

Pork Prose

by
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NAXCEL FOR PIGS
Naxcel's approval for use in swine about one year ago is considered by many to be significant for the hog industry.

Naxcel¹ is a broad spectrum drug, with activity that surpasses many antibiotics at our disposal. Its label claims include several respiratory pathogens, and one more item makes this drug rather unique — it has no withdrawal.

Drug Activity

Naxcel is Upjohn's trade name for ceftiofur, an antibiotic characterized as a cephalosporin. That puts it in the same general class as penicillin, but it's advanced several steps (or generations) beyond that of the original antibiotic.

An early process with any potential drug is to assess it *in vitro*, a term that roughly means evaluation in a test tube. The result is

usually reported as an MIC — minimal inhibitory concentration. This is the smallest concentration of drug, under these "test tube" conditions that will stop the growth of a particular bacteria. In general, the lower the MIC, the better.

The bacteria that are stopped with a fairly low MIC of ceftiofur include a long list of beasts that tend to wreck havoc within the hog industry:

- Gram negatives: Pasteurella haemolytica, Pasteurella multocida, Haemophilus somnus, Haemophilus pleuropneumoniae, E. coli, Salmonella choleraesuis, Salmonella typhimurium.

- Gram positives: Corynebacterium pyogenes, Staph. aureus, Strep. agalactiae, Strep. bovis, Strep. dysgalactiae, Strep. suis type II, Strep. uberis.

With all of these bacteria, and

under these *in vitro* conditions, Ceftiofur shows good activity compared to Ampicillin, another "advanced generation" antibiotic in the same class as penicillin. Ceftiofur is not particularly effective against Bordetella, Pseudomonas or Mycoplasma.

Animal Testing

Follow-up testing in the animal indicated that the drug concentrations in plasma and tissues are consistently above the MICs for the sensitive organisms listed above. This implies that after injection of the drug, most of these bacteria can be controlled in the pig as well as

in the test tube.

Testing in the pig has been documented for Colibacillosis (E. Coli scours). The drug is not labeled for E. coli — however, approval is anticipated.

The label indications for swine include four respiratory pathogens — Actinobacillus (Haemophilus) pleuropneumoniae, Pasteurella multocida, Salmonella choleraesuis and Strep. suis type 2.

Concentrations of the drug in the tissue, though high enough to control bacterial growth, are below the maximum allowable safe concentrations for safe human consumption — even a few hours after

injection. For example, noninjection site muscle has a maximum allowable safe concentration of 3 ppm. Following three injections, at the maximum dose, the drug level in noninjection site muscle is .76. The maximum for injection site muscle is 30 ppm. The observed concentration in the muscle tissue at injection sites is only 2.90 ppm.

Label Highlights

Naxcel is available only upon the order of a licensed veterinarian — that is, a prescription. There is no withdrawal period. This a bit incredible for an injectable. But

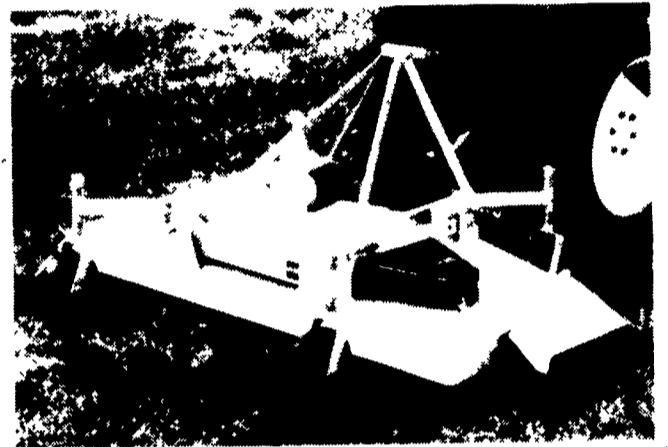
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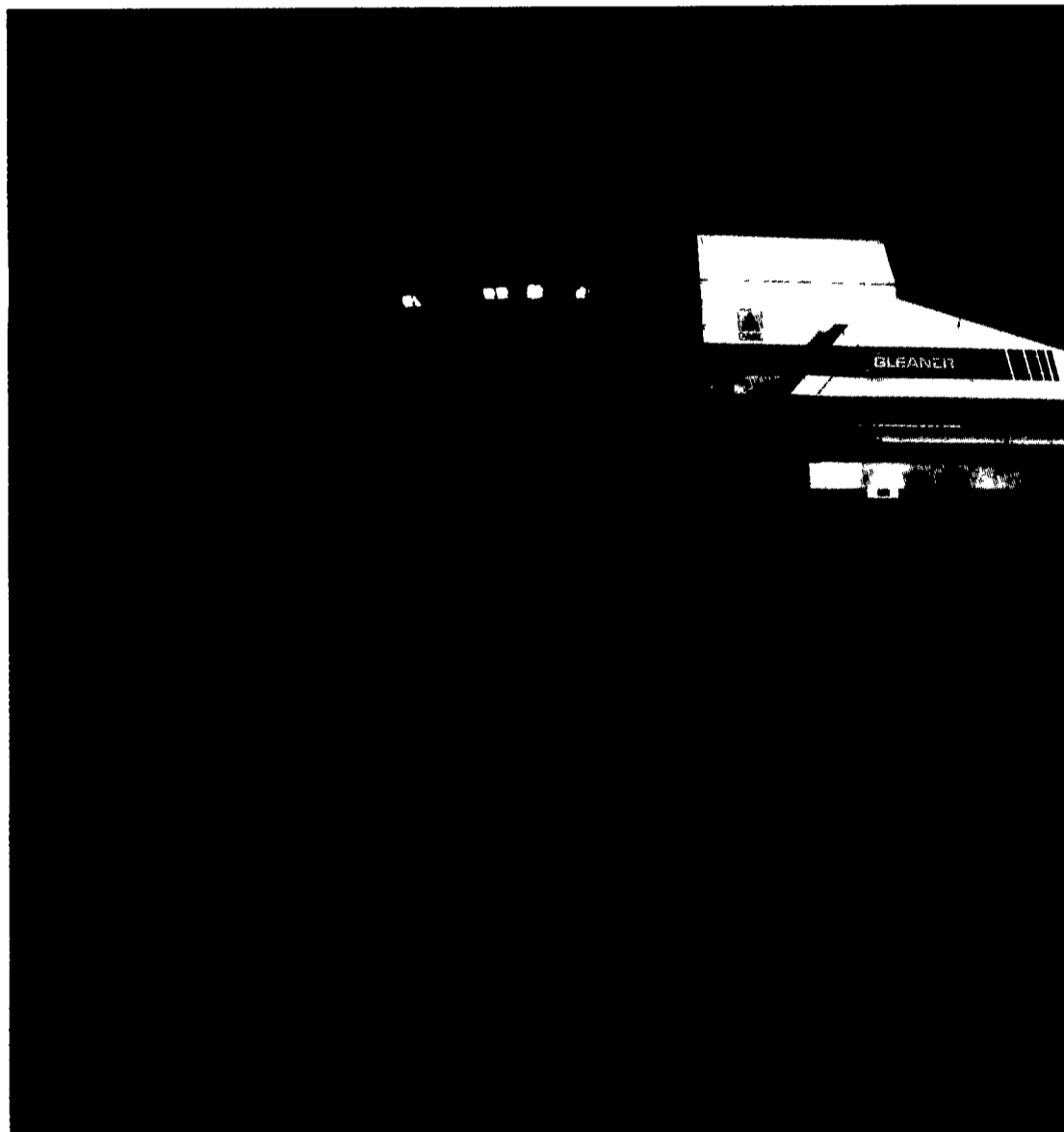
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