How to prevent sulfa residues in hogs

Since the 1950's, sulfa compounds have been used in rations fed to swine to help control such diseases as atrophic rhinitis, pneumonia, and dysentery.

These sulfa compounds, especially when used in combination with antibiotics, have also been used extensively in starter and grower rations to promote growth.

Research shows that use of antibiotics in combination with sulfa in starter rations for young pigs can increase growth rate as much as 21 percent and feed efficiency as much as 8 percent (versus nonmedicated rations).

An estimated 70 to 80 percent of all hogs marketed in this country receive some form of sulfa during their lifetime.

One unfortunate byproduct of the widespread use of sulfa has been violative residue levels in some carcasses. The tolerance for sulfa in pork - designed to provide a 2,000-fold safety margin for humans - is 0.1 parts per million.

During 1978 and earlier years, some 10 to 15 percent of the hogs tested at slaughter by the U.S. Department of Agriculture were in violation of this tolerance level.

A hog doesn't have to eat very much sulfa to have a violative level in its carcass. As little as a quarter teaspoon of sulfa contamination in a ton of feed - about 1 ppm - could produce a violative level.

Medicated feed contains 100 grams of sulfa per ton of feed or 110 ppm. Carryover of medicated feed in augers, mixers, storage bins, and other feed handling equipment can easily contaminate finished feed. As little as 20 pounds of medicated feed will contaminate 1 ton of finishing feed.

Research has shown that sulfamethazine - the most commonly used sulfa drug - is cleared from a hog's tissues within 7 to 10 days when a nonmedicated feed is fed. Currently, a 15-day withdrawal period is required when sulfamethazine is used in the feed.

Sulfathiazole, the only other sulfa drug approved for use in feed, has a 7-day withdrawal period.

However, because of the pervasive nature of sulfa compounds, stringent quality control measures are needed at the feed mill and farm to prevent contamination of nonmedicated feed.

Many farmers who turned up with violative levels of sulfa in their market hogs believed they were feeding a sulfa-free withdrawal ration. However, tests of feed and feed components showed sulfa contamination.

A recent USDA survey of violative producers showed that nearly 35 percent of supposedly nonmedicated finishing feed had sulfonamide levels high enough to cause residue problems in slaughter swine.

Sulfonamides are electrostatic and cling to metal. So contamination can and will occur in feeders, mixers, wagons, etc., where medicated feed has previously been handled.

Hogs can also pick up residues from manure and urine from other hogs being fed sulfa.

As part of a residue monitoring program, USDA meat inspectors randomly check hog carcasses in slaughtering plants for residues of sulfa and other drugs and pesticides and other chemicals.

When violative levels of sulfa are found, the producer is notified by a USDA representative and is advised that to ship hogs to slaughter in the future, he must choose between two methods:

—Send hogs to market and have carcasses retained at the slaughter plant until they are tested and found below tolerance. (It often is very difficult to find a packer who will hold carcasses for the necessary 2 weeks for the USDA testing to be completed.)

—Send a sample lot of five hogs to slaughter for "premarket" testing. The producer must then wait for 2 weeks or more to be notified of USDA test results. If the test hogs are free of sulfa, the balance of his hogs can be sent to slaughter.

Either choice disrupts normal production and marketing operations.

How Can Farmers Avoid Sulfa Residues?

When buying finishing-withdrawal feed and/or feed components, ask the supplier for assurance that it will not produce violative sulfa residues. Keep feed samples with code or lot numbers so tests can be made if the hog marketed have violative levels of sulfa residues.

CLEAN all storage areas. This includes bulk feed storage bins as well as areas where bagged feed is stored. This is particularly important if the bin or area was previously used to store medicated feed. If possible, never use a bulk bin for both medicated and nonmedicated feeds.

CLEAN all feeding equipment. This includes feed wagons and mixer-grinders, as well as the feeders themselves. Scrape clean all areas of the feeders to eliminate feed buildup on wood or metal parts. If possible, flush feeders with a high-pressure hose before putting in nonmedicated finishing feed.

Make sure no feed has collected inside augers and mixers. Check all cleanout ports on mixer-grinders.

Use a large shop vacuum cleaner to remove residual feed in processing and conveying equipment. These "tailings" can be used in the next batch of medicated feed. Remember, sulfonamides are electrostatic and cling to metal.

CLEAN watering systems if they have been dispensing sulfa. With metal pipes, it's extremely difficult - sometimes impossible - to get rid of sulfa contamination. Do not use lagoon water to flush feeders or finishing feed floors.

CLEAN contaminated manure from finishing pens when switching to a sulfa-free finishing ration...and again 3 days later, since sulfa in the manure pack will continue to be recycled through hogs.

Follow label directions. Read the labels carefully and completely on all feeds. Use sulfa drugs in swine rations according to manufacturers' directions.

Mix feed correctly. Make one person responsible for adding medicated premixes and other concentrates to the feed. Establish a mixing order for all ingredients. Follow mixing instructions to the letter. Don't overload the mixing capacities of your equipment. Premix all concentrated medications into large enough quantities of ingredients - such as corn or soybean oil meal - to assure accurate mixing of the medicated feed.

Flush mixing equipment. After mixing mediated feed, run several hundred pounds of cracked or ground grain through the equipment. Remove flush materials from mixing equipment and store separately for future use in medicated feed.

Withdraw sulfa at least 15 days before hogs are marketed... Preferably, sulfa medicated feeds should not be used after market swine reach 100-125 pounds - it's just not economical.

Get advice from your veterinarian if you must feed sulfa after 125 pounds because of a disease problem. Then try to use a

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