

codex alimentarius commission

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WORLD HEALTH
ORGANIZATION

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Agenda item 8

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON RESIDUES OF VETERINARY DRUGS IN FOODS

Twelfth Session

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CONSIDERATION OF MAXIMUM RESIDUE LIMITS FOR VETERINARY DRUGS AT STEPS 7 AND 4

MAXIMUM RESIDUE LIMITS FOR VETERINARY DRUGS AT VARIOUS STEPS

This document contains the following:

Status of Maximum Residue Limits for Veterinary Drugs in Foods

- Table of Contents
- List of Maximum Residue Limits for Veterinary Drugs at Various Steps

Annex: Maximum Residue Limits Adopted or Being Considered for Substances Used As Pesticides, Which Are also Considered by this Committee

Keys for List of MRLs for Veterinary Drugs

ADI	Acceptable Daily Intake (expressed in $\mu\text{g}/\text{kg}$ body weight)
Tissue	Muscle, Liver, Kidney, Fat, Fat/Skin, Milk or Egg
MRL	Maximum Residue Limit (unless noted otherwise, expressed in $\mu\text{g}/\text{kg}$)
Step	Step of the MRL at the time of publication of this document or Year of its adoption by the Codex Alimentarius Commission. “(r)” after Step: the MRL is a proposed draft or draft revised MRL. “(a)” after Step: the MRL is a proposed draft or draft amendment to the existing MRL.
JECFA	Meeting number of the Joint FAO/WHO Expert Committee on Food Additives where the substance was evaluated and/or MRL recommended/considered.
CCRVDF	Session number of the CCRVDF where the MRL was considered and Appendix number of its report where the MRL is contained.

STATUS OF MAXIMUM RESIDUE LIMITS FOR VETERINARY DRUGS IN FOODS

Table of contents

ABAMECTIN.....	4
ALBENDAZOLE	4
ALPHA-CYPERMETHRIN	4
AZAPERONE.....	5
BENZYLPENICILLIN/PROCAINE BENZYLPENICILLIN.....	5
BOVINE SOMATOTROPINS	5
CARAZOLOL	6
CARBADOX	6
CEFTIOFUR.....	6
CHLORTETRACYCLINE/OXYTETRACYCLINE/TETRACYCLINE	7
CLENBUTEROL.....	7
CLOSANTEL	8
CYFLUTHRIN	8
CYPERMETHRIN.....	8
DANOFLOXACIN.....	9
DELTAMETHRIN	9
DEXAMETHASONE.....	10
DICLAZURIL.....	10
DIHYDROSTREPTOMYCIN/STREPTOMYCIN	11
DIMINAZENE.....	11
DORAMECTIN	12
EPRINOMECTIN.....	12
ESTRADIOL-17BETA.....	12
FEBANTEL/FENBENDAZOLE/OXFENDAZOLE.....	13
FLUAZURON	13
FLUBENDAZOLE	13
FLUMEQUINE.....	14
GENTAMICIN	14
IMIDOCARB	15
ISOMETAMIDIUM	15
IVERMECTIN.....	15
LEVAMISOLE	16
MOXIDECTIN	16
NEOMYCIN	17
NICARBAZIN.....	17
OXYTETRACYCLINE.....	18
PHOXIM.....	18
PORCINE SOMATOTROPIN	19
PROGESTERONE.....	19
SARAFLOXACIN.....	20
SPECTINOMYCIN	20
SPIRAMYCIN.....	21
SULFADIMIDINE	21
TESTOSTERONE	21

THIABENDAZOLE	22
THIAMPHENICOL	22
TILMICOSIN	23
TRENBOLONE ACETATE	23
TRICLABENDAZOLE	23
ZERANOL	23
ANNEX	24

ABAMECTIN

JECFA Evaluation 45 (1995), 47 (1996)

ADI 0-2 µg/kg body weight (1997) Established for the sum of abamectin and (Z)-8,9 isomer by the 1997 JMPR.

Residue Definition Avermectin B1a.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Liver	100	7	47	10V, 11IV
Cattle	Kidney	50	7	47	10V, 11IV
Cattle	Fat	100	7	47	10V, 11IV

The CCRVDF-11 retained the draft MRLs at Step 7 with the understanding that if no data or information were received by JMPR by the 13th Session, the Committee would consider their advancement to Step 8. (See Annex)

ALBENDAZOLE

JECFA Evaluation 34 (1989)

ADI 0-50 µg/kg body weight (1989)

Residue Definition Except milk, 2-aminosulfone metabolite;
Milk, not yet identified.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Not specified	Muscle	100	(1993)	34	
Not specified	Liver	5000	(1993)	34	
Not specified	Kidney	5000	(1993)	34	
Not specified	Fat	100	(1993)	34	
Not specified	Milk	100	(1993)	34	

ALPHA-CYPERMETHRIN

JECFA Evaluation 47 (1996)

ADI 0-20 µg/kg body weight (1996)

Residue Definition alpha-Cypermethrin.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	100 T	8	47	10V, 11II
Sheep	Muscle	100 T	8	47	10V, 11II
Chicken	Muscle	100 T	8	47	10V, 11II
Cattle	Liver	100 T	8	47	10V, 11II
Sheep	Liver	100 T	8	47	10V, 11II
Chicken	Liver	100 T	8	47	10V, 11II
Cattle	Kidney	100 T	8	47	10V, 11II
Sheep	Kidney	100 T	8	47	10V, 11II
Chicken	Kidney	100 T	8	47	10V, 11II
Cattle	Fat	500 T	8	47	10V, 11II
Sheep	Fat	500 T	8	47	10V, 11II
Chicken	Fat	500 T	8	47	10V, 11II
Cattle	Milk	25 (µg/l) T	8	47	10V, 11II
Chicken	Eggs	50 T	8	47	10V, 11II

All MRLs are provisionally scheduled for reevaluation at the 54th JECFA (February 2000). There are a number of MRLs adopted for cypermethrin in or on both plant and animal products with the residue definition of cypermethrin (sum of isomers)(see Codex Alimentarius, Volume 2B).

The Commission at its 23rd Session agreed not to consider the Draft MRLs for cypermethrin and alpha-cypermethrin pending their review by JECFA in February 2000.

See also "Cypermethrin".

AZAPERONE

JECFA Evaluation 38 (1991), 43 (1994), 50 (1998), 52(1999)

ADI 0-6 µg/kg body weight (1998)

Residue Definition Sum of azaperone and azaperol.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVD ^F
Pig	Muscle	60	(1999)	38, 43, 50	
Pig	Liver	100	(1999)	38, 43, 50	
Pig	Kidney	100	(1999)	38, 43, 50	
Pig	Fat	60	(1999)	38, 43, 50	

BENZYL PENICILLIN/PROCAINE BENZYL PENICILLIN

JECFA Evaluation 50 (1998)

ADI 30 µg-penicillin/person/day (1998) Residues of benzylpenicillin and procaine benzylpenicillin should be kept below this level.

Residue Definition Benzylpenicillin

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVD ^F
Cattle	Muscle	50	(1999)	50	
Pig	Muscle	50	(1999)	50	
Chicken	Muscle	50	1/ (1999)	50	
Cattle	Liver	50	(1999)	50	
Pig	Liver	50	(1999)	50	
Chicken	Liver	50	1/ (1999)	50	
Cattle	Kidney	50	(1999)	50	
Pig	Kidney	50	(1999)	50	
Chicken	Kidney	50	1/ (1999)	50	
Cattle	Milk	4 (µg/l)	(1999)	50	

Procaine benzylpenicillin is also used in horses, sheep, turkeys, rabbits, quail and pheasants. Due to the lack of information, the 50th JECFA could not establish MRLs for these species.

1/ Applies to procaine benzylpenicillin only.

BOVINE SOMATOTROPINS

JECFA Evaluation 40 (1992), 50 (1998)

ADI Not specified (1992)

Residue Definition Not applicable.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVD ^F
Cattle	Muscle	not specified	1/ 8	40, 50	7IV, 8II, 11II
Cattle	Liver	not specified	1/ 8	40, 50	7IV, 8II, 11II
Cattle	Kidney	not specified	1/ 8	40, 50	7IV, 8II, 11II
Cattle	Fat	not specified	1/ 8	40, 50	7IV, 8II, 11II
Cattle	Milk	not specified	1/ 8	40, 50	7IV, 8II, 11II

ADI "not specified" means that available data on the toxicity and intake of the veterinary drug indicate a large margin of safety for consumption of residues in food when the drug is used according to good practice in the use of veterinary drugs. For that reason, and for the reasons stated in the individual evaluation, the JECFA concluded that use of the veterinary drugs does not represent a hazard to human and that there is no need to specify a numerical ADI.

Consideration of the adoption of all draft MRLs suspended by the 22nd Session of the Codex Alimentarius Commission pending the reevaluation of scientific data by JECFA/CCRVD^F and the examination of the application of "other legitimate factors" in relation to BST by the Codex Committee on General Principles.

The Commission at its 23rd Session decided to hold the MRLs at Step 8 in accordance with the provisions contained in the introductory paragraphs of the Uniform Procedure for the Elaboration of Codex Standards and Related Texts.

1/ MRL "not specified" means that available data on the identity and concentration of residues of the

veterinary drug in animal tissues indicate a wide margin of safety for consumption of residues in food when the drug is used according to good practice in the use of veterinary drugs. For that reason, and for the reasons

stated in the individual evaluation, the JECFA concluded that the presence of drug residues in the named animal product does not present a health concern and that there is no need to specify a numerical MRL.

CARAZOLOL

JECFA Evaluation 38 (1991), 43 (1994), 52 (1999)

ADI 0-0.1 µg/kg body weight (1994) ADI based on the acute pharmacological effects of carazolol.

Residue Definition Carazolol

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Pig	Muscle	5	1/ 7	38, 43	7V,8V,9IV,10II,11IV
Pig	Liver	25	7	38, 43	7V,8V,9IV,10II,11IV
Pig	Kidney	25	7	38, 43	7V,8V,9IV,10II,11IV
Pig	Fat/Skin	5	1/ 7	38, 43	7V,8V,9IV,10II,11IV

All MRLs were returned to Step 7 by the 22nd Session of the Codex Alimentarius Commission due to concerns that the concentration of residues at the injection site may exceed the ADI.

Recognizing that high level residues at the injection site could pose health risks, the CCRVDF-11 agreed to retain all draft MRLs at Step 7 and to request JECFA to review this issue based on the principles outlined in the paper contained in CL 1998/4-RVDF.

1/ The concentration at the injection site two hours after treatment may result in an intake that exceeds the acute RfD. Therefore, unless appropriate measures can be taken to ensure that residues at the injection site do not exceed the acute RfD, the uses of carazolol during the transport of animals to slaughter is inconsistent with safe use of the drug (52nd JECFA).

CARBADOX

JECFA Evaluation 36 (1990)

ADI Limited acceptance (1990)

Residue Definition Quinoxaline-2-carboxylic acid.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Pig	Muscle	5	(1993)	36	
Pig	Liver	30	(1993)	36	

CEFTIOFUR

JECFA Evaluation 45 (1995), 48 (1997)

ADI 0-50 µg/kg body weight (1995)

Residue Definition Desfuroylceftiofur.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	1000	(1999)	45, 48	
Pig	Muscle	1000	(1999)	45, 48	
Cattle	Liver	2000	(1999)	45, 48	
Pig	Liver	2000	(1999)	45, 48	
Cattle	Kidney	6000	(1999)	45, 48	
Pig	Kidney	6000	(1999)	45, 48	
Cattle	Fat	2000	(1999)	45, 48	
Pig	Fat	2000	(1999)	45, 48	
Cattle	Milk	100 (µg/l)	(1999)	45, 48	

CHLORTETRACYCLINE/OXYTETRACYCLINE/TETRACYCLINE

JECFA Evaluation 45 (1995), 47 (1996), 50 (1998)

ADI 0-30 µg/kg body weight (1998) Group ADI for chlortetracycline, oxytetracycline and tetracycline.

Residue Definition Parent drugs, singly or in combination.

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVDF
Cattle	Muscle	200	1/	7	45, 47, 50	9V, 10V, 11IV
Pig	Muscle	200	1/	7	45, 47, 50	9V, 10V, 11IV
Sheep	Muscle	200	1/	7	45, 47, 50	9V, 10V, 11IV
Poultry	Muscle	200	1/	7	45, 47, 50	9V, 10V, 11IV
Fish	Muscle	200 T	6/ 7/	6	50	11V
Giant prawn	Muscle	200	6/ 8/	6	50	11V
Cattle	Liver	600	2/	7	45, 47, 50	9V, 10V, 11IV
Pig	Liver	600	2/	7	45, 47, 50	9V, 10V, 11IV
Sheep	Liver	600	2/	7	45, 47, 50	9V, 10V, 11IV
Poultry	Liver	600	2/	7	45, 47, 50	9V, 10V, 11IV
Cattle	Kidney	1200	3/	7	45, 47, 50	9V, 10V, 11IV
Pig	Kidney	1200	3/	7	45, 47, 50	9V, 10V, 11IV
Sheep	Kidney	1200	3/	7	45, 47, 50	9V, 10V, 11IV
Poultry	Kidney	1200	3/	7	45, 47, 50	9V, 10V, 11IV
Cattle	Milk	100 (µg/l)	4/	7	45, 47	9V, 10V, 11IV
Sheep	Milk	100 (µg/l)	4/	7	45, 47	9V, 10V, 11IV
Poultry	Eggs	400	5/	7	45, 47, 50	9V, 10V, 11IV

See also oxytetracycline.

ADI changed from 0-3 µg/kg body weight (1995; Group ADI) by the 50th JECFA.

The CCRVDF-11 decided to retain the draft MRLs at Step 7 pending the publication of the toxicological monograph by the 50th JECFA and agreed to review the policy and methodology of the ADI setting based on microbiological endpoints elucidated in this toxicological monograph.

1/ Changed from 100 µg/kg (50th JECFA 1998).

2/ Changed from 300 µg/kg (50th JECFA 1998).

3/ Changed from 600 µg/kg (50th JECFA 1998).

4/ Confirmed (50th JECFA 1998).

5/ Changed from 200 µg/kg (50th JECFA 1998).

6/ Applies only to oxytetracycline.

7/ Temporary pending evaluation of use pattern of oxytetracycline in aquaculture. The current Codex MRL at 100 µg/kg in fish for oxytetracycline adopted in 1993.

8/ *Penaeus monodon*. The current Codex MRL at 100 µg/kg in giant prawn for oxytetracycline adopted in 1997.

CLENBUTEROL

JECFA Evaluation 47 (1996)

ADI 0-0.004 µg/kg body weight (1996)

Residue Definition Clenbuterol

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVDF
Cattle	Muscle	0.2		4	47	10VI, 11VI
Horse	Muscle	0.2		4	47	10VI, 11VI
Cattle	Liver	0.6		4	47	10VI, 11VI
Horse	Liver	0.6		4	47	10VI, 11VI
Cattle	Kidney	0.6		4	47	10VI, 11VI
Horse	Kidney	0.6		4	47	10VI, 11VI
Cattle	Fat	0.2		4	47	10VI, 11VI
Horse	Fat	0.2		4	47	10VI, 11VI
Cattle	Milk	0.05 (µg/l)		4	47	10VI, 11VI

The CCRVDF-11 noted that no new information had become available on this substance since the CCRVDF-10. Due to concerns about residues of clenbuterol arising from misuses, the CCRVDF-11 decided to retain all proposed draft MRLs at Step 4.

CLOSANTEL

JECFA Evaluation 36 (1990), 40 (1992)
ADI 0-30 µg/kg body weight (1992)
Residue Definition Closantel

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	1000	(1993)	36, 40	
Sheep	Muscle	1500	(1993)	36, 40	
Cattle	Liver	1000	(1993)	36, 40	
Sheep	Liver	1500	(1993)	36, 40	
Cattle	Kidney	3000	(1993)	36, 40	
Sheep	Kidney	5000	(1993)	36, 40	
Cattle	Fat	3000	(1993)	36, 40	
Sheep	Fat	2000	(1993)	36, 40	

CYFLUTHRIN

JECFA Evaluation 48 (1997)
ADI 0-20 µg/kg body weight (1997)
Residue Definition Cyfluthrin

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	20	6	48	11V
Cattle	Liver	20	6	48	11V
Cattle	Kidney	20	6	48	11V
Cattle	Fat	200	6	48	11V
Cattle	Milk	40 (µg/l)	6	48	11V

There are a number of MRLs adopted for cyfluthrin in or on both plant and animal products (see Annex).

The Codex Committee on Pesticide Residues at its 31st Session agreed to support the Draft MRL in cattle milk at 40 µg/l to replace the Codex MRL at 0.01 mg/kg adopted by the Commission.

CYPERMETHRIN

JECFA Evaluation 47 (1996), 54 (2000)
ADI 0-50 µg/kg body weight (1996)
Residue Definition Cypermethrin

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	200 T	8	47	10V, 11II
Sheep	Muscle	200 T	8	47	10V, 11II
Chicken	Muscle	200 T	8	47	10V, 11II
Cattle	Liver	200 T	8	47	10V, 11II
Sheep	Liver	200 T	8	47	10V, 11II
Chicken	Liver	200 T	8	47	10V, 11II
Cattle	Kidney	200 T	8	47	10V, 11II
Sheep	Kidney	200 T	8	47	10V, 11II
Chicken	Kidney	200 T	8	47	10V, 11II
Cattle	Fat	1000 T	8	47	10V, 11II
Sheep	Fat	1000 T	8	47	10V, 11II
Chicken	Fat	1000 T	8	47	10V, 11II
Cattle	Milk	50 (µg/l) T	8	47	10V, 11II
Chicken	Eggs	100 T	8	47	10V, 11II

All MRLs are provisionally scheduled for reevaluation at the 54th JECFA (February 2000).

There are a number of MRLs adopted for cypermethrin in or on both plant and animal products with the residue definition of cypermethrin (sum of isomers)(see Annex). See also "alpha-Cypermethrin".

The Commission at its 23rd Session agreed not to consider the Draft MRLs for cypermethrin and alpha-cypermethrin pending their review by JECFA in February 2000.

DANOFLOXACIN

JECFA Evaluation 48 (1997)
ADI 0-20 µg/kg body weight (1997)
Residue Definition Danofloxacin

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVD ^F
Cattle	Muscle	200		6	48	11V
Pig	Muscle	100		6	48	11V
Chicken	Muscle	200		6	48	11V
Cattle	Liver	400		6	48	11V
Pig	Liver	50		6	48	11V
Chicken	Liver	400		6	48	11V
Cattle	Kidney	400		6	48	11V
Pig	Kidney	200		6	48	11V
Chicken	Kidney	400		6	48	11V
Cattle	Fat	100		6	48	11V
Pig	Fat	100		6	48	11V
Chicken	Fat	100	1/	6	48	11V

1/ Fat/skin in normal proportion.

DELTAMETHRIN

JECFA Evaluation 52 (1999)
ADI 0-10 µg/kg body weight (1982) Established by the 1982 JMPR.
Residue Definition Deltamethrin

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVD ^F
Cattle	Muscle	30	1/	3	52	
Sheep	Muscle	30	1/	3	52	
Chicken	Muscle	30	1/	3	52	
Salmon	Muscle	30	1/	3	52	
Cattle	Liver	50		3	52	
Sheep	Liver	50		3	52	
Chicken	Liver	50		3	52	
Cattle	Kidney	50		3	52	
Sheep	Kidney	50		3	52	
Chicken	Kidney	50		3	52	
Cattle	Fat	500		3	52	
Sheep	Fat	500		3	52	
Chicken	Fat	500		3	52	
Cattle	Milk	30	1/	3	52	
Chicken	Eggs	30	1/	3	52	

1/ No residues were detected. MRLs are for guidance only and are based on two times the limit of quantification of the analytical method.

DEXAMETHASONE

JECFA Evaluation 42 (1994), 43 (1994), 48 (1997), 50 (1998)

ADI 0-0.015 µg/kg body weight (1994)

Residue Definition Dexamethasone

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVDf
Cattle	Muscle	0.5 T	1/	7	42, 43, 48	8V,9V,10V,11I V
Pig	Muscle	0.5 T	1/	7	42, 43, 48	8V,9V,10V,11I V
Horse	Muscle	0.5 T	1/	7	42, 43, 48	8V,9V,10V,11I V
Cattle	Liver	2.5 T	1/	7	42, 43, 48	8V,9V,10V,11I V
Pig	Liver	2.5 T	1/	7	42, 43, 48	8V,9V,10V,11I V
Horse	Liver	2.5 T	1/	7	42, 43, 48	8V,9V,10V,11I V
Cattle	Kidney	0.5 T	1/	7	42, 43, 48	8V,9V,10V,11I V
Pig	Kidney	0.5 T	1/	7	42, 43, 48	8V,9V,10V,11I V
Horse	Kidney	0.5 T	1/	7	42, 43, 48	8V,9V,10V,11I V
Cattle	Milk	0.3 (µg/l) T	1/	7	42, 43, 48	8V,9V,10V,11I V

The CCRVDf-11 decided to retain all the draft MRLs at Step 7 as while the 48th and 50th JECFA recommended to withdraw them, it was recognized that dexamethasone was widely registered and had potential for misuses/abuses which might give rise to health concerns.

1/ Recommended for withdrawal (48th & 50th JECFA).

All temporary MRLs were not extended by the 48th JECFA due to non-availability of a method for regulatory monitoring. The 50th JECFA reviewed the documentation for an HPLC/MS method for measuring dexamethasone in tissues and milk and concluded that the proposed method does not meet the required performance characteristics for identification and quantification of residues in incurred tissues. MRLs could not be recommended because a suitable method for residue analysis was not available.

DICLAZURIL

JECFA Evaluation 45 (1995), 50 (1998)

ADI 0-30 µg/kg body weight (1998)

Residue Definition Diclazuril

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVDf
Sheep	Muscle	500		(1999)	45, 50	
Rabbit	Muscle	500		(1999)	45, 50	
Poultry	Muscle	500		(1999)	45, 50	
Sheep	Liver	3000		(1999)	45, 50	
Rabbit	Liver	3000		(1999)	45, 50	
Poultry	Liver	3000		(1999)	45, 50	
Sheep	Kidney	2000		(1999)	45, 50	
Rabbit	Kidney	2000		(1999)	45, 50	
Poultry	Kidney	2000		(1999)	45, 50	
Sheep	Fat	1000		(1999)	45, 50	
Rabbit	Fat	1000		(1999)	45, 50	
Poultry	Fat/Skin	1000		(1999)	45, 50	

DIHYDROSTREPTOMYCIN/STREPTOMYCIN

JECFA Evaluation 43 (1994), 48 (1997), 52 (1999)

ADI 0-50 µg/kg body weight (1997) Group ADI for combined residues of dihydrostreptomycin and streptomycin.

Residue Definition Sum of dihydrostreptomycin and streptomycin.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	500 T	(1999)	43, 48	
Cattle	Muscle	600	3(r)	52	
Pig	Muscle	500 T	(1999)	43, 48	
Pig	Muscle	600	3(r)	52	
Sheep	Muscle	500 T	(1999)	43, 48	
Sheep	Muscle	600	3(r)	52	
Chicken	Muscle	500 T	(1999)	43, 48	
Chicken	Muscle	600	3(r)	52	
Cattle	Liver	500 T	(1999)	43, 48	
Cattle	Liver	600	3(r)	52	
Pig	Liver	500 T	(1999)	43, 48	
Pig	Liver	600	3(r)	52	
Sheep	Liver	500 T	(1999)	43, 48	
Sheep	Liver	600	3(r)	52	
Chicken	Liver	500 T	(1999)	43, 48	
Chicken	Liver	600	3(r)	52	
Cattle	Kidney	1000 T	(1999)	43, 48	
Cattle	Kidney	1000	3(a)	52	
Pig	Kidney	1000 T	(1999)	43, 48	
Pig	Kidney	1000	3(a)	52	
Sheep	Kidney	1000 T	(1999)	43, 48	
Sheep	Kidney	1000	3(a)	52	
Chicken	Kidney	1000 T	(1999)	43, 48	
Chicken	Kidney	1000	3(a)	52	
Cattle	Fat	500 T	(1999)	43, 48	
Cattle	Fat	600	3(r)	52	
Pig	Fat	500 T	(1999)	43, 48	
Pig	Fat	600	3(r)	52	
Sheep	Fat	500 T	(1999)	43, 48	
Sheep	Fat	600	3(r)	52	
Chicken	Fat	500 T	(1999)	43, 48	
Chicken	Fat	600	3(r)	52	
Cattle	Milk	200 (µg/l) T	(1999)	43, 48	
Cattle	Milk	200 T	1/ 3(a)	52	

1/ Information is required for evaluation on a validated analytical method that will quantitate both compounds in milk at a low level. (52nd JECFA)

DIMINAZENE

JECFA Evaluation 34 (1989), 42 (1994)

ADI 0-100 µg/kg body weight (1994)

Residue Definition Diminazene

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	500	(1997)	34, 42	
Cattle	Liver	12000	(1997)	34, 42	
Cattle	Kidney	6000	(1997)	34, 42	
Cattle	Milk	150 (µg/l)	1/ (1997)	34, 42	

1/ Limit of quantitation of the analytical method.

DORAMECTIN

JECFA Evaluation 45 (1995), 52 (1999)
ADI 0-0.5 µg/kg body weight (1995)
Residue Definition Doramectin.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	10	(1997)	45	
Pig	Muscle	5	3	52	
Cattle	Liver	100	(1997)	45	
Pig	Liver	100	3	52	
Cattle	Kidney	30	(1997)	45	
Pig	Kidney	30	3	52	
Cattle	Fat	150	(1997)	45	
Pig	Fat	150	3	52	

High concentration of residues at the injection sites (52nd JECFA).

EPRINOMECTIN

JECFA Evaluation 50 (1998)
ADI 0-10 µg/kg body weight (1998)
Residue Definition Eprinomectin B1a

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	100	6	50	11V
Cattle	Liver	2000	6	50	11V
Cattle	Kidney	300	6	50	11V
Cattle	Fat	250	6	50	11V
Cattle	Milk	20 (µg/l)	6	50	11V

ESTRADIOL-17BETA

JECFA Evaluation 25 (1981), 32 (1987), 52 (1999)
ADI 0-0.05 µg/kg body weight (1999)
Residue Definition Estradiol-17beta.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	unnecessary	(1995)	25, 32	
Cattle	Muscle	not specified	1/	3(a)	52
Cattle	Liver	unnecessary	(1995)	25, 32	
Cattle	Liver	not specified	1/	3(a)	52
Cattle	Kidney	unnecessary	(1995)	25, 32	
Cattle	Kidney	not specified	1/	3(a)	52
Cattle	Fat	unnecessary	(1995)	25, 32	
Cattle	Fat	not specified	1/	3(a)	52

Previous ADI, Unnecessary (1987)

1/ MRL "not specified" means that available data on the identity and concentration of residues of the veterinary drug in animal tissues indicate a wide margin of safety for consumption of residues in food when the drug is used according to good practice in the use of veterinary drugs. For that reason, and for the reasons stated in the individual evaluation, the 52nd JECFA concluded that the presence of drug residues in the named animal product does not present a health concern and that there is no need to specify a numerical MRL.

FEBANTEL/FENBENDAZOLE/OXFENDAZOLE

JECFA Evaluation 38(1991), 45(1995), 50 (1998)
ADI 0-7 µg/kg body weight (1998) Group ADI.
Residue Definition Sum of fenbendazole, oxfendazole and oxfendazole sulphone, expressed as oxfendazole sulphone equivalents.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	100	(1999)	38, 45, 50	
Pig	Muscle	100	(1999)	38, 45, 50	
Sheep	Muscle	100	(1999)	38, 45, 50	
Goat	Muscle	100	(1999)	50	
Horse	Muscle	100	(1999)	50	
Cattle	Liver	500	(1999)	38, 45, 50	
Pig	Liver	500	(1999)	38, 45, 50	
Sheep	Liver	500	(1999)	38, 45, 50	
Goat	Liver	500	(1999)	50	
Horse	Liver	500	(1999)	50	
Cattle	Kidney	100	(1999)	38, 45, 50	
Pig	Kidney	100	(1999)	38, 45, 50	
Sheep	Kidney	100	(1999)	38, 45, 50	
Goat	Kidney	100	(1999)	50	
Horse	Kidney	100	(1999)	50	
Cattle	Fat	100	(1999)	38, 45, 50	
Pig	Fat	100	(1999)	38, 45, 50	
Sheep	Fat	100	(1999)	38, 45, 50	
Goat	Fat	100	(1999)	50	
Horse	Fat	100	(1999)	50	
Cattle	Milk	100 (µg/l)	(1999)	38, 45, 50	
Sheep	Milk	100 (µg/l)	(1999)	38, 45, 50	

FLUAZURON

JECFA Evaluation 48 (1997)
ADI 0-40 µg/kg body weight (1997)
Residue Definition Fluazuron

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	200	(1999)	48	
Cattle	Liver	500	(1999)	48	
Cattle	Kidney	500	(1999)	48	
Cattle	Fat	7000	(1999)	48	

FLUBENDAZOLE

JECFA Evaluation 40 (1992)
ADI 0-12 µg/kg body weight (1992)
Residue Definition Flubendazole

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Pig	Muscle	10	(1995)	40	
Poultry	Muscle	200	(1995)	40	
Pig	Liver	10	(1995)	40	
Poultry	Liver	500	(1995)	40	
Poultry	Eggs	400	(1995)	40	

FLUMEQUINE

JECFA Evaluation 42 (1994), 48 (1997), 54 (2000)

ADI 0-30 µg/kg body weight (1997)

Residue Definition Flumequine

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVDf
Cattle	Muscle	500		6	42, 48	11V
Pig	Muscle	500 T		6	42, 48	11V
Sheep	Muscle	500 T		6	42, 48	11V
Chicken	Muscle	500 T		6	42, 48	11V
Trout	Muscle	500 T	1/	6	42, 48	11V
Cattle	Liver	1000		6	42, 48	11V
Pig	Liver	1000 T		6	42, 48	11V
Sheep	Liver	1000 T		6	42, 48	11V
Chicken	Liver	1000 T		6	42, 48	11V
Cattle	Kidney	3000		6	42, 48	11V
Pig	Kidney	3000 T		6	42, 48	11V
Sheep	Kidney	3000 T		6	42, 48	11V
Chicken	Kidney	3000 T		6	48	11V
Cattle	Fat	1000		6	48	11V
Pig	Fat	1000 T		6	48	11V
Sheep	Fat	1000 T		6	48	11V
Chicken	Fat	1000 T		6	48	11V

All temporary MRLs are scheduled for reevaluation at the 54th JECFA meeting (February 2000).

1/ Muscle/skin in normal proportion.

GENTAMICIN

JECFA Evaluation 43 (1994), 48 (1997), 50 (1998)

ADI 0-20 µg/kg body weight (1998)

Residue Definition Gentamicin

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVDf
Cattle	Muscle	100	1/	7	43, 48, 50	9V, 10V, 11IV
Pig	Muscle	100	1/	7	43, 48, 50	9V, 10V, 11IV
Cattle	Liver	2000	2/	7	43, 48, 50	9V, 10V, 11IV
Pig	Liver	2000	2/	7	43, 48, 50	9V, 10V, 11IV
Cattle	Kidney	5000	3/	7	43, 48, 50	9V, 10V, 11IV
Pig	Kidney	5000	3/	7	43, 48, 50	9V, 10V, 11IV
Cattle	Fat	100	1/	7	43, 48, 50	9V, 10V, 11IV
Pig	Fat	100	1/	7	43, 48, 50	9V, 10V, 11IV
Cattle	Milk	200 (µg/l)	4/	7	43, 48, 50	9V, 10V, 11IV

ADI changed from 0-4 µg/kg body weight (1994; temporary) by the 50th JECFA (1998).

The CCRVDf-11 decided to retain all the draft MRLs at Step 7 as no details of the toxicological evaluation were available to the session.

1/ Changed from temporary to full by the 50th JECFA (1998).

2/ Changed from 200 µg/kg T (50th JECFA, 1998).

3/ Changed from 1000 µg/kg T (50th JECFA, 1998).

4/ Changed from 100 µg/l T (50th JECFA, 1998).

IMIDOCARB

JECFA Evaluation 50 (1998)
ADI 0-10 µg/kg body weight (1998)
Residue Definition Imidocarb

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	300 T	6	50	11V
Cattle	Liver	2000 T	6	50	11V
Cattle	Kidney	1500 T	6	50	11V
Cattle	Fat	50 T	6	50	11V
Cattle	Milk	50 (µg/l) T	6	50	11V

MRLs are temporary. Residue depletion studies in lactating and non-lactating cattle using recommended subcutaneous doses of unlabelled imidocarb and analyzing samples using the proposed regulatory method with enzymatic digestion are required for evaluation in 2001. If MRLs are to be recommended for sheep, a residue depletion study using the recommended doses and route of administration would be required.

ISOMETAMIDIUM

JECFA Evaluation 40 (1992)
ADI 0-100 µg/kg body weight (1992)
Residue Definition Isometamidium

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	100	(1995)	40	
Cattle	Liver	500	(1995)	40	
Cattle	Kidney	1000	(1995)	40	
Cattle	Fat	100	(1995)	40	
Cattle	Milk	100	(1995)	40	

IVERMECTIN

JECFA Evaluation 36 (1990), 40 (1992), 54 (2000)
ADI 0-1 µg/kg body weight (1992)
Residue Definition 22,23-Dihydroavermectin B1a (H2B1a).

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Liver	100	(1993)	36, 40	
Pig	Liver	15	(1993)	36, 40	
Sheep	Liver	15	(1993)	36, 40	
Cattle	Fat	40	(1993)	36, 40	
Pig	Fat	20	(1993)	36, 40	
Sheep	Fat	20	(1993)	36, 40	

LEVAMISOLE

JECFA Evaluation 36 (1990), 42 (1994)
ADI 0-6 µg/kg body weight (1994)
Residue Definition Levamisole

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	10	(1997)	36, 42	
Pig	Muscle	10	(1997)	36, 42	
Sheep	Muscle	10	(1997)	36, 42	
Poultry	Muscle	10	(1997)	36, 42	
Cattle	Liver	100	(1997)	36, 42	
Pig	Liver	100	(1997)	36, 42	
Sheep	Liver	100	(1997)	36, 42	
Poultry	Liver	100	(1997)	36, 42	
Cattle	Kidney	10	(1997)	36, 42	
Pig	Kidney	10	(1997)	36, 42	
Sheep	Kidney	10	(1997)	36, 42	
Poultry	Kidney	10	(1997)	36, 42	
Cattle	Fat	10	(1997)	36, 42	
Pig	Fat	10	(1997)	36, 42	
Sheep	Fat	10	(1997)	36, 42	
Poultry	Fat	10	(1997)	36, 42	

MOXIDECTIN

JECFA Evaluation 45 (1995), 47 (1996), 48 (1997), 50 (1998)
ADI 0-2 µg/kg body weight (1995)
Residue Definition Moxidectin

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	20	1/ 2/ (1997)	45, 47, 48	
Sheep	Muscle	50	(1997)	47, 48	
Deer	Muscle	20	(1999)	45, 47, 48, 50	
Cattle	Liver	100	(1997)	45, 47, 48	
Sheep	Liver	100	(1997)	45, 47, 48	
Deer	Liver	100	(1999)	45, 47, 48, 50	
Cattle	Kidney	50	(1997)	45, 47, 48	
Sheep	Kidney	50	(1997)	45, 47, 48	
Deer	Kidney	50	(1999)	45, 47, 48, 50	
Cattle	Fat	500	(1997)	45, 47, 48	
Sheep	Fat	500	(1997)	45, 47, 48	
Deer	Fat	500	(1999)	45, 47, 48, 50	

1/ Very high concentration and great variation in the level of residues at the injection site in cattle over a 49 day period after dosing.

2/ The 48th JECFA reconsidered the MRL but, based on the available data, maintained it.

NEOMYCIN

JECFA Evaluation 43 (1994), 47 (1996), 52 (1999)

ADI 0-60 µg/kg body weight (1996)

Residue Definition Neomycin.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	500	(1999)	43, 47	
Pig	Muscle	500	(1999)	43, 47	
Sheep	Muscle	500	(1999)	43, 47	
Goat	Muscle	500	(1999)	43, 47	
Chicken	Muscle	500	(1999)	43, 47	
Turkey	Muscle	500	(1999)	43, 47	
Duck	Muscle	500	(1999)	43, 47	
Cattle	Liver	500	(1999)	43, 47	
Cattle	Liver	15000	3(r)	52	
Pig	Liver	500	(1999)	43, 47	
Sheep	Liver	500	(1999)	43, 47	
Goat	Liver	500	(1999)	43, 47	
Chicken	Liver	500	(1999)	43, 47	
Turkey	Liver	500	(1999)	43, 47	
Duck	Liver	500	(1999)	43, 47	
Cattle	Kidney	10000	(1999)	43, 47	
Cattle	Kidney	20000	3(r)	52	
Pig	Kidney	10000	(1999)	43, 47	
Sheep	Kidney	10000	(1999)	43, 47	
Goat	Kidney	10000	(1999)	43, 47	
Chicken	Kidney	10000	(1999)	43, 47	
Turkey	Kidney	10000	(1999)	43, 47	
Duck	Kidney	10000	(1999)	43, 47	
Cattle	Fat	500	(1999)	43, 47	
Pig	Fat	500	(1999)	43, 47	
Sheep	Fat	500	(1999)	43, 47	
Goat	Fat	500	(1999)	43, 47	
Chicken	Fat	500	(1999)	43, 47	
Turkey	Fat	500	(1999)	43, 47	
Duck	Fat	500	(1999)	43, 47	
Cattle	Milk	500 (µg/l)	(1999)	43, 47	
Cattle	Milk	500	3(a)	52	
Chicken	Eggs	500	(1999)	43, 47	

NICARBAZIN

JECFA Evaluation 50 (1998)

ADI 0-400 µg/kg body weight (1998)

Residue Definition N,N'-bis(4-nitrophenyl)urea.

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVDF
Chicken	Muscle	200	1/	(1999)	50	
Chicken	Liver	200	1/	(1999)	50	
Chicken	Kidney	200	1/	(1999)	50	
Chicken	Fat/Skin	200	1/	(1999)	50	

1/ Broilers.

OXYTETRACYCLINE

JECFA Evaluation	12 (1968), 36 (1990), 45 (1995), 47 (1996)
ADI	0-30 µg/kg body weight (1998) Group ADI for chlortetracycline, oxytetracycline and tetracycline.
Residue Definition	Oxytetracycline

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVDF
Cattle	Muscle	100	2/	(1993)	12, 36	
Pig	Muscle	100	2/	(1993)	12, 36	
Sheep	Muscle	100	2/	(1993)	12, 36	
Chicken	Muscle	100	2/	(1993)	12, 36	
Turkey	Muscle	100	2/	(1993)	12, 36	
Fish	Muscle	100	2/	(1993)	12, 36	
Cattle	Liver	300	2/	(1993)	12, 36	
Pig	Liver	300	2/	(1993)	12, 36	
Sheep	Liver	300	2/	(1993)	12, 36	
Chicken	Liver	300	2/	(1993)	12, 36	
Turkey	Liver	300	2/	(1993)	12, 36	
Cattle	Kidney	600	2/	(1993)	12, 36	
Pig	Kidney	600	2/	(1993)	12, 36	
Sheep	Kidney	600	2/	(1993)	12, 36	
Chicken	Kidney	600	2/	(1993)	12, 36	
Turkey	Kidney	600	2/	(1993)	12, 36	
Cattle	Milk	100	2/	(1993)	12, 36	
Chicken	Eggs	200	2/	(1993)	12, 36	
Giant prawn	Not specified	100	1/ 2/	(1997)	45, 47	

1/ *Penaeus monodon*.

2/ Will be replaced by the relevant MRL for chlortetracycline/oxytetracycline/tetracycline.

PHOXIM

JECFA Evaluation	52 (1999)
ADI	0-4 µg/kg body weight (1999)
Residue Definition	Phoxim

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVDF
Cattle	Muscle	50 T		3	52	
Pig	Muscle	50 T		3	52	
Sheep	Muscle	50 T		3	52	
Goat	Muscle	50 T		3	52	
Cattle	Liver	50 T		3	52	
Pig	Liver	50 T		3	52	
Sheep	Liver	50 T		3	52	
Goat	Liver	50 T		3	52	
Cattle	Kidney	50 T		3	52	
Pig	Kidney	50 T		3	52	
Sheep	Kidney	50 T		3	52	
Goat	Kidney	50 T		3	52	
Cattle	Fat	400 T		3	52	
Pig	Fat	400 T		3	52	
Sheep	Fat	400 T		3	52	
Goat	Fat	400 T		3	52	
Cattle	Milk	10 T		3	52	

PORCINE SOMATOTROPIN

JECFA Evaluation 52 (1999)
ADI Not Specified (1999)
Residue Definition Not applicable.

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVDf
Pig	Muscle	not specified	1/	3	52	
Pig	Liver	not specified	1/	3	52	
Pig	Kidney	not specified	1/	3	52	
Pig	Fat	not specified	1/	3	52	

The ADI applies only to three specific compounds.

ADI "not specified" means that available data on the toxicity and intake of the veterinary drug indicate a large margin of safety for consumption of residues in food when the drug is used according to good practice in the use of veterinary drugs. For that reason, and for the reasons stated in the individual evaluation, the 52nd JECFA concluded that use of the veterinary drug does not represent a hazard to human health and that there is no need to specify a numerical ADI.

1/ MRL "not specified" means that available data on the identity and concentration of residues of the veterinary drug in animal tissues indicate a wide margin of safety for consumption of residues in food when the drug is used according to good practice in the use of veterinary drugs. For that reason, and for the reasons stated in the individual evaluation, the 52nd JECFA concluded that the presence of drug residues in the named animal product does not present a health concern and that there is no need to specify a numerical MRL.

PROGESTERONE

JECFA Evaluation 25 (1981), 32 (1987), 52 (1999)
ADI 0-30 µg/kg body weight (1999)
Residue Definition Progesterone.

Species	Tissue	MRL (µg/kg)		Step	JECFA	CCRVDf
Cattle	Muscle	unnecessary		(1995)	25, 32	
Cattle	Muscle	not specified	1/	3(a)	52	
Cattle	Liver	unnecessary		(1995)	25, 32	
Cattle	Liver	not specified	1/	3(a)	52	
Cattle	Kidney	unnecessary		(1995)	25, 32	
Cattle	Kidney	not specified	1/	3(a)	52	
Cattle	Fat	unnecessary		(1995)	25, 32	
Cattle	Fat	not specified	1/	3(a)	52	

Previous ADI, Unnecessary (1987)

1/ MRL "not specified" means that available data on the identity and concentration of residues of the veterinary drug in animal tissues indicate a wide margin of safety for consumption of residues in food when the drug is used according to good practice in the use of veterinary drugs. For that reason, and for the reasons stated in the individual evaluation, the 52nd JECFA concluded that the presence of drug residues in the named animal product does not present a health concern and that there is no need to specify a numerical MRL.

SARAFLOXACIN

JECFA Evaluation 50 (1998)
ADI 0-0.3 µg/kg body weight (1998)
Residue Definition Sarafloxacin

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Chicken	Muscle	10	6	50	
Turkey	Muscle	10	6	50	
Chicken	Liver	80	6	50	
Turkey	Liver	80	6	50	
Chicken	Kidney	80	6	50	
Turkey	Kidney	80	6	50	
Chicken	Fat	20	6	50	
Turkey	Fat	20	6	50	

SPECTINOMYCIN

JECFA Evaluation 42 (1994), 50 (1998)
ADI 0-40 µg/kg body weight (1994)
Residue Definition Spectinomycin

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	500	(1999)	42, 50	
Pig	Muscle	500	(1999)	42, 50	
Sheep	Muscle	500	(1999)	50	
Chicken	Muscle	500	(1999)	42, 50	
Cattle	Liver	2000	(1999)	42, 50	
Pig	Liver	2000	(1999)	42, 50	
Sheep	Liver	2000	(1999)	50	
Chicken	Liver	2000	(1999)	42, 50	
Cattle	Kidney	5000	(1999)	42, 50	
Pig	Kidney	5000	(1999)	42, 50	
Sheep	Kidney	5000	(1999)	50	
Chicken	Kidney	5000	(1999)	42, 50	
Cattle	Fat	2000	(1999)	42, 50	
Pig	Fat	2000	(1999)	42, 50	
Sheep	Fat	2000	(1999)	50	
Chicken	Fat	2000	(1999)	42, 50	
Cattle	Milk	200 (µg/l)	(1999)	42, 50	
Chicken	Eggs	2000	(1999)	50	

SPIRAMYCIN

JECFA Evaluation	38 (1991), 43 (1994), 47 (1996), 48 (1997)
ADI	0-50 µg/kg body weight (1994)
Residue Definition	Cattle & chickens, Sum of spiramycin and neospiramycin; Pigs, Spiramycin equivalents (antimicrobially active residues).

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	200	(1997)	38, 43, 47, 48	
Pig	Muscle	200	(1997)	38, 43, 47, 48	
Chicken	Muscle	200	(1997)	38, 43, 47, 48	
Cattle	Liver	600	(1997)	38, 43, 47, 48	
Pig	Liver	600	(1997)	38, 43, 47, 48	
Chicken	Liver	600	(1997)	38, 43, 47, 48	
Cattle	Kidney	300	(1997)	38, 43, 47, 48	
Pig	Kidney	300	(1997)	38, 43, 47, 48	
Chicken	Kidney	800	(1997)	38, 43, 47, 48	
Cattle	Fat	300	(1997)	38, 43, 47, 48	
Pig	Fat	300	(1997)	38, 43, 47, 48	
Chicken	Fat	300	(1997)	38, 43, 47, 48	
Cattle	Milk	200 (µg/l)	(1997)	38, 43, 47, 48	

SULFADIMIDINE

JECFA Evaluation	34 (1989), 38 (1991), 42 (1994)
ADI	0-50 µg/kg body weight (1994)
Residue Definition	Sulfadimidine

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Not specified	Muscle	100	(1995)	34, 38, 42	
Not specified	Liver	100	(1995)	34, 38, 42	
Not specified	Kidney	100	(1995)	34, 38, 42	
Not specified	Fat	100	(1995)	34, 38, 42	
Cattle	Milk	25 (µg/l)	(1995)	34, 38, 42	

TESTOSTERONE

JECFA Evaluation	25 (1982), 32 (1987), 52 (1999)
ADI	0-2 µg/kg body weight (1999)
Residue Definition	Testosterone

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	unnecessary	(1995)	25, 32	
Cattle	Muscle	not specified	1/	3(a)	52
Cattle	Liver	unnecessary	(1995)	25, 32	
Cattle	Liver	not specified	1/	3(a)	52
Cattle	Kidney	unnecessary	(1995)	25, 32	
Cattle	Kidney	not specified	1/	3(a)	52
Cattle	Fat	unnecessary	(1995)	25, 32	
Cattle	Fat	not specified	1/	3(a)	52

Previous ADI, Unnecessary (1987).

THIABENDAZOLE

JECFA Evaluation	40 (1992), 48 (1997)
ADI	0-100 µg/kg body weight (1992)
Residue Definition	Sum of thiabendazole and 5-hydroxythiabendazole.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	100	(1995)	40	
Pig	Muscle	100	(1995)	40	
Sheep	Muscle	100	(1995)	40	
Goat	Muscle	100	(1995)	40	
Cattle	Liver	100	(1995)	40	
Pig	Liver	100	(1995)	40	
Sheep	Liver	100	(1995)	40	
Goat	Liver	100	(1995)	40	
Cattle	Kidney	100	(1995)	40	
Pig	Kidney	100	(1995)	40	
Sheep	Kidney	100	(1995)	40	
Goat	Kidney	100	(1995)	40	
Cattle	Fat	100	(1995)	40	
Pig	Fat	100	(1995)	40	
Sheep	Fat	100	(1995)	40	
Goat	Fat	100	(1995)	40	
Cattle	Milk	100	(1995)	40	
Goat	Milk	100	(1995)	40	

These MRLs also cover residues derived from feed containing the residues resulted from agricultural use.

There are a number of MRLs established for plant products (see also Annex).

THIAMPHENICOL

JECFA Evaluation	47 (1996), 52 (1999)
ADI	0-5 µg/kg body weight (1999)
Residue Definition	Sum of thiamphenicol and thiamphenicol conjugates, measured as thiamphenicol.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF	
Cattle	Muscle	40 T	1/	7	47, 52	10V, 11IV
Pig	Muscle	50 T		3	52	
Chicken	Muscle	40 T	1/	7	47, 52	10V, 11IV
Fish	Muscle	50 T		3	52	
Cattle	Liver	40 T	1/	7	47, 52	10V, 11IV
Pig	Liver	100 T		3	52	
Chicken	Liver	40 T	1/	7	47, 52	10V, 11IV
Cattle	Kidney	40 T	1/	7	47, 52	10V, 11IV
Pig	Kidney	500 T		3	52	
Chicken	Kidney	40 T	1/	7	47, 52	10V, 11IV
Cattle	Fat	40 T	1/	7	47, 52	10V, 11IV
Pig	Fat	50 T		3	52	
Chicken	Fat	40 T	1/	7	47, 52	10V, 11IV

Previous ADI, 0-6 µ/kg bw (1996).

The 52nd JECFA changed the residue definition.

The CCRVDF-11 decided to retain all the draft MRLs at Step 7 awaiting their reevaluation by the 52nd JECFA.

1/ The 52nd JECFA withdrew this previous estimate as no required data had been provided.

2/ Changed from 40 µg/kg T (52nd JECFA).

TILMICOSIN

JECFA Evaluation 47 (1996)
ADI 0-40 µg/kg body weight (1996)
Residue Definition Tilmicosin

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	100	(1999)	47	
Pig	Muscle	100	(1999)	47	
Sheep	Muscle	100	(1999)	47	
Cattle	Liver	1000	(1999)	47	
Pig	Liver	1500	(1999)	47	
Sheep	Liver	1000	(1999)	47	
Cattle	Kidney	300	(1999)	47	
Pig	Kidney	1000	(1999)	47	
Sheep	Kidney	300	(1999)	47	
Cattle	Fat	100	(1999)	47	
Pig	Fat	100	(1999)	47	
Sheep	Fat	100	(1999)	47	
Sheep	Milk	50 (µg/l) T	(1999)	47	

TRENBOLONE ACETATE

JECFA Evaluation 26 (1982), 27 (1983), 32 (1987), 34 (1989)
ADI 0-0.02 µg/kg body weight (1989)
Residue Definition Cattle muscle, beta-Trenbolone;
Cattle liver, alpha-Trenbolone.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	2	(1995)	26, 27, 32, 34	
Cattle	Liver	10	(1995)	26, 27, 32, 34	

TRICLABENDAZOLE

JECFA Evaluation 40 (1992)
ADI 0-3 µg/kg body weight (1992)
Residue Definition 5-Chloro-6-(2',3'-dichlorophenoxy)-benzimidazole-2-one.

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	200	(1997)	40	
Sheep	Muscle	100	(1997)	40	
Cattle	Liver	300	(1997)	40	
Sheep	Liver	100	(1997)	40	
Cattle	Kidney	300	(1997)	40	
Sheep	Kidney	100	(1997)	40	
Cattle	Fat	100	(1997)	40	
Sheep	Fat	100	(1997)	40	

ZERANOL

JECFA Evaluation 26 (1982), 27 (1983), 32 (1987)
ADI 0-0.5 µg/kg body weight (1987)
Residue Definition Zeranol

Species	Tissue	MRL (µg/kg)	Step	JECFA	CCRVDF
Cattle	Muscle	2	(1995)	26, 27, 32	
Cattle	Liver	10	(1995)	26, 27, 32	

MAXIMUM RESIDUE LIMITS ADOPTED OR BEING CONSIDERED FOR SUBSTANCES USED AS PESTICIDES, WHICH ARE ALSO CONSIDERED BY THIS COMMITTEE¹

177 ABAMECTIN

RESIDUE Sum of avermectin B1a, avermectin B1b and 8,9-Z-avermectin B1a and 8,9-Z-avermectin B1b.

Commodity	MRL (mg/kg)		Step	JMPR
FP 0226 Apple	0.02		6	97
MF 0812 Cattle fat	0.1	V	6	97
MO 1280 Cattle kidney	0.05	V	6	97
MO 1281 Cattle liver	0.1	V	6	97
MM 0812 Cattle meat	0.01 (*)		6	92
ML 0812 Cattle milk	0.005		6	92
MO 0812 Cattle, Edible offal of	0.05	1/	6	92, 97
FC 0001 Citrus fruits	0.01 (*)		6	92
SO 0691 Cotton seed	0.01 (*)		6	92
VC 0424 Cucumber	0.01	2/	6	92, 97
MM 0814 Goat meat	0.01 (*)		6	92
ML 0814 Goat milk	0.005		6	92
MO 0814 Goat, Edible offal of	0.1		6	92
DH 1100 Hops, Dry	0.1		6	97
VL 0483 Lettuce, Leaf	0.05		6	97
VC 0046 Melons, except watermelon	0.01 (*)		6	97
FP 0230 Pear	0.02	3/	6	92, 97
VO 0445 Peppers, Sweet	0.02		6	92
VR 0589 Potato	0.01 (*)		6	97
VC 0431 Squash, Summer	0.01 (*)		6	97
FB 0275 Strawberry	0.02		6	94
VO 0448 Tomato	0.02	4/	6	92, 97
TN 0678 Walnuts	0.01 (*)		6	97
VC 0432 Watermelon	0.01 (*)		6	97

The Committee was informed that the limit of determination of 0.01 mg/kg might need to be increased to 0.02 mg/kg (28.77). The 31st CCPR noted that for animal products the residue definitions were different between the CCPR and CCRVDF (31.99)

1/ Recommended for withdrawal (1997 JMPR). The 1997 JMPR proposed 2 MRLs for cattle kidney and cattle liver to accommodate the JECFA recommendations arising from veterinary uses of abamectin.

2/ Previously 0.05 mg/kg.

3/ Previously 0.01 mg/kg (*).

4/ The manufacturer informed the CCPR that additional trials under glass in short daylight periods and other additional trials were in progress (26.293). Confirmed (1997 JMPR)

¹ CXL: adopted Codex MRL; (*): MRL set at or about the limit of determination; (fat): The MRL/EMRL applies to the fat of meat; V: The MRL accommodates veterinary uses; F: Fat soluble pesticide residues to which the following general provision applies are indicated with the letter "F" in conjunction with the MRL specified for milk. Codex MRLs for fat-soluble pesticide residues in milk and milk products are expressed on a whole product basis. For a "milk product" with a fat content less than 2%, the MRL applied should be half those specified for milk. The MRL for "milk products" with a fat content of 2% or more should be 25 times the maximum residue limit specified for milk, expressed on a fat basis.

157 CYFLUTHRIN

RESIDUE Cyfluthrin (fat-soluble).

Commodity	MRL (mg/kg)	Step	JMPR
FP 0226 Apple	0.5	CXL	
ML 0812 Cattle milk	0.01	F V	I/
SO 0691 Cotton seed	0.05	CXL	
GC 0645 Maize	0.05	CXL	
VO 0445 Peppers, Sweet	0.2	CXL	
SO 0495 Rape seed	0.05	CXL	
VO 0448 Tomato	0.5	CXL	

I/ The 31st CCPR agreed to support the MRL for milk (0.04 mg/ml - whole milk basis), which was adopted at Step 5, for the sake of harmonization (31.96).

118 CYPERMETHRIN

RESIDUE Cypermethrin (sum of isomers) (fat-soluble).

Commodity	MRL (mg/kg)	Step	JMPR
AL 1021 Alfalfa forage (green)	5		dry wt
GC 0640 Barley	0.5	CXL	
VP 0062 Beans, Shelled	0.05 (*)	CXL	
FB 0018 Berries and other small fruits	0.5	CXL	
VB 0040 Brassica vegetables	1	CXL	
FS 0013 Cherries	1	CXL	
FC 0001 Citrus fruits	2	CXL	
SB 0716 Coffee beans	0.05 (*)	CXL	
VP 0526 Common bean (pods and/or immature seeds)	0.5	CXL	
VC 0424 Cucumber	0.2	CXL	
MO 0105 Edible offal (mammalian)	0.05 (*)		V
VO 0440 Egg plant	0.2	CXL	
PE 0112 Eggs	0.05 (*)	CXL	
VL 0480 Kale	1	CXL	
VA 0384 Leek	0.5	CXL	
VL 0482 Lettuce, Head	2	CXL	
GC 0645 Maize	0.05 (*)	CXL	
AS 0645 Maize fodder	5		dry wt
MM 0095 Meat (from mammals other than marine mammals)	0.2		(fat) V
ML 0106 Milks	0.05	F V	
VO 0450 Mushrooms	0.05 (*)	CXL	
FS 0245 Nectarine	2	CXL	
SO 0089 Oilseed, except peanut	0.2	CXL	
VA 0385 Onion, Bulb	0.1	CXL	
FS 0247 Peach	2	CXL	
SO 0697 Peanut	0.05 (*)	CXL	
VP 0063 Peas (pods and succulent=immature seeds)	0.05 (*)	CXL	
VO 0051 Peppers	0.5	CXL	
FS 0014 Plums (including prunes)	1	CXL	
FP 0009 Pome fruits	2	CXL	
PM 0110 Poultry meat	0.05 (*)	CXL	
VR 0075 Root and tuber vegetables	0.05 (*)	CXL	
AS 0651 Sorghum straw and fodder, Dry	5	CXL	
VD 0541 Soya bean (dry)	0.05 (*)	CXL	

VL	0502 Spinach	2		CXL
VO	0447 Sweet corn (corn-on-the-cob)	0.05 (*)		CXL
DT	1114 Tea, Green, Black	20		CXL
VO	0448 Tomato	0.5		CXL
OR	0172 Vegetable oils, Edible	0.5		CXL
GC	0654 Wheat	0.2		CXL
AS	0654 Wheat straw and fodder, Dry	5		CXL

135 DELTAMETHRIN

RESIDUE Deltamethrin (fat-soluble).

Commodity	MRL (mg/kg)	Step	JMPR
VS 0620 Artichoke globe	0.05		CXL
FI 0327 Banana	0.05		CXL
VD 0071 Beans (dry)	1	Po	CXL
VB 0040 Brassica vegetables	0.2		CXL
VA 0036 Bulb vegetables, except fennel, bulb	0.1		CXL
SB 0715 Cacao beans	0.05		CXL
GC 0080 Cereal grains	1	Po	CXL
SB 0716 Coffee beans	2	Po	CXL
MO 0105 Edible offal (mammalian)	0.05	V	CXL
PE 0112 Eggs	0.01 (*)		CXL
VD 0561 Field pea (dry)	1	Po	CXL
FT 0297 Fig	0.01 (*)		CXL
VO 0050 Fruiting vegetables other than cucurbits	0.2	1/	CXL
VC 0045 Fruiting vegetables, Cucurbits	0.2		CXL
FB 0269 Grapes	0.05		CXL
DH 1100 Hops, Dry	5		CXL
FI 0341 Kiwifruit	0.05		CXL
VL 0053 Leafy vegetables	0.5		CXL
AL 0157 Legume animal feeds	0.5	dry wt	CXL
VP 0060 Legume vegetables	0.1		CXL
VD 0533 Lentil (dry)	1	Po	CXL
FC 0003 Mandarins	0.05		CXL
MM 0095 Meat (from mammals other than marine mammals)	0.5	(fat) V	CXL
VC 0046 Melons, except watermelon	0.01 (*)		CXL
ML 0106 Milks	0.02	F V	CXL
VO 0450 Mushrooms	0.01 (*)		CXL
SO 0088 Oilseed	0.1		CXL
SO 0089 Oilseed, except peanut	0.1		CXL
FT 0305 Olives	0.1		CXL
FC 0004 Oranges, Sweet, Sour	0.05		CXL
SO 0697 Peanut	0.01 (*)		CXL
FI 0353 Pineapple	0.01 (*)		CXL
FP 0009 Pome fruits	0.1		CXL
PM 0110 Poultry meat	0.01 (*)		CXL
PO 0111 Poultry, Edible offal of	0.01 (*)		CXL
VR 0075 Root and tuber vegetables	0.01		CXL
FS 0012 Stone fruits	0.05		CXL
AS 0081 Straw and fodder (dry) of	0.5		CXL

cereal grains				
FB	0275 Strawberry	0.05		CXL
DT	1114 Tea, Green, Black	10		CXL
FT	0312 Tree tomato	0.02		CXL
CM	0654 Wheat bran, Unprocessed	5	PoP	CXL
CF	1211 Wheat flour	0.2	PoP	CXL
CF	1212 Wheat wholemeal	1	PoP	CXL

1/ Except mushrooms.

141 PHOXIM

All Codex MRLs were revoked at the 23rd Session of the Codex Alimentarius Commission.

65 THIABENDAZOLE

RESIDUE Thiabendazole or, in the case of animal products, sum of thiabendazole and 5-hydroxythiabendazole.

Commodity	MRL (mg/kg)		Step	JMPR
FP 0226 Apple	10		3/	CXL 97
FI 0327 Banana	5	Po		CXL
MM 0812 Cattle meat	0.05			6(a) 97
ML 0812 Cattle milk	0.05			6(a) 97
MO 0812 Cattle, Edible offal of	0.1			6(a) 97
FC 0001 Citrus fruits	10	Po	3/	CXL 97
MO 0096 Edible offal of cattle, goats, horses, pigs & sheep	0.1 (*)		1/ 4/	CXL
MM 0096 Meat of cattle, goats, horses, pigs & sheep	0.1 (*)		1/ 4/	CXL
ML 0106 Milks	0.1 (*)		2/ 4/	CXL
VO 0450 Mushrooms	60			3 97
FP 0230 Pear	10		3/	CXL 97
VR 0589 Potato	15			CXL
PM 0110 Poultry meat	0.05			CXL
FB 0275 Strawberry	3		3/	CXL 97
VS 0469 Witloof chicory (sprouts)	0.05 (*)			CXL

1/ The MRL accommodates veterinary uses except in case of horses (see Codex Alimentarius, Volume 3, Section 1).

2/ The MRL accommodates veterinary uses (for goats and cattle; see Codex Alimentarius, Volume 3, Section 1).

3/ Recommended for withdrawal (1997 JMPR). The 31st CCPR retained the CXL under the periodic review procedure as new data became available for the 2000 JMPR review (31.65)

4/ To be replaced by the MRLs for relevant commodity of cattle (1997 JMPR). It should be noted that these are the MRLs adopted to cover residues arising from both agricultural uses and veterinary uses (horses, only from agricultural uses).