

2002

The Future of Using Antibiotics in Livestock Feeding

H.H. Stein Ph.D.

South Dakota State University

Follow this and additional works at: http://openprairie.sdstate.edu/sd_swinereport_2001

 Part of the [Animal Sciences Commons](#)

Recommended Citation

Stein, H.H. Ph.D., "The Future of Using Antibiotics in Livestock Feeding" (2002). *South Dakota Swine Research Report, 2001*. 34.
http://openprairie.sdstate.edu/sd_swinereport_2001/34

This Article is brought to you for free and open access by the Animal Science Field Day Proceedings and Research Reports at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in South Dakota Swine Research Report, 2001 by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.



The future of using antibiotics in livestock feeding

Hans H. Stein, Ph.D., Swine Nutritionist
Department of Animal and Range Sciences

SWINE 2001 - 33

For more than 50 years, it has been recognized that livestock performance can be improved if antibiotics are included in the diets at sub-therapeutic levels. As a result, a relatively large number of feed antibiotics have been approved for livestock feeding, and it is common praxis all over the world to include one or more antibiotics in the diets for production animals. Typically, daily gain and feed utilization are improved by 5 to 10% by the inclusion of these antibiotic growth promoters.

Consumer concerns

During the last few decades, concerns on the use of antibiotic growth promoters in livestock feeding have been raised. The concerns have mainly been related to the risk of creating antibiotic resistant microorganisms that can be transferred to humans, but the ethical justification for feeding antibiotics to "healthy animals" has been discussed as well. The growing consumer demand for "green" food products has further intensified the discussion and created a market for products produced without the inclusion of feed antibiotics. The discussions on the use of feed containing antibiotic growth promoters have mainly taken place in the Northern European countries and in Great Britain. However, it is likely that we may experience the same discussion in the US in the future.

Antibiotic resistance in Humans

It is well documented that any use of an antibiotic will promote the emergence of bacteria that are resistant to that antibiotic. This is true in animals as well as in humans. It is, therefore, not surprising that the use of antibiotics over the last 50 years have created many antibiotic resistant bacteria in humans and in animals. Because of these antibiotic resistant bacteria, there are certain human diseases that are now difficult or impossible to treat with an antibiotic although these same diseases could easily be treated with an antibiotic 10 or 20 years ago. That is a real problem and something that causes a great deal of concern in the medical community.

The main reason for this increased antibiotic resistance is the use of antibiotics in human medicine. However, for farmers and for animal scientists, the question is whether there also is an association between the increased antibiotic resistance in humans and the use of antibiotic growth promoters in livestock feeding. It has never been scientifically documented that such an association exists and there is evidence that if antibiotic resistance is transferred from animals to humans, it plays only a minor role in the overall antibiotic resistance in humans. However, as long as it cannot be completely ruled out that antibiotic resistance can be transferred from animals to humans, the discussion on the use of antibiotic growth promoters will continue.

The European development

The discussion on the use of antibiotic growth promoters in livestock feeding has mainly taken place in Northern Europe. In Sweden, all feed antibiotics were banned in 1986, and in Denmark, livestock producers have stopped using antibiotic growth promoters because of a mounting political and public pressure to do so. In the European Union (EU), - including 15 countries in Western Europe - the policy for approving antibiotic growth promoters was changed in 1999 after recommendations from the Scientific Steering Committee within the EU. It is now the official policy of the EU that "the use of any antimicrobial agent for growth promotion belonging to the same class of antimicrobials that is also used for therapy in humans is regarded as imprudent". As a consequence of this new policy, the EU banned most of the growth promoters that had previously been approved, and today only four antibiotic growth promoters are still approved in the EU.

Developments in the US

So far, antibiotic resistance in humans has not been directly linked to the use of antibiotics in livestock in the US. However, as early as in 1977, FDA proposed a ban on certain feed

antibiotics because it was feared that these antibiotics might create antibiotic resistance that could be transferred to humans. However, this ban was stopped by the US congress after several years of scientific discussions. Recently, FDA banned two feed antibiotics belonging to the group of fluoroquinolone - these antibiotics are mainly used in the poultry industry. At the same time, several processing

plants are now launching products that have been produced from animals that were fed no antibiotic growth promoters. It is, therefore, evident that things are changing in the US as well. As a consequence, livestock producers should be prepared to discontinue the use of antibiotic growth promoters, - a ban on these products may or may not be coming soon, but if it comes, it always helps to be prepared.

Southeast SD Research Farm Trials¹

- 1992: Effect of corn particle size on finishing pig performance. R.C. Thaler
- 1995: Utilizing fat additions of either soy oil or extruded soybeans to add value to light test weight corn. R.C. Thaler
- 1996: A comparison of single-source versus commingled early-weaned pigs. R.C. Thaler and B.D. Rops.
- 1997: Early-weaning of single source and commingled pigs: effect on growth performance and disease status. R.C. Thaler, B.D. Rops, and C.L. Chase.
- Thermal environmental effects and group sizes on growing swine performance. S. Pohl.
- 1998: A comparison of high oil corn vs normal corn in finishing swine diets. R.C. Thaler, S. Pohl and B.D. Rops.
- Dollar and labor costs associated with the construction of a "hoop-barn". R.C. Thaler, B.D. Rops, S. Pohl and R. Berg.
- 1999: Comparison of normal and high oil corn (HOC) for growth performance, carcass characteristics, and dust control in swine grow-finish barns. R.C. Thaler, B.D. Rops, and S.H. Pohl.
- Effect of corn type (normal and high oil) and method of substitution on grow-finish pig performance, carcass characteristics, and dust production. R.C. Thaler, B.D. Rops and S.H. Pohl
- High oil corn's effect on pig performance in a hoop structure. B.D. Rops, R.C. Thaler and S.H. Pohl.
- A comparison of grow-finish pig performance in hoop barns versus a confinement barn in winter months. B.D. Rops, R.C. Thaler and S.H. Pohl.
- A comparison of grow-finish pig performance in hoop barns versus a confinement barn in the summer. B.D. Rops, R.C. Thaler and S.H. Pohl.

¹ For complete reprints of these articles, contact Dr. Bob Thaler at 605-688-5011 or robert_thaler@sdstate.edu

A cumulative comparison of grow-finish pig performance in a hoop barn versus a confinement barn. B.D. Rops, R.C. Thaler and S.H. Pohl.

2000: Grow-finish performance of swine in a hoop barn, year 2000. B.D. Rops and R.C. Thaler.

Efficacy of high oil corn in reducing the severity of a PRRSV challenge in growing pigs. B.T. Christopherson, R.C. Thaler, C.C. Chase, S.H. Pohl, R.A. Bohlke and B.D. Rops.

2001: Efficacy of high oil corn in reducing the severity of a PRRSV challenge in growing pigs (Trial #2). B.T. Christopherson, R.C. Thaler, C.C. Chase, S.H. Pohl, R.A. Bohlke and B.D. Rops.