



LIVSMEDELSVERKET

NATIONAL FOOD ADMINISTRATION

**EXAMINATION OF RESIDUES IN
LIVE ANIMALS AND ANIMAL PRODUCTS
RESULTS OF THE CONTROL 1998
SWEDEN**

Report by Ingrid Nordlander

Further information

Information about the Swedish monitoring programme
of residues in live animals and animal products is available from:

Ingrid Nordlander

National Food Administration

Box 662, SE-751 26 Uppsala, Sweden

Fax: + 46 18 10 58 48

E-mail: inno@slv.se

Examination of residues in live animals and animal products 1998

Introduction

This report, primarily aimed for the Commission and Member States, gives the results of 1998 residue control of live animal and animal products according to directive 96/23/EC. The results presented are given in the format recommended by the Commission.

Control Programme

The Swedish control programme for 1998 included 16 000 samples from live animals, bovines, pigs, sheep, horses, milk, poultry, farmed fish, farmed game and wild game. The number of samples collected for each species or product was according to directive 96/23/EC.

Sampling

Sample Collection

Samples were collected in accordance with the decision 98/179/EC. The aim of the sampling was to find out use of illegal treatment of substances with anabolic effects or prohibited substances and reveal if the maximum residue limits for veterinary drugs and contaminants have been exceeded. The inspectors were requested to take samples, according to a target sampling programme from animals suspected to have been treated with certain substances.

Samples from live animals, urine and blood were collected from 50 farms. Visits to the farms were not announced. Samples of muscle, liver, kidney, fat, blood and urine from slaughtered animals were collected at the slaughter-houses. Rainbow trout was sampled on the fish-farms and milk was taken from milk-tankers.

Quality Assurance Measures

The samples were taken at the slaughter-houses by veterinarians employed by the National Food Administration. The samples from live animals were taken by veterinarians from the Board of Agriculture. Samples from fish and milk were taken by staff appointed by the National Food Administration. All samples were taken according to written instructions from the National Food Administration. The samples were sealed before they were sent in to the laboratory.

Analysis

Methods

The analytical methods used in the control programme are listed in this report and more detailed information will be given on request.

Accreditation

The analyses were carried out at the National Food Administration and at seven contracted laboratories. The laboratories are officially accredited for a number of analytical methods by the Swedish accreditation authority SWEDAC.

Results

The control programme of residues in live animals and animal products 1998 included drug residues, trace elements, mycotoxins and organochlorine compounds.

The programme consisted of 11 000 examinations with a microbiological method 5 000 examinations with chemical methods.

Only samples from six slaughtered bovine animals, two slaughtered pigs and one milk sample contained antibiotics above the recommended maximum residue limit (MRL)

Concerning anabolic substances, all samples were negative.

The samples from the control of trace elements contained low levels of cadmium and lead in all samples. The levels of organochlorine compounds were low in all samples

Number of animals slaughtered

Period 97-10 – 98-09

Country: Sweden

CATEGORIES	Total number of slaughtered animals (approved carcasses) in the country
Sheep	182 000
Horses	4 800
Bovine animals	544 000
Porcine animals	3 900 000
Deer	2429
	Production 1997
Farmed fish	53 000 tons (not gutted)
Milk	3 276 000 tons
	Production 1997-10—1998-09
Broilers	73 931 tons
Broiler parents	392 tons
Turkeys	1 981 tons
Hens	4 542 tons
Geese	106 tons
Duck	8 tons

Methods for analyses of residues in live animals and animal products for the year 1998

Group of substances	Compounds	Laboratory method	Detection limit	NFA method code
A 1 Stilbenes	diethylstilbestrol hexoestrol dienoestrol	GC-MS	1 µg/kg DES 1 µg/kg hexoestrol 2 µg/kg diennoestrol	SLV K3-51 ver 3
A 2 Thyreostatics	methylthiouracil propylthiouracil thiamazol	HPLC	100 µg/kg	SLV K3-17 ver 2
A 3 Substance with androgenic action	trenbolone	ELISA GC-MS	1 µg/kg 2 µg/kg	SLV K3-34
	19-nortestosterone	GC-MS	2 µg/kg	SLV K3-51 ver 3
A 3 Substance with gestagenic action	medroxyprogesteroneacetate chloromadinone acetate megestrol acetate	ELISA	5 µg/kg	SLVK3-23 ver 5
A 4 Substance with oestrogenic action	zeranol	GC-MS	2 µg/kg	SLV K3-51 ver 3
A 5 Beta-agonists	clenbuterol salbutamol mabuterol	ELISA GC-MS	1 µg/kg	SLV K3-32 ver 1 SLV K3-26 ver 1
A 6 Chloramphenicol	chloramphenicol	ELISA GC-MS	1 µg/kg 1 µg/kg	SLV K3-39 ver 5 SLV K3-49 ver 1
B 1 Antibacterial substances	tetracycline oxytetracycline chlortetracycline	HPLC	20 µg/kg 10 µg/kg 100 µg/kg	SLV K3-11 ver 7
B 1	microbiological test for antibacterial substances in kidney	Bacillus subtilis test with trimetoprim added	Inhibition zone > 2 mm	
B 1	beta-lactams in milk	Beta-screen HPLC	1 µg/kg milk 2 µg/kg milk	SLV K 3-55 ver 1
B 1	penicillin-G in kidney and muscle	HPLC	10 µg/kg	SLV K3-37 ver 1
B 1	antibacterial substances in muscle	Charm II confirmed by HPLC (see HPLC method for each compound)	different	SLV K3-45 ver 1
B 1	enrofloxacin in milk ciprofloxacin in milk	HPLC	10 µg/kg 10 µg/kg	SLV K3-57 ver 1
B 1	sulfonamides	TLC HPLC	50 µg/kg 25 µg/kg	SLV K3-9 ver 3
B 1	oxolinic acid flumequin	HPLC	10 µg/kg 20 µg/kg	SLV K3-38 ver 2
B 2 a Anthelmintics	ivermectin doramectin moxidectin	HPLC	4 µg/kg	SLV K3-46 ver 3

Methods for analyses (continue...)

B 2 a	benzimidazoles	HPLC GC-MS	20 µg/kg 100 µg/kg	SLV K3-1 ver 4
B 2 d Sedatives	acepromazin	ELISA GC-MS	0.1 µg/kg 1 µg/kg	SLV K3-33 ver 1
B 2 e Non-steroidal anti-inflammatory substances	fenylbutazon	GC-MS	10 µg/kg serum 25 µg/kg milk	SLV K3-54 ver 1
B 3 a Contaminants: Chlorinated hydrocarbons	HCB α-HCH α-HCH dieldrin p,p'-DDE p,p'-DDD p,p'-DDT PCBs	GC-ECD GC-ECD GC-ECD GC-ECD GC-ECD GC-ECD	0.001 mg/kg fat 0.001 mg/kg fat 0.001 mg/kg fat 0.001 mg/kg fat 0,003 mg/kg fat 0.001 mg/kg fat	SLV K3-25 ver 3
B 3 b Organophosphorus compounds	dichlorvos methamidophos acephate chlorpyrifos-methyl pirimiphos-methyl chlorpyrifos malathion prothiofos methidathion	GC-FPD GC-FPD GC-FPD GC-FPD GC-FPD GC-FPD GC-FPD GC-FPD	0.2 µg/kg 2 µg/kg 4 µg/kg 2 µg/kg 0.5 µg/kg 0,3 µg/kg 0.3 µg/kg 2 µg/kg 2 µg/kg	SLV K3-53 ver 1
B 3 c Contaminants: Trace elements	Pb	AAS	0.01 mg/kg	SLV K2-137
	Cd	AAS	0.01mg/kg	SLV K2-137

Laboratories in Sweden for analyses of residues in live animals and animal products for the year 1998

Name and address of laboratory	Substances
<i>A. National Reference Laboratory</i>	
National Food Administration Box 622 S-751 26 Uppsala	all substances
<i>B. Laboratories approved by National Food Administration and contracted for screening analyses stipulated</i>	
Swedish University of Agricultural Sciences Department of Environmental Assessment Organic Environmental Chemistry Section Box 7050 S-750 07 Uppsala	benzimidazoles
National Veterinary Institute Box 7073 S-750 07 Uppsala	acepromacin beta-agonists sulphonamides trenbolone
AB AnalyCen Box 905 S-531 19 Lidköping	organochlorine compounds
MSAB Box 324 S-551 15 Jönköping	Beta-lactams in milk
MSAB Mejerivägen 2 S-906 22 Umeå	Beta-lactams in milk
MSAB Lasarettvägen 37 S-821 31 Bollnäs	Beta-lactams in milk
MSAB Råbyvägen S-242 92 Hörby	Beta-lactams in milk

36 laboratories are approved by the National Food Administration for analyses of antimicrobials in kidney.

Summary of results of residue control: Targeted sampling

**All the totals refer to the numbers of animals or samples as defined
in Dir. 96/23/EC and Dec. 97/47EC and not to the total number of analyses**

Country: SWEDEN

Period covered: 1998

Substances groups	Bovines				Pigs				Sheep/Goats		Horses		Poultry	
	Farm		Slaught.		Farm		Slaught.		Nb	Pos	Nb	Pos	Nb	Pos
	Nb	Pos	Nb	Pos	Nb	Pos	Nb	Pos						
TOTAL A+B	380	0	3400	6			9750	2	592	0	114	0	455	0
Total A	380	0	617	0			772	0	79	0	0	0	198	0
A1	60	0	104	0			116	0	20	0			18	0
A2	24	0	33	0			31	0	0	0			10	0
A3	131	0	239	0			214	0	18	0			20	0
A4	30	0	50	0			105	0	20	0			20	0
A5	86	0	94	0			161	0	11	0			91	0
A6	49	0	97	0			145	0	10	0			39	0
Total B	0		2783	6			8978		513	0	114	0	257	0
Total B1	0		2423	6			8510	2	474	0	65	0	97	0
Total B2	0		241	0			357	0	9	0	49	0	120	0
B2a			112	0			246	0	9	0				0
B2b													120	0
B2c														
B2d			107	0			111	0			24	0		
B2e			22	0							25	0		
B2f														
Total B3			119	0			111	0	30	0			40	0
B3a			20	0			17	0	10	0			10	0
B3b			20	0									10	0
B3c			79	0			94	0	20	0			20	0
B3d														
B3e														
B3f														

Targeted: samples taken in the context of the national residue control plan as defined in Dir. 96/23/EC

All groups(A1, A2, A3,...) refer to annex 1 of Dir. 96/23/EC

Farm: samples taken at farm level (on live animals, feed, water)

Slaught: samples taken in slaughterhouses.

Nb: total number of samples taken in the covered period

Pos: positive results (detection for banned substances or above MRLs or national limits for veterinary drugs and contaminants)

Remarks: the totals might differ from the simple algebraic sum of sub-groups because they should reflect the total number of animals sampled

Summary of results of residue control: Targeted sampling

All the totals refer to the numbers of animals or samples as defined
in Dir. 96/23/EC and Dec. 97/47EC and not to the total number of analyses

Country: SWEDEN

Period covered: 1998

Substances groups	Aquaculture		Milk		Eggs		Rabbit		Farm. Game		Wild game		Honey	
	Nb	Pos	Nb	Pos	Nb	Pos	Nb	Pos	Nb	Pos	Nb	Pos	Nb	Pos
TOTAL A+B	30	0	1168	0					42	0	50	0		
Total A	5	0	19	0					10	0				
A1									1	0				
A2														
A3														
A4														
A5									5	0				
A6	5	0	19	0					4	0				
Total B	25	0	1149	0					32		50			
Total B1	15	0	1087	1					0	0				
Total B2			27	0					13	0				
B2a									10	0				
B2b														
B2c														
B2d														
B2e			27	0					4	0				
B2f														
Total B3	10	0	35	0					19	0	50	0		
B3a	5	0	15	0					4	0				
B3b														
B3c	5	0							15	0	50	0		
B3d			20	0										
B3e														
B3f														

Targeted: samples taken in the context of the national residue control plan as defined in Dir. 96/23/EC

All groups(A1, A2, A3,...) refer to annex 1 of Dir. 96/23/EC

Farm: samples taken at farm level (on live animals, feed, water)

Slaughter: samples taken in slaughterhouses.

Nb: total number of samples taken in the covered period

Pos: positive results (detection for banned substances or above MRLs or national limits for veterinary drugs and contaminants)

Remarks: the totals might differ from the simple algebraic sum of sub-groups because they should reflect the total number of animals sampled