

2. **Electronic sow feeding:** The one drawback to ESF is that there's always residual feed remaining when a sow is forced out by the sow behind her. A race track design which involved a 250 foot walk back to the front entrance of the ESF alleviated this problem for Coleman's sows.
3. **Square footage per sow:** While opinions vary on what is optimal here, too low an allotment can cause undue stress to the sows. Coleman found that 23-24 square feet per sow was a happy medium that worked for both the producer and the animals.
4. **Number of sows per ESF station:** Industry allotments range from 45-80 per station. By opting for the low end of the range, Coleman's team allowed sows to move quickly and efficiently through the stations each day, avoiding the pig equivalent of rush hour road rage.

Training difficulties

Coleman used a few strategies to deal with this problem:

1. **Early training:** Most ESF farms start training at the time of heat detection and/or potential mating ages. Instead, Coleman began at 10 weeks of age, acclimating the animals to a scale sorting system and everything that entails: Moving through pneumatic gates, being confined and learning the secret to getting food.
2. **Using a "Hog Whisperer":** Because forcing animals to adopt the ESF feeding system can be a prime source of stress, Coleman employed a "hog whisperer" to forge a strong connection with the animals and train them through trust rather than coercion. How's that for a non-traditional career path?
3. Exposure to one-way gates in the final gilt development unit (GDU): This allows them to become accustomed to unfamiliar items prior to using them on a day to day basis.

Heat detection

Detecting estrus can be difficult in large groups, so Coleman uses an automatic detection system. A boar is housed in a

detection area where visits are electronically recorded and sows determined to be in estrus are sorted into separate pens.

Sow management

Group housing requires a choice between dynamic and static groups. Coleman chose static for smaller groups and dynamic for larger ones to keep barn inventory at full capacity.

Bottom line

When he compared their loose housing system with a comparable operation using stalls, Coleman found very similar production parameters such as conception rates and litter sizes. That's good news, because it means that loose housing can fulfill the welfare demands of consumers while maintaining high sow productivity. For the industry, it's a win-win, and these days, that's rarer than a sow who's watching her weight.

Part three: Key Indicators of Breeding Herd Productivity

"If you aim at nothing, you will hit it every time."

- Zig Ziglar

That could describe a typical peewee hockey game, but it's also a reminder of why benchmarking is so important in pork production. Defined by Webster as "a standard or reference by which others can be judged or measured", benchmarking is something that Ron Ketchem believes strongly in. Armed with a BS in Animal Science and a Masters in Reproductive Physiology and Animal Breeding, he worked in the swine industry for 42 years with both a genetic and feed company before purchasing Swine Management Services (SMS) - a data analysis firm - in 2002.

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Ketchem doesn't just pay lip service to benchmarking, he lives it. Since starting the SMS Farm Benchmarking data base in 2005, he has grown it to include almost 900 farms ranging from 125 – 10,000 sows, with 1.5 million mated females in inventory and farm data from Canada, the United States and China. Over the last several years he has come up with 11 production numbers that are most critical to monitoring and improving production:

- Pigs weaned/mated female/year
- Total born/mated female/year
- Litters/mated female/year
- Farrowing rate %
- Wean to first service interval
- Female death loss
- Piglet survival (100% - (stillborn % + pre-weaning mortality))
- Total born/females farrowed (P1+ P2 + P3)
- Gilt farrowing rate %
- Total born/females farrowed (P1)
- Retention (P1 + P2 + P3) culls & death loss

From this data, Ketchem gleaned a lot of information that could be useful for producers.

1. Factors that influence total pigs born:

- Using F1 females
- Ensuring that gilts have at least a recorded skipped heat, gestation exposure for 10+ days and a weight of 300+ pounds before breeding.
- Increasing feed intake in lactation to 15 lbs. per day with ad-lib feeding.
- Increasing feed intake from weaning to breeding, with a goal of 40 lbs. in five days.

- Lowering weaning to first service interval.
- Offering more stimulation at breeding by boar and more hands on contact by breeder.
- Monitoring semen quality as to age, dilution, storage and handling at the farm.

2. Key facts about farrowing rate:

- A key driver at any farm with a target of 90+%.
- Is a three part variable: Female x Semen x Person (breeding technician).
- A 4% increase in farrowing rate will improve production by 1.35 pigs per sow per year.
- To improve farrowing rate on farm, breeders must be able to breed gilts (P1).

3. What to work on with your AI technicians (breeders) to improve farrowing rate:

- Provide ongoing training and oversight supervision.
- Take planned breaks to prevent fatigue.
- Record breeding information on each mating: AI technician, time of day and semen batch number.
- Review breeding records of individual breeders for farrowing rate and total born, number of services and matings, wean to first service interval, parity, day of week and hour of breeding, and semen back number.

4. How to improve semen management:

- Know how the stud handles the semen, including type of extender, dilution rate, cleaning procedures and presence of testing for bacteria.
- Ask what temperature semen must be stored at on farm.

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- Record semen delivery dates with batch information.
 - Check inside and outside temperature of semen bags with temperature gun.
 - Each day, record high/low temperatures for last 24 hours in semen storage unit and monitor to ensure no more than 2-3 degrees of change in 24 hours.
 - Place semen in trays in storage unit, which should be an air conditioned room that stays between 50 and 70 degrees F year round, and rotate each day.
 - Store semen by delivery date so oldest is used up first.
 - Always place semen in a cooler with cool packs when removing for breeding.
 - Mark semen returned to storage unit from breeding and used that day or discard it.
5. How to improve wean to first service interval:
- Starting on day of lactation, give sow in lactation more feed and ensure P1 females have all the feed they want.
 - Place sows on self-feeders or a feed storage hopper to allow for self-regulation of feed intake.
 - Give weaned sows extra feed from weaning until breeding.
 - Start daily boar exposure the day of weaning to stimulate sows.
6. How to lower female death loss:
- Make sure crew is certified for PQA Plus and TQA.
 - Train crew on finding sick or lame females and have written SOPs for this as well.
 - Develop a list with your vet of antibiotics for treating sick and lame females and keep detailed information on each treated female for 12 months.
 - Verify that personnel are trained on proper euthanizing procedures and record deaths accurately.
7. How to save more pigs in farrowing:
- Extend farrowing hours to address stillborns.
 - Towel dry or use drying agents to coat pigs and reduce pre-weaning death loss from chilling.
 - Have a “day 1” pig care specialist in farrowing rooms when every sow is farrowing.
 - Manage fall back pigs on days 2-8.

If a farm was at 100% in each of Ketchem’s 11 key indicators, they would be producing 36+ pigs weaned/mated female/year. To do that, you need caring, trained people, strong gilt development, detailed breeding of females and farrowing methods to save more of the extra pigs being born. It’s not easy, but better to aim high and come up short than to aim at nothing and hit it every time. ■

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