

Livestock Notes

Pork Exports Continue To Increase

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Russia and the United States successfully resolved outstanding issues regarding U.S. pork exports to Russia during a recent visit by a contingent of Russian veterinarians. The Russians agreed to a USDA request to recognize the freezing of pork as inactivating any trichina larva in the meat. They currently require random pooled sampling to be done to demonstrate a safe product.

The Japanese market also continues to increase and has brought about unprecedented changes in the pricing structure of pork. Most of the pork exported to Japan is loin meat at about \$1.25 — more than twice the price of hams on a wholesale basis. Some think the Japanese, who are very particular about quality, have skimmed the highest quality pork loins from the market, leaving a poorer quality and more variable product to be sold domestically at retail. While there is no data to support this, a walk-through of retail stores confirms the presence of a tremendous amount of variability in pork cuts.

Although exports are good for producers, we must remember that we need to assure the availability of high quality-pork for our own consumers.

Zero Tolerance Yields Zero Improvement

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Data collected by the American Meat Institute indicates that the USDA initiative, Zero Tolerance, designed to improve the safety of meat is not working. Implemented in response to the deaths caused by E. coli O157:H7, this Food Safety Inspection Service (FSIS) has apparently failed at providing safer product for consumers. Under the Zero Tolerance program, the FSIS inspectors frantically look for any speck of visible contamination and, if anything is found, slow or stop the production line until carcasses are trimmed to their satisfaction.

Based on results of a survey of 15 major beef packing plants, American Meat Institute (AMI) President Patrick Boyle maintains that microbiological contamination has not been reduced under the Zero Tolerance program. In some cases, the program actually increased bacterial counts due to more handling and the increased time it took meats to reach the cooler. Additionally, attempts at carrying out Zero Tolerance has cost the beef industry an estimated \$250 million in the past year alone. Some plants estimate that labor costs have increased by 25 percent.

One of the problems with zero tolerance is inconsistency in its enforcement and, in some cases, blatant inspector retaliation against plants. AMI has asked U.S. senators to encourage USDA to develop a scientific approach to enforcing zero tolerance and to allow the industry to use carcass washes as an alternative to hand trimming. We can only hope that, with the help of the senate and pressure from the scientific community, FSIS will look at the inspection program on a scientific basis rather than on a cosmetic

basis that merely makes themselves look good.

Beef Processors Still Trimming Fat
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In a recent survey, the American Meat Institute found that the production of close-trim boxed beef by major packers ran at nearly one-third of their total boxed-beef production during the first quarter of this year. While these packers report an increased demand for close-trimmed product, its higher initial price still remains a problem for some customers. However, a smaller market in the last few weeks has made it easier to sell this type of product, and once retailers conduct cutting tests they will learn for themselves the merits of buying close-trimmed beef.

Several major supermarket chains have converted completely to the close-trimmed product, while others are still evaluating it. As more packers choose a close-trimmed product, there will be more pressure from the buying side for leaner cattle.

Treadmill Exercise For Sheep

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More and more people today are breaking their sedentary habits and becoming more physically active. Why? Because exercise is good for you! Physical activity burns calories, increases cardiovascular endurance, increases lean body mass, and decreases body fat. The same holds true for the meat animals we produce. As sheep producers, we should have one common goal — to raise and market lambs that have a high percentage of lean body mass and a low percentage of fat.

Does exercising wethers, particularly lambs destined for market lamb shows, help us to attain this goal? Most of us would answer, Yes! Is exercise a currently accepted practice for commercially-produced slaughter lambs? No. The benefits are outweighed considerably for the drawbacks, namely cost. But what are the effects of exercise on production traits, specifically, carcass characteristics?

In general, lambs that have been subjected to forced exercise are slightly leaner and slightly heavier muscled than those not forced to exercise. But what about factors that influence carcass quality and, ultimately, palatability?

It is estimated that dark-cutting meat costs the beef industry approximately \$132 million annually. The primary cause of dark-cutting meat is pre-slaughter depletion of muscle glycogen, such as that which occurs when sheep are chased to exhaustion. Glycogen is a polymerized form of glucose, some of which is stored in muscle cells (the rest is stored primarily in liver cells). It is a significant source of energy for working muscles in sheep. During prolonged exercise, sufficient glycogen is mobilized from the working muscles to deplete the muscle glycogen supply, forcing energy to be derived from other sources.

In an attempt to replicate the "dark-cutting" condition in lambs, researchers at Kansas State University subjected Suffolk wethers to forced exercise on a treadmill at

one of three speeds. After a training period, lambs were exercised on a treadmill at 3.5, 4.5, or 5.5 miles per hour on a nine-degree incline for 10 minutes, then at 2.5 miles per hour for 10 minutes on no incline. After the 10-minute walk, lambs were immediately transported about .75 mile and slaughtered. Previous research showed that lambs exercised on a treadmill at 4.5 miles per hour on a nine-degree incline reached exhaustion, on average, at eight minutes.

Physiological changes resulting from treadmill exercise included increased heart rate and increased concentrations of cortisol, ACTH, glucose, and lactate. Following slaughter, however, there was no difference due to treadmill exercise on muscle pH, muscle glycogen content, or muscle color compared with controls. Therefore, treadmill speeds and duration of exercise used in this study were not sufficient to result in dark-cutting carcasses. Previous research with sheep indicated that there may need to be couple emotional stress (e.g., fright from being chased by a dog) with prolonged exercise in order to yield dark-cutting carcasses. Thus, steeper incline, greater speed, or longer duration, and (or) an emotional stressor may be needed to yield dark-cutting lamb carcasses.

In any event, too much exercise for lambs can have long-lasting detrimental effects on carcass quality.

Effect Of Feed Withdrawal On Carcass And Gut Weight
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Nearly all of the pigs currently purchased by Hatfield Quality Meats are bought on a carcass weight basis. Only part of the feed consumed by the pig during the last 24 hours before slaughter is reflected in the carcass weight, with some undigested feed remaining in the gut. Economically, it may be advantageous for the producer to allow the hogs to empty the feeders for a period of time before marketing. Potentially, feed cost during the last 24 hours would be reduced, with no change in carcass value. Further, the gut weight should be less, making the slaughter process easier and less risky in terms of *nicking* a gut and contaminating the carcass with bacteria.

A series of studies was recently initiated with the following objectives:

- Determine if gut fill can be consistently reduced by withholding feed for a period of time prior to slaughter.

- Determine the optimum withholding period that would result in a maximal carcass weight and a minimal gut weight.

In our first study, 80 pigs were weighed, tagged and tattooed, and divided into four pens three weeks before marketing. The pigs were weighed again the day before marketing, and two pens were randomly selected as full-fed pens; the other two served as fasted pens. Pigs in the full-fed pens had access to feed until they were loaded on the truck. Pigs in the fasted pens had access to feed until 14 hours before they were loaded on the truck. Both groups were transported for five hours and given a one-hour rest at the packing plant before slaughter. Total fasting time was six hours for the full-fed group and 20 hours for the fasted group. Feed intake was recorded for the last 24 hours before marketing.

Please see table below.

Under the conditions of this study, the fasted pigs suffered no

carcass weight loss. The savings in feed cost under current market prices represented over 30¢ per pig. The change in gut weight, while statistically significant, was small in real terms.

Future studies will be needed with both shorter and longer fasting times. In addition, this experiment included all pigs in a pen. Under commercial conditions, pigs do not reach market weight on the same day, so pigs leave the pen over a period of days or weeks. Pigs that are not marketed would be subjected to intermittent fasting during the last days before marketing. Whether these pigs would experience any change in performance is unknown.

Effect of fasting on carcass weight and gut fill in market hogs — Trial 1

	Full-fed	Fasted	Statistical Significance
Number of Hogs	40	40	-
Pre-slaughter fast time, hr	6	20	-
Transit home, hr	5	5	-
Transit distance, mi	193	193	-
Feed intake, lb/pig ¹	7.55	3.73	P<.01
Live wt, lb ²	256.3	258.2	-
Hot carcass wt, lb	181.1	183.1	-
Gut wt, lb ³	21.4	18.1	P<.05
Fat, in ⁴	.74	.75	-
Loin muscle depth, mm ⁴	53.1	53.7	-
Lean cuts, % ⁴	58.6	58.5	-

¹Twenty-four hour period prior to shipment.

²Twenty-four hours prior to shipment.

³Excluding heart, liver, lungs, diaphragm.

⁴Measured or predicted by the Fat-O-Meater.

Electronic ID For Sow Feeding And Heat Detection
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Electronic animal identification has been widely publicized in the past few years, including the use of sow-feeding stations for group-housed females. Most of these studies have been conducted in modern confinement swine facilities and, to a much lesser extent, in non-confinement facilities. A recent investigation at Kansas State University evaluated the feasibility of using a Porcode® electronic sow-feeding station for feeding and estrus detection of sows and gilts housed in outside lots.

Thirty days after mating, gilts were assigned to one of two outside lots where they were fed either once a day manually with a feed scoop or were fitted with a neck collar for use with an electronic feeding station. Gilts received 4.25 pounds of feed daily.

In the second study, sows and gilts were used to determine the efficacy of using a modified electronic feeding station to determine the onset of standing heat. The feeding station was located next to a pen that housed a mature boar. When a sow or gilt with a transponder collar visited the area near the boar, no feed was delivered, but the time spent in the general vicinity was recorded.

Collar loss was the only limitation noted in the study. This was more prevalent for gilts than for sows, and most apparent during the first two weeks of the experiment. One consideration was weight loss of gilts during the adaptation period. However, both electronically and manually fed gilts had the same weight and backfat thickness after the training period and immediately prior to farrowing. There was no difference due to type of feed-delivery system on number of gilts farrowing, number of pigs farrowed, litter weight at birth, or number of pigs born alive. Therefore, elec-

tronic feeding stations can be used effectively for feeding gestating gilts in outside lots after day 30 of gestation.

In the second study, there was considerable variation in duration of boar visitation among sows. However, there was a strong relationship between boar visitation and standing heat. Sows and gilts were predicted to be in standing heat when boar visitation exceeded 4.4 and 9.3 minutes per day respectively. Based on these limits, 28 out of 29 sows (96.6 percent) visited the boar for more than 4.4 minutes on the first day of estrus, and 11 out of 14 gilts (78.6 percent) visited the boar for more

than 9.3 minutes on the first day of estrus. There was more variability among gilts compared with sows for duration of visitation.

Therefore, electronic animal identification of sows and gilts for feeding estrus detection is feasible in outside lots. This technology may permit increased use of artificial insemination of replacement gilts. Furthermore, use of this technology may permit selection of replacement gilts based on age at puberty. Additional refinement of this technology may yield management strategies that are currently unavailable in modern swine production systems, particularly in non-confinement systems.

Haunted Hay Ride Set

CREAMERY (Montgomery Co.) — The Montgomery County 4-H Teen Council is sponsoring a haunted hay ride on Friday and Saturday, Oct. 28-29, from 7:30 p.m.-10 p.m. and Sunday, Oct. 30, from 7 p.m.-9 p.m. at the 4-H Center in Creamery. The rides are approximately 20 minutes in duration. Cost is \$4 per person with group rates available.

For youth of all ages, there will be face painting, apple bobbing, and hot chocolate for sale. You can have your picture taken with your favorite barnyard baby. You can also try to win the Great Pumpkin by guessing its weight.

The 4-H Center is located on Route 113, one mile south of Route 73, near Skippack. For more information, contact the 4-H Office at (610) 489-4315.

