Ionophore toxicity in animal growth. Toxicity can occur in diets to control disease and promote growth. My experience that the effects can be very sudden and devastating to a population of pigs. Ionophores are used most commonly in ruminant and poultry species or combined with other antimicrobial products that amplify their effects. In the following case study, a population of nursery pigs was accidentally fed a diet containing an ionophore. At the time of this particular incident, there was no toxemia.

**Key Points**
- Toxidomoses occur when products are improperly mixed or fed to unintended species.
- Corrective actions can reverse effects of toxicity.
- Certain medications can slow metabolism of ionophores.

**Case description**

Day 1. The grower reported that when he entered the barn to complete morning chores, he found several dead pigs throughout the nursery room. In addition, approximately 30 other pigs were down, weak and unable to rise. Throughout the general herd population, the remaining pigs were beginning to show signs of anorexia, dullness and weight loss. The recumbent pigs showed varying severities of weakness and lack of coordination. Neurological symptoms such as dizziness, down/paddling and nystagmus were not observed. Diarrhea and respiratory signs were not present, and rectal temperatures were not elevated. The recumbent pigs were anorectic, dull and had reduced voluntary activities.

Day 4. Clinical signs continued to worsen. At this point, all of the feeders were dumped and refilled to worsen. At this point, all of the recumbent pigs were treated with a broad-spectrum injectable antibiotic. No new cases of pigs going down or acutely dying were reported. The pigs’ appetite improved gradually as time progressed following the change in feed. The general population was approaching 100%.

Day 5-6. Many of the chronically affected or previously recumbent pigs continued to die or were euthanized. No new cases of pigs going down or acutely dying were reported. The pigs’ appetite improved gradually as time progressed following the change in feed. Day 7. Histopathology analyses from submitted pigs showed samples having consistent lesions in the skeletal muscles. The pathologist reported that the lesions were characteristic of ionophore toxicity. Feed samples that had been collected were sent in for analysis. Ten whole pigs were also submitted for diagnostic workup. At this time, all remaining pigs were treated with a different spectrum injectable antibiotic. Feed and water samples were taken for analysis. Ten whole pigs were also sent in for diagnostic workup.

**Discussion**

The case described here draws attention to the potential risks for any species or combined with other antimicrobial products that amplify their effects. In the following case study, a population of nursery pigs was accidentally fed a diet containing an ionophore. At the time of this particular incident, there was no toxidomoses occur when products are improperly mixed or fed to unintended species. Corrective actions can reverse effects of toxicity. Certain medications can slow metabolism of ionophores.

**Farm description**

The following case took place over the course of approximately two weeks on one single-site farrow-to-finish farm in the Midwest. The farm had 500 sows in a batch farrowing system that produced weaned pig batches every four weeks. Nursery and finishing barns were run in an all-in/all-out manner, and pigs were fed a complete diet consisting of a corn/soybean meal base. Starter nursery diets were made at a regional feed mill and trucked to the farm site. All other feed milling, including grower, finisher and sow diets, was completed on site with stored bulk ingredients. The sow herd was porcine reproductive and respiratory syndrome virus positive and would intermittently produce positive weaned pigs (confirmed by polymerase chain reaction testing of weaned pigs).

When clinical signs in this case began, the approximately 480 nursery pigs were 13 days postweaning.

**Case description**

Day 1. The grower reported that when he entered the barn to complete morning chores, he found several dead pigs throughout the nursery room. In addition, approximately 30 other pigs were down, weak and unable to rise. Throughout the general herd population, the remaining pigs were beginning to show signs of anorexia, dullness and weight loss. The recumbent pigs showed varying severities of weakness and lack of coordination. Neurological symptoms such as dizziness, down/paddling and nystagmus were not observed. Diarrhea and respiratory signs were not present, and rectal temperatures did not reveal fever among the pigs. Water and feed availabilities were appropriate, and the room environment was comfortable. Postmortem exams of dead pigs were visually unremarkable, but tissues were submitted to the University of Minnesota Veterinary Diagnostic Laboratory for additional workup.

A further discussion of feed rations indicated that the pigs had been transitioned to the phase 2 starter ration two days earlier. Based on the severity of signs and the bacterial pathogen history of this farm, it was recommended that all pigs be individually treated with a broad-spectrum injectable antibiotic to provide coverage against any potential primary or secondary bacterial pathogens.

Day 3. The pigs’ clinical signs were not improving. More pigs continued to become recumbent, were euthanized due to failure to improve or acutely died. Mortality of the general population was approaching 100%. No significant findings were observed from the initial tissue samples submitted for diagnostic workup. At this time, all remaining pigs were retreated with a different injectable antibiotic.

Feed and water samples were taken for analysis. Ten whole pigs were also sent in for diagnostic workup.

Day 4. Clinical signs continued to worsen. At this point, all of the feeders were dumped and refilled with a commercial starter pig ration. Contact was made with the feed mill to inquire about any potential feed mixing errors that could have occurred.

Days 5-6. Many of the chronically affected or previously recumbent pigs continued to die or were euthanized. No new cases of pigs going down or acutely dying were reported. The pigs’ appetite improved gradually as time progressed following the change in feed.

Day 7. Histopathology analyses from submitted pigs showed samples having consistent lesions in the skeletal muscles. The pathologist reported that the lesions were characteristic of ionophore toxicity. Feed samples that had been collected were sent in for analysis. Ten whole pigs were also submitted for diagnostic workup. At this time, all remaining pigs were treated with a different spectrum injectable antibiotic. Feed and water samples were taken for analysis. Ten whole pigs were also sent in for diagnostic workup.