



# ELIMINATION OF THE PORCINE STRESS GENE: WHAT THE SHOW PIG INDUSTRY NEEDS TO KNOW

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Regardless  
how many pigs you raise,  
*what breed of pig you raise,*  
or whether you end up in the  
first or last pen,  
***you are still producing  
a meat product.***

**This product will end up on  
somebody's dinner plate...**

possibly yours,  
your best friend's,  
or your grandmother's.

By thinking of ourselves as the  
**consumers** of our product,  
we may develop a better  
understanding of the  
reasons behind such things as  
drug residue tests,  
proper injection sites  
and withdrawal times  
and avoidance of other practices  
that may affect both the **QUALITY**  
and the **SAFETY** of our product.

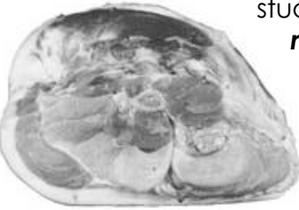
We are beginning to understand more and more about how handling, animal health products and genetics affect the quality of the meat we produce.

Packing plants now "rest" the incoming animals for at least two hours after arrival to the plant before stunning. Animal health products are labeled with "withdrawal times", or the number of days an animal must wait before slaughter for the drug to safely clear its system.

However, a single gene is still causing problems in the show pig industry: the stress gene. A number of traits are associated with this gene, including extreme leanness, increased muscling, excitability and poor meat quality. The commercial swine industry has been taking steps towards phasing out this gene.

The show pig industry, however, must become more aggressive towards **total elimination** of this gene from the population.

Like any other gene, a copy of this gene can be inherited from each parent, the dam and the sire. Animals inheriting a copy of the stress gene from both parents (referred to as "nn"), exhibit extreme nervousness and excitability (including "tail twitching" when exposed to a stressful situation such as being snared for clipping) as well as inferior meat quality. The muscles from stress positive animals are often PSE, or pale, soft and exudative. The meat is light pink to grayish white in color, does not hold



it shape well and appears watery in the package.

Carcasses drip in the cooler and lose moisture, causing the meat to be very dry when cooked. An Iowa State University study revealed that **over 95% of nn animals had PSE.**

Additionally, over 15% of stress positive animals *died* while being moved from one location to another.

Researchers report that a sow with two copies of this gene will have decreased litter sizes and will raise up to one less pig per litter less than normal sows (referred to as "NN").

Additionally, litter-weaning weights from nn sows average about 10% less than litters from normal sows. Stress positive animals tend to be smaller at birth and do not grow any faster than NN animals. Pigs inheriting a single copy (one inherited from either that sire or the dam, but not both; referred to as "Nn") exhibit characteristics that are intermediate between normal and stress positive animals. A relatively simple genetic test is available for identification of either nn or Nn animals.

## If the stress gene is so bad, why do we use it?

The main reasons that this gene has been propagated are increased muscling and extreme leanness. Researchers report an increase in the percent muscle of nn animals of 2.7 to 4% compared to normal littermates. Stress positive animals also tend to consume less feed per day while still converting that feed to lean muscle tissue very efficiently. We started propagating this gene indirectly and unknowingly when we started selecting animals that were ultra lean and extreme in muscling to be the parents of the next generation. Now that we have the genetics to accomplish those traits *without* the stress gene, and due to the disadvantages associated with it, **there is absolutely no reason to use this gene.** Its effects do more harm than good and can

have a negative effect on the rest of the industry, especially when a consumer has a poor eating experience due to PSE pork and decides not to try it again.

Only recently has the swine industry as a whole realized the importance of meat quality. Domestic consumption of pork has increased each of the last two years, taking market share away from poultry. Exports continue to increase every year.

**The effects of the stress gene on meat quality are severe enough to warrant immediate and complete removal of this gene from all aspects of the swine industry.**

The commercial swine producers are already phasing out the gene from their populations. It is time to follow suit and become concerned about what happens to each and every hog after it leaves the showing. Poor meat quality disappoints the consumer, possibly to the point of buying another source of protein (chicken or turkey, for example) instead of pork. I don't think we can afford to take that chance.

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