REPORT OF THE SCIENTIFIC COMMITTEE FOR ANIMAL NUTRITION ON THE USE OF VIRGINIAMYCIN IN FEEDINGSTUFFS FOR LAYING HENS

Opinion expressed 17 November 1982

TERMS OF REFERENCE (October 1981)

The Scientific Committee for Animal Nutrition is requested to give an opinion on the following questions :

1. Has the use of the antibiotic virginiamycin under the conditions proposed for feedingstuffs for laying hens (see Background) a significant effect on egg production?

2. Does this use under the proposed conditions result in the presence of residues in eggs? If so, what is the qualitative and quantitative composition of these residues? Could these residues be harmful to the consumer?

3. In the light of the answers to the above questions, are the poposed conditions of use acceptable?

BACKGROUND

In accordance with the provisions of Council Directive 70/524/EEC of 23 November 1970 concerning additives in feedingstuffs (1), as last amended by the thirty-eighth Commission Directive of 16 July 1981 (2), the use of virginiamycin is authorized at Community level under the conditions set

(1) OJ No L 270, 14.12.1970, p. 1
(2) OJ No L 231, 15.08.1981, p. 30

out as follows in Annex I, Section A, to the Directive :

Species of animal	Minimum content	Maximum content
	ppm (mg/kg) of complete feedingstuff	
Turkeys (up to 26 weeks)	5	20
Other poultry, excluding ducks, geese, laying hens and pigeons (up to 16 weeks)	5	20
Piglets (up to 4 months)	5	50
Pigs (up to 6 months)	5	20
Calves (up to 16 weeks)	5	50 (*)
Calves (up to 6 months)	5	20
		80 (**)

(*) authorized by derogation up to 30 June 1982 (Annex II)
(**) milk replacers

An extension of the use of virginiamycin under the following conditions has been proposed :

Species of animal : laying hens.
Minimum and maximum content in complete feedingstuffs : 10-40 ppm (mg/kg).

OPINION OF THE COMMITTEE

1. Many experiments were performed regarding the use of virginiamycin in feedingstuffs for laying and breeding hens. A study of the dose/response relationship with the range of proposed doses (10, 20 and 40 mg/kg complete feedingstuff) was conducted on the basis of six trials involving 17 024 layers including 4 100 breeding hens.

The number of non-breeding layers on which the 40 mg/kg dose was tested was very small, however.

The results showed that the addition of virginiamycin to feedingstuffs has an appreciable effect on egg production and on feed conversion. The dose/response relationship, however, does not appear to be linear. Statistical analysis of the data revealed that, taking into account the test conditions for each trial, the average increase in egg production compared with the controls are respectively 2.79, 2.65 and 3.91% for doses of 10, 20 and 40 mg/kg of feedingstuffs. At the same doses the average reduction in feed conversion compared with the controls was respectively 1.26, 2.39 and 2.22%.

Because the effects observed varied depending on the dose used, and in view of the fact that the 40 mg/kg dose was tested on an insufficient number of laying hens, the Committee considers that additional trials are required before this dose can be justified. Such trials should extend over one year and involve at least 800 layers.

2. Virginiamycin residues in eggs were sought by microbiological methods. In an initial series of research no residues were found in eggs at the detection limit of 0.25 mg/kg, even when virginiamycin was administered to laying hens in doses of 500 mg/kg of feedingstuff. By subsequently applying a microbiological method which was ten times more sensitive it was possible to establish that the addition of 20 and 80 mg of virginiamycin per kg of complete feedingstuff did not give rise to the presence of residues in eggs (detection limit : 0.02 mg/kg for albumen; 0.02 to 0.05 mg/kg for yolk).

Studies of the metabolism of virginiamycin using molecules labelled with ^{14}C or tritium have been performed on broilers, pigs and rats. It has been shown that the product is very feebly absorbed and that the small quantities of radioactive residues detected in the various tissues and organs after the oral administration of virginiamycin result from the metabolic breakdown of the product into molecules with short carbon chains which have no antibiotic effect. While it is regrettable that a study of the metabolism using labelled molecules was not performed on laying hens, on the basis of the studies on broilers and the microbiological tests it is possible to conclude that the presence of virginiamycin in eggs is not very probable.

3. For the reasons set out above, the Committee is of the opinion that the proposed use of virginiamycin in feedingstuffs for laying hens should not constitute any risks to the consumer. The product is efficacious at doses of 10 to 20 mg/kg of complete feedingstuff. The 40 mg/kg dose should be justified by additional trials lasting one year and involving at least 800 layers.

REFERENCES

Dossiers Smith Kline Ltd.