



Pork Prose

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Swine producers sometimes have the choice of more than one drug in the same category. For example — oxytetracycline and chlortetracycline.

Sulfamethazine and sulfathiazole. Lutalyse (which contains prostaglandin) and Bovilene (recently approved for swine, which contains a prostaglandin analogue). Which drug, within a category, is the best choice — or doesn't it matter?

OXYTETRACYCLINE VS. CHLORTETRACYCLINE

When you look at the chemical structure of these two drugs, it's hard to see the difference at first glance. Chlortetracycline has a chloride group (-Cl) attached to one part of the molecule. Oxytetracycline has no chloride, but instead has a hydroxyl group (-OH) attached to different part of the molecule. Other than that, the two drugs are identical.

Feed grade chlortetracycline can be purchased under various trade names, including Aureomycin and CTC. Trade names for oxytetracycline include Terramycin, TM, Oxytetracycline, and Oxytel. Both drugs can be added to the feed or water (provided they're in the correct form). Injectable forms are always oxytetracycline.

Do the two drugs act any differently in the pig? American Cyanamid Company (which produces Aureomycin) recently sent some swine producers results of a trial in which pigs were medicated through the water with either chlortetracycline or oxytetracycline. Their data showed higher levels of chlortetracycline in the blood and the lungs compared to that of oxytetracycline.

Other research demonstrates that adding the two drugs to the feed also results in higher blood levels of chlortetracycline than oxytetracycline — whether added at the rate of 200, 400, or 800 grams per ton. So from the standpoint of blood concentrations, and perhaps levels in the lungs, chlortetracycline seems to have the edge.

But oxytetracycline has a potential advantage when administered in the water, although both are approved at similar levels. (Chlortetracycline can be added to water at the rate of 200 mg/gallon. Oxytetracycline can be added at the rate of 200 to 400 mg/gallon.)

Data from several studies show that oxytetracycline is stable over a wide range of pH when administered in water. From pH 2 to 5, chlortetracycline is also stable. But at pH 5, chlortetracycline begins to lose its stability, with only 80 percent of the drug remaining intact at pH 6, and roughly half of the drug at pH 8. (Most well water from some soils will have a pH of at least 7.)

Chlortetracycline is also bound more readily by calcium in the diet. A recent trial at South Dakota State University showed that changing from a low-calcium (0.6

percent Ca) to a high-calcium (0.9 percent Ca) diet caused blood levels of chlortetracycline to fall from 0.230 to 0.095 ug/ml — a drop of nearly 60 percent.

Under the same conditions, oxytetracycline fell from 0.117 to 0.092 ug/ml — a 21 percent drop. But you'll notice that even though chlortetracycline fell to a greater extent, the absolute levels of chlortetracycline were still higher (0.095 ug/ml) than that of oxytetracycline (0.092 ug/ml).

What does all of this mean in terms of treating disease in pigs? It's clear that both drugs are effective. Literally dozens of trials have proved that. But if you make a side-by-side comparison of oxytetracycline and chlortetracycline, which drug boosts hog performance the most?

I asked the same question, in a recent computer library search covering the last 20 years of published studies. I couldn't find a single report that made this comparison with pigs. Until we get that data, there is little justification for choosing one over the other.

SULFAMETHAZINE VS. SULFATHIAZOLE

Hog producers have a number of sulfas at their disposal. The two most widely used forms have traditionally been sulfamethazine (included in ASP-250 and Tylan plus Sulfa) and sulfathiazole (included in CSP-250).

Sulfamethazine has been under fire in recent years because of residue problems in pork, veal, and even milk. According to the Food Safety Inspection Service (FSIS), nearly all of the sulfa residue violations in pork between 1983 and 1986 occurred with sulfamethazine. During this four-year period, violative levels of sulfamethazine were found in 4 to 6 percent of the tissues sampled. In those same samples, not a single violation of sulfathiazole was detected. Why? Reportedly, sulfamethazine is absorbed and retained in both blood and tissues at higher levels than that of sulfathiazole.

That, according to some individuals, makes sulfamethazine a better drug. But many studies dispute that claim. A report from the University of Tennessee (1982) showed that CSP-250 was equal to ASP-250 in controlling Bordetella Bronchiseptica infections (atrophic rhinitis). A study by American Cyanamid (1984) showed CSP-250 gave slightly better control of the same disease compared to that of ASP-250. And a report just released by Fermenta demonstrated that CSP-250 and ASP-250 both improved weight gain and feed efficiency to the same extent in pigs infected with Bordetella and Pasteurella. The number of positive nasal swabs (for both Bordetella and Pasteurella) was lower in the CSP-250 group.

So there is little logic for using sulfamethazine. For whatever reasons, its use has created more violative residues than all the other sulfas combined. And its effectiveness in controlling disease and improving performance appears to

COLLEGE PARK, Md. — Since 1969, Maryland honey producers have had to comply with a registration program for their bee colonies to help control the spread of American foulbrood and other bee maladies.

In a similar vein, the state's egg producers are now being asked to comply with a registration program for their poultry flocks. The new rules and regulations became effective in April. Large commercial producers already are complying; but operators with small, backyard flocks may not be aware of recent modifications to the 1957 Maryland Egg Law.

For that reason, information leaflets and registration applications are being made available at county offices of the University of Maryland Cooperative Extension Service. Compliance enforcement is a joint effort of the Maryland Department of Agriculture and the state Department of Health and Mental Hygiene.

Dr. John A. Doerr, acting chairperson for poultry science on the University of Maryland campus at College Park, notes that the new rules have a twofold purpose:

- To instill consumer confidence that Maryland eggs are wholesome and safe.

- To provide a mechanism for tracking down sources of contamination and helping affected producers clear up potential disease problems at an early stage.

Doerr explains that the regulations apply to any person who sells eggs — whether one or a million — to retail outlets, distributors, restaurants, or directly to consumers. A three-step procedure is required. It involves registration, carbon imprinting, and maintenance of invoices or sales slips.

Registration forms must be sent to the Maryland Department of Agriculture in Annapolis. They are available from county extension offices throughout the state, along with a brochure explaining the new egg law requirements. Upon receipt of the completed application form, MDA officials will issue a registration number. This number must be printed on all egg cartons sold.

In addition to the registration number, cartons must be identified as containing eggs; they must be imprinted with the seller's

name and address, lot number, or date eggs were packed; number of eggs in the carton; and grade and size of eggs, along with instructions to keep eggs refrigerated.

A sales slip or invoice must be provided, and copies retained for at least 90 days. The invoice must include name and address of both buyer and seller, date of delivery, grade and size of eggs, lot number or date of packing, and seller's registration number. These last two items may be included on a packing slip inside the case, instead of on the invoice.

Dr. Charles J. Wabeck, poultry products specialist at Princess Anne for the University of Maryland Cooperative Extension Service, commented about the new regulations:

- If you purchase eggs for resale, get a copy of the producer's Maryland registration or plant number.

- When buying layer flock replacements, be sure to request a Pullorum-Typhoid clean flock certificate from the breeder.

Your Maryland Cooperative Extension Service agricultural agent can provide assistance in filling out the registration form, imprinting egg cartons, and preparing sales slips or invoices. The Maryland Department of Agriculture also stands ready to assist egg producers.

Grange Supports Farm Product Damage Bill

HARRISBURG (Dauphin Co.) — The incident of crop damage caused by wildlife, especially the growing population of deer in rural Pennsylvania, is potentially devastating to farmers.

The Pennsylvania State Grange, which represents 42,000 rural Pennsylvanians, is greatly concerned with the recurring crop loss that farmers must face.

The Grange supports SB 647, which allows farmers to obtain a farm product damage control permit. That permit would give a farmer the ability to have people not associated with the farm help control the wildlife between August and October. Currently only farmers, their families, and hired help are permitted to eliminate damaging wildlife.

"Giving the farmers this additional help with the task of saving their crops until the harvest is over is an important measure," said Brenda Shambaugh, Pennsylvania State Grange legislative director. "Farmers can lose a substantial amount of income by these animals, which destroy crops by eating and trampling."

The bill would require that farmers have at least \$500 of crop damage to qualify for the permit. It would also require that a game officer be notified when shooting is planned. In addition, the property for which the permit is sought must have been accessible by the public for hunting during the current or previous year.

be the same as that of sulfathiazole.

LUTALYSE VS. BOVILENE VS. ESTRUMATE

Though the names wouldn't give you a clue, all these products contain similar compounds.

Lutalyse (produced by Upjohn) contains prostaglandin F-2 alpha. About 7 years ago it was approved for the purpose of inducing farrowing in sows. This is the same compound involved in the natural onset of parturition.

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BIRD COMFORT DURING HOT WEATHER

Forest Muir
Professor of Poultry Science

A properly serviced and operated ventilation system is important for maintaining bird comfort during hot weather.

Bird comfort is one of the keys to efficient productivity. The three components of the ventilation system which must be serviced for summer conditions are the inlets, fans, and controls.

The inlets are the entry point of fresh air into the poultry house. Air inlet openings should be covered with screening of a size that will prevent wild birds from entering the building. This screening will catch dust, feathers, and other debris.

This material will not normally fall away from the screening but only serve as an obstruction to entrap additional material. Sufficient air flow can enter the poultry building through dusty inlets to maintain desired temperatures during spring conditions. However, a proper building environment cannot be maintained during hot weather with dirty inlets. The inlet screening should be cleaned and maintained dust-free to allow maximum air flow when needed.

Fans are the heart of the ventilation system. Establish a schedule for servicing the fans. The servicing schedule should be more frequent during the summer months. Proper fan maintenance includes:

- Checking to make certain all fans are operational and have been lubricated, if required.

- Cleaning the fan blades, orifices, and motors.

- Cleaning and lubricating (using graphite) the fan louvers.

- Adjusting belt tension and replacing belts when necessary.

- Stocking spare replacement fan belts.

Proper fan maintenance can increase the air delivery capacity of a fan by as much as 30-40 percent.

Dust should be removed from the sensing units of thermostats. Dust on sensing units can act as an insulating agent and reduce thermostat sensitivity.

Most poultry air inlet systems are regulated by automatic inlet controllers. These controllers use a manometer as the sensing device. The manometer in these units should be serviced. This includes checking the fluid level and calibrating the zero setting.

Adjust the automatic inlet controller to maintain a 0.04-0.06 static pressure in the building. A static pressure of 0.04-0.06 inches of water translates to an air speed of 800-1,000 feet per minute at the inlet.

Increasing the static pressure will increase the air speed at the inlet but will not necessarily increase the amount of air entering the building. In fact, increasing the static pressure may actually decrease the quantity of air entering the building. The increase in static pressure causes the fans to work harder and can reduce the amount of air that they move. An increase in air speed at the inlet can also change distribution patterns in the building and actually create hot spots.