WINTER 2006

PIC IMPROVER

MANAGEMENT TIPS AND NEWS TO IMPROVE PRODUCTIVITY, FROM PIC

INDUCTION: WORKING FOR YOU, OR VICE-VERSA?

PIC technical services personnel have reported producers experiencing the double-edged sword of farrowing induction: On one hand, induction helps reduce the number of piglets lost at birth. At the same time—as too many producers learned in the early days before breeding records were as good as they are now—mis-applying it can increase low-viable pigs and pre-weaning mortality, not to mention adding cost. Double-check your induction program to make sure it's working for you—not the other way around.

Reevaluate regularly. Over time, what was once a conscious, rational decision to induce can easily become habit. It's prudent to step back occasionally and challenge why you're doing it. Ask yourself:

- Is it tightening the group spread enough to allow me to close out rooms at weaning?
- Is it allowing me to concentrate farrowings into the workday, when I have more staff people available? Your goal here should be getting 60 percent to 70 percent of your pigs within an eight-hour workday.

Focus on gestation. One of the common underlying causes of dissatisfaction with induction is interrupting normal gestation too soon. Prematurely inducing makes a direct impact on the percent stillborn. The average PIC maternal line gestation period runs more than 116 days, and PIC recommends its females not be induced before 115 days.

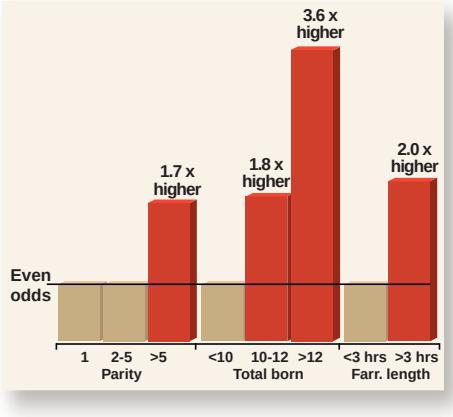
Of course, managing gestation requires accurately assessing its natural length, which is no small task itself. These changes can confuse it:

- Parity structure changes over time
- Changes in productivity, like improved litter size
- Mis-recording the date that gestation really begins. If sub-optimal heat detection causes a sow to be bred too early in estrus, or if a sow stands for three or more matings, she could actually begin gestation as much as two days after PigCHAMP starts the gestation clock running—at the date of first mating. That miscalculation can cause those sows to be induced on time according to the paperwork, but prematurely biologically.

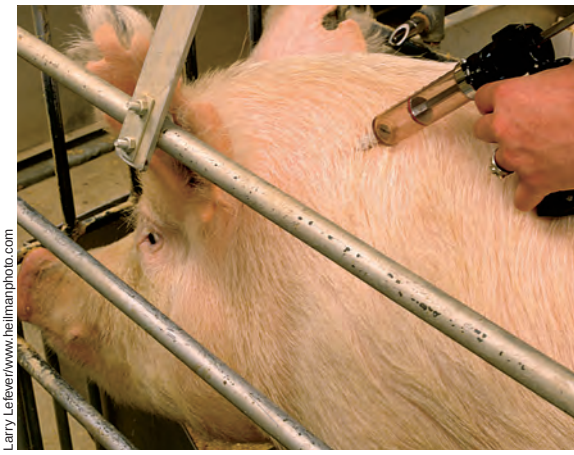
Target. Obviously, some sows are at higher risk than others for losing pigs at birth. So it follows that those sows are more likely to pay back the investment of induction better than others. Higher-parity sows, fat sows and those with a history of farrowing larger litters should be your first target. Work has shown that a program to consciously identify high-risk sows, group them at farrowing, induce them and increase the frequency of pre-partum checks was able to shave 2.5 points off their 9.2 percent stillborn rate while increasing the born live by 0.8 pig.

TARGET THE AT-RISK SOW

Selectively inducing the sows relatively more at-risk for a high stillbirth rate can more effectively target your induction. Which are the most at risk? A 2005 study of 565 farrowings across four commercial operations in Brazil showed the odds significantly increased for older sows, those farrowing larger litters and those enduring longer farrowings.



Source: Borges VF, Bernardi ML, Bortolozzo FP, Wentz I. Risk factors for stillbirth and foetal mummification in four Brazilian swine herds. *Prev Vet Med*. 2005 Sep 12;70(3-4):165-76. Dec;73(12):3543-51



Larry Lefever/www.heilmanphoto.com

Get good data. Then use it. Farrowing data should always record induction status by sow. Most systems make it easy. You should also standardize record-keeping for date of farrowing and breeding. Then, you can begin to answer the basic questions like whether induced sows are farrowing predictably and within expected ranges after induction—a good indication of whether induction is being done correctly. Next, induction vs. non-induction data should be matched to key productivity figures—particularly stillborn percent and preweaning mortality. Track by parity, too, paying special attention to how gilt farrowing patterns respond. And finally, analyzing by day of the week farrowed can tell you a lot about relative effectiveness of staff members. From the data, you can then develop standard operating procedures, which staff should be fully trained on and held to. ■

Information for this article was provided by Peter Provis, DVM, of Sheridan Heuser Provis Swine Health, in Steinbach and Winnipeg, Manitoba (www.shpswine.com), and by Rafael Kummer, PhD, PIC technical site manager (rafael.kummer@pic.com).

A DAY IN THE LIFE OF A VIABLE, THRIVING PIGLET

Today's high-performance maternal genetics have boosted litter size to heights producers once thought impossible. Today, it's keeping all those pigs alive after they're born that's tough. To help accomplish that mammoth task, break the day into logical, manageable steps to control the routine:

6 a.m. to 8 a.m.

❒ Feed, water, clean the trough. Sows should be fed at five-hour increments, and feed should be measured to ensure correct amounts are fed. Record all feedings against targets.

❒ From two days before until two days after farrowing, scrape manure from the stall. Remember, the number of antibodies pigs get from colostrum are finite and can be overwhelmed by bacteria in the environment.

8 a.m. to 11 a.m.

❒ Check heat lamps for proper placement.

❒ Supervise farrowings; assist difficult deliveries.

❒ Every 20 to 40 minutes, note the number of piglets born on the sow record card by time, to track interval.

❒ During the farrowing process, move piglets to the hot-box after about an hour.

❒ As they go into the hot-box, give weak or otherwise low-viability piglets 10 cc to 15 cc of colostrum.

❒ Once the farrowing is finished, get the sow up, check the quality of teats and plan any necessary treatments.

❒ Offer the sow water.

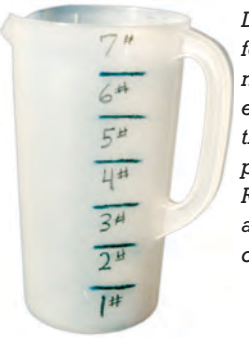
❒ Give her feed if she appears to want it.

❒ Pull the heat lamp from behind the sow.

❒ If you find piglets near the sows but not nursing during the first day, add a lamp over the hot-box for 20 to 40 minutes.

❒ Schedule fostering. It's important to plan and then schedule out cross-fosters in writing. Some stock people get too obsessed with keeping litters uniform, rather than simply cross-fostering to even out the nursing load and reduce competition. Done properly in the first hours, cross-fostering should only need to be done once. Use a written plan by room, including number of crates, parity of each sow, available teats, number of pigs by size category, target sows to nurse, and any udder treatments needed.

❒ If no farrowings, clean, wean and load.



Don't guess at sow feeding. Use measured scoops to ensure sows receive the recommended portion of daily feed. Record target vs. actual consumption on sow cards.

11 a.m. to noon

❒ Feed, water, clean the trough, record.

❒ Bring the big half of split-suckled litters into the hot-box at noon.

1 p.m. to 3 p.m.

❒ Process and treat pigs

❒ Treat sows as necessary

BUT WHO GETS PRIORITY?

True, sows never seem to cooperate with your carefully planned schedules. When you get into a time crunch that forces you to pick and choose jobs, focus your attention on these critical sows before you do anything else, in this order:

First: Sows with piglets that have dried but that aren't done farrowing. Assist them.

Second: Sows that are done farrowing. Check for them first thing in the morning and last thing in the evening. Handle piglets according to schedule.

Third: Sows that are in the middle of farrowing. Keep watching them.

Source: Gustavo Pizarro, DVM.

❒ Check heat lamps. In an attempt to dry pigs, it's tempting to set the lamps too low, which overheats piglets and drives them off to risk chilling or crushing. A hand-held remote infrared thermometer is indispensable. Start by setting lamps at a height that gives you a floor temperature of 93°F, and then read the pigs to adjust from there.

3 p.m. to 4 p.m.

❒ Cross-foster piglets born between noon and yesterday afternoon. Follow your written plan, prioritizing litters on parity-2, parity-1 and parity-3 sows, in that order. Watch foster sows to ensure they accept pigs.

4 p.m. to 5 p.m.

❒ Feed, water, clean the trough, record.

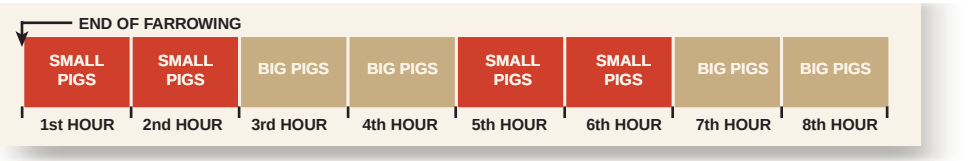
❒ From two days before until two days after farrowing, scrape manure from the stall. ■

Information provided by PIC Technical Services Director Noel Williams, PhD, (noel.williams@PIC.com) and Gustavo Pizarro, DVM, (gustavo.pizarro@PIC.com).

"Read the pigs" to monitor heat lamp positioning, recommends PIC's Gustavo Pizarro, DVM. Hung too low, like the one at right, and they'll overheat pigs, driving them back to the sow where they risk crushing.

RECOMMENDED SPLIT-SUCKLING SCHEDULE

Once farrowing is done, split litters into the largest half and the smallest half, hot-box one litter half and put the other on the sow according to this schedule:



DO YOU HAVE WHAT IT TAKES TO SUCCESSFULLY AI?

Through research and field experience, PIC has identified specific habits practiced by artificial insemination technicians that make the difference between good and great. Give your technique a checkup:

Do you start with known-quality semen from reputable, biosecure studs?
❑ Always ❑ Usually ❑ Seldom or never

Do you have the right personality for the job? Do you consider yourself:

Precise?	❑ Yes	❑ No
Detail oriented?	❑ Yes	❑ No
Patient?	❑ Yes	❑ No
Confident?	❑ Yes	❑ No
Curious?	❑ Yes	❑ No
Enthusiastic?	❑ Yes	❑ No
Willing to ask input from others?	❑ Yes	❑ No

Do you use all semen within 72 hours of collection?
❑ Always ❑ Usually ❑ Seldom or never

Ensure semen is stored at 61° to 64°F?
❑ Always ❑ Usually ❑ Seldom or never

Store all semen in a professionally converted, fan-assisted semen storage unit or a semen incubator?
❑ Always ❑ Usually ❑ Seldom or never

Do you rotate semen stock twice daily to maximize shelf life?
❑ Always ❑ Usually ❑ Seldom or never

Do you use a monitor and record minimum and maximum temperatures twice daily?
❑ Always ❑ Usually ❑ Seldom or never

Do you avoid returning semen from the barn back into the semen cooler?
❑ Always ❑ Usually ❑ Seldom or never

Do you check that the cooler door is closed?
❑ Always ❑ Usually ❑ Seldom or never

Do you take only enough semen to the barn for one hours' worth of inseminations?
❑ Always ❑ Usually ❑ Seldom or never

Do you limit your inseminations to eight per hour per person?
❑ Always ❑ Usually ❑ Seldom or never

Do you transport semen from cooler to barn in insulated, cooled containers?
❑ Always ❑ Usually ❑ Seldom or never

Do you delay heat check until 1 hour after feeding?
❑ Always ❑ Usually ❑ Seldom or never

Are you gentle when heat checking?
❑ Always ❑ Usually ❑ Seldom or never

Do you heat check twice a day?
❑ Always ❑ Usually ❑ Seldom or never

Do you use a boar to heat check?
❑ Always ❑ Usually ❑ Seldom or never

Are they mature, smelly, high-libido boars?
❑ Yes ❑ Sort of ❑ No

Do you rub the flanks and the underline first before attempting the back-pressure test?
❑ Always ❑ Usually ❑ Seldom or never

Can you spot a sow in heat just by watching how she responds to the boar?
❑ Always ❑ Usually ❑ Seldom or never

Do you give gilts extra time with the boar?
❑ Always ❑ Usually ❑ Seldom or never

Do you wait an hour after catching a positive heat before breeding?
❑ Always ❑ Usually ❑ Seldom or never

Use a fresh catheter for each insemination?
❑ Always ❑ Usually ❑ Seldom or never

Inseminate at least twice per heat cycle with approximately 18 hours between each?
❑ Always ❑ Usually ❑ Seldom or never

Use a dry paper towel to clean the vulva?
❑ Always ❑ Usually ❑ Seldom or never

Are you slow and gentle, stimulating the female during insemination by back pressure and by rubbing the shoulders and flanks?
❑ Always ❑ Usually ❑ Seldom or never

Do you devote at least five to six minutes to each insemination?
❑ Always ❑ Usually ❑ Seldom or never

Do you leave the boar with the female at least 10 minutes after service completion?
❑ Always ❑ Usually ❑ Seldom or never

HEAT-DETECTION CHEATS

Every quiz deserves a good cheat-sheet. Remember these standing-heat signs:

Standing reflex
Trembling and tail flicking
Arched back
No appetite
Discharge and swollen, red vulva
Immobile to back pressure
No droop in ears
Glazed eyes

RESULTS

Tally your score:

Number of "always" _____ + number of "yes" _____ = _____ X 3 = _____
+ Number of "usually" _____ + number of "sort of" _____ = _____ X 2 = _____
+ Number of "seldom or never" _____ + number of "no" _____ = _____ X 1 = _____
Your total score _____

71 to 99: Congratulations. You likely have a world-class AI technique and the 85 percent-plus conception rate to show for it.
51 to 70: Keep trying. Effective insemination technique requires a combination of personal affinity for it and skills you can develop through training.
30 to 50: You may need some help. PIC has a range of training materials and resources. Contact your PIC account representative or PIC semen supplier. ■

FOUR MONITORING TOOLS UNDER $100 THAT PAY OFF

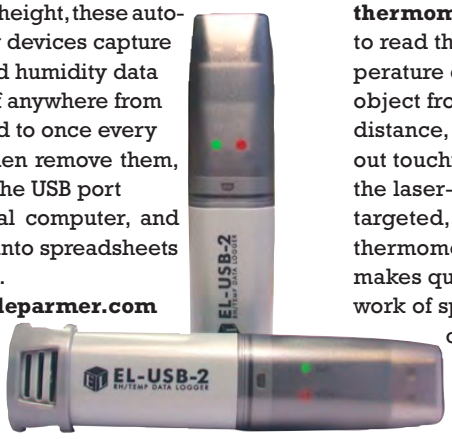
"The right tool for the right job" was never more true than in pork production. Here are five good tool investments that can pay big dividends in improving your environmental control:

A dependable flashlight. In even the best-lit facilities, the difference between an early disease catch and a miss can be an accessible flashlight. Plus, having light available often removes a psychological barrier to checking every pig, every time. You may consider purchasing a heavy-duty, rechargeable version, which will outlast a cheap, short-lived one. **www.maglite.com**

Model shown: Mag-Lite® Cell.

Auto-loggers. Alligator-clipped to a wire above pig head height, these automatic recording devices capture temperature and humidity data at increments of anywhere from once per second to once every 12 hours. You then remove them, plug them into the USB port of your personal computer, and load the data into spreadsheets for analysis.

www.coleparmer.com



Model shown: Cole-Parmer 23039-52

Laser remote infrared thermometer. Able to read the temperature of any object from a distance, without touching it, the laser-targeted, remote thermometer makes quick work of spot checking heat mats and floor temperatures under creep lamps from a distance. That makes the critical task more easily done and thus more likely to be conducted regularly. Hand-held and battery-operated.

www.coleparmer.com

Model shown: Oakton Mini-InfraPro™ 6.

Model shown: Cole-Parmer Thermo-Hygro 37401-00.

Pen style thermometer and humidity reader. Carried in a coveralls breast pocket or belt clip, a pen-type digital thermometer/hygrometer probe can give you a quick check of ambient temperatures and relative humidity. Particularly good for making spot checks across several zones and quality-checking system controls.

www.coleparmer.com

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IN THIS ISSUE

HELPING IMPROVE YOUR PIG PRODUCTIVITY

Improving pig and pork quality starts with good genetics, but it ends with good daily management. Look inside for tips and news from PIC's research, technical and support personnel to help you improve your productivity. For additional copies of this publication, more pig-improvement management information, or details about PIC products and services, call 1-800-325-3398 or e-mail info@pic.com.

SPRING 2007

PIC IMPROVER

MANAGEMENT TIPS AND NEWS TO IMPROVE PRODUCTIVITY, FROM PIC

STEPS TO HEAD OFF PRE-WEANING MORTALITY

PigCHAMP database records show the typical U.S. producer loses 10 to 12.5 percent of his born-live pigs to pre-weaning deathloss. PIC Technical Services recommends checking these points to troubleshoot yours:

Farrowing-room washing and disinfection. No shortcuts allowed. Devote the time to do the job right, paying attention to the less-accessible parts of the stall area—under the feeders, under the mat and the mat itself. The farm manager should check the quality of the washing and disinfection job before signing off on loading the room.

Farrowing-room downtime. One full night between farrowing groups should be the absolute minimum to let a room stand empty in order to dry completely and finish the sanitation process.

Induction. Farrowing induction can shift the number of sows farrowing during the workday from a typical 35 to 40 percent to 60 or 70 percent, making them easier to attend. That monitoring can save potential stillborns as well as get pigs off to a good start, which improves pre-weaning survival. However, induction has to be done at the correct time—induction is often done one, two, even three days too early for modern genotypes. Early induction risks higher pre-weaning mortality, so don't induce before day 115, with some exceptions: Sows in their fifth or higher parity, fat sows, and those with a history of high stillborn rate can be induced earlier, to make sure the staff will be present to monitor and assist. Sows can also be induced as needed to close out the room, but only if the staff will be present to monitor and assist them.

SUGGESTED TARGETS

	TARGET	INTERVENE
SOWS OLDER THAN PARITY 6	<5%	>5%
TOTAL BORN	>12.8	<11.8
STILLBORN	<5%	>7%
BORN ALIVE (NUMBER)	>12.0	<10.7
BORN ALIVE (POUNDS)	>3.5	<3.5
% LITTERS < 7 BORN ALIVE	<9%	>12%
PRE-WEAN MORTALITY	<8%	>10%
WEANED/LITTER (NUMBER)	>11.0	<9.5
WEANED/SOW/YEAR (POUNDS)	>365	<320

Oxytocin use. Too many farms use too much—too high a dose, too many shots per sow or injected at the wrong time. In general, farms that limit oxytocin reduce their stillborn rate, so be sure you:

- Use no more than 10 units per shot.
- Give no more than two shots per sow, spaced two to three hours apart.
- Wait until six to eight piglets arrive.
- Never use oxytocin before the cervix completely opens and you've confirmed no piglet blocks the birth canal.

Newborn management. Monitor older sows every 15 minutes and younger ones every 30. Avoid chilling by running a warm, dry, draft-free farrowing room, using lamps at the back and side of the sow set between 93° and 104° F, and sprinkling a drying agent on the mat and in the hot box. Chalk the first four pigs born in each litter to help you distinguish them from those born last, which probably missed full colostrum. That will help your split fostering.

Split-nursing. Begin as soon as possible, so each pig gets a chance at colostrum. Split litters into the largest and smallest halves, then put one half in the hot-box and one on the sow, alternating them in 40-minute intervals. Do this no more than twice. Low-viability piglets can be hand-dosed with 10 cc to 15 cc as they go into the hot-box.

Light litters management. Cross-foster to create light litters as soon as possible after all pigs have colostrum and before the social order gets established at about 12 to 16 hours after birth. Within a room, place 11 to 14 pigs on each sow based on the number of functional teats that are available—at least half your sows should be weaning 11 or more pigs. Depending on the total born alive for the room, that redistribution will open up udder space on nurse sows, which can then be used for fall-behind pigs at 4 to 7 days old.

Maximize milk. Any sow off feed and showing a temperature higher than 103° F should be treated per veterinary instructions with antibiotics and antipyretics. If more than 10 percent of the room qualifies, you need to review farrowing assistance and room sanitation procedures. Treat any cases of lameness with anti-inflammatories or pain-killers, and put a rubber mat beneath affected sows.

To challenge young sows to produce milk, put at least 12 strong piglets with them, and try not to use first-parity sows to raise light pigs.

Two days after farrowing, lower room temperature to 68° F to boost intake. Make sure every nipple waterer in the room supplies a full 0.4 to 0.5 gallons per minute. Encourage a moderate increase in early lactation feed intake for three days, and then feed aggressively. Keep feed fresh to minimize constipation. ■

START PLANNING NOW TO CONTROL HEAT STRESS

June isn't the time to start thinking about summer stall caused by heat stress. Abatement plans should be in place before warm weather arrives. Start making plans for these adjustments now, advises Bob Thaler, PhD, South Dakota State University swine specialist:

Make dietary adjustments first. As heat-induced feed intake drops, you need to work with your nutritionist to rebalance for that reduced intake. Energy density should increase, typically using added fat. Also, incorporating synthetic lysine, threonine, methionine and tryptophan can maintain protein and amino acid requirements with a lower digestive heat load than just adding crude protein. Maintain the same lysine-to-metabolizable energy ratio as cool-weather diets, he says. Don't bother increasing vitamins and minerals.

Research has also found feeding ractopamine can help offset those intake declines. Missouri work, for instance, showed 218-pound pigs fed 7.2 parts per million of ractopamine the last 21 days under heat-stress conditions performed as well as pigs under cooler May conditions.

Manage heat aggressively. New data underscore the importance of staying on top of heat stress. By looking at water consumption patterns, which indicate heat stress and thus feed intake, we know that pigs will modify their consumption patterns in anticipation of heat stress. In other words, pigs seem to remember heat stress from previous days, and continue to keep their intake low for a period after temperatures return to normal—in some cases by a matter of days. The data show it apparently takes several cool days in a row before the pig is "convinced" it's safe to go back to eating regularly.

Cool the facility as well as the pigs. There's a reason heat stress is harder on pigs in September than in June, despite the similarity in high and low temperatures during the two months. The large thermal mass in today's concrete, wood and steel structures means they become heat sinks over the course of the season, absorbing and holding heat that seldom gets fully dissipated during the cool of the night. Anything you can do to prevent that heat absorption— covering wall exteriors with sheet foam, making sure attic ventilation is sufficient and working, shading western exposures as long as you don't block natural ventilation—can help catch buildings back up when thermo-neutral conditions return.

Spray, don't fog. Wetting hogs is the most effective method to cool them, but wetting by drip or spray is better than fogging or misting, which only ends up increasing the humidity. Your spray interval and nozzle size should deliver about 0.1 gallons of water per pig per hour. In practice, you should have sprayers kicking back on just before the floor re-dries. In large facilities or those with restricted water flow, you may have to zone your sprinklers so they're not all drawing water at once.

Sprinkling should always be accompanied by increased ventilation to evaporate the water—it's not wetting that cools the pig, it's drying. If you're using stir fans to do that, they should be set at a 15-degree angle to the axis of the building, to avoid simply blowing air around the perimeter, and you need one spaced every 25 feet per foot of fan diameter. ■

Bob Thaler, PhD, South Dakota State University. For more information: Heating, Cooling and Tempering Air for Livestock Housing, MWPS-34, available from Midwest Plan Service, at www.mwpshq.org, or (800) 562-3618.

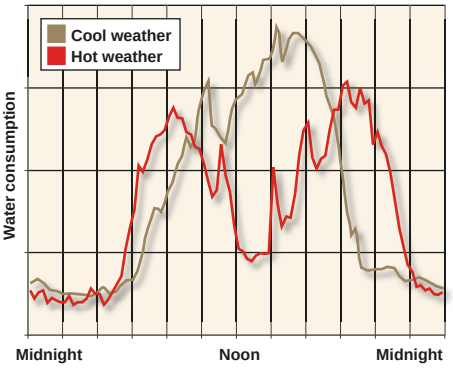
PLAN SUMMER PREVENTIVE MAINTENANCE NOW

- Clean fan blades—at least at every closeout. If you power wash them, be sure to protect motors and controls.
- Clean motor vents—at least once a month. Oil any older, unsealed motors.
- Check V-belt wear. If you can't see the top of the belt over the pulley, it's riding on the center and not running efficiently.
- Check V-belt alignment and tension.
- Blow out or brush louvers at least once a month. Lube all pivot points.
- Don't forget to clean and service any stir fans.
- Dust and check calibration on thermostats.
- Write it all down. Developing and using a checklist for each building avoids overlooking anything.

Source: Steve Matthis, Agricultural/Industrial Programs Division, Sampson Community College, Clinton, N.C.

EARLY TIP-OFF TO STRESS

Water-monitoring equipment that can capture usage in quarter-hour increments may make a useful tool to alert you to heat stress, Dr. Thaler says. The graphs below, from actual barns of pigs four to five months after placement, show that daily water consumption when pigs are comfortable will gradually increase until peaking between 2 p.m. and 4 p.m. In the heat, on the other hand, water use peaks mid-morning and in the evening, with a dip mid-day, indicating pigs are stressed and off feed.

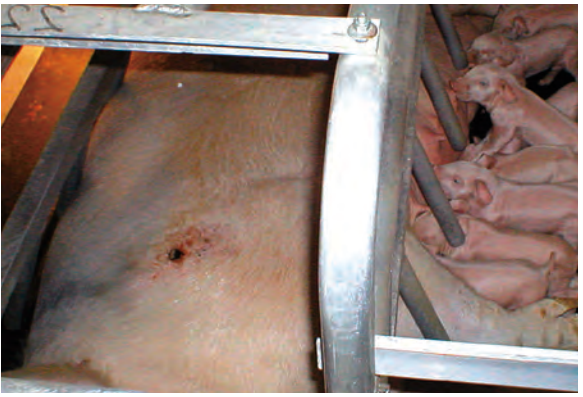


Source: Mike Brumm, PhD, University of Nebraska. Data provided by Dicam USA. Water consumption logged every 15 minutes, 27 pigs per pen, wet dry feeder, additional waterer in pen, tunnel ventilation.

FIVE GOOD REASONS TO ASSESS PIG WELFARE

As a long-time leader in efforts to assure the well-being of animals, PIC has implemented Swine Welfare Assurance Program (SWAP) assessments on every one of its U.S. farms. The effort has reinforced one of the traditional beliefs about production, says Dr. Jer Geiger, DVM: Animals that are well cared for are productive animals. Comfortable and content hogs produce better and, ultimately, more profitably. Consider some of these common welfare issues that could be costing you money:

1 Shoulder abrasions. Abrasions on sows seem to draw the particular attention of animal-welfare advocates, particularly on sows in individual stalls.



An important—though typically nonfatal—welfare issue, abrasions are probably more important from the producer's standpoint as a nutritional indicator. Abrasions are directly related to the amount of fat cover over the sow's relatively bony shoulder blades. When you see one—absent obvious problems with worn and roughened floors—it's a pretty reliable indicator the sow isn't carrying enough condition to pad her at the vulnerable point.

Shoulder abrasions should tip you off to investigate poor feed and water supply or intake. Sow feeding during the critical days around farrowing is still as much art as science, and the rule of thumb to "feed the individual not the room" applies: If you're content to simply feed to meet the group's average requirements, chances are you'll end up increasing variation at the extremes of very thin and very fat. Attention to individual consumption, through weight-taping, condition-scoring, or backfat scanning, is critical to monitoring and feeding success.

2 Full feed and water. It's another unfortunate fact of today's media that starving animals make good video footage for the evening news. But out-of-feed events are another too-common management factor that costs you. Nebraska studies have found that random but repeated bouts of running out of feed for growing pigs reduces their overall rate of gain throughout the growing period. In addition, purposeful underfeeding of sows in early lactation or inadvertently depriving them of water because flow rate is insufficient will reduce their ability to maintain or add condition, shortening their longevity. Plus, empty stomachs that result from empty feeders have been shown to be an important risk factor for gastric ulcers, now one of the most common causes of late finishing death.

3 Regular daily observation. Daily rounds are a staple of improved animal welfare. But they're equally—or even more—important in improving performance. One of the top management failures in operations today is simply too little time spent with the pigs. Pen observations should be done twice daily, in the morning and late afternoon. One way to help ensure someone walks the pens according to schedule is to post a log or record, such as a calendar that can be initialed by the attending worker.

4 Animal handling. The sensationalized hidden-camera exposés of rough animal handling have brought on much of today's public scrutiny over animal welfare. But handling also costs producers real dollars. An estimated $100 million or more in fatigued—that is, non-ambulatory but still living pigs—arriving at packing plants, for instance, may be associated with their handling. PIC's 2005 transport loss summary suggests farms are losing anywhere from 0.4 percent to more than 6 percent of their production to death or disability in transit. Units experiencing high losses should assess their handling and then train employees in the factors that can impact transport stress: temperature, humidity, time of day, handling intensity, ramp and truck design, time spent loading and unloading, stocking density and commingling, and transport time and conditions.

Ontario Farm Animal Council Animal Agriculture Library

5 Employee training. In today's units, animal-welfare shortcomings are as often as not employee-training breakdowns. Euthanasia, for instance: If workers are not well-trained in how and when to dispatch animals, those workers often second-guess their decisions, and hesitate to do it. There's no reason to believe similar hesitation doesn't exist about more production-specific tasks, as well. Training workers to improve job skills and advance in responsibilities can make a difference in both welfare and productivity. ■

WELFARE ASSURANCE

Beginning this summer, the National Pork Board will roll swine welfare assurance into its successful Pork Quality Assurance (PQA) program with its new PQAPlus program. PQAPlus will apply the board's Swine Welfare Assurance Program® animal-care standards and guidelines to the PQA model of producer education, certification and premises assessment. The board also plans to eventually audit a representative sample of certified sites in order to keep food-chain customers convinced that the program's voluntary nature can be trusted. As with PQA, the assessment begins with a certified educator—usually local—to help you identify areas that may need improvement. For more information, go to www.PorkBoard.org and click on the PQAPlus tab.

PQAPLUS™
Our Responsibility. Our Promise.

PROFILE: ALWAYS START WITH THE BEST YOU CAN

Harold Trettin, of Rockford, Iowa, bought not only his first PIC gilts back in 1979, but his first gilts, period. Since then, H.E. Trettin Inc. has become one of the top commercial operations in north-central Iowa. His PIC Account Manager, Joe Becker, talked recently with him about the lessons he's learned during those constantly changing decades, as well as his 80-plus years of farm life.

When Harold started out as one of PIC's first Camborough® multipliers in 1979, he was new not only to PIC, but also to the swine industry as well. For more than 30 years prior to that, he had first raised and then hatched turkeys, followed by chickens.

As the tightening economics of that enterprise began to grow a little too uncomfortably apparent in the late '70s, Harold began to look at the concentrating and capitalizing pork business as an opportunity to put what he'd learned raising consistent, efficient birds to work where the returns were better.

Three decades of poultry growing followed by entry into pork production nearly 30 years ago using PIC foundation stock has taught Iowa's Harold Trettin the value of investing in quality.

What are some of those lessons?

Rule No. 1, he says: "We always try to buy the best we can, for one thing. Good breeding stock, we feel, has helped us a lot. We've never had anything else besides PIC.

"At that time the only farm PIC had in the United States was at Spring Green, Wis. I happened to have a friend there in Spring Green, and he urged me to go with them. The type of breeding PIC is now known for was in its infancy at the time, but they were doing a good job."

Another PIC plus was the company's attitude toward biosecurity and cleanliness, Harold says. That attitude toward controlling disease led him early to use such innovations as shower-in/shower-out facilities long before they become commonplace, as well as what he believes to be the first offsite nursery built in the state of Iowa.

Focusing on getting the best inputs has also shaped how the farm handles ration production in its farm-owned mill. Harold has never used meat byproducts like tankage and meat scraps, for instance, another PIC recommendation he agreed with.

In spite of corn prices now "causing a thorn in everybody's side," he remains optimistic about the future of hog production for his son, Kenneth, and three sons-in-law—John Pearson, Mark Volk and Todd Seibert— who run the operation with him.

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IN THIS ISSUE

HELPING IMPROVE YOUR PIG PRODUCTIVITY

Improving pig and pork quality starts with good genetics, but it ends with good daily management. Look inside for tips and news from PIC's research, technical and support personnel to help you improve your productivity. For additional copies of this publication, more pig-improvement management information, or details about PIC products and services, call 1-800-325-3398 or e-mail info@pic.com.

FALL 2005

PIC IMPROVER

MANAGEMENT TIPS AND NEWS TO IMPROVE PRODUCTIVITY, FROM PIC

BETTER GILTS IN FOUR STEPS

Start gilts out right and they're set for better lifetime performance. Consider these four key steps to improve gilt development.

1 Isolate and acclimatize completely. Isolate new gilts for 30 days minimum; acclimatize all for 60 to 120 days. Isolation units, preferably separate barns at least 1,500 feet from the main unit, should always run all-in/all-out.

The long and short of your acclimatization program, according to Canadian swine consultant Camille Moore, DVM, is any setback after acclimatization needs to come and go before gilts reach 130 days old. Otherwise, it's likely to hamper sexual development.

2 Select candidates early. Preselecting gilts in the nursery permits you to pen, feed and manage them to gain an average 1.4 to 1.45 pounds per day up to 140 days old. That rate, as recommended by PIC, permits adequate protein growth without the accelerated finisher gain that reduces longevity.

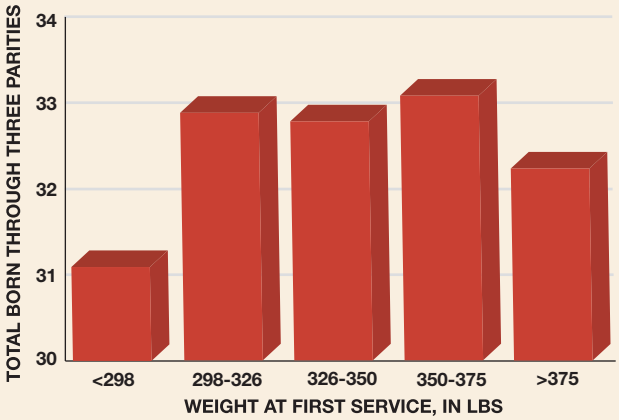
3 After 140 days, start feeding to breed. At 140 days old, adjust diets to meet development targets:

- Gilts should reach at least 30 weeks old and weigh between 280 and 320 pounds by first mating. Canadian work and PIC research confirm the direct connection between achieving targeted first-service weight and achievement of proper body mass by first farrowing—395 pounds after a gestation gain of 75 to 90 pounds. The best—probably only—way to meet this requirement, Dr. Moore says, is to know exactly the weight, age and backfat at first mating for every gilt. Only with that information can you adjust the development program and feeding regime during the first gestation.

Feed gilts ad-lib at least twice per day, allow 13 square feet per animal pen space, and maintain building temperatures to maximize intake. Should gilts grow too fast, dilute energy or limit feed, but be sure to flush them two or three weeks before mating.

- Gilts should have a last-rib backfat of at least 14 millimeters by first mating. PIC research has found gilts with less than 12 millimeters of P2 backfat at first service tended to have a lower born alive and second-parity retention rate than gilts with thicker backfat. If backfat levels at first service are below recommended targets, bump ration energy levels above 1,560 kcal per pound and lysine to 0.55 percent to increase backfat.

4 Breed on second estrus. Achieving second estrus before breeding makes a direct impact on reducing non-productive days—vs. the third cycle—and improves number born alive—vs. the first cycle—according to PIC Nutrition Director Noel Williams, PhD. Breeding on the third vs. the second heat also increases litter size, but by only 0.2 pigs. So the rule of thumb, says Dr. Williams, should be delay breeding past the second estrus only if you need to let the gilt reach target weight.



Controlled gain improves lifetime productivity. PIC work shows gilts serviced outside the target weight range don't farrow as many pigs.

Source: PIC

For more information, visit www.pic.com/usa/resources/default.cfm and click the "nutrition" tab. See your PIC representative for complete feed and feeding management guidelines or contact Dr. Noel Williams at noel.williams@pic.com

PIC

DO'S AND DON'TS TO HELP YOU HIT THE MATRIX CORE SWEET SPOT EVERY TIME

U.S. pork producers lose an estimated $150 million yearly to simply missing their packers' target weight windows. In the ongoing effort to tighten up weight tolerances, you can wind up working against yourself. Case in point: Finisher placement. Try these do's and don'ts.

DON'T sort at finisher placement. Several controlled studies in the past decade have shown sorting and penning light, medium and heavy hogs at placement makes little difference in final performance or facility throughput compared to leaving light and heavy pigs in the same pens. In two of those experiments, leaving pigs of variable weight together actually improved facility utilization vs. reshuffling pigs to create pens of similar weight.

Not only is the additional labor that's required to make pens unnecessarily uniform wasteful, says Mike Brumm, PhD, University of Nebraska extension swine specialist, pen uniformity is now believed to actually increase aggression and the production setback that results from it. Because uniform pens contain few or no obvious "boss" hogs that immediately dominate the group, a larger proportion of the pigs fight to lay claim to that position. The group actually ends up spending more energy fighting and thus suffers more setbacks, Dr. Brumm believes.

The exception that proves the rule.
Sorting at placement works if you're ready to make management changes to capitalize on it.

ASK...	YES	NO
Will you manage the pen(s) of smallest pigs any differently than the rest of the barn?		
Will small pigs' diets be lagged one to five days to keep them on the starter longer?		
Will you make any pen modifications to reduce competition or improve temperature?		
	SORT	DON'T BOTHER

Source: Mike Brumm, University of Nebraska

DON'T compromise all-in/all-out. In an effort to manage the approximately 5 percent of pigs that remain as chronic tail-enders, one common strategy is to shunt them off to alternative finishing facilities. Eventually, that alternative facility has a tendency to turn back into a continuous flow, building up disease organisms over time and predisposing those already poor performers to higher disease levels.

DO be demanding of your pig source—whether they're coming from you or somebody else. Uncontrolled slaughter weight windows start in the breeding facility, and they're multiplied in the farrower. Cultivate long-term contracts with good pig suppliers when you find them. Reward high-health quality when you acquire it. Don't be reluctant to reject loads that don't meet your health standards.

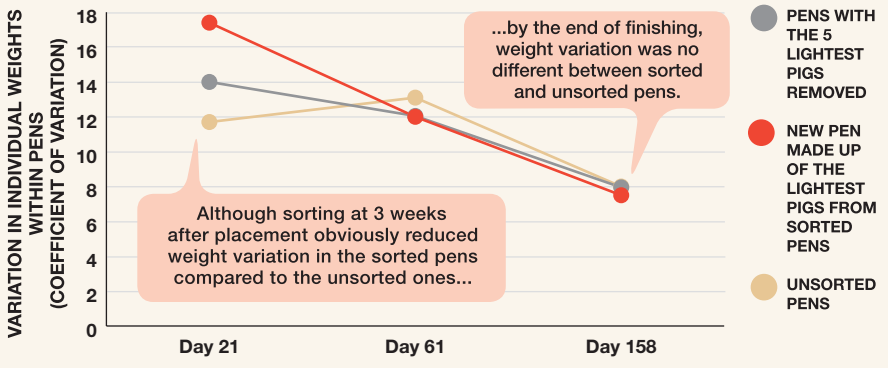
DON'T forget the fundamentals. Spot check the preventive maintenance program for your environmental controls—including the people you depend on to institute it. Investigate the underlying cause of all out-of-feed events. Monitor pig density, especially if carcass weights have been creeping up on you over time. And never take for granted your grip on the problem that remains the top impediment to uniformity—respiratory and enteric disease control. Pushing pig flow too aggressively and then suffering a disease challenge atop it is a recipe for disastrous backups.

DO know the specific packer matrix you're targeting before you fill the finisher. Understand the targets your marketing people expect of you. If you have questions, ask.

DO schedule the tentative ship date at finisher placement. Even if you have a relatively wide contract window, it's never too early to arrange transportation. A simple logistical detail like not having sufficient trailer space lined up can come back to haunt you. Physically record close-outs at shipment, both production and financial.

DON'T view slow-growers as a normal part of production. They're still one of the largest drains on farm efficiency. Set, monitor and evaluate targets. A reasonable goal for culls and lightweights throughout finishing is 10 percent. To track weight variation, divide a group's standard deviation in individual weights by the group average. At the first marketing pull, it should run between 0.08 and 0.12 for the entire group—not just the pulls.

Early sorting does no good



Source: Brumm MC, et al. Journal of Animal Science. May 2002.

CHECK YOUR FACILITY DESIGN

Studies suggest these elements of your load-out facilities may reduce stress and improve on-truck survival:

- Chutes wide enough to prevent shoulder-to-shoulder wedging
- Chute pitch of less than about 6 or 7 inches in 12—some recommend no more than 4.5 inches in 12
- Cleated chute floors
- A short outside approach to the loading chute
- Shade over the loading ramp
- Solid walls on the chute sides; open walls between side-by-side single-file chutes
- Lighting inside the truck—shining on the floor, not in the pigs' eyes
- Elimination of shadows, puddles, flooring texture changes—any abrupt change that encourages balking
- Clean, dry shavings or sawdust on the ramp and truck floor

TAKING EVERY PIG TO THE LAST MILE

Troubleshoot your packer's dead-on-arrival (DOA) and downer complaints by managing the critical control points identified by research from PIC and others:

■ **Animal, genotype and muscularity.** PIC's elimination of the stress gene from all lines, its continuing refinement of selection indexes and introduction of its Crossbred Breeding Values™ program have improved the ability to select for survivability. Now, PIC has begun to identify "genetic markers"—DNA flags—that might be used to directly select for survival. Work is continuing to refine them.

■ **Finisher well-being.** Survivability on the truck is an extension of survivability in the flow, so start with good diets, sound health programs and good facilities.

■ **Soundness.** Resist the temptation to ship pigs that are structurally unsound, lame, unable to move, or otherwise obviously questionable in their ability to board and leave the truck under their own power.

■ **Previous experience with handling and handling intensity.** New research from Claudia Terlouw, DVM, of France's INRA Meat Research Station, suggests that early acclimation to people may be one of the most important determinants of stress-handling at slaughter. That means as long as you can maintain biosecurity, getting workers to walk through pens as often as possible while they're making normal observations is a good investment in reducing handling stress at shipping. In addition, consider getting rid of electric prods entirely.

■ **Slaughter weight.** PIC research shows heavier hogs and heavier loads are more likely to experience deads and downers (Figure 1). As weights rise, load crews need to increase attention to handling care.

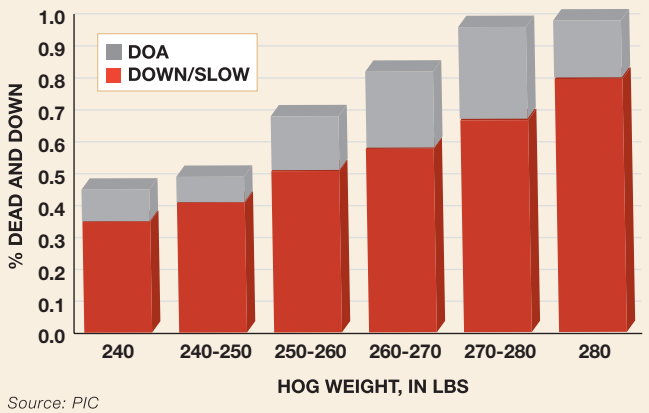
■ **Time off feed.** Pull pigs off feed at least four hours before loading if the entire barn is being cleaned out—six to eight hours is best if they're scheduled for processing that day. If they're going to the floor the next day, give a light feeding before loading.

■ **Temperature and humidity.** Handle and stock more conservatively during heat. Sort and load early in the morning or late at night. Encourage truckers to spray hogs at all stops. Unload as soon as possible.

■ **People.** Research by both PIC and University of Illinois demonstrate a direct link between the people handling and trucking hogs and the incidence of deads and downers (Figure 2). Units experiencing high losses should start with a handling audit and then follow up with training using the National Pork Board's Swine Welfare Assurance and Trucker Quality Assurance programs. Involve load crews as well as truckers.

For additional information, contact Dr. Noel Williams at noel.williams@pic.com

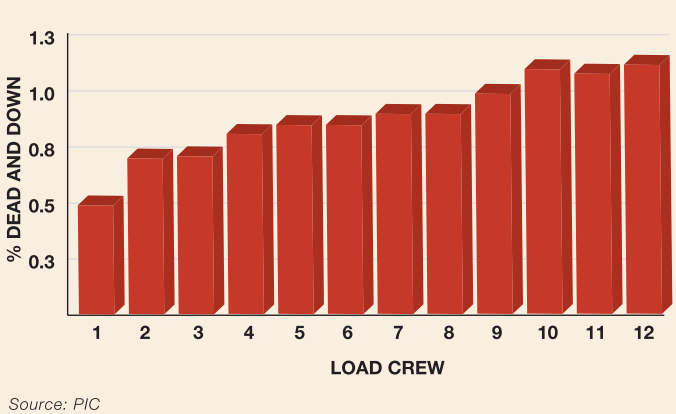
Figure 1



Source: PIC

Heavier weights = higher risk. PIC studies show heavier hogs risk a higher incidence of on-truck attrition. Manage accordingly.

Figure 2



Source: PIC

People make a difference. PIC work shows a direct connection between load crews and the percent lost on the truck.

PIC BREAKS BARRIER TO BETTER REAL-WORLD PROTECTION

Starting in January 2005, PIC became the first commercial breeding stock supplier in North America to successfully apply selection indexes that cross the traditional boundaries of breed and environment.

Crossbred Breeding Values™ will numerically rank pure-line animals, just like the traditional purebred Estimated Breeding Values. Unlike EBVs, though, CBVs™ will now index lines based on how reliably they can be expected to produce the highest valued crossbred market hogs under commercial conditions. The process begins by diverting off a first portion of semen from a young purebred candidate in PIC's or a customer's nucleus populations. The resulting animals will be used immediately in crossbred situations, where detailed measurements in growth, survival and carcass traits can be measured. Meanwhile, purebred offspring that are the candidates for selection in the next generation will be produced, as usual, using purebred EBVs as well as PIC's direct genetic marker technology. By the time those first selection candidates of the next generation reach puberty, the system will have developed carcass and growth data on 80 half siblings in commercial environments.

All that data—pure and cross—goes into PIC's computerized model, resulting in an index for that line that better provides real-world growth and carcass information. This system reduces by months and even years of lag time needed to communicate performance back up the chain over traditional practices.

Next up, PIC expects to roll out a similar program for indexing maternal lines and their important litter and reproductive performance traits.

For more information, contact David Casey at david.casey@pic.com

FROM THE FIELD

Quick tips from one of PIC's top-producing customers:

1. Every minute you spend in the barn pays.
2. Hand feed lactating sows. Keep feed fresh.
3. Fit each crate trough with a manual water valve and discharge pipe, to easily add extra water three days before and after farrowing, and to wet feed reluctant sows.
4. Hire enough labor to run the barn. Make sure they work as a team.
5. Avoid second-parity dips by breeding gilts at 30 weeks or older.
6. Use artificial rearing and milk replacer to handle extra large litters.
7. Keep 11 to 12 piglets on gilts for the first few days, to develop the udder and future milking capacity.
8. Always do a barn check after supper. You will save newborns and pick up repeats.

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