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#### **BACKGROUND ON CASTRATION**

Castration of male livestock intended for meat production is a long-standing management practice. In North American swine production, castration is essentially universal and only a select few male pigs are left intact as potential breeder boars. There are two primary reasons for feeding out barrows rather than boars in pork production. The first is behavioral. As the age and body size of sexual maturity is reached, boars tend to be more aggressive with pen mates and more difficult to handle than barrows of similar age and weight. The second, and perhaps most important, reason is that meat from boars that are nearing sexual maturity (about 200 lbs. body weight) has high potential for an odor and flavor problem commonly called “boar taint.” Boar taint refers to objectionable odor and flavor characteristics that many consumers detect in cooked pork from intact males.

Boar taint in pork is associated with two compounds produced in the live animal: androstenone and skatole. Androstenone is a steroid produced by the testes and concentrated in the salivary glands where it is converted to a pheromone involved in eliciting sexual behavior in gilts and sows during the mating process. Androstenone is also deposited in the fat tissue and can be released in response to heat during cooking, thus contributing to boar taint. Skatole is a compound produced by bacteria in the hindgut of the boar. It is absorbed across the intestinal wall into the blood stream, is metabolized by the liver and may be excreted or absorbed into fat tissue where it may cause boar taint (Squires, 1999).

The most important factor for successful castration is following proper procedures and techniques. The American Veterinary Medical Association's (AVMA) current policy on pig castration can be viewed as striking a balance between animal welfare and the need to efficiently produce quality pork (AMVA, 2005). This group acknowledges that castration helps control aggressive behavior in pigs and recommends that the procedure be performed at least 5 days prior to weaning to allow for sufficient healing before pigs are removed from the sow. The group's policy also indicates that if castration is delayed beyond 28 days of age, anesthesia or analgesia should be used and the procedure should be performed by a veterinarian on such older, larger pigs.

The AVMA policy on restricting producer-performed castration to young pigs that are still suckling the sow does have some scientific basis. For example, one study indicated that pigs castrated at 2 weeks of age displayed fewer indicators of pain than pigs castrated at 7 weeks of age (McGlone and Hellman, 1988). Another study conducted during the suckling period indicated that pigs castrated at 1 day of age grew at a slower rate up to weaning than when castration was performed at 14 days of age (McGlone et al., 1993). This suggests some disruption in piglet suckling when castration is performed very early during lactation. In a similar study, Douet et al. (1995) found no growth differences when pigs were castrated at 1 or 10 days of age. These limited trials, coupled with the vast experience of swine farm managers and technicians, indicate that castration of male pigs within a suckling litter is best performed during mid-lactation or at a pig age of 4 to 10 days. Castrating after day 3 allows piglets to receive colostrum-rich first milk and establish teat order with minimal disruption during the first days of life. It also allows ample time for testicles to descend into the scrotum and for pigs that may be at risk for scrotal hernia to be identified for special treatment. The advantages of castrating pigs at less than 10 days of age are just as profound. Such pigs are still relatively small and are less difficult to restrain. The testicles are more easily separated from testicular cords and bleeding tends to be reduced. Indeed, if properly trained, one person can perform castration without assistance if pigs are within the 4 to 10 day age range. Pigs castrated at this age have the advantage of continuing to receive antibodies through the sow's milk which helps prevent infection and promotes fast healing prior to weaning.

Perhaps the most important aspect of pig castration is proper training and skill development of the individuals that perform the procedure. Veterinarians, animal science educators and skilled swine managers can and should provide this training to anyone who is taking on the responsibility of piglet processing on a swine farm. A current reference on the procedure can be found in the new Pork Industry Handbook Fact Sheet PIH 01-01-07, Baby Pig Management – Birth to Wean (Reese et al., 2007). Several method variations are described in this publication but the most common method employed on commercial swine farms is for one person using a surgical knife. Typically, the knife is a disinfected number 12 hooked or straight blade scalpel available from veterinary supply sources. This procedure, as described in the Pork Industry Handbook, is reprinted in outline form as follows.

## REFERENCES:

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- Reese, D.E., T.G. Hartsock, and W.E.M. Morrow. 2007. Baby pig management – birth to weaning. Pork Industry Fact Sheet 01-01-07. *The New Pork Industry Handbook*, Purdue University Agricultural Distribution Center, West Lafayette, IN.

## **CASTRATION METHOD FOR ONE PERSON USING A SURGICAL KNIFE (ADAPTED FROM PIG INDUSTRY HANDBOOK 01-01-07)**

1. Hold the piglet by both hind legs with its head down.
2. Using the thumb, push up on both testicles.
3. Make an incision through the skin of the scrotum over each testicle in the direction of the tail.
4. Be sure the incisions are made low on the scrotal sac to allow for fluid drainage.
5. It does not matter if you cut through the white membrane of each testicle or not.
6. Pop the testicles through each incision and pull on them slightly.
7. Pull each testicle out while pressing your thumb against the piglet's pelvis.
8. Thumb pressure on the pelvis is important to ensure that the testicular cords break off at the point of your thumb rather than deep inside the body, which may promote development of a hernia.
9. If necessary, the testicle may be cut free of the cord using a scraping motion.
10. Cut away any cord or connective tissue protruding from the incision and spray the wound with antiseptic.

## WHAT YOU CAN DO TO MINIMIZE THE EFFECTS OF SCROTAL HERNIA IN THE HERD.

### IDENTIFICATION:

A piglet with a scrotal hernia has a loop of intestine in its scrotum.

Hold the piglet upright so the scrotum is down and pull both its rear legs towards its belly to see if the scrotum is of uniform size.

If there is an enlargement in one side of the scrotum, the pig probably has a hernia.

### CASTRATION:

During castration, use a pull-n-cut process rather than the stretching method to reduce the risk of creating a hernia. Stretching can damage the structure of the inguinal rings.

Castrate at days 3 to 5 rather than at birth. It is easier to identify scrotal ruptures in older pigs.

Handle pigs gently. Do not squeeze the abdomen as this can compromise the inguinal rings.

### REPAIR THE INGUINAL RUPTURE:

Newsham Choice Genetics recommends non-surgical repair using tape. This process is lower cost, faster and more successful than surgical repair.

*Surgical repair of the hernia requires that the inguinal rings be closed with suture.*

### RECORD KEEPING:

Routinely maintain accurate records of scrotal hernia by sow in order to identify when increased prevalence occurs.

*Newsham Choice Genetics can provide a data sheet and assist if required.*

Check records to see if any particular boar is implicated.

*Newsham Choice Genetics will help you with analysis of sires and can compare those sires' hernia reports from other farms.*

Contact your Newsham Choice Genetics representative for any assistance with an assessment of contributing factors.