**Antibiotic growth promoters**

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I was dismayed to see that Phillips et al.† were defending what nearly all microbiologists know are grave abuses of antibiotics—their continuous use in feed as growth promoters and the needless widespread use of broad spectrum agents (fluoroquinolones). This is despite their acknowledgement that ‘the more an antibiotic is used, the more likely are resistant populations to develop’ and that resistant bacteria can be spread to people via the food chain. They also comment that to do anything to stop this abuse is a ‘non-scientific approach’. Their defence is despite a lack of scientific evidence to show growth promotion still works. If we followed their suggested approach on the use of scientific data, then this use should cease immediately. Double-blind, placebo-controlled trials to test the efficacy of antibiotics as growth promoters have never been performed. In addition, nearly all recent studies that have been large and used control groups have shown little or no efficacy for growth promoters in improving economic parameters or preventing disease when given for prolonged periods of time (i.e. as is their routine use). In Denmark, in >200 million chickens‡ the only economic benefits to producers from routine in-feed antibiotic use were an improvement in feed efficacy by about 1%. Even data supplied by those defending the pharmaceutical industry§,¶ confirm that the overall benefits of continuous in-feed antibiotics appear to be either non-existent or minimal. In the USA, when >7 million broilers were studied‖,§§ the feed-efficiency benefits were very small (0.9%) and similar to those in Denmark. This would result in an extra feed cost of about 0.75c per broiler, but the cost of in-feed antibiotics to achieve this saving was 0.63c. Thus, the net benefit was only 0.12c (0.75–0.63). This is an almost non-existent gain (a mere 0.2%). Weight gains were also minimal or non-existent in recent, large comparative studies. In Denmark, there was no decrease in growth rates or in poultry production following the withdrawal of antibiotic growth promoters.†† USA figures‡‡,‡§ show very small losses of about 0.03 lb (or 0.5%). Phillips et al.† imply a much larger benefit by stating ‘the net benefit of antibiotic feeding to food-producing livestock was, and still is measurable’. They are correct, it is ‘measurable’, but when you measure it in large studies the net benefit seems usually to be close to zero! This hardly seems to warrant the risk of large numbers of multi-resistant bacteria in our foods.

Continuous in-feed antibiotics do not improve overall animal health or welfare. When growth promoters in poultry are withdrawn, there are usually minimal (or no) detrimental effects when measured in large studies (providing ionophore use is continued). In Denmark, there was no increase in poultry mortality after the cessation of in-feed antibiotics. Data on mortality rates supplied by Pilzer (in JETACAR 1999)§§ showed, surprisingly, that poultry fed virginiamycin had a higher mortality rate than controls (although not statistically significant; 4.8% versus 3.9%). Other figures from the USA¶ show only very small increases in mortality if antibiotics are withdrawn (at most 0.2%). Thus, the available scientific evidence from large studies show that the large leaps in mortality implied by Phillips et al.† do not occur if growth promotion use is discontinued. Many imply or state that there was a disastrous increase with necrotic enteritis (NE) following the ban of growth promoters in Denmark. However, the figures given by the pharmaceutical industry§§ show there was a problem with NE on only 25 of 1700 farms (1.4%) following the ban. This 1.4% is much lower than in any other country they quote as examples where in-feed antibiotics are used to prevent NE!

Using large quantities of broad-spectrum antibiotics such as fluoroquinolones (FQs) hardly appears to be ‘prudent’ use of antibiotics. In Australia, the use of FQs is banned in food production animals, without any obvious problems with production or animal welfare. Phillips et al.† want us to believe that *Campylobacter* infections in people have nothing to do with poultry and therefore FQ use in poultry should not matter. In a recent Australian study, there are almost no domestically acquired infections with FQ-resistant campylobacter.‖ This is in stark contrast to all other countries where FQs are used in poultry. It is hard to see how there can be any other plausible explanation for this difference, other than that which is obvious to most microbiologists. In the words of Phillips et al.† ‘the more an antibiotic is used, the more likely are resistant populations to develop’. One worries about the spread of FQ-resistant *Escherichia coli* and salmonella that inevitably occurs wherever large quantities of these agents are used in food animals.

**References**