From the desk of Jack Thomas

Antibiotics in Livestock

Ever since the first penicillin shot was given, bacteria have been developing resistance to antibiotics. As the use of antibiotics has become more widespread, bacterial resistance has increased. The fear is that sub-therapeutic antibiotic use in livestock may cause pathogenic bacteria to become resistant and the bacteria will be transmitted to humans. Much of this fear was laid to rest in 2006 when the Institute of Food Technologists (IFT, a world-wide group of food scientists) advised against eliminating antibiotics from food animal production (ift.org/ExpertReport). They noted that an individual’s personal history with antibiotics was the primary factor in obtaining an infection with an antibiotic resistant bacteria strain.

More recently, a report from the Pew Commission on Industrial Farm Animal Production (http://www.livablefutureblog.com/pdf/Putting_Meat_on_Table_FULL.pdf) raised serious concerns about the safety of antibiotic use in livestock. The Pew Commission noted two studies in the Netherlands (Huijsdens et al., 2006 and Voss et al., 2005) and one from Canada (Khanna et al., 2008) which showed a link between resistant bacteria (Methicillin resistant Staphylococcus aureus, MRSA) carried by pigs and people who work closely with pigs. However, another study from the Netherlands (Baptiste et al., 2005) reported dogs to be potential carriers of MRSA. The Pew Commission correctly noted while there is potential for Staphylococcus aureus to be transferred from animal to human through the food supply, most Staphylococcus aureus found in meat is of human origin. This further validates the IFT statement: “While preliminary evidence points toward – but does not prove that – human health risks result from antibiotic use in food animals, what is known is that once food-borne pathogens have acquired resistance through whatever means, there are clear human health impacts.” MRSA is carried on human skin and in the nose and most MRSA infections are hospital acquired (Pew Commission). It’s obvious that MRSA and possibly other antibiotic resistant bacteria are widespread and human use of antibiotics plays a major role in their development.

One aspect the Pew Commission did not address is the human health implications of eliminating sub-therapeutic antibiotic use in livestock production. Both IFT and the American Veterinary Medical Association (http://www.avma.org/advocacy/PEWresponse/PEW_report_response.pdf) addressed this issue. When The Netherlands and Denmark placed restrictions on sub-therapeutic use of antibiotics in pigs, the level of resistant bacteria present in those herds decreased. However, the number of pigs requiring therapeutic antibiotic treatment increased significantly and there was no decrease in the level of antibiotic resistant strains in the human population.

Throughout human history there has been a close relationship between mankind and livestock. There have been many times when epidemics have devastated both human and animal populations, but not in recent history.
As so ably stated by the AVMA, “Healthy animals provide healthy food, which is why a blanket ban on the use of antimicrobials severely limits our ability to protect human health. Prevention and control of disease in food animals to ensure that we have healthy animals entering the food supply is not only a necessity, but a very appropriate use of antimicrobials. It is important to understand that in any large population, including the human population, preventing a disease before it occurs and controlling the disease before it spreads to the entire population are core public health and population health components of an overall treatment plan for infectious diseases. This is the same approach veterinarians use in population medicine for food animals.” Banning antibiotics in livestock, or companion animals, will result in an increase in sick, unhealthy animals and will be a greater threat to human health than the continued use of antibiotics in livestock.

**Literature Cited**


**CONGRATULATIONS –**

Congratulations to Dr. Jason Turner, Extension Horse Specialist, and Mindy on the birth of their new son, John Lee, born December 23rd.