REPORT OF THE SCIENTIFIC COMMITTEE FOR ANIMAL NUTRITION ON THE USE OF MONENSIN SODIUM IN FEEDINGSTUFFS FOR POULTRY

Opinion expressed 11 March and 9 December 1981

TERMS OF REFERENCE (July 1980)

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

A. Chickens for fattening

1. What is the qualitative and quantitative composition of the residues in tissues and organs of the chicken arising from the administration up to slaughter of 100-125 mg monensin sodium/kg complete feedingstuff?

2. Are these residues free of risks for the consumer?

3. In the light of the answers to the above questions, could the withdrawal period of the supplemented feedingstuffs, set at a minimum of three days, be reduced or abolished?

B. Chickens reared for laying

Can the use of monensin sodium at dose-levels of 100-120 mg/kg complete feedingstuff up to the age of 16 weeks for chickens reared for laying give rise to residues in eggs?

C. Turkeys

1. Does the use of monensin sodium under the conditions proposed for feedingstuffs for turkeys (see Background) result in the presence of residues in tissues and organs of the animal? If so, what is the qualitative and quantitative composition of these residues? Could these residues be harmful to the consumer?

2. Could the excreted products, derived from the additive, be prejudicial to the environment? If so, what is the nature of the risks?

3. In the light of the answers to the above questions, are the proposed 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-third Commission Directive of 4 July 1980 (2), the use of monensin sodium as a coccidiostat is authorized at Community level under the conditions set out as follows :

Species of animal : chickens for fattening.
Minimum and maximum content in complete feedingstuffs : 100-125 ppm (mg/kg).
Other provisions : use prohibited at least three days before slaughter.

(1) OJ No L 270, 14.12.1970, p. 1
(2) OJ No L 185, 18.07.1980, p. 48

The following proposals were presented :

(a) To delete the provision concerning the withdrawal period of the supplemented feedingstuff before slaughter.

(b) To extend the authorization of use of the product by the following provisions :

Species of animal : chickens reared for laying (up to 16 weeks), turkeys.
Minimum and maximum content in complete feedingstuffs : 100-120 ppm (mg/kg).
Other provisions : for turkeys, use prohibited at least three days before slaughter.

OPINION OF THE COMMITTEE

A. Chickens for fattening

1. Monensin sodium, when administered in feedingstuffs for chickens, is weakly absorbed from the digestive tract. The microbiological determination of residues in fat, skin, kidneys, muscle and liver of chickens fed for several weeks and without a withdrawal period on a ration supplemented with 121 mg monensin/kg has shown that 12% of the samples contained residues in amounts higher than 0.05 mg/kg but generally not exceeding 0.1 mg/kg. The presence of these residues was most frequent in fat samples.

The study of distribution, composition and elimination of monensin residues, performed with the ^{14}C-labelled product, has shown that, under the abovementioned conditions of use, the residues in liver and kidneys were higher and of different composition than those in fat. The greater proportion of monensin was found in fat (1/3 of the radioactivity). Residues in the liver consisted to a small extent of monensin but a large number of metabolites, among them demethylation, hydroxylation and decarboxylation derivatives similar to those isolated from bovine liver, were identified.

These residues disappear rapidly. After three days withdrawal of the supplemented feedingstuff, only the liver and kidneys still contained traces of residues detectable by radioactivity (limit of detection : 0.02-0.04 mg/kg, expressed as monensin sodium).

2. Short- and long-term toxicity studies have been carried out on monensin sodium. The no-effect level in rats was 1.25 mg/kg bodyweight.

   The small amounts of residues which can be present in edible tissues of chickens when the supplemented feedingstuff is administered up to slaughter are free of risks for the consumer.

3. Notwithstanding the absence of toxicological effects of the residues, the Committee is of the opinion that it would be prudent to maintain the withdrawal period of a least three days before slaughter.

B. Chickens reared for laying

Some of the absorbed monensin sodium passes into the eggs and can be microbiologically determined as long as the supplemented feed is not withdrawn before laying. Microbiological determination with Bacillus subtilis (limit of detection : 0.025 mg/kg) on eggs from various groups of laying hens which had received monensin at dose-levels of 132 mg (from the 1st to the 40th day), 110 mg (from the 41st to the 82nd day) and 88 mg (from the 83rd to the 104th day) per kg complete feedingstuff showed residues (0.025-0.05 mg/kg) until the 2nd or 3rd day after withdrawal of the supplemented feed. Eggs laid on the 4th and 5th days after withdrawal no longer contained residues detectable microbiologically. The qualitative and quantitative composition of possible metabolites is not known.

In controlled conditions, lighting and feeding regimes are applied to ensure that laying starts in about the 20th week; this improves the optimum size of the first eggs laid. However, under poor technical conditions and in countries where the sky is brighter, laying may start as early as in the 16th week because of stimulation of the reproductive tract.

Bearing in mind that the effectiveness of the anticoccidial treatment with monensin and the resulting immunity are greatest at the eighth week, the Committee recommends as a precautionary measure that at dose-levels of 100-120 mg/kg complete feedingstuff the product be used up to no longer than the 15th week. This limitation is adequate to ensure the absence of microbiologically detectable residues in eggs.

C. Turkeys

The Committee proposed to express its opinion when data on metabolism of monensin sodium, its residues and excreted products in turkeys become available.

REFERENCES

Dossiers Lilly Research Centre Ltd.