketing effects are minimal. Outdoor farrowing in Iowa results in generally fewer pigs weaned per litter and per sow per year and poorer feed efficiency than indoor farrowing. But outdoor farrowing systems have lower fixed costs resulting in lower costs of production, based on an analysis of 5 years of Iowa Swine Enterprise Records (5). Outdoor pig production has increased dramatically in the United Kingdom (6). In addition, outdoor pig production is viewed as positive by individuals concerned about animal care and welfare. Work at the ISU Western Research Farm has documented the system (4). A case study of three outdoor swine producers showed outdoor farrowing to have a low labor requirement per litter, although the work is seasonal (3).

Outdoor swine production systems when properly managed are a good example of sustainable livestock systems (2). Farrowing outdoors is a competitive strategy for some Iowa producers.

The key strategy employed by this project is to couple the advantages of outdoor farrowing—low fixed costs, flexibility, and sow freedom of movement—with the advantages of (SEW)—rapid growth, improved health status, and efficient lean gain. Outdoor farrowing is a practice that has been used for many years. SEW is a relatively new practice that is being adopted by many producers. By coupling the two practices some advantages may be achieved. For example, by reducing the time that the pigs are with the sow in a simple floorless hut, crushing losses, predator losses and risk of adverse weather could be reduced. In successful SEW, pigs must be born in a narrow time window. This is also true for successful outdoor farrowing. If weaned at 14–18 days of age, the outdoor-farrowed pigs could be kept in the hut and not allowed to free-range or cross-

suckle.

SEW is a relatively new but proven technology in the swine industry. Pigs weaned at less than 21 days have improved health status, more rapid weight gain, and improved feed efficiency than conventionally weaned pigs (1,7).

SEW was developed and is normally used with pigs born in environmentally controlled confinement farrowing houses equipped with farrowing crates. There are no reports of trials with SEW of pasture-farrowed pigs. Therefore, this trial was designed.

Methods

The study occurred from September through November 1995 and 1996. It started at the ISU Western Research and Demonstration Farm, Castana, Iowa, when the pigs were 2 weeks old and continued for 7 weeks. The SEW pigs (8 litters) were weaned at the beginning of the trial, at 2 weeks of age, and were moved to an environmentally controlled nursery unit near Ames in 1995 and near Atlantic in 1996. The SEW pigs remained in the nursery until the end of the trial. They were fed and managed according to standard SEW procedures.

The conventionally weaned pigs (8 litters) remained on pasture with the sows for an additional 3 weeks after the beginning of the trial, until they were 5 weeks old. They were then weaned and moved to an open front shelter with a concrete floor and bedding at the Western Research Farm. They remained there for 4 weeks, until the end of the trial. All pigs were weighed at the beginning and the end of the trial and when the conventionally weaned pigs were weaned at 5 weeks of age. Feed intake, average daily gain, and feed efficiency were calculated.

All pigs were injected with 1/4 cc of ivermectin at the beginning of the trial. The SEW pigs were given water medicated with Sol-met for the first 7 days, feed medicated with carbadox while in the nursery, and an injection of Naxcel (1995 only). Pig deaths and weight of dead pigs were recorded for all pigs in the study.

Litters were randomly assigned to treatments when a sufficient number of litters had farrowed within a 5-to 10-day period to allow for eight litters per treatment each year.

Results

The SEW pigs were weaned at 14–15 days of age and weighed 8–8.5 pounds. At the beginning of the trial the age and weights of the pigs left on pasture were similar to the SEW pigs (Table 1). In 1995, at approximately 9 weeks of age the SEW pigs were 4 pounds heavier than the conventionally weaned pigs, which had been weaned at 5 weeks (Table 2). But in 1996, the SEW pigs were 2.3 lb lighter than the conventionally weaned pigs. Both years, about 3% of the conventionally weaned pigs died between 2 and 9 weeks of age. None of the SEW pigs

died in 1995 and 1.3% died in 1996 (Table 2) during the same period.

Growth performance and feed intake and efficiency of the pigs from 5–9 weeks of age are shown in Table 3. The conventionally weaned pigs nursed until 5 weeks of age and consumed only a small amount of creep feed. Therefore, only the last 4 weeks of the trial are shown in Table 3. However, the conventionally weaned pigs were under weaning stress during that time and the SEW pigs were past their weaning stress. In 1995 for weeks 5–9, the SEW pigs ate more feed (about 1/3 lb/day), gained faster (about 1/3 lb/day), and were more efficient, requiring about .2 lb less feed per pound of gain than the conventionally weaned pigs. In 1996, the SEW pigs performed the same as the conventionally weaned pigs. No health or disease problems occurred for either group of pigs. The conventionally weaned pigs performed better in 1996 than 1995. This may be due to better weather conditions. Also, overall sow and pig health was better in 1996 than 1995. Greater performance differences may have been observed if the pigs' performance had been measured to market weight. SEW pigs often reach market weight earlier and are leaner than conventionally weaned pigs.

The conventionally weaned pigs were more variable in weight at the end of the trial than the SEW pigs. The conventionally weaned pigs had fewer pigs in a 20-lb weight range both years (80.9% in 1995 and 73.9% in 1996) than the SEW pigs (85.9% in 1995 and 73.9% in 1996) than the SEW pigs (85.9% in 1995 and 82.4% in 1996). There also were more small pigs (<40 lb) for the conventional weaning compared with SEW (6.4% vs. 3.5%). Additionally, there was more year-to-year variability within the weaning treatments as shown by a 10.9-lb difference between the years for average end weight for conventionally weaned pigs and a 4.5-lb difference for SEW pigs. The SEW pigs were more uniform within the year and also from year to year than the conventionally weaned pigs.

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Table 1. Beginning number, age, and weight of pasture-farrowed pigs.*

Year	Number of pigs		Beginning wt (lb)		Beginning age (days)	
	1995	1996	1995	1996	1995	1996
Conventional	70	75	8.4	8.3	14.6	14.2
SEW	71	75	8.2	8.5	14.4	14.3

Table 2. Ending weight, age, and mortality of pasture-farrowed pigs after SEW and conventional weaning practices.

Year	Ending wt (lb)		Ending age (days)		Mortality (%)	
	1995	1996	1995	1996	1995	1996
Conventional	50.0	60.9	63.6	63.2	2.9	2.7
SEW	54.1	58.6	63.4	63.3	0.0	1.3

Table 3. Performance of pasture-farrowed pigs weaned conventionally and SEW from 5-9 weeks of age.*

	ADFI lb/day		ADG lb/day		FE lb feed/lb gain	
	1995	1996	1995	1996	1995	1996
Conventional	2.03	2.37	.83	1.31	2.26	1.79
SEW	2.38	2.39	1.15	1.32	2.07	1.81

*The conventionally weaned pigs were weaned at 5 weeks of age. Consequently, they consumed a small amount of creep feed during the time they were nursing. Therefore, only weeks 5-9 were compared.

ADFI = Average Daily Feed Intake

ADG = Average Daily Gain

FE = Feed Efficiency