RIKILT
WAGENINGEN UR

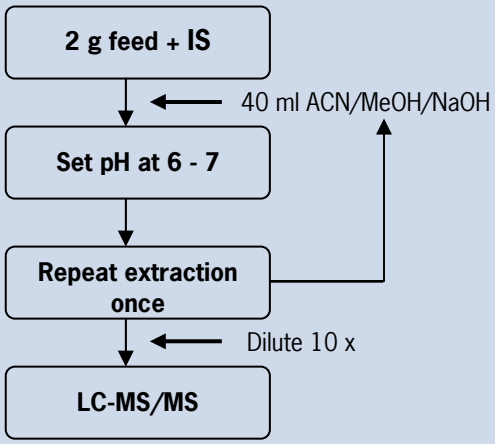
Carry-over of coccidiostats in animal feed

Tina Zuidema*, Efraim Oosterink, Wim Schutte, Linda Stolker, Harry van Egmond and Jacob de Jong

Introduction

Nowadays in feeding stuff production one 'production-line' is used to produce different types of feed for different species. So feeds containing coccidiostats and feeds without coccidiostats are produced by using the same production line, resulting in un-avoidable carry-over from one batch of feed to another. In order to limit the carry-over of coccidiostats, legislation has been set up by the EU. In Commission Directive 2009/8/EC[1] maximum levels (ML) for authorized coccidiostats and histomonostats in non-target feed are given. A carry-over of max 3% is allowed for feed intended for less sensitive non-targeted animals while a carry-over rate of 1% is allowed for feed intended for sensitive non-target animal species and 'withdrawal feed', i.e. feed used for the period before slaughter. Therefore methods have to be developed to test for residues at ML.

Method



Survey

A total of 32 feed samples (compound feed, complementary feed and 1 premix) were taken at coccidiostat feed producing feeding mills. These samples were analyzed for the presence of coccidiostats according to CD 2009/8/EC (Table 2). Furthermore the homogeneity during production of 1 rinsing feed was monitored by analyzing subsamples in time (Figure 1).

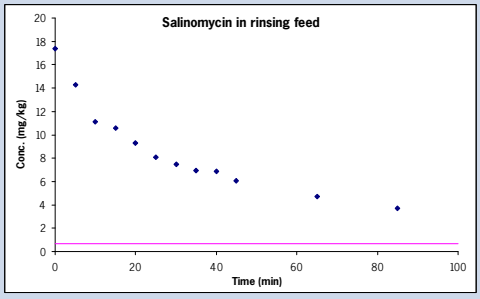


Figure 1. *Salinomycin in rinsing feed during production;— 1% carry-over level (0.7 mg/kg)*

Table 1. *Validation results (validation over 3 days; n=20)*

Compound	Target value (mg/kg)	Acc.%	RSD_r %	RSD_R %	Ext. MU
Narasin	0.7	107	12.3	15.5	0.23
	2.1	109	12.8	15.3	0.70
Lasalocid-A-Na	1.25	137	9.5	28.4	0.97
	3.75	135	9.0	24.2	2.4
Salinomycin-Na	0.7	120	12.1	22.0	0.37
	2.1	119	11.0	17.2	0.86
Monensin-Na	1.25	126	6.9	38.4	1.2
	3.75	128	9.8	29.9	2.9
Semduramicin-Na	0.25	113	5.6	11.1	0.06
	0.75	115	4.9	7.3	0.13
Maduramicin-NH_4	0.05	101	7.7	7.8	0.008
	0.15	104	7.2	9.3	0.03
Robenidine-HCl	0.7	101	3.5	3.8	0.06
	2.1	103	1.7	2.4	0.10
Decoquinate	0.4	101	1.2	1.9	0.02
	1.2	100	1.8	3.1	0.07
Halofuginone-HBr	0.03	121	6.1	17.4	0.01
	0.09	123	6.2	16.7	0.04
Nicarbazin	0.5	87	3.5	6.4	0.06
	1.5	96	3.0	6.8	0.20
Diclazuril	0.01	107	5.7	12.0	0.003
	0.03	105	4.1	12.3	0.008

Table 2. *Positive results survey*

RIKILT code	Target animal	Prod. before contained	Result (mg/kg)	EU ML (mg/kg)
200239276	Chicken (fattening)	-	SAL 0.3	0.7
200239732	Chicken (fattening)	SAL	**SAL 9.2**	0.7
200239991	Chicken	**	**NIC 3.4/ NAR 4.2**	1.5/2.1
200240456	Chicken (fattening)	SAL	SAL 1.3	0.7
200240836	Chicken*	**	DNC 1.0/ NAR 1.4	2.1/3.0*
200240837	Chicken*	SAL	**SAL 7.9**	3.0*
200240838	Chicken*	**	DNC 1.8/ NAR 2.3	2.1/3.0*
200242174	Premix	?	SAL 22	

* Complementary feed (70% of daily ration)
** Sample taken of silo

RIKILT – Institute of Food Safety
P.O. Box 230
NL-6700 AE Wageningen, The Netherlands
Phone: +31 317 48 02 56 • Fax: +31 317 41 77 17
Internet: www.rikilt.wur.nl
* Corresponding author: tina.zuidema@wur.nl

[1] Commission Directive 2009/8/EC, L40, 19-25

Acknowledgement
This research was (partly) financed by the Dutch Ministry of Agriculture, Nature and Food Quality