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Animal Industry News Update

from the LCES Animal Science Specialists

Swine (Dr. Tim Page)

Environmental Advantages to Feeding Paylean™

Paylean (ractopamine hydrochloride) directs nutrients away from fat depots and toward carcass lean, increases carcass dressing percentage, increases growth rate and improves feed efficiency in finishing hogs. Now, recent research indicates that feeding Paylean in swine diets may reduce the total phosphorus in manure by up to 12% and reduce odorous compounds by 48%. Data prove that excreta from pigs fed Paylean with a 16% crude protein (CP) diet has reduced pH, total nitrogen and phosphorus, compared to excreta from pigs fed a 14% CP diet without Paylean.

The dietary treatments in this study were: 1) 14% CP and .8% lysine; 2) 14% CP, 1.1% lysine and 18 grams (g) of Paylean/ton; 3) 16% CP and 1.1% lysine; and 4) 16% CP, 1.1% lysine and 18 g of Paylean/ton. Pigs were fed and watered four times a day and total feces and urine were collected and blended for analyses. Olfactometry air samples, total volatile fatty acids (VFA), gas chromatography fibers and mixed slurry samples were taken for analysis. Air samples were collected and evaluated by an eight-person olfactometry panel.

Excreta from pigs fed Paylean and the 16% CP diet was 5% lower in pH, compared to the excreta from pigs fed the 14% CP diet. The lower pH is a result of less urea nitrogen excreted in urine and from more efficient retention of nitrogen. The total nitrogen excreted was reduced 25-30% in pigs fed Paylean and either the 16% CP or 14% CP diet compared to excreta from pigs fed the same diets without Paylean. Total phosphorus excreted was reduced 8% when pigs were fed the 16% CP diet plus Paylean compared to pigs fed the 14% CP diet. This may be due to increased lean deposition and therefore more demand for phosphorus when pigs are fed Paylean. The initial odor detection and recognition values by the olfactometry panel, were not different among the treatments, but the values were numerically lower when Paylean was fed to pigs.

The researchers concluded that pigs fed Paylean had reduced total nitrogen and ammonia excretion, plus lower pH and VFA production. The data indicate that feeding pigs Paylean and a 16% CP diet will reduce pH, total nitrogen and phosphorus excretion, compared to pigs fed the 14% CP industry standard diet. They also note that Paylean's enhancement of protein accretion may be beneficial in reducing environmentally detrimental nutrient levels in stored manure and in reducing odors from storage.

An important reminder: Paylean is approved for use at a rate of 4.5 to 18 grams per ton of feed for finishing swine only. It is illegal to feed any level of Paylean outside of this approved range. Also, it is illegal to feed Paylean to any other species.
(Note: This research was conducted by A. Sutton, D.B. Anderson, Brian Richert, S.A. DeCamp and S.L. Hankins, Purdue University.)

Poultry (Dr. Theresia Lavergne)

Controlling Odor

Odor control is an important part of any poultry or livestock operation. Controlling odor means reducing odor formation, reducing odor emissions, and increasing odor dispersal.

Methods of reducing odor formation are: to reduce feed wastage (clean up feed spills promptly), to minimize the amount of indigestible feed (i.e., 48% crude protein soybean meal is more digestible than 44%), to improve the digestibility of the feed (use enzymes such as phytase), to not feed excess protein, to maintain a healthy flock (particularly gut health), and to use litter amendments that prevent or mask odorants.

Odor emissions can be reduced by: biofiltering exhausted air (odorous gases are passed through a compost bed), by using biological and chemical wet scrubbers (gases are passed through a column with different media types), by adding ozone to the ventilation air, or by composting the litter.

The dispersal of odor is important to odor control. To increase the dispersal of odor during the application of litter to the soil, litter should be spread on a windy day when the wind is blowing in the direction away from your neighbors. Litter should be spread in the morning to allow for greater odor dissipation and litter drying throughout the day. Also, litter should be incorporated into the soil as soon as possible after spreading to decrease the amount of odor and minimize the potential of nutrient runoff. Finally, avoid spreading litter on weekends and holidays.
(The Mid-Atlantic Poultry Farmer, March 19, 2002, Dr. Nickolas Zimmermann)

Beef (Dr. Ron DelVecchio)

"Roughing" Calves over the Winter has Consequences

For years, some producers have tried to starve a profit out of their calves. By restricting nutrition in weaned calves through the winter producers can use up roughage feed such as corn stalks, poor quality hay or stockpiled summer pasture. This keeps calves in a holding pattern, setting them up for compensatory gain on the next summer's pasture or at the feedlot. Some buyers would pay more for these calves which were thought

to gain faster and convert more efficiently. Previous data suggested the calves could make up approximately 80% of the lost winter gain. However, more recent research is questioning this practice. Recent data indicate that only 15% to 50% of the lost gain is recovered. The recent data include calves on longer wintering periods; and longer periods of depressed nutrition reduce compensatory gains.

The effects of winter roughing affect quality grade, and that significantly impacts carcass value. Studies conducted at South Dakota State University show that 500 to 600-lb calves will deposit as much marbling as 1000-lb animals (per pound of live weight gained). Marbling was always thought to be put on at the end (finishing), but marbling is being put on at the front end too. Data indicate that before a calf reaches 750-lb, marbling is increasing faster than total body fat. It is now believed that adipocytes are metabolically active before 11 months of age, and to a large extent, quality grade and yield grade are determined by the time an animal reaches 1000-lb.

The impact on wintering calves is significant. Restricting a 650-lb calf can affect quality grade. If we slow down marbling and stimulate lean growth, marbling can not catch up. Researchers at the University of Nebraska showed long lasting effects of winter restriction. The restricted cattle spent more time in the feedlot, were lighter weight at harvest, had a lower marbling score and resulted in a $20.66 loss compared to a $21.00 profit for the non-restricted cattle.

Additional research is aimed toward identifying specific nutritional requirements that do not sacrifice grade but are economical to the producer; including differences for exotics versus British, implants versus no implants, timing of implant usage, etc. and the interactions.

Wintering decisions for calves have become complicated. Calves will start to marble early in life if they have the nutrition but most of our management plans have not provided them with the nutrition they need. By roughing them over winter we are not allowing the fat cells to develop that will optimize the animal's genetic marbling potential. Further, recent research indicates that compensatory gain is not as pronounced as we once thought.
(Source: Drover's, January 2002)

Animal Health (Dr. Steve Nicholson)

Check Several Heifers for BVD Virus Activity in Your Herd

Bovine Virus Diarrhea Virus (BVDV) affects survival of embryos and fetuses causing stillbirths and abortions. Is there a BVDV source in your herd? "Persistently infected" (PI) cattle shed virus that infects susceptible herd-mates. PI cattle are those that, as a fetus, survived exposure to the virus before 120 days of age in the uterus. Their immune system develops later and does not recognize the virus as foreign. PI calves may appear normal or they may be light weight at birth and remain unthrifty. Some PI heifer's reach maturity and become pregnant, shedding virus as they go, and infecting their own calves.

One method to determine if a PI is present in the herd is to test several 6 to 12 month old heifers for exposure to BVDV. Randomly select 5 to 10 non-vaccinated heifers between the ages of 6 and 12 months for serum test. Have your veterinarian submit blood for antibody testing for BVDV1 and BVDV2. If one or more PI cattle are in the herd, some of the heifers will test positive for recent exposure to the virus.

Blood test protocols and a skin biopsy method using skin obtained by cattle ear notching are available to identify PI cattle. An effective vaccination program is recommended for all cattle herds.

Topical Treatment of Pinkeye and Surface Wounds

Effective May 7, 2002, the FDA has prohibited the topical use, on food animals, of nitrofurazone (NFZ Puffer, P.E.7, etc.) and furazolidone (Topazone, Furox, etc.). Any use of a nitrofuran product on or in a food animal will be a violation of the Food Drug and Cosmetic Act. These compounds cause cancer in laboratory animals.

Equine Encephalitis Vaccination

The viruses of eastern equine encephalitis and West Nile Virus are both active in Louisiana this spring. The viruses are spread by mosquitoes that have fed on infected birds. Vaccination is recommended for this spring. Consideration should be given to booster shots at six month intervals.

Anaplasmosis

Anaplasmosis is a disease of cattle caused by a parasite that infects red blood cells. This is a common cause of sickness and death in Louisiana cattle. Carrier cattle are the source of new infections within the herd. In cattle older than 3 years of age, severe anemia results in death of 30-50 % of acute cases. Pregnant survivors often abort. An effective vaccine is available through veterinarians. Considering the expense and importance of herd bulls, these animals should be vaccinated annually.

Horses (Dr. Clint Depew)

Fat in Horse Diets

Research has proven that dietary fat can be utilized effectively by horses. Many feed companies add fat to horse feeds and promote the feeding of fat to horses. Horsemen need to understand the use of fat in diets because fat can be utilized quite efficiently by the horse, however it is not necessary for most horses.

Fat is an excellent source of energy. When fat is digested and metabolized it produces volatile

fatty acids that can be utilized readily by the horse when oxygen is present. The volatile fatty acids are available in large enough quantities to be an asset to horses requiring high levels of energy.

Horses that have a limited appetite or ability to eat may need dietary fat in order to obtain adequate energy. Performance horses such as racehorses and endurance horses are the prime candidates for diets containing fat. Also, old or young horses that consume low quantities of feed may benefit from fat supplementation.

In order to utilize fat adequately in a diet, horsemen should allow the horse approximately one month to adapt to fat supplementation. Horses can utilize up to ten percent fat in a diet, however most manufactured feeds contain six or seven percent. Either vegetable or animal fat can be used by the horse. However vegetable fat is generally the fat source of choice due to reduced disease risk and less chance of becoming rancid.

In all feeding programs, it is critical to feed horses based on body condition. Body condition scores range from 1 to 9 with 5 denoting average condition. Horses should be maintained at a condition score of five to six. A condition score under five indicates thinness and the ribs of the horse can be seen readily. Condition scores above six reflect various levels of fatness in the horse. In feeding a concentrated source of energy, such as additional fat, horsemen must watch the body condition score of their horse and adjust the amount fed accordingly. Horses doing minimal or average work can maintain their condition with minimal or no dietary fat supplementation.

Fat can be an excellent source of energy for high performing horses. It is important that the diet and fat level fit the needs of the horse, and horses must be managed appropriately in order to benefit from a fat supplemented diet. Fat is not for every horse but can be an asset if managed correctly.

Dairy (Dr. Charlie Hutchison)

Dairy Update

The Senate and House conferees reached a tentative agreement on a six year Farm Bill late last week. At this point details are sketchy and the Congressional Budget Office must score the package to make sure it fits within budget constraints. How will this Farm Bill affect the dairy industry? The dairy price support program would be extended for the life of the Farm Bill. A counter-cyclical dairy payment program would pay all producers 45% of the difference between Class I price in Boston and $16.94/cwt. This payment would be made on all production, regardless of utilization. However, the payment would be limited to 2.4 million pounds of milk produced annually (roughly a herd of 135 cows producing 17,500 lb of milk each). This $1.3 billion program would be in effect through 2005. Also, the Dairy Export Incentive Program (DEIP) and a Johne's research and education program were re-authorized.

According to the Food and Agricultural Policy Institute, the counter-cyclical payments will average about 55 cents/cwt nationally. Even though that seems like a small amount, it will invariably generate a supply response. This will result in a decrease in the Class III price. Bob Cropp, University of Wisconsin dairy economist, believes that Idaho producers could actually net less income as a result. This reduced income would be due to lower Class III prices and payment limits being capped at 2.4 million pounds of production.