



**Australian Government**  
**Australian Pesticides and  
Veterinary Medicines Authority**



# **Acceptable daily intakes (ADI) for agricultural and veterinary chemicals used in food producing crops or animals**

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This document includes some recommendations made by the Office of Chemical Safety (OCS).

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This publication is available from the [APVMA website](#).

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## Preface

This document sets out the acceptable daily intakes (ADI) for agricultural and veterinary (agvet) chemicals used on food producing crops or animals. It includes entries which were recommended by the former Pesticides and Agricultural Chemicals Standing Committee (PACSC) of the National Health and Medical Research Council (NHMRC) until November 1992. The responsibility for establishing ADIs transferred to the Australian Department of Health on 12 March 1993. On 1 July 2016, the task of establishing ADIs was transferred to the Australian Pesticides and Veterinary Medicines Authority (APVMA).

ADIs which had been established by all previous Australian authorities are included in this document provided the agvet chemical is currently approved for use in food producing animals or crops. Agvet chemicals which are no longer approved for use by the APVMA have been removed. However, where persistent residues of agvet chemicals which are no longer approved may sporadically be detected in some crops, a tolerable daily intake (TDI – with the same numerical value as the original ADI) is included in the table as a reference. An ADI is usually only established for agvet chemicals which are intentionally used in food producing crops, animals or crops used for stock feed. In this table the term TDI is reserved for agvet chemicals which are not intentionally used in food producing animals or crops.

## Introduction

Over the past several decades, pesticides and other agricultural chemicals and veterinary drugs have become an important factor in food production. The availability of these chemicals has enabled significant increases in agricultural productivity to be achieved.

While the consumption of agricultural and veterinary chemicals is not desirable in itself, ingestion of these substances in the form of residues in agricultural produce may occur as a consequence of their intended use. Residues resulting from proper agricultural use are either very low or not detected as has been consistently demonstrated in several Australian Total Diet Studies. Australian Total Diet Studies, previously known as Australian Market Basket Surveys, are a comprehensive assessment of consumers' dietary exposure (intake) to pesticide residues, contaminants and other substances.

Australian Total Diet Studies are undertaken by Food Standards Australia New Zealand (FSANZ) approximately every 2 years and involve purchasing food from local stores in each state of Australia and preparing them to a 'table ready' state before they are analysed. As a consequence, both raw and cooked foods (for example, potatoes) are examined. Results of completed Australian Total Diet Studies are available on the [FSANZ website](#).

Prior to the registration of an agricultural or veterinary chemical product applicants are required to provide the APVMA with relevant information, such as toxicological studies, to support the safe use of a product. Toxicological studies required for agricultural and veterinary chemicals range from those measuring single dose effects to those which examine the effects of lifetime exposure. Toxicity studies are generally performed in laboratory animals, such as rats and rabbits, and are designed to identify potential toxic effects which may be important for humans. The studies usually involve the feeding/administration of various levels of the compound under investigation to animals, followed by observation and monitoring of clinical parameters and pathology which are indicative of toxicity in the test species. The range of toxicological studies usually undertaken is described under 'Data guidelines' which are available on the [APVMA website](#).

The hazard from a chemical is determined by identifying the acute toxicity by the most likely routes of exposure, together with tests for skin and eye irritation and skin sensitisation. The potential for toxicity over longer periods, including possible tumour induction, is determined by studying the effects of repeated dosing, in some cases for the entire lifespan of the species. Multi-generation and developmental studies predict reproductive toxicity and the potential to cause birth defects, and studies are performed to assess the potential to cause effects on genetic material. Other specific investigations also may be required to clarify the mechanism of toxicity of a particular chemical.

Designs for the conduct of toxicological studies have become standardised to a large extent and international guidelines have been developed to achieve consistency in experimental techniques. In general, groups of the test species/organism are exposed to a number of dose levels (usually 3) of the substance and a further group is left unexposed (control group). The treatment levels are selected so that the highest dose will cause some obvious toxic effects, while the lowest dose at least should not result in a toxic effect. These toxicological studies are assessed with a view to determining the potential hazards associated with exposure to the chemical. Assessment of individual toxicity studies includes the determination of a no-observed-adverse-effect level (NOAEL), which is the highest administered dose which does not cause any detectable (usually adverse) effect in the study. The overall NOAEL for a chemical, determined in the most sensitive species, is then used to estimate the acceptable daily intake.

The ADI for humans is considered to be a level of intake of a chemical that can be ingested daily over an entire lifetime without any appreciable risk to health. It is calculated by dividing the overall NOAEL from the animal studies by an uncertainty (safety) factor. The magnitude of the uncertainty factor is intended to account for uncertainties in extrapolating animal data to humans, variation between humans and completeness of the toxicological database.

The most common uncertainty (or safety) factor is 100 which takes into account that humans may be 10 times more sensitive to the chemical than laboratory animals and that a proportion of the population may be 10 times more sensitive than the average person. Where there is satisfactory information in humans, there is no necessity to extrapolate from animal data and an uncertainty factor of 10 is considered adequate to account for inter-individual variation. On the other hand when uncertainty is increased because the toxicity data base is incomplete, an additional uncertainty factor of 10 to 20 may be incorporated. In these situations, the overall NOAEL is divided by an uncertainty factor of 1,000 to 2,000 in determining the ADI.

It is important to note that the toxicological studies on which the overall NOAEL is based are invariably carried out by oral dosing of laboratory animals and usually by incorporation of the chemical in the diet. The subsequent establishment of an ADI is thus directed to human exposure by the oral route.

Due to likely differences in absorption and other kinetic and metabolic parameters, the comparison of exposure by non-oral routes with the ADI should be interpreted with caution.

## Notes

1. Use of the terms JMPR or JECFA in the no-observed-adverse-effect-level (NOAEL) column indicates that the Australian ADI has been adopted from the figure established by the Joint FAO/WHO Meeting on Pesticide Residues (JMPR) or the Joint FAO/WHO Expert Committee on Food Additives (JECFA).
2. (H) indicates that the NOAEL was determined on the basis of experimental data in humans.
3. (LOAEL) indicates that no NOAEL has been identified in a pivotal study.
4. The words 'not specified' in the ADI column indicates that there is a large margin of safety for consumption of residues in food when the chemical is used according to good agricultural/veterinary practice. Due to low levels of residues and the lack of oral activity of these chemicals, a numerical ADI is not considered necessary.
5. (M) indicates that the ADI is derived from microbiological data.
6. TDI means tolerable daily intake. ADIs are not maintained for those agricultural and veterinary chemicals that are no longer permitted for use in agricultural practice. However, residues of certain environmentally persistent pesticides may occur as residues in agricultural commodities as a consequence of past use. In these cases, health intake values are maintained as tolerable daily intake values, to serve as a guideline with which potential dietary intakes of these environmentally persistent chemicals can be compared.

## Alpha list of chemicals

Table 1: Alpha list of chemicals

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
A					
Abamectin (sum of abamectin + 8,9-Z isomer)	0.001	0.12	6 August 2018	<p>Relevant NOAELS:</p> <p><b>Abamectin</b></p> <p>A NOAEL of 0.12 mg/kg bw/d was established on reduced body weight and delayed age of vaginal opening following dosing at 0.20 mg/kg bw/d in post-weaning pups in 2 rat developmental neurotoxicity studies.</p> <p><b>8,9-Z isomer of avermectin B1a</b></p> <p>Mice: NOAEL 3 mg/kg bw/d based on developmental toxicity.</p> <p>Rats: NOAEL of 0.40 mg/kg bw/d based on a one-generation reproductive and developmental toxicity study.</p>	<p>A total uncertainty factor of 100 has been applied.</p> <p>The ADI also applies to the 8,9-Z isomer of avermectin B<sub>1a</sub> and 24-hydroxymethyl abamectin.</p> <p>The 24-hydroxymethyl metabolite of abamectin is regarded as having no greater toxicity than the parent molecule.</p> <p>(JMPR 2015)</p>



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Acephate	0.03	0.25	2005	28-day study in humans. No inhibition of plasma or erythrocyte cholinesterases activities were detected at 0.25 mg/kg bw/d (the highest dose tested; NOAEL). There were no treatment-related changes from baseline values for any haematology, clinical chemistry, electrocardiogram or urine analysis parameters, and no changes in vital signs or physical examination.	<p>The critical toxicological effect of acephate is the inhibition of acetylcholinesterase activity in the nervous system, an effect that is dependent on C<sub>max</sub> rather than on the area under the curve (AUC).</p> <p>Data on inhibition in vitro indicate that human brain acetylcholinesterase is slightly less sensitive to inhibition by acephate than is rat brain acetylcholinesterase. Well conducted toxicokinetics studies, available for both rats and humans, show that there is no significant difference between the 2 species; in particular, C<sub>max</sub> values have the same relationship to administered dose in the 2 species, and acephate is rapidly absorbed and eliminated in both species.</p> <p>Data for rats in vivo indicate that inhibition of brain acetylcholinesterase activity occurs at lower doses than those required for a similar level of inhibition of erythrocyte acetylcholinesterase activity.</p> <p>Data for dogs and monkeys in vivo indicate that brain and erythrocyte acetylcholinesterase activities are nearly equally inhibited at any given dose, and do not show the difference seen in rats, which might thus be rat-specific. Well-conducted single- and repeated-dose studies in humans clearly demonstrated a dose where no inhibition of blood cholinesterase activities occurred. Data from animals in vivo do not show sex differences in inhibition of acetylcholinesterase activity or clinical signs. Since there is no interspecies extrapolation, an overall safety factor of 10 was used.</p>

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Acequinocyl	0.023	2.3	13 January 2021	2-year dietary rat study; a NOAEL of 2.3 mg/kg bw/d based on hypertrophy of the eyeball in male rats at the next higher dose.	
Acetamiprid	0.1	9		2-year dietary rat study; a NOAEL of 9 mg/kg bw/d was based on reductions in bodyweight gain and food consumption, increased incidence of hepatocellular hypertrophy and vacuolation observed in the liver at the next higher dose.	
Acibenzolar-S-methyl	0.005	5 (LOAEL)	23 April 2002	1-year dietary dog study; based on haematological changes associated with anaemia observed at the LOAEL of 5 mg/kg bw/d.	
Acifluorfen	0.01	1	15 September 1999	2-year dietary mouse study; a NOAEL of 1 mg/kg bw/d was based on increases in liver weight and plasma	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				enzymes (ALT, AST, AP), with adrenal degeneration observed at the next higher dose. This NOAEL was supported by a 2-year dietary rat study; a NOAEL of 1.2 mg/kg bw/d was based myocardial degeneration with fibrosis in the liver and heart at the next higher dose.	
Acclonifen	0.07	7	24 November 2020	2-year dietary rat study; a NOAEL of 200 ppm (~7.6 mg/kg bw/d for males) was based on changes in clinical parameters and decreased body weights at the next higher dose. This NOAEL was supported by a 2-year dietary mouse study; NOAEL of 70 ppm (~7.1/8.3 mg/kg bw/d in M/F), for decreased bodyweights gains, hepatomegaly, reactive tissue hyperplasia in the bladder, and associated	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				neoplastic progression at the next higher dose.	
Acrolein	0.0005	0.05	15 March 1994	2-year gavage rat study; a NOAEL of 0.05 mg/kg bw/d was based on mortality and serum biochemical effects at the next higher dose.	
Afidopyropen	0.07	7.3	27 November 2017	1-year dietary rat study; a NOAEL of 7.3 mg/kg bw/d was based on clinical chemistry changes (prolonged prothrombin time and reduced cholesterol level) secondary to liver toxicity (hepatocellular vacuolation) at the next higher dose.	
Albendazole	0.05	5	9 August 1994	Developmental rat study; a NOAEL of 5 mg/kg bw/d was based on reduced size and weight, delayed ossification, increased incidences of micromelia and microfetalis at the next higher dose. This NOAEL was supported by a 6-month dog	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				(capsule) study; a NOAEL of 5 mg/kg bw/d was based on hypocellularity of the sternum at higher doses.	
Aldrin	0.0001 (TDI)	JMPR'94	21 October 2003		Tolerable daily intake. Traditional ADI not maintained as aldrin is no longer used in agricultural practice and does not have industrial sponsors. Numerical tox. End-point maintained to serve as a guideline with which potential dietary intakes can be compared.
Alpha-Cypermethrin				See $\alpha$ -Cypermethrin	
Alpha-trenbolone	0.0001	0.01	10 February 1988		
Altrenogest	0.000002	0.004	13 August 1992	13-week dietary monkey study; a NOAEL of 0.004 mg/kg bw/d was based on partial or complete menstrual cycle inhibition at the next higher dose. 13-week dietary pig study; a NOAEL of 0.004 mg/kg bw/d was based on oestrus suppression at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Ametoctradin	10	1000	1 February 2012	2-year studies in rats and mice showed no adverse effects at the highest tested dose of 1,000 mg/kg bw/d.	
Ametryn	0.02	2	17 November 1989	2-gen reproduction rat study; a NOAEL of 2 mg/kg bw/d was based on a reduction in body weight and body weight gain at the next higher dose.	
Aminoethoxyvinylglycine	0.0002	0.2	28 September 2000	3-month dietary rat study; a NOAEL of 0.2 mg/kg bw/d was based on a reduction in blood AST activity at the next higher dose.	
Amicarbazone	0.02	2	9 June 2006	2-year dietary rat study; a NOAEL of 2 mg/kg bw/d was based on reduced bodyweight gain in the absence of a change in feed consumption.	
Aminocyclopyrachlor	2.8	297	09 September 2022	2-year dietary rat study; a NOAEL of 297 mg/kg bw/d was based on decreased body weight	

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Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				gain and associated decreased food efficiency at the next higher dose.	
Aminopyralid	0.3	26	28 September 2005	Developmental rabbit study; a NOAEL of 26 mg/kg bw/d was based on transient incoordination in dams at the next higher dose.	
Amisulbrom	0.1	11	14 June 2016	1-year rat dietary study; a NOAEL of 11 mg/kg/d was based on increased incidence and severity in bile duct hyperplasia at the next higher dose. 18-month dietary mouse study; a NOAEL of 11 mg/kg/d was based on increased relative liver weight and hepatocellular adenoma at the next higher dose.	
Amitraz	0.002	0.25	5 November 1986	2-year capsule fed dog study; a NOAEL of 0.25 mg/kg bw/d was based on elevated blood glucose at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Amitrole	0.0003	0.025	3 May 1984	13-week dietary rat study; a NOAEL of 0.025 mg/kg bw/d was based on TSH-induced hyperplasia in the thyroid gland at the next higher dose.	
Amoxycillin	0.2	200	8 March 1995	2-gen reproduction rat study; a NOAEL of 200 mg/kg bw/d was based on a slightly decreased pregnancy rate at the next higher dose.	
Amprolium	0.1	20	18 June 2019	2 year dietary rat study, NOEL of 20 mg/kg bw/day based on decreased bodyweights at 200 mg/kg bw/day. An uncertainty factor of 200 based on methodological weaknesses in the study (EMEA, 2001).	
Apramycin	0.05	5	29 May 1986	90-day dog oral study; a NOAEL of 5 mg/kg bw/d was based on increased relative testis weight at the next higher dose.	



### 13 Acceptable daily intakes for agricultural and veterinary chemicals

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Asulam	0.02	40	December 1985	2-year dietary rat study; a NOAEL of 40 mg/kg bw/d was based on thyroid enlargement with hyperplasia at the next higher dose.	
Atrazine	0.005	0.5	1 December 1996	2-year dietary rat study; a NOAEL of 0.5 mg/kg bw/d was based on mammary tumours in females at the next higher dose.	
Aureobasidium pullulans			21 February 2017		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Avilamycin	1	108	19 December 1997	2-year dietary rat study; a NOAEL of 108 mg/kg bw/d was based on absence of any observed toxicity at the highest tested dose.	
Azafenidin	0.0004	0.04	4 July 2001	3-month dietary dog study; a NOAEL of 0.04 mg/kg bw/d was based on porphyrin and pigment accumulation in the liver and other liver	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				toxicity at the next higher dose.	
Azamethiphos	0.003	0.25	29 May 1996	1-year dietary dog study; a NOAEL of 0.25 mg/kg bw/d was based on inhibition of plasma, RBC and brain ChE activity at the next higher dose.	
Azaperone	0.1	10	5 August 1983		
Azimsulfuron	0.2	18	9 September 2002	1-year dietary dog study; a NOAEL of 18 mg/kg bw/d was based on reduced bodyweight gain and brown pigment deposition the liver at the next higher dose.	
Azinphos-methyl	0.025	0.25 (H)	26 August 2002	28-day repeat-dose human study; a NOAEL of 0.25 mg/kg bw/d was based the absence of any inhibition of plasma or RBC ChE at 0.25 mg/kg bw/d, the only dose tested.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Azoxystrobin	0.1	10	29 September 1998	3-month oral (gelatin capsule) dog study; a NOAEL of 10 mg/kg bw/d was based on reduced body weights, increased salivation and vomiting at the next higher dose.	
<b>B</b>					
Bacillus amyloliquefaciens			9 May 2002		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Bacillus licheniformis			9 May 2002		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Bacillus sphaericus strain 2362			9 May 2003		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Bacillus subtilis (see Bacillus amyloliquefaciens)					

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Bacillus thuringiensis			6 September 2002		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Bacillus thuringiensis subsp. thuringiensis serotype 1 (strain MPPL 002)			28 August 2003		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Bacitracin	0.1	10	26 May 1997	Developmental rat study; a NOAEL of 75 mg/kg bw/d Albac (10 mg/kg bw/d bacitracin) was based on increased salivation and reduced body weight gain at the next higher dose.	An uncertainty (safety) factor of 100 was considered appropriate due to the poor gastrointestinal absorption of bacitracin.
Bambermycin	0.3	29	14 September 2001	2-year dietary rat study; a NOAEL of 29 mg/kg bw/d was based on increased kidney and liver weight at the next higher dose.	Previously named: Flavophospholipol
Beauveria bassiana			8 August 2017		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Benalaxyl	0.05	5	1 December 1988	13-week dietary rat study; a NOAEL of 5 mg/kg bw/d was based on hepatic enlargement at the next higher dose.	
Bendiocarb	0.004	0.4	8 June 1993	Reproduction rat study; a NOAEL of 0.4 mg/kg bw/d was based on reduced maternal weight gain at the next higher dose.	
Benfluralin	0.05	5	18 February 1987	2-year dietary dog study; a NOAEL of 5 mg/kg bw/d was based on elevated platelets and total WBC at the next higher dose.	
Bensulfuron-methyl	0.02	2.5	10 September 1987	2-year dietary rat study; a NOAEL of 2.5 mg/kg bw/d was based on reduced body weight at the next higher dose.	
Bensulide	0.04	4	4 February 1982	2-year dietary rat study; a NOAEL of 4 mg/kg bw/d was based on inhibition of RBC and	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				plasma ChE activity at the next higher dose.	
Bentazone	0.1	10	10 June 2005	2-year dietary rat study; a NOAEL of 10 mg/kg bw/d was based on decreased food consumption, associated reduced body weight gain and altered absolute and relative kidney, brain, heart, liver and spleen weights at the next higher dose.	
Benzofenap	0.004	0.4	27 March 1998	2-gen reproduction rat study; a NOAEL of 0.4 mg/kg bw/d was based on reduced pup survival at the next higher dose.	
Benzovindiflupyr	0.05	4.9	23 July 2018	Based on the NOAEL of 4.9 mg/kg bw/d in a 2-year rat feeding study. The key effects were decreased body weight gain and increased incidence of eosinophilic foci of cellular alteration in the liver at 27.4 mg/kg bw per day. This is	A total uncertainty factor of 100 was applied.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				supported by the NOAEL of 7.55 mg/kg bw per day in a mouse 80-week chronic feeding study where colon/caecum mucosal hyperplasia was detected at 26.18 mg/kg bw/d. The relevant repeat dose NOAELs for metabolites SYN545720 and SYN546039, which were found in rats, soil and plants, were $\geq 1000$ mg/kg bw/d.	
Benzylpenicillin procaine	0.03 mg/person/d		10 October 2016	Long history of safe use in human medicine.	In the absence of adequate data to establish a NOAEL, JECFA recommended that the daily intake from food be kept as low as practicable (JECFA- 99; H).
6-Benzyladenine	0.01	10 [LOAEL]	3 October 2018	Based on a rabbit developmental study where maternal toxicity (reduced body weight, body weight gain and food consumption) was detected at the LOAEL of 10 mg/kg bw/d.	A total uncertainty factor of 1,000 was considered appropriate due to the incomplete database (no chronic studies) and the absence of a detectable NOAEL in the rabbit developmental study.
Beta-Cyfluthrin				See $\beta$ -Cyfluthrin	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Beta-Cypermethrin				See $\beta$ -Cypermethrin	
Beta-Trenbolone	0.00001	0.001	10 February 1988		
Bicyclopyrone	0.001	0.28	26 November 2015	1-year dietary rat study; a NOAEL of 0.28 mg/kg bw/d was based on increased kidney weight, chronic progressive nephropathy and thyroid follicular hyperplasia, along with changes in urine clinical chemistry parameters, corneal opacity and corneal damage at the next higher dose.	
Bifenazate	0.01	1	12 December 2002	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose. 1-year dietary dog study; a NOAEL of 1 mg/kg bw/d was based on reduced bodyweight gain, haematological and clinical chemistry effects, urine changes,	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				organ weight changes and histopathological effects at the next higher dose.	
Bifenthrin	0.01	1	26 November 1992	Developmental rat study; a NOAEL of 1 mg/kg bw/d was based on maternal tremors at the next higher dose.	
Bioresmethrin	0.03	3	20 June 1991	2-year dietary rat study; a NOAEL of 3 mg/kg bw/d was based on hepatotoxicity at the next higher dose.	
Bitertanol	0.01	1	15 November 1982	13-week gavage dog study; a NOAEL of 1 mg/kg bw/d was based on scaly skin with erythema, alopecia, mucosal irritation and reduced prostate weight at the next higher dose.	
Bixafen	0.02	2	18 January 2016	2-year dietary rat study; a NOAEL of 2.0 mg/kg bw/d was based on increased liver weight and thyroid effects (higher incidence and/or severity of colloid	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				alteration) at the next higher dose.	
Bixlozone	0.3	34	18 July 2019	2-generation reproduction rat study; a NOAEL of 34 mg/kg bw/d was based on the persistent perturbations of parental weight gains and reduced body weight gains in preweaning pups at the next higher dose.	
Boscalid	0.06	6	15 August 2003	2-year dietary rat study; a NOAEL of 6 mg/kg bw/d was based on clinical signs at the next higher dose.	
Brodifacoum	0.0000005 (TDI)	0.001	16 May 1990	13-week dietary rat study; a NOAEL of 0.001 mg/kg bw/d was based on prolonged blood clotting (prothrombin) time at the next higher dose.	Tolerable daily intake. An ADI was not established as brodifacoum residues are not expected to be present in the food supply. A TDI is maintained to serve as a guideline with which potential dietary exposure assessments can be undertaken in the event of unintentional presence.
Bromacil	0.1	10	10 February 1988	2-year dietary rat study; a NOAEL of 10 mg/kg bw/d was based on reduced bodyweight gain, food efficiency	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				and thyroid hyperplasia at the next higher dose.	
Bromadiolone	0.000002 (TDI)	0.004	18 January 1994	Developmental rabbit study; a NOAEL of 0.004 mg/kg bw/d was based on maternotoxicity, increased resorptions and reduced foetal weight at the next higher dose.	Tolerable daily intake. An ADI was not established as bromadiolone residues are not expected to be present in the food supply. A TDI is maintained to serve as a guideline with which potential dietary exposure assessments can be undertaken in the event of unintentional presence.
Bromide	1	9 (H)	10 October 2016	12-week oral human study; no neurophysiological or endocrinological effects were observed at the highest tested dose of 9 mg/kg bw/d.	(JMPR-88).
Bromopropylate	0.03	2.8	31 May 1994	1-year dietary dog study; a NOAEL of 2.8 mg/kg bw/d was based on reduced body weight gain at the next higher dose.	
Bromoxynil	0.003	0.3	19 February 1993	1-year dietary dog study; a NOAEL of 0.3 mg/kg bw/d was based on reduced body	The ADI applies to bromoxynil and its esters, expressed as bromoxynil phenol equivalents.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				weight gain at the next higher dose.	
Bromuconazole	0.02	2	17 June 1994	2-year dietary rat study; a NOAEL of 2 mg/kg bw/d was based on fatty vacuolation and nodular hyperplasia in the liver at the next higher dose.	
Bupirimate	0.05	5	7 June 1978	2-year dietary rat study; a NOAEL of 5 mg/kg bw/d was based on reduced body weight gain, increased relative and absolute thyroid weight and an increase in thyroid follicular adenomas at the next higher dose. 2-year oral (gelatin capsule) dog study; a NOAEL of 5 mg/kg bw/d was based on increased serum alkaline phosphatase and glutamic pyruvic transaminase at the next higher dose.	
Bupivacaine	0.001	1 [LOAEL]	10 June 2008	A LOAEL of 1 mg/kg bw was calculated from the lowest therapeutic dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Buprofezin	0.01	1	18 January 2000	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on increased kidney and heart weights and thickening and hyperplasia of thyroidal epithelial cells at the next higher dose. This NOAEL is supported by a 2-gen reproduction rat study; a NOAEL of 0.9 mg/kg bw/d was based on maternotoxicity and foetotoxicity at the next higher dose.	
Butafenacil	0.004	0.36	12 April 2001	Based on a NOAEL of 0.36 mg/kg bw/day from an 18-month mouse (mammalian species most sensitive to protoporphyrinogen oxidase inhibition) study where haematological effects and hepatotoxicity occurred at the next higher dose. This is supported by a rat 2-year study NOEL of 1.14 mg/kg bw/day with hepatotoxicity occurring at the next	A total uncertainty factor of 100 has been applied.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				highest dose. Rodents are up 19-fold more sensitive to protoporphyrinogen oxidase inhibition compared with humans based on <i>in vitro</i> IC <sub>50</sub> comparison.	
Butralin	0.2	15	14 August 1992	Developmental gavage rabbit study; a NOAEL of 15 mg/kg bw/d was based on maternal toxicity (reduced body weight gain) and foetal defects at the next higher dose.	
Butoxydim	0.005	0.5	18 January 1993	1-year dietary dog study; a NOAEL of 0.5 mg/kg bw/d was based on organ weight changes and increased alkaline phosphatase levels at the next higher dose.	
<b>C</b>					
Cadusafos	0.00001	0.001	13 August 1992	1-year capsule fed dog study; a NOAEL of 0.001 mg/kg bw/d was based on inhibition of	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				plasma ChE activity at the next higher dose.	
Captan	0.1	10	5 February 1997	Developmental rabbit study; a NOAEL of 10 mg/kg bw/d was based on reduced maternal body weight and increased skeletal variations in foetuses at the next higher dose.	
Carbaryl	0.008	16 [LOAEL]	13 December 2002	2-year dietary mouse study; based on vascular tumour formation at the LOAEL of 16 mg/kg bw/d.	
Carbendazim	0.03	2.5	9 May 1979	2-year dietary dog study; a NOAEL of 2.5 mg/kg bw/d was based on increased plasma levels of cholesterol, BUN, protein, ALT with hepatic cirrhosis, swollen, vacuolated hepatocytes and hepatitis at the next higher dose.	
Carbetamide	0.06	6	1 October 2020	2-year dietary rat study; a NOAEL of 160 ppm (6 mg/kg bw/d) was based	ADI is based on EFSA conclusion (2010).

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				on a range of observations including slight hematotoxicity (anemia in females), liver effects (centrolobular hypertrophy) and thyroid effects (follicular epithelial hypertrophy) at higher doses.	
Carbofuran	0.003	0.33	10 September 1987	1-year dietary dog study; a NOAEL of 0.33 mg/kg bw/d was based on reduced ChE activity in the brain, testicular degeneration of the seminiferous tubules, lung inflammation, hepatic sinusoid dilatation and hyperplasia of the thyroid at the next higher dose.	
Carbosulfan	0.01	1	17 January 1997	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on clinical signs, iris atrophy and plasma ChE inhibition at the next higher dose.	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Carboxin	0.08	8.5	18 February 1987	18-month dietary mouse study; a NOAEL of 8.5 mg/kg bw/d was based on liver centrilobular hypertrophy at the next higher dose.	
Carfentrazone ethyl	0.03	3	3 August 1998	2-year dietary rat study; a NOAEL of 3 mg/kg bw/d was based on red fluorescence seen in the liver at the next higher dose.	
Carprofen	0.005	1	4 September 1997	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on intestinal ulceration and peritonitis at the next higher dose.	
Cefapirin	0.02	20 [LOAEL]	5 September 1997	13-week dietary dog study; based on vomiting and increased weight gain at the LOAEL of 20 mg/kg bw/d.	Large uncertainty (safety) factor applied due to incomplete database; absence of chronic studies and the absence of a NOAEL.
Ceftiofur sodium	0.03	30	18 January 1993	3-month oral (gelatin capsule) dog study; a NOAEL of 30 mg/kg bw/d was based on clinical signs, reduction	Large uncertainty (safety) factor applied due to incomplete database; absence of chronic toxicity studies.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				in blood platelet counts (thrombocytopenia) and low RBC (mild anaemia) at the next higher dose.	
Cefuroxime sodium	0.4	400	12 August 1996	27-week gavage dog study; a NOAEL of 400 mg/kg bw/d was based on anaemia, reduced plasma cholesterol, and increased triglycerides at the next higher dose.	
Cephalexin	0.01	(M)	22 November 2000		The limited toxicology data were not sufficient to allow establishment of a toxicological ADI. A microbiological ADI of 0.01 mg/kg bw/d for cephalexin based on the use of the JECFA formula was established.
Cephalonium	0.02	39	11 July 1996	13-week dietary rat study; a NOAEL of 39 mg/kg bw/d was based on elevated kidney weights at the next higher dose.	Large uncertainty (safety) factor applied due to incomplete database; absence of chronic and reproduction toxicity studies.
Cetrimide	0.01	25 [LOAEL]	10 June 2008	21-day dietary rat study; based on reduced body weight gain and food consumption at the LOAEL of 25 mg/kg bw/d (EMEA, 1996).	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Chlorantraniliprole	1.6	158	9 May 2008	2-year dietary mouse study; a NOAEL of 158 mg/kg bw/d was based on increased liver weights and increased eosinophilic foci of cellular alteration accompanied by hepatocellular hypertrophy at the next higher dose.	
Chlordane	0.0005 (TDI)	JMPR'94	21 October 2003		Tolerable daily intake. Conventional ADI not maintained as chlordane is no longer used in agricultural practice. A TDI is maintained to enable potential dietary exposure assessments to be undertaken.
Chlorfenapyr	0.02	2.1	22 August 1995	1-year dietary dog study; a NOAEL of 2.1 mg/kg bw/d was based on elevated creatinine levels at the next higher dose.	
Chlorfenvinphos	0.0005	0.05	29 October 1998	2-year dietary rat study; a NOAEL of 0.05 mg/kg bw/d was based on plasma ChE inhibition at the next higher dose. 2-gen reproduction rat study; a NOAEL of 0.05 mg/kg bw/d was	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				based on plasma and brain ChE inhibition at the next higher dose.	
Chlorfluazuron	0.005	0.56	12 November 1987	78-week dietary dog study; a NOAEL of 0.56 mg/kg bw/d was based on elevated plasma cholesterol concentrations at the next higher dose.	
Chlorhexidine	0.2	25	14 February 1985		
Chloridazon	0.04	4.1	2 December 1988	2-year dietary rat study; a NOAEL of 4.1 mg/kg bw/d was based on muscular atrophy in the scapula and thigh and increased thyroid weight at the next higher dose.	
Chlormequat	0.07	7.5	30 August 1991	2-year dietary dog study; a NOAEL of 7.5 mg/kg bw/d was based on excessive salivation and muscle weakness at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Chloropicrin	0.001	0.1	16 January 2014	1-year oral (gelatin capsule) dog study; a NOAEL of 0.1 mg/kg bw/d was based on vomiting (emesis) at the next higher dose. 2-year gavage rat study; a NOAEL of 0.1 mg/kg bw/d was based on hyperkeratosis in the nonglandular stomach and reduced body weight and body weight gain at the next higher dose.	
Chlorothalonil	0.01	1.5	14 February 1991	2-year dietary dog study; a NOAEL of 1.5 mg/kg bw/d was based on renal tubular epithelial vacuolisation at the next higher dose.	
Chlorpropham	0.05	5	16 July 1996	60-week dietary dog study; a NOAEL of 5 mg/kg bw/d was based on altered thyroid function at the next higher dose.	
Chlorpyrifos	0.001	0.1	June 2019	Based on the no observed effect level for inhibition of blood	Selected points of departure is protective against inhibition of brain cholinesterases and other known

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				cholinesterases in rats following repeated daily exposure from post-natal day 11 to adulthood.	effects of chlorpyrifos.(APVMA Reconsideration of chlorpyrifos - Toxicology update - June 2019)
Chlorpyrifos-methyl	0.001	0.4	13 July 2023	78-week oral carcinogenicity and toxicology study in mice; a NOEL of 0.4 mg/kg bw/d was based on the inhibition of erythrocyte cholinesterase and brain cholinesterase at the next higher dose.	A total uncertainty factor of 300 was applied (10 for interspecies, 10 for intraspecies and 3 for database deficiencies due to a lack of neurotoxicity and developmental neurotoxicity studies).
Chlorsulfuron	0.05	5	5 August 1982	2-year dietary rat study; a NOAEL of 5 mg/kg bw/d was based on bodyweight loss and reduced body weight gain at the next higher dose.	
Chlortetracycline	0.003	0.03(H)	15 May 1995	7-day human oral study; a NOAEL of 0.03 mg/kg bw/d was based on the elimination of oxytetracycline susceptible strains of intestinal microflora at the next higher dose.	The NOAEL of oxytetracycline has been applied to chlortetracycline due to similarities in structure and microbiological potency.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Chlorthal-dimethyl	0.01	1	29 April 1994	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on dose-related decreases in thyroxin (T4) and increases in TSH levels, increases in thyroid/parathyroid weight, and gross and histopathological abnormalities in the lungs, liver, thyroid, eye and kidney at the next higher dose.	
Cinmethylin	0.08	8	31 December 2019	Up to 1-year dog studies; overall NOAEL of 8 mg/kg bw/d was based on adverse effects in the liver at the next higher dose. Supported by a 2-year rat study with a NOAEL of 9 mg/kg bw/day, based on adverse effects on bodyweight, liver, nasal cavity, thyroid glands, and reproductive organs at the next higher dose.	
Clavulanic acid	0.01	10	8 March 1995	6-month gavage dog study; a NOAEL of	Large uncertainty (safety) factor applied due to incomplete database; no chronic studies.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				10 mg/kg bw/d was based on gastric irritation resulting in hypertrophy and hyperplasia of the stomach mucosa at the next higher dose.	
Clethodim	0.01	1	20 June 1991	1-year capsule fed dog study; a NOAEL of 1 mg/kg bw/d was based on reduced serum glucose concentrations, increased platelet and leukocyte counts and increased liver weight at the next higher dose.	
<i>Clitoria ternatea</i> extract			5 April 2022		ADI unnecessary. Extract from a naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism. Extract also has low oral toxicity.
Clodinafop-propargyl	0.004	0.37	28 April 1994	3-month dietary dog study; a NOAEL of 0.37 mg/kg bw/d was based on skin lesions and disturbances of the serum protein electrophoretic pattern at the next higher dose.	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Clofentezine	0.02	2	11 September 1986	27-month dietary rat study; a NOAEL of 2 mg/kg bw/d was based on centrilobular hepatocyte enlargement at the next higher dose.	
Clomazone	0.1	14	19 December 1997	1-year dietary dog study; a NOAEL of 14 mg/kg bw/d was based on increased absolute and relative liver weights at the next higher dose.	
Cloprostenol	0.0005	0.05	11 November 1975		
d-Cloprostenol	0.000075	0.00015	21 February 2017	3-gen reproduction rat study; a NOAEL of 0.00015 mg/kg bw/d (corresponding to 7.5 µg/kg bw/day d-Cloprostenol) was based on a reduction in neonatal viability attributed to prematurity of the offspring at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Clopyralid	0.5	50	12 November 1982	2-year dietary rat study; a NOAEL of 50 mg/kg bw/d was based on reduced body weight gain at next higher dose.	
Cloquintocet-mexyl	0.04	4	28 April 1994	2-year dietary rat study; a NOAEL of 4 mg/kg bw/d was based on thyroid follicular epithelium hyperplasia at the next higher dose.	
Cloquintocet acid	0.028	4	5 July 2016	2-year dietary rat study with cloquintocet mexyl; a NOAEL of 4 mg/kg bw/d was based on thyroid follicular epithelium hyperplasia at the next higher dose. The ADI was adjusted based on molecular weight differences from cloquintocet-mexyl.	
Clorsulon	0.02	2	11 June 1993	Single-gen reproduction gavage rat study; a NOAEL of 2 mg/kg bw/d was based on increased gestation length at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Closantel	0.025	2.5	12 November 1981	2-year dietary rat study; a NOAEL of 2.5 mg/kg bw/d was based on increased incidence of sperm granulomas in the epididymes of male rats at the next higher dose.	
Clothianidin	0.05	9.7 [LOAEL]	1 August 2003	2-year dietary rat study; based on an increased incidence of interstitial hyperplasia in the ovaries at a LOAEL of 9.7 mg/kg bw/d.	
Cloxacillin	0.2	500	28 June 2001	12-week dietary rat study; a NOAEL of 500 mg/kg bw/d was based on absence of any observed adverse effects at the highest tested dose.	Large uncertainty (safety) factor due to limited toxicological data.
Codling Moth Granulosis Virus			22 November 2011		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Copper	0.2		16 June 2005		This ADI is based on the upper safe limit for adults of 0.2 mg/kg bw/d recommended by FSANZ as a provisional maximum tolerable daily intake.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
					Therefore, there is no NOAEL, LOAEL or safety factor.
Copper pyrrithione	0.0005	0.5	2 October 2009	Based on a NOAEL of 0.5 mg/kg bw/d in a 2-year rat chronic study with pyrrithione sodium and using a 100-fold safety factor.	2-year dietary rat study; a NOAEL of 0.5 mg/kg bw/d was based on nerve degeneration and muscle atrophy at the next higher dose.
Coumaphos	0.0005	0.05	7 December 1971	1-year dietary dog study; a NOAEL of 0.05 mg/kg bw/d was based on inhibition of plasma ChE activity at the next higher dose.	
Coumatetralyl	0.000003 (TDI)	0.0068	15 September 2000	16-week dietary rat study; NOAEL of 0.0068 mg/kg bw/d was based on significantly increased blood clotting time and haemorrhage at the next higher dose.	Tolerable daily intake. An ADI was not established as coumatetralyl residues are not expected to be present in the food supply. A TDI is maintained to serve as a guideline with which potential dietary exposure assessments can be undertaken in the event of unintentional presence.
Cyanamide	0.002	0.2	14 August 1992	1-year gavage dog study; a NOAEL of 0.2 mg/kg bw/d was based on reduced RBC MCV, WBC count and elevated plasma cholesterol	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				concentrations at the next higher dose.	
Cyanazine	0.002	0.2	11 September 1986	2-year dietary rat study; a NOAEL of 0.2 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
Cyantraniliprole	0.03	3	16 May 2023	Combined NOAEL of 3 mg/kg bw/d for toxicity in 90-day and 1-year oral (dietary) exposure toxicity studies in dogs due to serum biochemical evidence of hepatotoxicity at the next higher dietary concentration.	
Cyazofamid	1.2	124	6 June 2013	18-month carcinogenicity mouse study; a NOAEL of 124 mg/kg/bw/d was based on increased incidence of hematomas in the ovaries at the next higher dose.	
Cyclanilide	0.01	2.5	17 April 1998	2-gen reproduction rat study; a NOAEL of 2.5 mg/kg bw/d was based on renal tubular	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				mineralisation at the next higher dose.	
Cyclaniliprole	0.04	4	29 February 2016	1-year dietary dog study; a NOAEL of 1.29 mg/kg bw/d was based on increased liver weights (absolute/relative) and increased ALP at the next higher dose.	
Cycloxydim	0.06	6.4	17 May 1990	2-year drinking water rat study; a NOAEL of 6.4 mg/kg bw/d was based on increased thymus weight at the next higher dose.	
Cyflufenamid	0.04	4.14	29 May 2012	1-year dietary dog study; a NOAEL of 4.14 mg/kg bw/d was based on elevated alkaline phosphatase levels at the next higher dose.	
Cyflumetofen	0.2	16.5	22 November 2021	90 day and the 2-year rat studies; the NOAEL was established based on observed increases in vacuolation of	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				adrenal cortical cells at higher doses.	
$\beta$ -Cyfluthrin	0.01	1.5	5 December 1990	13-week dietary dog study; a NOAEL of 1.5 mg/kg bw/d was based on vomiting, diarrhoea and effects on motor function at the next higher dose.	
Cyfluthrin	0.02	2.5	14 February 1985	2-year dietary rat study; a NOAEL of 2.5 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
Cyhalofop-butyl	0.002	0.2	28 January 2005	2-year dietary rat study; a NOAEL of 0.2 mg/kg bw/d was based on increased incidence of spots in the livers at the next higher dose.	
Gamma-Cyhalothrin				See $\gamma$ -Cyhalothrin	
$\alpha$ -Cypermethrin	0.05	4.7	11 March 1994	13-week dog study; a NOAEL of 4.7 mg/kg bw/d was based on ataxia, body tremors, agitation and abnormal	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				gait at the next higher dose.	
$\beta$ -Cypermethrin	0.05	5	19 March 2002	2-year dietary rat study; based on a NOAEL for cypermethrin.	The 2-year rat study used for establishing the cypermethrin ADI was considered appropriate to use for the beta-cypermethrin ADI as all the isomers contained in beta-cypermethrin are contained in cypermethrin.
$\zeta$ -Cypermethrin	0.07	7	23 May 1996	2-gen reproduction rat study; a NOAEL of 7 mg/kg bw/d was based on reduced bodyweight gain and feed consumption in females during the premating and lactation periods at the next higher dose. Pups also displayed reduced bodyweight gain and clinical signs at the next higher dose.	
Cypermethrin	0.05	5	10 February 1988	2-year dietary rat study; a NOAEL of 5 mg/kg bw/d was based on increased liver weights and some haematological and biochemical changes observed at the next higher dose.	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
$\gamma$ -Cyhalothrin	0.0005	0.5	12 August 2003	Developmental rat study; a maternal NOAEL of 0.5 mg/kg bw/d was based on reduced body weight gain and clinical signs among dams at the next higher dose.	
$\lambda$ -Cyhalothrin	0.001	0.1	5 December 1990	1-year capsule fed dog study; a NOAEL of 0.1 mg/kg bw/d was based on neurotoxic effects (convulsions, ataxia) at the next higher dose.	
Cyphenothrin	0.03	3	30 August 1991	13- and 52-week dietary dog studies; a NOAEL of 3 mg/kg bw/d was based on tremor, lethargy, emesis and reddening or paleness of the oral mucosa at the next higher dose.	
Cyproconazole	0.01	1	22 February 1990	1-year dietary dog study; a NOAEL of 1 mg/kg bw/d was based on increased liver weights, liver-related clinical chemistry parameters and histopathological	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				findings at the next higher dose.	
Cyprodinil	0.03	2.7	19 August 1994	2-year dietary rat study; a NOAEL of 2.7 mg/kg bw/d was based on an increased incidence of cystic degeneration/spongiosis hepatitis in the liver at higher doses.	
Cyromazine	0.02	1.8	8 April 1998	2-year dietary rat study; a NOAEL of 1.8 mg/kg bw/d was based on reduced body weight gain at the next higher dose.	
<b>D</b>					
Daminozide	0.7	75	11 September 1986		
Dazomet	0.0005	0.5 [LOAEL]	27 November 1996	2-year dietary rat study; based on histopathological lesions in liver and kidney at the LOAEL of 0.5 mg/kg bw/d.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
DDT	0.002 (TDI)	0.25	21 October 2003		Tolerable daily intake. Conventional ADI not maintained as DDT is no longer used in agricultural practice. A TDI is maintained to enable potential dietary exposure assessments to be undertaken.
Decoquinate	0.075	15	4 June 2013	12-week dietary dog study; a NOAEL of 15 mg/kg bw/d was based on subdued behaviour at the next higher dose.	
Deltamethrin	0.01	1	6 November 1980	2-year dietary dog study; a NOAEL of 1 mg/kg bw/d was based on an absence of any adverse effects at the highest tested dose.	
Derquantel	0.0005	0.1 [LOAEL]	27 May 2011	3-month capsule fed dog study; based on clinical signs (protruding nictitating membranes, dilated pupils, eye redness and decreased indirect pupillary light response) at the LOAEL of 0.1 mg/kg bw/d.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Dexamethasone	0.000015	0.0015	10 October 2016	7-day gavage rat study; a NOAEL of 0.0015 mg/kg bw/d was based on the induction of tyrosine aminotransferase activity in the liver at the next higher dose.	Long history of safe use in human medicine (JECFA-08).
Diafenthuron	0.003	0.3	5 January 1993	12-month dietary dog study; a NOAEL of 0.3 mg/kg bw/d was based on reduced body weight gain at the next higher dose. This NOAEL was supported by a 2-year dietary rat study; a NOAEL of 0.32 mg/kg bw/d was based on testicular enlargement at the next higher dose.	
Diazinon	0.001	0.02 (H)	29 April 1999	37–43-day human study; a NOAEL of 0.02 mg/kg bw/d was based on plasma ChE inhibition at the next higher dose.	
Dicamba	0.03	3	20 June 1991	Developmental rabbit study; a NOAEL of 3 mg/kg bw/d was	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				based on reduced maternal body weight gain at the next higher dose.	
Dichlobenil	0.01	1.25	14 August 1992	2-year dietary dog study; a NOAEL of 1.25 mg/kg bw/d was based on liver toxicity (increased liver weight, liver enzymes, cholesterol and triglycerides) and histopathological changes in the liver at the next higher dose.	See 2,6-dichlorobenzamide (BAM) – major plant metabolite.
Dichlofluanid	0.03	2.7	29 May 1986	2-year dietary dog study; a NOAEL of 2.7 mg/kg/d was based on hypertrophy in the liver at the next higher dose.	
2,6-Dichlorobenzamide (BAM)	0.02	2	26 November 2015	2-year dietary rat study; a NOAEL of 2 mg/kg bw/d was based on reduced body weight, increased incidences of eosinophilic and basophilic foci in the livers and fat deposition and cellular	An important plant metabolite common to dichlobenil and fluopicolide.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				degeneration in the liver at the next higher dose.	
2,4- Dichlorophenoxyacetic acid (2,4-D)	0.05	5	3 September 2020	Two 2-year rat toxicity/carcinogenicity studies and an extended 1-generation rat reproduction study; a NOAEL of 5 mg/kg bw/d of 2,4-D acid equivalent was based on renal toxicity occurring at higher doses.	
2,4- dichlorophenoxybutyric acid (2,4-DB)	0.004	1.9	24 May 1995	1-year dietary dog study; a LOAEL of 1.9 mg/kg bw/d was based on changes in clinical chemistry (elevated urea, creatinine and ALT) and histopathological lesions (pigmented tubular cells) in the kidney.	
Dichlorprop	0.03	3	9 July 1998	13-week dog dietary study; a NOAEL of 3 mg/kg bw/d was based on changes in clinical chemistry and	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				kidney discolouration at the next higher dose.	
2,2-Dichloropropionic acid (2,2-DPA)	0.2	15	17 November 1989		
Dichlorprop-P	0.03	6	2 November 2006	18-month dietary mouse study; a NOAEL of 6 mg/kg bw/d was based on increased incidence of chronic nephropathy observed at the next higher dose.	
Dichlorvos	0.001	0.014 (H)	6 April 2004	28-day human study; a NOAEL of 0.014 mg/kg bw/d was based on inhibition of plasma ChE activity at the next higher dose.	
Diclazuril	0.03	3	7 October 2021	2-year dietary rat & mouse studies*. Rat: NOAEL of 3.2 mg/kg bw/d, based on increased histiocytic aggregates in mesenteric lymph nodes at the next higher dose. Mouse: NOAEL of 2.9 mg/kg bw/d, based on centrilobular	ADI consistent with JECFA conclusions (JECFA 1998).

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				hepactocyte swelling at the next higher dose.	
Diclofop-methyl	0.002	0.25	6 February 1986	2-year dietary mouse study; a NOAEL of 0.25 mg/kg bw/d was based on increased organs weights and serum alkaline phosphatase levels at the next higher dose.	
Dicofol	0.001	0.12	5 December 1990	1-year dietary dog study; a NOAEL of 0.12 mg/kg bw/d was based on pituitary cysts at the next higher dose.	
Dicyclanil	0.007	0.7	14 October 2005	12-month dietary dog study; a NOAEL of 0.71 mg/kg bw/d was based on increased plasma cholesterol levels at the next higher dose.	
Dieldrin	0.0001 (TDI)	JMPR'94	21 October 2003		Tolerable daily intake. Conventional ADI not maintained as dieldrin is no longer used in agricultural practice. A TDI is maintained to enable potential dietary exposure assessments to be undertaken.



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Difenoconazole	0.01	1	5 December 1990	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on reduced bodyweight gain, hepatocyte hypertrophy and decreased platelet count the next higher dose.	
Difethialone	0.0000006 (TDI)	0.00125	19 July 1993	Developmental rabbit study; a NOAEL of 0.00125 mg/kg bw/d based on the incidence of incompletely ossified sternebra at the next higher dose.	Tolerable daily intake. An ADI was not established as difethialone residues are not expected to be present in the food supply. A TDI is maintained to serve as a guideline with which potential dietary exposure assessments to be undertaken in the event of unintentional presence.
Diiflubenzuron	0.02	2	19 February 1985	2-year rat and 1-year dog dietary studies; a NOAEL of 2 mg/kg bw/d based on increased pigmentation in macrophages and Kupffer cells of the liver at the next higher dose.	
Diiflufenican	0.2	23.3	May 2020	2-year dietary rat study; a NOAEL of 23.3 mg/kg bw/d based on a reduction in body weight gain at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Dimethenamid-P	0.03	5 [LOAEL]	12 August 2003	2-year dietary rat study; based on an increased incidence of parathyroid hyperplasia at the lowest tested dose (LOAEL) of 5.1 mg/kg bw/d.	
Dimethoate	0.001	0.1	31 May 2012	Developmental neurotoxicity rat study; a NOAEL of 0.1 mg/kg bw/d was based on increased pup mortality at the next higher dose.	
Dimethomorph	0.06	6	12 July 1996	2-gen reproduction rat study; a NOAEL of 6 mg/kg bw/d was based on reduced female weight gain at the next higher dose.	
Dimpropyridaz	0.2	21	9 December 2022	Near life-time dietary study in rats; a NOAEL of 21 mg/kg bw/d was based on a 10% reduction in body weight, reduced body weight gain and hepatic lipofuscinosis in females at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Dinoprost	0.0005	1	17 March 1976		
Dinotefuran	0.2	22	10 August 2015	1-year dietary dog study; a NOAEL of 22 mg/kg bw/d was based on reduced body weight gain at the next higher dose.	
Diphenylamine	0.08	7.5	21 April 2017	2-year dietary rat study; a NOAEL of 7.5 mg/kg bw/d was based on anaemia (reduced RBC, Hb and PCV) at the next higher dose.	(JMPR-98).
Diquat	0.002	0.2	28 May 2002	2-year dietary rat study; a NOAEL of 0.2 mg/kg bw/d was based on lenticular cataract formation at the next higher dose.	
Disodium methylarsonate (DSMA)	0.0005	0.5	10 November 1994		
Dithianon	0.007	0.66	2 February 1993	2-year dietary rat study; a NOAEL of 0.66 mg/kg bw/d was based on reduced body weight, food intake and	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				increased liver and kidney weights at the next higher dose.	
Dithiopyr	0.005	0.5	13 August 1992	1-year oral (gelatin capsule) dog study; a NOAEL of 0.5 mg/kg bw/d was based on single cell necrosis of hepatocytes, liver fibrosis, bile duct proliferation and focal leucocyte infiltration of the liver at the next higher dose.	
Diuron	0.007	0.7	4 February 2005	In a follow-up 6-month study to a 2-year rat dietary study; a NOAEL of 0.7 mg/kg bw/d was based on reduced Hb and increased reticulocyte counts at the next higher dose. This NOAEL was supported by a 2-year dietary dog study; a NOAEL 0.6 mg/kg bw/d was based on abnormal haemoglobin spectral pigments at higher doses.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Dodine	0.1	10	26 November 2002	1-year dietary dog study; a NOAEL of 10 mg/kg bw/d was based on diarrhoea, reduced food intake and body weight loss at the next higher dose.	
Doramectin	0.002	0.1	31 January 2018	3-month gavage dog study; a NOAEL of 0.1 mg/kg bw/d was based on pupil dilation (mydriasis) exhibited at the next higher dose (a 50-fold UF was applied based on chemical specific adjustment factors).	
<b>E</b>					
Enamectin	0.002	0.25	26 February 1999	1-year gavage dog study; a NOAEL of 0.25 mg/kg bw/d was based on neurotoxicity (tremors, stiffness in hind legs) and peripheral nerve degeneration and muscle degeneration at the next higher dose. 2-year dietary rat study; a NOAEL of 0.25 mg/kg bw/d was based on	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				elevated serum triglyceride and bilirubin levels at the next higher dose.	
Endothal	0.03	3.75	5 December 1990	1-year dietary dog study; a NOAEL of 3.75 mg/kg bw/d was based on liver lesions (necrosis and hyperplasia) at the next higher dose.	
Endrin	0.0002 (TDI)	JMPR'94	21 October 2003		Tolerable daily intake. A conventional ADI not maintained as endrin is no longer used in agricultural practice. A TDI is maintained to enable potential dietary exposure assessments to be undertaken.
Enterococcus faecium			4 September 2002		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Epoxiconazole	0.01	1	16 April 2002	1-year dietary dog study; based on the absence of any treatment related effects at the highest tested dose of 1.1 mg/kg bw/d. 78-week dietary mouse study; a NOAEL of 0.81 mg/kg bw/d was based on	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				reduced bodyweight gain and increased liver weight at the higher dose (36 mg/kg bw/d).	
Eprinomectin	0.02	1	31 January 2018	1-year gavage dog study; a NOAEL of 1 mg/kg bw/d was based on pupil dilation (mydriasis) and focal neuronal degeneration in the brain at the next higher dose (a 50-fold UF was applied based on chemical specific adjustment factors).	
Esbiothrin	0.03	3	15 September 1993	1-year dietary dog study; a NOAEL of 3 mg/kg bw/d was based on increased thyroid weight at the next higher dose.	
Esfenvalerate	0.008	7.5	17 March 1993	13-week dietary rat study; a NOAEL of 7.5 mg/kg bw/d was based on parenchymal cell hypertrophy in parotid salivary gland at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Ethametsulfuron-methyl	0.2	21	17 January 2001	2-year dietary rat study; a NOAEL of 21 mg/kg bw/d was based on enlarged mammary glands in females and reduced serum sodium levels at the next higher dose.	
Ethephon	0.02	0.17(H)	18 February 1987	3-week human study; a NOAEL of 0.17 mg/kg bw/d was based on inhibition of plasma ChE levels at the next higher dose.	
Ethion	0.001	0.1	10 June 1987	2-year dietary rat study and 3-gen reproduction rat study; a NOAEL of 0.1 mg/kg bw/d was based on inhibition of plasma ChE activity at the next higher dose.	
Ethofumesate	0.3	30	11 November 1976	Developmental rabbit study; a NOAEL of 30 mg/kg bw/d was based on increased embryo loss at the next higher dose.	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Ethoxyquin	0.001	2.5 [LOAEL]	21 February 2000	2-gen reproduction dog study; a LOAEL based on clinical signs (salivation and dehydration) and histological changes in the liver at the next higher dose.	ADI is based on JMPR evaluation (1998) but with the application of additional uncertainty factors due to inadequate data and the absence of a NOAEL in the dog study. ADI includes 3 residues (MEQ, DHMEQ and DHEQ).
Ethoxysulfuron	0.06	6.2	12 May 2004	3-month dietary dog study; a NOAEL of 6.2 mg/kg bw/d was based on increased thyroid weight in association with follicular hyperplasia at the next higher dose.	
Ethyl dipropylthiocarbamate (EPTC)	0.09	9	12 January 1995	2-year dietary rat study; a NOAEL of 9 mg/kg bw/d was based on clinical and pathological effects indicative of neuromuscular toxicity at the next higher dose.	
Ethyl formate			26 November 2003		No residues expected in commodities above the natural formate level of 0.6 mg/kg. Any residues above this level could be considered against a group ADI for formic acid (3 mg/kg bw/d).

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Etofenprox	0.03	3.1	4 December 2017	108-week dietary mouse study; a NOAEL of 3.1 mg/kg bw/d for renal toxicity (increased incidence of dilated and basophilic renal tubules). Supported by 2-year rat dietary study; a NOAEL of 3.7 mg/kg bw/d for liver histopathology (increase in foci or areas of eosinophilic hepatocytes in males and vacuolated hepatocytes in females) JMPR 2011, EFSA 2009).	
Etiozazole	0.04	4	17 December 2003	2-year dietary rat study; a NOAEL of 4 mg/kg bw/d was based on increased liver weights at the next higher dose. 1-year dietary dog study; a NOAEL of 4.6 mg/kg bw/d was based on increased liver weights and an increased incidence of hepatocellular swelling at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Etridiazole	0.03	3	30 August 1991	2-year dietary dog study; a NOAEL of 3 mg/kg bw/d was based on reduced body weight gain and increased serum alkaline phosphatase, cholesterol and blood clotting time at the next higher dose.	
Eugenol	2.5	~300	19 August 2020	2-year dietary rat study; a NOAEL of 2.5 mg/kg bw/d was based on a NOAEL of ~300 mg/kg bw/d with reduced body weight at the next higher dose.	ADI is based on JECFA (2006) report.
<b>F</b>					
Febantel	0.02	2	15 July 1996	2-gen reproduction rat study; a NOAEL of 2 mg/kg bw/d was based on hepatocellular hypertrophy in the liver at the next higher dose.	
Fenamiphos	0.0001	0.014	7 November 2005	2-year dietary dog study; a NOAEL of 0.014 mg/kg bw/d was based on inhibition of	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				plasma ChE activity at the next higher dose.	
Fenbendazole	0.05	5	14 February 1991	123- to 125-week dietary rat study; a NOAEL of 5 mg/kg bw/d was based on liver lesions (centrilobular hepatocellular hypertrophy, cytoplasmic vacuolation, focal bile duct proliferation and biliary cyst formation) at the next higher dose.	
Fenbuconazole	0.006	0.6	2003	1-year dietary dog study; a NOAEL of 0.6 mg/kg bw/d was based on reduced body weight gains and increased incidences of hepatocyte pigment at the next higher dose. 2- gen reproduction rat study; a NOAEL of 0.6 mg/kg bw/d was based on increase in stillborn pups and decrease in delivered pups, live pups/litter, viability during lactation	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				and pup body weights at the next higher dose.	
Fenbutatin-oxide	0.01	1	10 September 1987	Developmental rabbit study; a NOAEL of 1 mg/kg bw/d was based on foetotoxicity and maternotoxicity at the next higher dose.	
Fenhexamid	0.2	17.4	16 December 1998	1-year dietary dog study; a NOAEL of 17.4 mg/kg bw/d was based on increased adrenal weight, intracytoplasmic vacuoles in the adrenal cortex, and anaemia (incl. Heinz bodies) at the next higher dose.	
Fenitrothion	0.002	0.2	6 November 1997	1-year dietary dog study; a NOAEL of 0.2 mg/kg bw/d was based on a reduction in plasma ChE activity at the next higher dose.	
Fenoxaprop-P-ethyl	0.004	0.4	14 February 1991	2-year dietary dog study; a NOAEL of 0.4 mg/kg bw/d was based on reduced	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				bodyweight gain at the next higher dose.	
Fenoxycarb	0.05	5	29 October 1998	18-month dietary mouse study; a NOAEL of 5 mg/kg bw/d was based on increased liver weight, increased incidence of pulmonary tumours and lower body weight at the next higher dose.	
Fenpropidin	0.023	2.3	20 July 2023	Chronic, near life-time repeat daily oral dosing study in rats; a NOAEL of 2.3 mg/kg bw/d was based on decreased body weight parameters and hepatotoxicity in females at the next highest dose.	
Fenpyrazamine	0.1	12.7	11 May 2015	2-year dietary rat study; a NOAEL of 12.7 mg/kg bw/d was based on increased liver weight and hepatocellular hypertrophy at the next higher dose.	
Fenpyroximate	0.005	0.5	13 June 2023	1-year capsule fed dog study; a NOAEL of 0.5 mg/kg bw/d was based	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				on bradycardia at the next higher dose.	
Fenvalerate	0.02	1.7	10 June 1987	3-gen reproduction rat study, a NOAEL of 1.7 mg/kg bw/d was based on reduced body weight at the next higher dose.	Based on JMPR (2012) report.
Fipronil	0.0002	0.02	27 June 1994	2-year dietary rat study; a NOAEL of 0.02 mg/kg bw/d was based on clinical signs of neurotoxicity at the next higher dose.	This is a group ADI which includes fipronil, desulfinyl fipronil, fipronil sulphide and fipronil sulphone.
Flamprop-M-methyl	0.001	0.125	29 August 1991	2-year dietary rat study; a NOAEL of 0.125 mg/kg bw/d was based on increased liver weight and hypertrophy of the endoplasmic reticulum at the next higher dose.	
Flavophospholipol					See: Bambermycin
Flazasulfuron	0.013	1.3	26 September 2011	2-year dietary rat study; a NOAEL of 1.3 mg/kg bw/d was based on chronic nephropathy	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				observed at the next higher dose.	
Flocoumafen	0.000001	0.0014	20 September 1995	3-month dietary rat study; a NOAEL of 0.0014 mg/kg bw/d was based on increased levels of serum cholesterol at the next higher dose.	
Flonicamid	0.025	2.5	7 June 2012	Developmental rabbit study; a NOAEL of 2.5 mg/kg bw/d was based on abnormal lung lobation and absent kidney and ureter in foetuses at the next higher dose.	
Florasulam	0.05	5	20 December 2007	1-year dietary dog study; a NOAEL of 5 mg/kg bw/d was based on hypertrophy of collecting duct epithelial cells of the kidney at the next higher dose.	
Florfenicol	0.001	1	3 August 2001	1-year dietary dog study; a NOAEL of 1 mg/kg bw/d was based on increased liver weight and cystic epithelial hyperplasia of	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				the gall bladder at the next higher dose.	
Florpyrauxifen-benzyl	Not specified		8 August 2017		(See item 4 under Notes)
Florylpicoxamid	0.1	10	16 February 2022	Rabbit developmental dietary toxicity study; a NOAEL of 10 mg/kg bw/d based on maternal toxicity (decreased feed consumption, decreased bodyweight gain, gastrointestinal tract disturbance, abortion and bleeding). at the next higher dose.	Florylpicoxamid is defined as the sum of: florylpicoxamid (CAS: 961312-55-9), deacetylated florylpicoxamid (X12485649, CAS: 1961312-07-1), and their SR stereoisomers, expressed as florylpicoxamid.
Fluazaindolizine	0.4	36	1 September 2021	3- and 12-month dietary dog studies; an overall NOAEL of 36 mg/kg bw/d for mortality, reduced bodyweight gain, and histopathological findings (i.e., single cell necrosis and periportal vacuolation) in the liver at higher doses.	The ADI applies to fluazaindolizine and its metabolites i.e., IN-A5760, IN-REG72, IN-F4106, IN-QEK31, IN-QZY47, IN-TMQ01, IN-UJV12 or IN-UNS90, expressed as fluazaindolizine.
Fluazifop-butyl	0.004	0.4	5 August 1982	2- and 3-gen reproduction rat studies; an overall NOAEL of 0.4 mg/kg bw/d was based	Note: ADI is expressed as fluazifop acid. ADI can be applied to the metabolites; despyridinyl acid, CF3-pyridone and hydroxy fluazifop acid.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				on decreased bodyweight and organ weight changes at the next higher dose.	
Fluazifop-P-butyl					See fluazifop-butyl
Fluazinam	0.004	0.4	18 June 1993	2-year dietary rat study; a NOAEL of 0.4 mg/kg bw/d was based on histopathological lesions in the liver (centrilobular sinusoidal dilatation) and pancreas (exocrine atrophy) at the next higher dose.	
Fluazuron	0.04	4.27	14 September 1993	2-year dietary mouse study; a NOAEL of 4.27 mg/kg bw/d was based on lenticular cataracts at the next higher dose.	
Flubendazole	0.013	2.5	15 March 2019	3-month oral (capsule) dog study; a NOAEL of 2.5 mg/kg bw/d was based on atrophic changes in the prostate at the next higher dose.	Total uncertainty factor used was 200.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Flubendiamide	0.01	1	14 December 2007	1-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on hepatotoxicity and microcytic anaemia at the next higher dose.	
Fludioxonil	0.4	37	26 April 2022	2-year dietary rat study; a NOAEL of 37 mg/kg bw/d was based on renal toxicity and decreased body weight gain at the next higher dose.	JMPR (2004)
Fluensulfone	0.015	1.5	12 June 2014	1-year dietary dog study; a NOAEL of 1.5 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
Flufenoxuron	0.02	2.5	21 January 1997	1-year dietary dog study; a NOAEL of 2.5 mg/kg bw/d was based on mild anaemia (reduction in RBC and MCHC) and liver histopathology at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Flugestone acetate	0.0001	0.2	19 February 1981	3-month dietary rat study; a NOAEL of 0.2 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
Flumethrin	0.003	0.31	18 October 2001	2-gen reproduction rat study; a NOAEL of 0.31 mg/kg bw/d was based on clinical signs, reduced food consumption and reduced body weight gain (parental effects) and reduced birth weight, pup survival and weight gain (reproductive effects) at the next higher dose.	
Flumetsulam	1	100	14 February 1992	1-year dietary dog study; a NOAEL of 100 mg/kg bw/d was based on histopathological lesions in the kidneys (distention and atrophy of the tubules and papillae) at the highest tested dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Flumiclorac pentyl	0.3	32	8 December 2004	18-month dietary mouse study, a NOAEL of 32 mg/kg bw/d was based on reduced RBC, Hb, Hct and hepatocellular hypertrophy in the liver at the next higher dose.	
Flumioxazin	0.02	1.8	1 June 2021	2-year rat study; a NOAEL of 1.8 mg/kg bw/d was based on haematology changes (anaemia in both sexes) and chronic nephropathy (males) at the next highest dose.	
Flunixin meglumine	0.006	0.6	29 September 2000	2-year mouse study; a NOAEL of 0.6 mg/kg bw/d was based on extramedullary haematopoiesis in the liver and kidney at the next higher dose.	
Fluometuron	0.02	2	16 February 1989		
Fluopicolide	0.08	7.9	26 November 2015	18-month dietary mouse study; a NOAEL of 7.9 mg/kg bw/d was based on increased liver	See 2,6-dichlobenzamide (BAM) -major plant metabolite.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				weights, masses and nodules in the liver, and hepatocellular hypertrophy at the next higher dose. Supported by 2-year dietary rat study; a NOAEL of 8.4 mg/kg bw/d was based on increased centrilobular hypertrophy of the liver and increased kidney weights and lesions (cortical tubule cell basophilia, hyaline droplets and granular and hyaline casts) at the next higher dose.	
Fluopyram	0.01	1.2	1 May 2015	2-year dietary rat study; a NOAEL of 1.2 mg/kg/bw/d was based on liver lesions (hepatocellular hypertrophy and eosinophilic foci) at the next higher dose.	
Fluoxapiprolin	3	-	23 May 2022	Established at 3 mg/kg bw/d based on the kinetically derived maximum dose of 250 to 300 mg/kg bw/d, and an absence of adverse	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				observed effects across repeat dose studies.	
Flupropanate	0.002	5	10 September 1987	3-month dietary rat study; a NOAEL of 5 mg/kg bw/d was based on increased liver weight at the next higher dose.	
Flupyradifurone	0.08	7.8	11 August 2015	1-year dietary dog study; a NOAEL of 7.8 mg/kg bw/d was based on reduced bodyweights and skeletal muscle myofiber degeneration at the next higher dose. Supported by the 2-gen reproduction rat study; a NOAEL of 7.7 mg/kg bw/d was based on body weight loss at the next higher dose.	
Fluquinconazole	0.005	0.5	2 July 1997	2-year dietary rat study; a NOAEL of 0.5 mg/kg bw/d was based on deaths, increased food and water consumption, reduced body weight gain and increased relative organ weights at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				1-year dietary dog study; a NOAEL of 0.5 mg/kg bw/d was based on clinical signs at the next higher dose.	
Fluralaner	0.02	2	31 May 2018	90-day and 52-week capsule-fed dog studies; a NOAEL of 2 mg/kg bw/d was based on a reduction in cholesterol, triglyceride and phospholipid levels observed at the next higher dose.	
Fluroxypyr	0.2	20	6 February 1986	13-week dietary rat study; a NOAEL of 20 mg/kg bw/d was based on increased serum ALT and AP, reduced thyroid and adrenal weights, and histopathological effects in the kidneys at the next higher dose.	
Flutolanil	0.02	2	16 October 2001	2-year dietary rat study; a NOAEL of 2 mg/kg bw/d was based on an increased albumin:globulin ratio in males, and reduced bilirubin and dilation of	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				the sinusoid in the liver in females at the next higher dose.	
Flutriafol	0.01	1	20 June 1991	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on fatty changes and histopathological lesions (centrilobular hypertrophy) in the liver at the next higher dose.	
tau-Fluvalinate	0.005	0.5	5 November 1986	2-year gavage rat study; a NOAEL of 0.5 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
Fluxapyroxad	0.02	2.1	30 January 2012	2-year dietary rat study; a NOAEL of 2.1 mg/kg bw/d was based on increased liver weight at the next higher dose.	
Forchlorfenuron	0.07	7	15 April 2005	2-year dietary rat study; a NOAEL of 7 mg/kg bw/d was based on tubular dilatation and inflammation in the kidneys at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Fomesafen	0.01	1	29 March 2021	26 week dietary dog study; a NOAEL of 1 mg/kg bw/d was based on mild anaemia. Supported by a 2-year dietary study in rats; a NOAEL of 5 mg/kg bw/d was based on anaemia and histopathological changes in the liver.	
Fosetyl aluminium	1	103	18 February 1987	2-year dietary rat study; a NOAEL of 103 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
<b>G</b>					
Gentamicin	0.05	5	6 May 1983	1-year IM (5d/wk) rat study; a NOAEL of 5 mg/kg bw/d was based on kidney lesions and vestibular damage at the next higher dose.	
Geraniol	0.5		19 August 2020	Based on a group ADI for a group of terpenoid flavouring agents, including geranyl acetate (geranyl acetate is rapidly metabolised in	ADI is based on JECFA (2004) report.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				vivo to geraniol), citral, citronellol, linalool and linalyl acetate (citral being a mixture of geranial and neral) (JECFA 2004)	
Gibberellic acid	5	550	13 January 1993	3-month dietary rat study; a NOAEL of 550 mg/kg bw/d was based on increased liver weight at the next higher dose.	
Glufosinate	0.007	0.67	11 August 1988		
Glufosinate ammonium	0.02	2.1	28 August 2001	130-week dietary rat study; a NOAEL of 2.1 mg/kg bw/d was based on decreased glutathione levels in the liver and blood at the next higher dose.	
Glyphosate	0.3	30	14 February 1985	3-gen reproduction rat study; a NOAEL of 30 mg/kg bw/d was based on an absence of any adverse effects at the highest tested dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Guazatine	0.006	0.625	25 March 1997	1-year dietary dog study; a NOAEL of 0.625 mg/kg bw/d was based on reduced body weight gain and food consumption at the next higher dose.	
H					
Halauxifen-methyl	0.1	10	17 September 2014	3-month dietary rat study; a NOAEL of 10 mg/kg bw/d was based on induction of hepatic Cyp1a1 activity (aryl hydrocarbon receptor (AhR) pathway), increased liver weights and cholesterol and increased hepatocellular vacuolation at the next higher dose.	
Halofuginone	0.0003	0.025	16 June 2006	Development rabbit study; a NOAEL of 0.025 mg/kg bw/d was based on reduced body weight gain and food consumption, mortality and abortions at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Halosulfuron-methyl	0.01	1	19 November 1993	1-year capsule fed dog study; a NOAEL of 1 mg/kg bw/d was based on reduced body weight gain at the next higher dose.	
Haloxyfop	0.0003	0.03	12 November 1987	2-year dietary mouse study; a NOAEL of 0.03 mg/kg bw/d was based on hepatocellular hypertrophy causing an increased incidence of adenomas and carcinomas at the next higher dose.	
Haloxyfop-P (or Haloxyfop-R)					Use haloxyfop ADI.
Heptachlor	0.0005 (TDI)	JMPR'94	21 October 2003		Tolerable daily intake. A conventional ADI not maintained as heptachlor is no longer used in agricultural practice. A TDI is maintained to enable potential dietary exposure assessments to be undertaken.
Hexaconazole	0.005	0.5	17 May 1990	2-year dietary rat study; a NOAEL of 0.5 mg/kg bw/d was based on cortical vacuolation in the adrenal glands at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Hexaflumuron	0.02	2	31 August 2001	1-year dietary dog study; a NOAEL of 2 mg/kg bw/d was based on Heinz bodies (intracellular inclusions of denatured haemoglobin) in RBC and methaemoglobin (heme group in RBC contains iron in the ferric (Fe <sup>3+</sup> ) state and not the usual ferrous (Fe <sup>2+</sup> ) state) formation at the next higher dose.	
Hexazinone	0.1	10	12 November 1987	2-year dietary rat study; a NOAEL of 10 mg/kg bw/d was based on reduced body weight gain at the next higher dose.	
Hexythiazox	0.03	3	29 May 1986	1-year dietary dog study; a NOAEL of 3 mg/kg bw/d was based on increased liver weight and adrenocortical hypertrophy at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
I					
Imazalil	0.03	2.5	24 July 1997	1-year dietary dog study; a NOAEL of 2.5 mg/kg bw/d was based on reduced body weights, and increased relative liver weights, serum AP and GGT levels at the next higher dose.	
Imazamox	2.8	282	11 March 1999	1-year dietary dog study; a NOAEL of 282 mg/kg bw/d was based on increased plasma creatine phosphokinase activity at the next higher dose.	
Imazapic	0.3	137	17 May 1996	1-year dietary dog study; a LOAEL of 137 mg/kg bw/d was based on mild anaemia (reduced Hct, Hb and RBC levels) at the lowest tested dose.	
Imazapyr	2.5	250	2 June 1998	1-year dietary dog study; a NOAEL of 250 mg/kg bw/d was based on the absence	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				of signs of toxicity at the highest tested dose.	
Imazethapyr	2.8	276	22 February 1990	2-year dietary rat study; a NOAEL of 276 mg/kg bw/d was based on reduced body weight gain at the next higher dose.	
Imidacloprid	0.06	6	8 February 1993	2-year dietary rat study; a NOAEL of 6 mg/kg bw/d was based on increased mineralisation in the colloid of thyroid follicles at the next higher dose.	
Imidocarb	0.05	5	16 August 1979	3-month dietary dog study; a NOAEL of 5 mg/kg bw/d was based on fatty infiltration and lesions (focal hepatitis, hepatocyte vacuolation) of the liver at the next higher dose.	
Imiprothrin	0.05	5	30 September 1996	1-year dietary dog study; a NOAEL of 5 mg/kg bw/d was based on increased salivation, diarrhoea, and incidence and	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				severity of centrilobular hepatocytes, Kupffer cell pigmentation, and perivascular inflammatory cell infiltration in the liver at the next higher dose.	
Indaziflam	0.02	2	12 May 2023	1-year dietary dog study; a NOAEL of 2 mg/kg bw/d was based on axonal degeneration of nerve fibres in the spinal cord at the next higher dose of 6 mg/kg bw/d.	For dietary risk, indaziflam is the sum of indaziflam and 6-[(1R)-1-fluoroethyl]-1,3,5-triazine-2,4-diamine (=indaziflam-triazinediamine), expressed as indaziflam.
Indoxacarb + R-Enantiomer (Total S and R-Enantiomers)	0.01	1	30 August 2018	1-year dietary dog study; a NOAEL of 1.1 mg/kg bw/d was based on RBC damage and a secondary increase in haematopoiesis in the spleen and liver at the next higher dose. Supported by 2-gen reproduction rat study; a NOAEL of 1.3 mg/kg bw/d was based on reduced body weight and food consumption	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				in dams at the next higher dose.	
Inpyrfluxam	0.06	6	26 May 2023	1-year capsule fed dog study; a NOAEL of 6 mg/kg bw/d was based on adrenocortical zona fasciculata vacuolation at the next higher dose.	Inpyrfluxam is expressed as inpyrfluxam and gly-CH <sub>2</sub> OH-S-2840.
Iodosulfuron-methyl-sodium	0.03	3	29 September 2000	2-year dietary rat study; a NOAEL of 3 mg/kg bw/d was based on reduced body weight gain at the next higher dose.	
Ioxynil	0.004	0.04 (H)	18 February 1987	Based on human exposure data for iodide toxicity. A chronic iodide exposure in excess of 0.042 mg/kg bw/d is associated with goitre induction (Wolf, 1969).	
Ipconazole	0.015	1.5	18 January 2010	1-year oral (gelatin capsule) dog study; a NOAEL of 1.5 mg/kg bw/d was based on increased incidence and severity of bile duct proliferation and increased incidence in centrilobular hepatocyte	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				hypertrophy at the next higher dose.	
Ipflufenquin	0.048	4.84	10 March 2023	Two-year chronic toxicity/carcinogenicity study in rats; a NOAEL of 4.84 based on pale incisors at the next higher dose.	
Iprodione	0.04	4	16 June 1986	1-year dietary dog study; a NOAEL of 4 mg/kg bw/d was based on increased adrenal and liver weight, increased AP and ALT and pathological changes in the adrenals and liver at the next higher dose.	
Isocycloseram	0.02	1.7	18 November 2021	80-week dietary mouse study; a NOAEL of 1.7 and 1.8 mg/kg bw/d in male and female mice, respectively, was based on lymphatic and non-lymphatic plasmacytosis in males and females at the next higher dose.	
Isoeugenol	0.2	500	20 August 1996	16-week dietary rat study; a NOAEL of 500 mg/kg bw/d was	Large uncertainty (safety) factor due to limited toxicological data.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				based on the absence of signs of toxicity at the highest tested dose.	
Isofetamid	0.05	5	9 March 2017	An overall NOAEL of 5 mg/kg bw/d in the dietary 90-day and 1- year dog toxicity studies was based on decreased albumin, increased ALP, GGPT and liver weight with hepatocellular hypertrophy at the next higher dose.	
Isoprazam	0.06	5.5	24 May 2016	2-year dietary rat study; NOAEL of 5.5 mg/kg bw/d was based on reduced body weight gain, foci of eosinophilic hepatocytes and clinical chemistry changes (triglycerides, bilirubin) at the next higher dose.	
Isotianil	0.03	3	29 March 2022	2- generation reproduction rat study; a NOAEL of ~3 mg/kg bw/d was based on reduced offspring bodyweight at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Isoxaben	0.05	5	9 August 1995	2-year dietary rat study; a NOAEL of 5 mg/kg bw/d was based on renal pathology at the next higher dose.	
Isoxaflutole	0.02	2	6 May 1997	2-year rat dietary study; a NOAEL of 2 mg/kg bw/d was based on many histopathological changes in the liver, nerves, skeletal muscle, and cornea of the eye at the next higher dose. Supported by a 2-gen reproduction rat study; a NOAEL of 2 mg/kg bw/d for maternal and pup toxicity was based on increased liver weight, liver hypertrophy, vacuolation, reduced pup weight and viability.	
Ivermectin	0.01	0.5	31 January 2018	14-week gavage dog study; a NOAEL of 0.5 mg/kg bw/d was based on pupil dilation (mydriasis) at the next higher dose (a 50-fold UF was applied based	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				on chemical specific adjustment factors).	
K					
Kaolin			30 August 2021		ADI unnecessary due to the absence of any systemic exposure following oral, dermal or inhalational exposure. Calcined kaolin is insoluble in all aqueous and organic solvents that are physiologically relevant.
Ketoprofen	0.001	0.1	8 December 2000	Acute pharmacological rabbit study; a NOAEL of 0.1 mg/kg bw/d was based on inhibition of platelet aggregation at the next higher dose.	
Kitasamycin	0.5	1000	22 March 1979		
Kresoxim-methyl	0.4	36	25 June 1999	2-year dietary rat study; a NOAEL of 36 mg/kg bw/d was based on reduced body weight, increased liver weight, elevated enzyme activity and liver changes at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
<b>L</b>					
Lactobacillus acidophilus			4 September 2002		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Lactobacillus brevis			4 September 2002		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Lactobacillus casei			4 September 2002		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Lactobacillus plantarum			4 September 2002		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Lambda-Cyhalothrin				See λ-Cyhalothrin	
Lasalocid	0.005	0.5	18 April 2019	Developmental toxicity study in rabbits; a NOAEL of 0.5 mg/kg bw/day with decreased litter weights, increased incidence of forelimb flexure and minor skeletal abnormalities /variants from 1 mg/kg	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				bw/d. a multi-generation rat reproductive toxicity study NOAEL of 0.5 mg/kg bw/d (reduced mean numbers of corpora lutea and implantation resulting in decreased implantation efficiency from 1.75 mg/kg bw/d).	
Levamisole	0.003	6	14 November 1974	3-month dietary dog study; a NOAEL of 6 mg/kg bw/d was based on the absence of any adverse effects observed at the highest tested dose.	
Lignocaine hydrochloride monohydrate	0.01	1	13 June 2023	Human oral pharmaceutical product	Considered to be adequately protective against both local and systemic effects. The point of departure was derived from a short-term human oral over-the-counter pharmaceutical product. A total UF of 100 was used ( $10^{0.5}$ for extrapolation from short-term to long-term exposure, $10^{0.5}$ for extrapolation from a LOAEL (pharmaceutical effect) to NOAEL and 10 for intraspecies variability).
d-limonene			4 May 2021		ADI unnecessary. Naturally occurring compound that is also a food additive - residues from its use are unlikely to be distinguishable from naturally occurring background levels.
Lincomycin	1	100	5 August 1983	6-month capsule fed dog study; a NOAEL of	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				100 mg/kg bw/d was based on increased adrenal weight and histopathological changes (lymphocytic infiltration) in the thyroid at the highest tested dose.	
Linuron	0.01	1.25	11 September 1986	20-month dietary rat study; a NOAEL of 1.25 mg/kg bw/d was based on anaemia with a corresponding increase in reticulocytes at the next higher dose.	
Lufenuron	0.02	2.1	4 March 1994	2-year dietary rat study; a NOAEL of 2.1 mg/kg bw/d was based on seizures, lung and gastrointestinal lesions at the next higher dose. 18-month dietary mouse study; a NOAEL of 2.1 mg/kg bw/d based on deaths and clinical signs at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
M					
Maduramicin	0.001	0.1	5 November 1986	1-year dietary dog study; a NOAEL of 0.1 mg/kg bw/d was based on histopathological lesions (myocyte vacuolation) in skeletal muscle at the next higher dose.	
Maldison	0.02	2	12 April 2005	2-year dietary rat study; a NOAEL of 2 mg/kg bw/d was based on inhibition of RBC ChE activity at the next higher dose.	
Maleic hydrazide	5	571	5 January 1993	1-year dietary dog study; a NOAEL of 571 mg/kg bw/d was based on an absence of any adverse effects at the highest tested dose.	
Mancozeb	0.006	0.6	27 November 1992	2-year dietary dog study; a NOAEL of 0.6 mg/kg bw/d was based on reduced iodine uptake at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Mandestrobin	0.2	19.2	30 March 2016	1-year dietary dog study; a NOAEL of 19.2 mg/kg bw/d was based on dark liver, centrilobular hepatocyte hypertrophy and pigmented hepatocytes at the next higher dose.	
Mandipropamid	0.05	5	9 April 2010	1-year dietary dog study; a NOAEL of 5 mg/kg bw/d was based on changes in clinical chemistry, increased liver weight and pigment in hepatocytes at the next higher dose.	
MCPA	0.01	1.1	28 April 1994	2-year dietary rat study; a NOAEL of 1.1 mg/kg bw/d was based on increased serum levels of alanine aminotransferase (ALT) at the next higher dose.	ADI is for the sum of MCPA, its salts and esters, expressed as MCPA acid equivalents.
MCPB	0.01	1.1	12 May 1994		Same study and endpoint as for MCPA.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Mebendazole	0.08	8	14 February 1975		
Mecoprop	0.01	1	3 July 1998	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on increased kidney weight at the next higher dose.	
Mecoprop-P (salts and esters)	0.04	4	25 August 2021	18-month dietary mouse study; a NOAEL of 4 mg/kg bw/d was based on increased kidney weight and chronic nephropathy at the next higher dose.	Mecoprop-P (salts and esters) is defined as:  The sum of mecoprop-P ((S)-2-(4-chloro-o-tolyloxy)propionic acid), HMCPP ((2S)-2-[4-chloro-2-(hydroxymethyl)phenoxy]propanoic acid; free and conjugated), CCPP (2-[(1S)-1-carboxyethoxy]-5-chlorobenzoic acid) and 4-glucosyl-MPP ((2S)-2-[4-(D-glucopyranosyloxy)-2-methylphenoxy]propanoic acid) expressed as mecoprop-P free acid.
Mefenpyr-diethyl	0.03	2.8	13 May 1997	87-week dietary mouse study; a NOAEL of 2.8 mg/kg bw/d was based on hepatocellular hypertrophy in the liver at the next higher dose.	
Mefentrifluconazole	0.05	5	27 November 2017	2-year dietary rat study; a NOAEL of 5 mg/kg bw/d was based on clinical chemistry effects (elevated ALP,	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				decreased PTT and platelet counts) secondary to liver toxicity at the next higher dose.	
Meloxicam	0.0001	0.125 [LOAEL]	5 February 1999	A segment III (perinatal and post-natal toxicity) reproduction study in rats; clinical signs, prolonged gestation and delivery duration, stillbirths and reduced pup viability at the lowest tested dose of 0.125 mg/kg bw/d.	
Mepiquat	0.15	15	30 August 1991	1-gen reproduction rat study; a NOAEL of 15 mg/kg bw/d was based on reduced pup survival and weight gain at the next higher dose.	
Mesosulfuron-methyl	1	100	27 May 2002	18-month dietary mouse study; a NOAEL of 100 mg/kg bw/d was based on oligospermia in the epididymides at the next higher dose.	
Mesotrione	0.5	50	10 May 2017	18-month dietary mouse study; a NOAEL of 50 mg/kg bw/d was based	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				on reduced bodyweight gain in males at the next higher dose.	
Metalaxyl	0.03	3	7 May 1981	2-year dietary rat study; a NOAEL of 3 mg/kg bw/d based on increased liver weight at the next higher dose.	
Metaldehyde	0.005	5	11 September 1986		
Metamitron	0.03	3	4 December 2017	2-year dietary dog study; a NOAEL of 3 mg/kg bw/d based on increased plasma cholesterol levels at the next higher dose (EFSA 2008).	
Metarhizium Anisopliae var. Acridum (isolate FI-985)			4 September 2003		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Metazachlor	0.2	17.6	15 July 2016	2-year dietary rat study; a NOAEL of 17.6 mg/kg bw/d was based on reduced food consumption and bodyweight gain,	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				increased liver weight with enlarged hepatocytes and hepatocyte vacuolation, and decreased haemoglobin concentration at the next higher dose.	
Metcamifen	0.3	30	21 July 2020	Developmental rabbit study; a NOAEL of 30 mg/kg bw/d was based on increased incidence of skeletal and cartilage variants of the vertebrae and ribs, at the next higher dose.	
Methabenzthiazuron	0.05	5	22 November 1989	2-year dietary dog study; a NOAEL of 5 mg/kg bw/d was based on reduced bodyweight gain and histopathological lesions (steatosis, necrosis, fibrosis and granulocyte foci) in the liver in conjunction with elevated serum levels of ALT at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Methamidophos	0.0003	0.03	30 January 2004	8-week dietary rat study; a NOAEL of 0.03 mg/kg bw/d was based on inhibition of plasma, RBC and brain ChE activity at the next higher dose.	
Methidathion	0.002	0.16	31 May 2004	3-month dietary dog study; a NOAEL 0.16 mg/kg bw/d was based on evidence of liver cholestasis and inhibition of RBC ChE activity at the next higher dose.	
Methiocarb	0.002	0.2	1 March 2000	2-year dietary dog study; a NOAEL 0.2 mg/kg bw/d was based on inhibition of plasma ChE activity and reduced food consumption at the next higher dose.	
Methomyl	0.02	0.1(H)	5 March 2007	Human acute (capsule) study; a NOAEL of 0.1 mg/kg bw was based on significant and dose related RBC AChE inhibition at the next higher dose.	Source; JMPR 2001.



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Methoprene	0.4	35	14 January 2000	18-month dietary mouse study; a NOAEL of 35 mg/kg bw/d was based on pigment deposition in the liver at the next higher dose.	
Methoxychlor	0.1 (TDI)	JMPR'94	21 October 2003		Tolerable daily intake. A conventional ADI not maintained as methoxychlor is no longer used in agricultural practice. A TDI is maintained to enable potential dietary exposure assessments to be undertaken.
Methoxyfenozide	0.1	10	12 January 2001	89- to 99-week dietary rat study; a NOAEL of 10 mg/kg bw/d was based on reduced RBC and increased liver weight at the next higher dose. 1-year dietary dog study; a NOAEL of 10 mg/kg bw/d was based on an increase in methaemoglobin (heme group in RBC contains iron in the ferric (Fe <sup>3+</sup> ) state and not the usual ferrous (Fe <sup>2+</sup> ) state) and platelet count and reduced RBC at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Methyl benzoquat	0.05	100	10 November 1977		
Methyl bromide	0.0004	0.4	14 September 2001	3-month gavage rat study; a NOAEL of 0.4 mg/kg bw/d was based on clinical signs at the next higher dose.	
1-Methylcyclopropene			10 October 2003	There was insufficient information to establish an ADI, however, based on its proposed pattern of use the dietary intake is likely to be low.	
Metiram	0.02	5	10 February 1988	13-week dietary rat study; a NOAEL of 5 mg/kg bw/d was based on atrophy of skeletal muscle fibres, decreased thyroxine (T4) levels and altered thyroid function at the next higher dose.	
Metobromuron	0.005	0.5	20 June 2022	1-year dietary dog study; a NOAEL of 15 ppm (equal to 0.5 mg/kg bw/d) was based on increased number of Heinz bodies in blood at	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				the next higher dose. Supported by elevated sulfhaemoglobin levels at 50 ppm in a 28-day dose range-finding study in dogs. Additionally supported by a NOAEL of 3 ppm (equal to 0.7 mg/kg bw/d) for increased Heinz bodies observed at the next higher dose in a 2-year dietary study in mice.	
Metolachlor	0.08	7.5	12 November 1987		
Metosulam	0.05	5	18 January 1993	2-year dietary rat study; a NOAEL of 5 mg/kg bw/d was based on increased kidney weight and lesions (tubular epithelial hyperplasia, nuclear pleomorphism of the proximal tubule) at the next higher dose. Similar kidney lesions were also observed in a 2-gen reproduction rat study.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Metrafenone	0.25	25	13 April 2010	2-year dietary rat study; a NOAEL of 25 mg/kg bw/d was based on reduced body weight gain, increased liver weight with centrilobular hepatocellular hypertrophy and eosinophilic hepatocellular alterations at the next higher dose.	
Metribuzin	0.02	2	4 November 1982	2-year dietary rat study; a NOAEL of 2 mg/kg bw/d for increased absolute and relative weight of the heart at higher dose levels.	
Metsulfuron-methyl	0.01	1	1 August 1985	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on reduction in bodyweight at the next higher dose.	
Mevinphos	0.002	0.015 (H)	29 October 1998	30-day oral human study; a NOAEL of 0.015 mg/kg bw/d was based on the inhibition of RBC ChE activity at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Milbemectin	0.007	0.7	29 August 2005	2-year dietary rat study; a NOAEL of 0.7 mg/kg bw/d was based on increased kidney weight and endometrial polyps at the next higher dose.	
Molinate	0.0003	0.3 [LOAEL]	25 February 2022	2-year dietary rat study; a LOAEL of 0.3 mg/kg bw/d was based on based on degeneration or demyelination in the sciatic nerve.	The ADI incorporates a 1,000-fold uncertainty factor to account for inter- and intra-species variation in sensitivity, as well as for the use of a LOAEL rather than a NOAEL.
Monensin	0.01	1.25	10 November 1977		
Monepantel	0.03	2.96	10 November 2009	1-year dietary dog study; a NOAEL of 2.96 mg/kg bw/d was based on increased thyroid weight, increased liver pigmentation, reduced serum A/G ratio and increased alkaline phosphatase activity at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Monosodium Methylarsonate (MSMA)	0.0005	0.5	10 November 1994	3-month dietary rat studies; a NOAEL of 0.5 mg/kg bw/d was based on lesions (follicular epithelial hypertrophy) in the thyroid gland at the next higher dose.	
Morantel	0.01	1.2	26 November 2002	2-year dietary rat study; a NOAEL of 1.2 mg/kg bw/d was based on reduced body weight gain, food consumption and food conversion efficiency at the next higher dose. 2-year oral toxicity dog study; a NOAEL of 1.2 mg/kg bw/d was based on increased adrenal and liver weights at the next higher dose.	
Moxidectin	0.01	1	7 June 2004	3-month dietary dog study; a NOAEL of 0.3 mg/kg bw/d was based on reduced weight gain at the next higher dose. 1-year dietary dog study; a NOAEL of 1.12 mg/kg bw/d was based on	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				absence of any adverse effects at the highest tested dose. Developmental rabbit study; a NOAEL of 1 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
Myclobutanil	0.03	2.6	12 November 1987	2-year dietary rat study; a NOAEL of 2.6 mg/kg bw/d was based on reduced testicular weight at the next higher dose.	
N					
Naphthalophos	0.0001	0.25	7 December 1971		
Napropamide	0.1	11	29 July 1994	2-year dietary rat study; a NOAEL of 11 mg/kg bw/d was based on reduced bodyweight gain and an increased incidence of altered sinusoidal lining cells (spongiosis hepatis) at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Narasin	0.01	1.5	5 August 1983	1-year dietary rat study; a NOAEL of 1.5 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
Neomycin	0.06	6 (JECFA'96)	28 February 1986	3-month dietary guinea pigs study; a NOAEL of 6 mg/kg bw/d was based on ototoxicity (inner ear damage) observed at the next higher dose.	
Nicarbazin	2	240	4 November 1982	2-year dog study; a NOAEL of 240 mg/kg bw/d was based on increased liver enzyme (ALT) levels at the next higher dose.	
Niclosamide	0.1	14 (H)	20 September 2016	Short term repeat dose human therapeutic study; a LOAEL of 14 mg/kg bw/d was based on the lowest effective therapeutic (anthelmintic) dose in humans.	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Nitroxylin	0.02	2	20 August 1974		
Norflurazon	0.02	1.5	1 November 1984		
Norgestomet	0.0000005	0.001	5 December 1985	84-day dietary monkey study; a pharmacological NOAEL of 0.001 mg/kg bw/d was based on hormonal effects (amenorrhoea) at the next higher dose.	
Novaluron	0.01	1.1	17 January 2001	2-year dietary rat study; a NOAEL of 1.1 mg/kg bw/d was based on anaemia (reductions in RBC, MCHC and increased reticulocyte count), increased spleen weight and an increased incidence and severity of haemosiderosis in the spleen at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Nuclear polyhedrosis virus of helioverpa armigera occlusion bodies			17 December 2003		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
<b>0</b>					
n-Octyl bicycloheptene dicarboximide	0.07	7.5	25 May 1995	1-year dietary dog study; a NOEL of 7.5 mg/kg bw/d was based on elevated serum enzyme activity, liver pigmentation and hepatocellular hypertrophy at the next higher dose.	
Olaquinox	0.06	6	7 May 1981	2-year dietary rat study; a NOAEL of 6 mg/kg bw/d was based on reduced bodyweight gain and reduced testicular weight at the highest tested dose.	
Omethoate	0.0004	0.04	20 October 2005	2-year dietary rat study; a NOAEL of 0.04 mg/kg bw/d was based on inhibition of plasma ChE activity at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Ortho-Phenylphenol (see 2-phenylphenol)					
Oryzalin	0.1	12	5 May 1982		
Oxabetrinil	0.005	10	2 May 1985	3-month dietary dog study; a NOAEL of 10 mg/kg bw/d was based on reduced body and thymus weights at the next higher dose.	
Oxadiargyl	0.008	0.8	28 June 1999	2-year dietary rat study; a NOAEL of 0.8 mg/kg bw/d was based on histopathological changes in the liver and kidneys at the next higher dose.	
Oxadiazon	0.05	5	17 August 1989	2-year dietary rat study; a NOAEL of 5 mg/kg bw/d was based on ocular changes, haematological suppression (RBC, Hct, Hb and WBC), liver degeneration (focal necrosis), and tubular nephrosis of kidney at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Oxadixyl	0.01	1.3	2 June 1988	6-month dietary dog study; a NOAEL of 1.3 mg/kg bw/d was based on elevated serum enzyme (Alk phos) level at the next higher dose.	
Oxamyl	0.002	0.2	18 May 1993	Developmental rat study; a NOAEL of 0.2 mg/kg bw/d was based on reduced foetal bodyweight at the next higher dose.	
Oxathiapiprolin	4	411	30 July 2015	2-gen reproduction rat study; a NOAEL of 411 mg/kg bw/d was based on increased interval to preputial separation in males at the next higher dose.	
Oxfendazole	0.005	0.5	8 October 1990	2-year dietary rat study; a NOAEL of 0.5 mg/kg bw/d was based on hepatocellular vacuolation at the next higher dose.	
Oxibendazole	0.01	10	2 June 1998	3-month capsule fed dog study; a NOAEL of 10 mg/kg bw/d was	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				based on reduced food consumption, reduced body weight gains and reduced testes weights at the next higher dose.	
Oxycarboxin	0.15	15	15 August 1979		
Oxyclozanide	0.002	5	18 March 1976	3-month dietary dog study; a NOAEL of 5 mg/kg bw/d was based on vacuolation in brain cells at the highest tested dose.	
Oxyfluorfen	0.025	2.5	5 August 1982	2-year dietary rat study; a NOAEL of 2.5 mg/kg bw/d was based on reduction in thyroid weight and hepatocyte enlargement at the next higher dose.	
Oxytetracycline	0.03	0.033	10 October 2016	Long history of safe use in human medicine.	Selection of resistant bacterial strains appears to be the most sensitive end-point for use in risk assessment. As humans show little variation with respect to this effect, JECFA concluded that no uncertainty (safety) factor was needed (JECFA-02).

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
P					
Paclobutrazol	0.01	1.4	10 February 1988	2-year dietary rat study; a NOAEL of 1.4 mg/kg bw/d was based on hepatocellular effects, reduction in bodyweight gain and reduced serum triglyceride levels at the next higher dose.	
Paraquat (as cation)	0.004	0.45	27 June 2003	1-year dietary dog study; a NOAEL of 0.45 mg/kg bw/d was based on pulmonary lesions at the next higher dose.	
Pebulate	0.007	0.7	5 December 1990	2-year dietary rat study; a NOAEL of 0.7 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose. 2-gen reproduction rat study; a NOAEL of 0.75 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
Penconazole	0.007	0.71	6 February 1986	2-year dietary mouse study; a NOAEL of	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				0.71 mg/kg bw/d was based on the increased weight of prostate and adrenal glands at the next higher dose.	
Pencycuron	0.02	2	23 May 1994	2-year dietary rat study; a NOAEL of 2 mg/kg bw/d was based on increased liver, adrenal, kidney, testes and thyroid weights at the next higher dose.	
Pendimethalin	0.1	12.5	18 February 1987	2-year dietary dog study; a NOAEL of 12.5 mg/kg bw/d was based on increased serum alkaline phosphatase, liver weight and hepatic lesions at the next higher dose.	
Penflufen	0.02	4 [LOAEL]	10 October 2012	2-year dietary rat study; based on an increased incidence of histiocytic sarcomas at the lowest tested dose 4 mg/kg bw/d.	
Penthiopyrad	0.1	11	1 February 2012	2-gen reproduction rat study; a NOAEL of 11 mg/kg bw/d was	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				based on reduced body weight gain, increased adrenal weight and an increased incidence of cortical hypertrophy at the next higher dose.	
Permethrin	0.05	5	29 May 1986	2-year dietary rat study; a NOAEL of 5 mg/kg bw/d was based on clinical signs, body and ovarian weights and clinical chemistry findings at the next higher dose. 1-year dietary dog study; a NOAEL of 5 mg/kg bw/d based on reduced body weight gain at the next higher dose.	
Phenmedipham	0.03	3.4	13 April 2011	1-year dietary rat study; a NOAEL of 3.4 mg/kg bw/d was based on reduced RBC, Hct, Hb and haemosiderin deposition in the liver at the next higher dose.	
d-Phenothrin	0.05	5	1988	1-year dietary dog study; a NOAEL of 5 mg/kg bw/d was based on hepatocellular hypertrophy and focal	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				degeneration of the adrenal cortex at the next higher dose.	
2-Phenylphenol	0.4	39	21 October 2003	2-year dietary rat study; a NOAEL of 39 mg/kg bw/d was based on reduced bodyweight gain, hyperplasia of the urinary bladder and carcinogenicity of the urinary bladder in male rats.	JMPR'99.
Phenothrin	0.02	2.5	10 February 1988		
Phorate	0.0005	0.05	30 August 1991	2-year dietary rat study; a NOAEL of 0.05 mg/kg bw/d was based on reduced plasma and brain ChE activity at the next higher dose.	
Phosmet	0.01	1	12 November 1987	2-year dietary dog study; a NOAEL of 1 mg/kg bw/d was based on reduced plasma, RBC and brain ChE activity at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Picloram	0.07	7	18 February 1987	6-month dietary dog study; a NOAEL of 7 mg/kg bw/d was based on increased relative liver weight at the next higher dose.	
Picolinafen	0.007	1.4 [LOAEL]	1 August 2000	1-year dietary dog study; based on reduced body weight gain at the lowest tested dose of 1.4 mg/kg bw/d.	
Pinoxaden	0.1	10	29 August 2005	2-year dietary rat study; a NOAEL of 10 mg/kg bw/d based on reduced serum phosphate levels and thymus atrophy at higher doses.	
Piperonyl butoxide	0.2	16	22 November 2021	1-year dietary dog study; a NOAEL of 16 mg/kg bw/d was based on reduced body weight gain, liver hypertrophy and increased plasma AP activity at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Pirimicarb	0.002	0.4	10 September 1987	3-month dietary dog study; a NOAEL of 0.4 mg/kg bw/d was based on a slight increase in megaloblasts (large, abnormally developed red blood cells) in the bone marrow at the next higher dose.	
Pirimiphos-methyl	0.02	0.25 (H)	30 August 1991	28-and 56-day oral human studies; a NOAEL of 0.25 mg/kg bw/d was based on the absence of any adverse effects at the highest tested dose of 0.25 mg/kg bw/d.	
Polyoxin D Zinc salt	Not specified		08 June 2021		(See item 4 under Notes)
Porcine gonadotrophins			25 June 2002		ADI considered to be unnecessary due to its low oral toxicity.
Porcine somatotropin			29 August 1991		ADI considered to be unnecessary due to its low oral toxicity.
Prallethrin	0.02	2.5	18 January 1993	1-year capsule fed dog study; a NOAEL of 2.5 mg/kg bw/d was based on increased deposition	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				of lipofuscin in kidney and bladder at the next higher dose.	
Praziquantel	0.02	20	22 June 1995	13-week capsule fed dog study; a NOAEL of 20 mg/kg bw/d was based on increased relative liver and thyroid weights at the next higher dose.	
Prochloraz	0.01	1	5 August 1982		
Procymidone	0.05	4.5	11 October 2022	18-month dietary study in mice; a NOAEL of 4.5 mg/kg bw/d was based on hepatotoxicity and atrophy of testicular seminiferous tubules observed at the next higher dose.	
Prodiamine	0.05	5	22 December 1994	3-month and 1-year dietary dog studies; an overall NOAEL of 5 mg/kg bw/d was based on increased liver weight (incl. centrilobular necrosis), WBC and platelets, and reduced	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				thymus weight at the next higher dose.	
Profenofos	0.0001	0.0072	4 February 1982	6-month dietary dog study; a NOAEL of 0.0072 mg/kg bw/d was based on a reduction in plasma ChE activity at the next higher dose.	
Profoxydim	0.05	5	29 November 2006	2-year dietary rat study; a NOAEL of 5 mg/kg bw/d was based on decreased alkaline phosphatase and cholesterol levels and mild anaemia (reduced Hct, RBC, and Hb) at the next higher dose.	
Prohexadione-calcium	0.2	20	20 December 2007	2-year dietary rat study; a NOAEL of 18.5 mg/kg bw/d was based on reduced bodyweight gain and food conversion efficiency, abnormal haematology, clinical chemistry and thyroid histopathology at the next higher dose. 1-year dietary dog study; a NOAEL of 20 mg/kg bw/d was based on abnormal	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				haematology, clinical chemistry and renal histopathology at the next higher dose.	
Prometryn	0.03	3	17 May 1990	2-year dietary rat study; a NOAEL of 3 mg/kg bw/d was based on fatty changes in the liver at the next higher dose.	
Propachlor	0.02	2	11 August 1988	2-year dietary rat study; a NOAEL of 2 mg/kg bw/d was based on increased thyroid and parathyroid weights at the next higher dose.	
Propamocarb	0.4	39	26 November 2015	1-year dietary dog study; a NOAEL of 39 mg/kg bw/d was based on vacuolization in epididymes, lacrimal glands, lymph nodes, oesophageal glands, salivary glands and uterine cervix at the next higher dose.	
Propanil	0.2	20	19 February 1981		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Propaquizafop	0.003	0.3	26 November 1992	80-week dietary mouse study; a NOAEL of 0.3 mg/kg bw/d was based on increased liver weight at the next higher dose.	
Propargite	0.002	2	17 June 1999	20-month dietary rat study; a NOAEL of 2 mg/kg bw/d was based on a transient cell proliferative response (increased jejunal smooth muscle cells) at the next higher dose.	
Propazine	0.02	1.5	16 June 1986	3-month dietary dog study; a NOAEL of 1.5 mg/kg bw/d was based on reduced body weight at the next higher dose.	
Propetamphos	0.001	0.1	14 February 1985	6-month dietary dog study; a NOAEL of 0.1 mg/kg bw/d was based on a reduction of plasma and RBC ChE activity at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Propiconazole	0.07	7	30 August 2018	The ADI is based on a NOAEL of 7 mg/kg bw/d derived from a 2-generation toxicity study in rats where reduced body weights occurred in the F2 generation at the next highest dose. A 100-fold uncertainty factor has been applied. This choice of NOAEL is supported by NOAELs of 11mg/kg bw/d in a 24-month study in mice, and 18mg/kg bw/d in a 2-year study in rats. This ADI is considered to be adequately protective against the local effects on the gastrointestinal tract observed in dogs (NOAEL, 1.9 mg/kg bw/d).	
Propineb	0.0005	0.05 for PTU	15 February 2007	2-year dietary rat study; a NOAEL of 0.05 mg/kg bw/d was based on increased cholesterol levels and increased plasma protein levels at the next higher dose.	The ADI for propineb is a group value, which includes propineb and its impurity/metabolite propylene thiourea (PTU).



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Propoxur	0.02	0.2 (H)	5 November 1986	Acute dose human study; a NOAEL of 0.2 mg/kg bw was based on inhibition of plasma ChE activity at the next higher dose.	
Propylene oxide	0.006	2.9	24 July 2006	124-week inhalation rat study; a NOAEL of 30 ppm (equivalent to NOAEL of 2.9 mg/kg bw/d) was based on reduced body weight gain and increased mortality at the next higher dose.	
Propylene thiourea (PTU)	0.0005	0.05	2 December 1988		
Propyzamide	0.04	40 [LOAEL]	11 December 2018	<p>Point of departure was derived using a weight of evidence approach based on:</p> <ul style="list-style-type: none"> <li>Acute neurotoxicity LOAEL of 40 mg/kg bw in rats due to increased landing foot splay and decreased motor activity.</li> </ul>	Total uncertainty factor used was 1,000.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				<ul style="list-style-type: none"> <li>• Subchronic neurotoxicity NOAEL of 2.4 mg/kg bw/d based on decreased body weight and food consumption in males at the next highest dose.</li> <li>• Chronic toxicity NOAEL of 8.5 mg/kg bw/d with hepatotoxicity, thyroid lesions and ovarian lesions occurring at higher doses.</li> </ul>	
Proquinazid	0.01	1.2	6 December 2011	2-year dietary rat study; a NOAEL of 1.2 mg/kg bw/d was based on alteration/degeneration, cholangiofibrosis, fatty change, hyperplasia of oval cells and/or bile ducts at the next higher dose.	
Prosulfocarb	0.02	1.9	21 August 2006	2-year dietary rat study; a NOAEL of 1.9 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Prothioconazole	0.01	1.1	28 March 2006	2-year dietary rat study; a NOAEL of 1.1 mg/kg bw/d was based on increased liver weight, hepatocellular hypertrophy and liver vacuolation with fatty change at the next higher dose.	Since the residue definition for risk assessment in all commodities is expressed as prothioconazole-desthio and this metabolite is of higher toxicity than the parent, a group ADI was established to include prothioconazole-desthio.
Prothiofos	0.0001	0.01	29 October 1993	1-year dietary dog study; a NOAEL of 0.01 mg/kg bw/d was based on reduced plasma ChE activity at the next higher dose.	
Pydiflumetofen	0.1	10	21 February 2017	1-year dietary rat study; a NOAEL of 10 mg/kg bw/d was based on reduced body weight gain, food consumption and food energy conversion efficiency at the next higher dose.	
Pymetrozine	0.006	0.57	8 December 2000	1-year dietary dog study; a NOAEL of 0.57 mg/kg bw/d was based on anaemia and increased blood prothrombin (clotting) time, plasma cholesterol	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				and phospholipid level at the next higher dose.	
Pyraclofos	0.001	0.1	29 August 1991	2-year dietary mouse study; a NOAEL of 0.1 mg/kg bw/d was based on reduced RBC and plasma ChE activity at the next higher dose.	
Pyraclostrobin	0.03	3	26 June 2008	2-year dietary rat study; a NOAEL of 3 mg/kg bw/d was based on reduced body weight gain at the next higher dose.	
Pyraflufen-ethyl	0.2	20	17 December 2004	18-month dietary mouse study; a NOAEL of 20 mg/kg bw/d was based on increased liver weight at the next higher dose. 2-year dietary rat study; a NOAEL of 20 mg/kg bw/d was based on increased urinary volume and relative kidney weight and decreased specific gravity in the urine at the next higher dose. Developmental rabbit study; a NOAEL of	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				20 mg/kg bw/d was based on increased mortality at the next higher dose.	
Pyrasulfotole	0.01	1	19 October 2007	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on corneal and retinal lesions, increased liver weight, centrilobular hepatocellular hypertrophy and increased plasma cholesterol at the next higher dose.	
Pyrethrins (pyrethrum extracts)	0.04	4	6 December 2018	2-year dietary rat study; a NOAEL of 4 mg/kg bw/d was based on an increased incidence of benign tumours of the skin, liver and thyroid observed at the next higher dose.	A total uncertainty factor of 100 has been applied. JMPR'03.
Pyridaben	0.01	1	13 August 1992	3-month and 1-year dog (capsule) studies; the overall NOAEL of 1 mg/kg bw/d was based on clinical signs (ptyalism) and	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				bodyweight loss at the next higher dose.	
Pyridate	0.2	18	20 June 1991	2-year dietary rat study; a NOAEL of 18 mg/kg bw/d was based on reduced feed intake and lower bodyweight gain at the next higher dose.	
Pyrimethanil	0.2	17	1 November 1995	2-year dietary rat study; a NOAEL of 17 mg/kg bw/d was based on reduced body weight gain and food consumption at the next higher dose.	
Pyriofenone	0.09	9	26 November 2014	1-year dietary rat study; a NOAEL of 9 mg/kg bw/d was based on changes indicative of altered liver function; a decrease in bilirubin and a decrease in alkaline phosphatase at the next higher dose. 2-year dietary rat study; a NOAEL of 9 mg/kg bw/d was based on increased incidence of chronic nephropathy of the	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				kidneys at the next higher dose.	
Pyriproxyfen	0.07	7	11 March 1994	2-year dietary rat study; a NOAEL of 7 mg/kg bw/d was based on reduced bodyweight gain, transient increases in clinical chemistry parameters and increased relative liver weight at the next higher dose.	
Pyriithobac sodium	0.2	21	18 May 1995	18-month dietary mouse study; a NOAEL of 21 mg/kg bw/d was based on elevated peroxisomal beta-oxidation rates at the next higher dose.	
Pyroxasulfone	0.02	2	10 February 2017	1-year capsule fed dog study; a NOAEL of 2 mg/kg bw/d was based on impaired hind limb function, ataxia, hind limb twitching and tremors at the next higher dose.	
Pyroxsulam	1	100	14 April 2008	18-month dietary mouse study, a NOAEL of 100 mg/kg bw/d was based on increased absolute	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				and relative liver weight associated with histopathological changes (increased incidence of clear cell foci of alteration) at the next higher dose.	
<b>Q</b>					
Quinclorac	0.3	35	13 September 2004	1-year dietary dog study; the NOAEL of 35 mg/kg bw/d was based on reduced food conversion efficiency, lower plasma creatinine levels and increased kidney weight at the next higher dose.	
Quinoxifen	0.2	20	15 January 2002	2-year dietary rat study; a NOAEL of 20 mg/kg bw/d was based on increased organ weights, increased incidence of severe chronic progressive glomerulonephropathy and enhanced growth of testicular tumours at the next higher dose. 1-year dietary dog study; a NOAEL of 20 mg/kg bw/d was based on	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				reduced body weight gain, increased liver weight, liver pathological changes and anaemia at the next higher dose.	
Quintozene	0.007	0.7	10 September 1987	2-year dietary dog study; a NOAEL of 0.7 mg/kg bw/d was based on increased liver weight with cholestatic hepatitis and increased serum AP levels at the next higher dose.	
Quizalofop-ethyl	0.01	1.25	12 November 1987	2-year dietary rat study; a NOAEL of 1.25 mg/kg bw/d was based on increased liver weight (hepatocyte hypertrophy) at the next higher dose.	
Quizalofop-P-tefuryl	0.01	1.3	14 November 1996	2-year dietary rat study; a NOAEL of 1.3 mg/kg bw/d was based on the induction of peroxisome proliferation with accompanying histopathological changes in the liver and tumourigenesis in the	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				liver and testis at the next higher dose.	
<b>R</b>					
Ractopamine	0.001	0.125	30 July 2002	1-year gavage monkey study; a NOAEL of 0.125 mg/kg bw/d was based on increased heart rates and lower relative heart weight at the next higher dose. Single-dose human study; a NOAEL of 0.133 mg/kg bw/d was based on increased heart rate and cardiac output at the next higher dose.	
Rimsulfuron	0.02	1.6	24 June 1997	1-year dietary dog study; a NOAEL of 1.6 mg/kg bw/d was based on biochemical changes, reduced body weight gain and testicular degeneration at the next higher dose.	
Robenidine	0.005	10	17 September 1997	2-year dietary dog study; a NOAEL of 10 mg/kg bw/d was based on increased	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				liver weight at the next higher dose.	
<b>S</b>					
Saccharomyces cerevisiae			4 September 2002		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Saflufenacil	0.05	5	13 February 2017	18-month dietary mouse study; a NOAEL of 5 mg/kg bw/d was based on microcytic hypochromic anaemia at the next higher dose.	
Salinomycin	0.01	1	12 November 1981		
Sedaxane	0.11	11	24 April 2011	2-year dietary rat study; a NOAEL of 11 mg/kg bw/d was based on decreased hind grip strength, increased liver weight, increased incidences of hepatocyte hypertrophy and eosinophilic foci, and thyroid follicular cell hypertrophy, basophilic colloid and epithelial	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				desquamation at the next higher dose.	
Semduramicin	0.003	0.3	11 June 1997	1-year dietary dog study; a NOAEL of 0.3 mg/kg bw/d was based on increased blood urea nitrogen, plasma ALT and SDH levels and WBC counts, hypertension and ocular changes at the next higher dose.	
Sethoxydim	0.18	18	5 August 1982	2-year dietary rat study; a NOAEL of 18 mg/kg bw/d was based on increased relative and absolute liver weight that was associated with fatty degeneration and hepatocyte swelling at the higher dose.	
Siduron	0.025	2.5	2 March 1994	2-year dietary dog study; a NOAEL of 2.5 mg/kg bw/d was based on histopathological effects (focal tubular atrophy and multinucleated spermatocytes in the testes and thyroid	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				inflammation) at the next higher dose.	
Simazine	0.005	0.5	5 December 1990	2-year dietary rat study; a NOAEL of 0.5 mg/kg bw/d was based on reduced bodyweight gain and haematological effects (reduced RBC, Hb and Hct) at the next higher dose.	
Spectinomycin	1	100	5 August 1983		
Spinetoram	0.06	6	5 May 2008	28-day dietary dog study; a NOAEL of 6 mg/kg bw/d was based on reduced food consumption and body weight gain, vacuolization of macrophages, multifocal bone marrow necrosis and non-regenerative anaemia at the next higher dose.	
Spinosad	0.02	2.4	2 May 1997	2-year dietary rat study; a NOAEL of 2.4 mg/kg bw/d was based on thyroid vacuolation at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Spiramycin	0.75	75	9 February 1978		
Spirotetramat	0.05	5	18 August 2008	1-year dietary dog study; a NOAEL of 5 mg/kg bw/d was based on an increased incidence of thymus involution at the next higher dose.	
Spiroxamine	0.02	2.5	2 July 2001	1-year dietary dog study; a NOAEL of 2.5 mg/kg bw/d was based on enlarged liver cells (hepatocytomegaly) and eye changes (cataracts and lenticular opacity) and mild anaemia (reduced RBC, Hb and Hct) at the next higher dose.	
Streptomycin (and dihydrostreptomycin)	0.05	5 (JECFA '97)	28 June 2001	2-year dietary rat study; a NOAEL of 5 mg/kg bw/d was based on decreased body weight gains at the next highest dose of 10 mg/kg bw/d dihydrostreptomycin.	NOAEL based on a study performed with dihydrostreptomycin due to the close relatedness of the 2 drugs.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Streptomyces lydicus			7 June 2016		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Sulfadiazine	0.02	37.5	20 May 1993	Developmental rat study; a NOAEL of 37.5 mg/kg bw/d was based on reduced fetal bodyweight and C-R length at the next higher dose.	
Sulfadimidine	0.02	2	20 May 1993	2-year dietary rat study; a NOAEL of 2 mg/kg bw/d was based on an increase in thyroid weight (incl. follicular cell hyperplasia and multilocular cysts) at the next higher dose.	
Sulfadoxine	0.05	50	22 May 1995	3-month gavage monkey study; a NOAEL of 50 mg/kg bw/d was based on increased liver weights at the next higher dose.	
Sulfaquinoxaline	0.01	1	24 July 1997	3-month dietary dog study; a NOAEL of 1 mg/kg bw/d was based on increased	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				thyroid weights at the next higher dose.	
Sulfometuron-methyl	0.02	2.5	29 August 1991	2-year dietary rat study; a NOAEL of 2.5 mg/kg bw/d was based on haematological (lower RBC, Hct) and bile duct (hyperplasia and fibrosis) effects at the next higher dose.	
Sulfosulfuron	0.2	24	119 December 1997	2-year dietary rat study; a NOAEL of 24 mg/kg bw/d was based on induced pathology in the kidneys and urinary bladder and associated biochemical and urinary findings at the next higher dose.	
Sulfoxaflor	0.04	4.24	27 June 2013	2-year dietary rat study; a NOAEL of 4.24 mg/kg bw/d was based on increased serum cholesterol and histopathological liver effects at the next higher dose.	
Sulfuryl Fluoride	0.01	20 ppm	25 August 2006	2-year inhalation rat study; a NOAEL of (20 ppm) (approximately	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				equivalent to a systemic exposure at 1.4 mg/kg bw/d) was based on effects on the kidney, brain, bone and survival at the next higher dose.	
<b>T</b>					
Tebuconazole	0.03	3	10 February 2023	1-year dietary dog study; a NOAEL of 2.96 mg/kg bw/d was based on lenticular opacity and histopathological effects in the adrenals (hypertrophy of zona fasciculata cells) at the next higher dose.	Point of departure is supported by the NOAEL of 3 mg/kg bw/d for maternotoxicity manifesting as slight hepatotoxicity at the next higher dose in a rabbit pre-natal developmental toxicity study.
Tebufenozide	0.02	1.8	9 October 1996	2-gen reproduction rat study; a NOAEL of 1.8 mg/kg bw/d for parental toxicity was based on histopathological lesions in the spleen (congestion, pigment, and extra-medullary haematopoiesis) at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Tebufenpyrad	0.002	0.2	15 January 1993	2-year dietary rat study; a NOAEL of 0.2 mg/kg bw/d was based on increased relative and absolute liver weights at the next higher dose.	
Tebuthiuron	0.07	7	14 February 1985	2-gen reproduction rat study; a NOAEL of 7 mg/kg bw/d was based on reduced body weight gain in adults and pups at the next higher dose.	
Temephos	0.1	1 (H)	10 February 1988	4-week human study; a NOAEL of 1 mg/kg bw/d was based on a reduction in plasma ChE activity and clinical signs at the next higher dose.	
Tepraloxydim	0.05	5	19 May 2002	2-year dietary rat study; a NOAEL of 5 mg/kg bw/d was based on increased ovary weights and increased incidence of ovarian cysts at the next highest dose of 600 ppm.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Terbacil	0.06	6.25	12 November 1987	2-year dietary dog study; a NOAEL of 6.25 mg/kg bw/d was based on increased relative liver weight at the next higher dose.	
Terbufos	0.0002	0.0025	26 November 1992	6-month dietary dog study; a NOAEL of 0.0025 mg/kg bw/d was based on plasma ChE inhibition at the next higher dose.	
Terbuthylazine	0.003	0.35	4 May 2001	2-year dietary rat study; a NOAEL 0.35 mg/kg bw/d was based on reduced body weight gain and food consumption at the next higher dose.	
Terbutryn	0.1	10	29 May 1986	6-month (capsule) dog study; a NOAEL of 10 mg/kg bw/d was based on CNS (salivation, hyper-responsiveness to auditory stimuli & apprehensive behaviour) and intestinal effects (duodenal mucosal	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				thickening) at the next higher dose.	
$\alpha$ -terpinene	0.03	30	12 August 2010	Based on a NOEL of 30 mg/kg bw/d in a embryo-/foetotoxicity study with $\alpha$ -terpinene, based on delayed ossification, reduced kidney weight and skeletal anomalies and using a 1,000-safety factor.	1000-fold safety factor including a 10-fold safety factor to account for the seriousness of the critical health effect concern (i.e. developmental toxicity)
Tetraconazole	0.004	0.4	12 December 2002	2-year dietary rat study; a NOAEL of 0.4 mg/kg bw/d was based on histopathological changes in the liver (hepatocyte enlargement, eosinophilic hepatocytes, cystic degeneration and bile duct hyperplasia) at the next higher dose.	
Tetramethrin	0.02	2	14 August 1992	2-year dietary mouse study; a NOAEL of 2 mg/kg bw/d was based on reduced pituitary and thyroid/parathyroid	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				weight at the next higher dose.	
Tetraniliprole	0.9	88	29 May 2020	12-month dietary dog study; a NOAEL of 88 mg/kg bw/d was based on decreased body weights, clinical chemistry changes and slight histopathology changes in the adrenal gland at the next higher dose.	
Thiabendazole	0.3	3 (H)	2 June 1988	24-week capsule human study; a NOAEL of 3 mg/kg bw/d was based on an absence of any adverse effects at this dose (the highest tested).	
Thiacloprid	0.01	1.2	20 July 2001	2-year dietary rat study; a NOAEL of 1.2 mg/kg bw/d was based on liver toxicity and thyroid changes (follicular epithelial hypertrophy) secondary to liver enzyme induction at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Thiamethoxam	0.02	2	14 April 2000	2-generation reproduction rat study; a NOAEL of 2 mg/kg bw/d was based on reduced bodyweight gains in the pups at the next higher dose.	
Thidiazuron	0.02	2.5	20 June 1991	1-year dietary dog study; a NOAEL of 2.5 mg/kg bw/d was based on haematological effects (haemolytic anaemia) at the next higher dose.	
Thifensulfuron	0.01	1.25	16 February 1989	2-year rat dietary rat study; a NOAEL of 1.25 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
Thiobencarb	0.01	1	10 November 1989	1-year (capsule) dog study; a NOAEL of 1 mg/kg bw/d was based on reduced plasma ChE activity at the next higher dose.	
Thiodicarb	0.03	3	5 August 1983	2-year dietary rat study; a NOAEL of 3 mg/kg bw/d was based on	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				increased incidence of pituitary cysts at the next higher dose. 2-year dietary mouse study; a NOAEL of 3 mg/kg bw/d based on increased mortality at the next higher dose.	
Thiophanate-methyl	0.08	8	15 February 2011	1-year oral capsule fed dog study; a NOAEL of 8 mg/kg bw/d was based on thyroid hyperplasia observed at the next higher dose. 2-year dietary rat study; a NOAEL of 8 mg/kg bw/d was based on thyroid hyperplasia and thyroid tumours.	
Thiram	0.004	0.4	30 March 1995	2-year dietary dog study; a NOAEL of 0.4 mg/kg bw/d was based on neurological disturbances, anaemia and changes in the liver at the next higher dose.	
Thymol	0.03	-	19 August 2020	Based on a Threshold of Toxicological Concern approach using 1.8 mg/day (assuming a 60 kg	JECFA (2001) recommendation in the absence of adequate data to establish a NOAEL.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				bodyweight) as the threshold for all flavouring agents in Structural Class I (Cramer et al, 1978).	
Tiafenacil	0.004	0.35	22 December 2020	78 week mouse dietary study; a NOAEL of 0.35 mg/kg bw/d was based on an increased incidence of pigmented Kupffer cells (haemosiderosis) in the liver at the next higher dose.	
Tilimicosin	0.002	4	13 August 1992	1-year capsule fed dog study; a NOAEL of 4 mg/kg bw/d was based on reduction in bodyweight gain at the next higher dose.	
Tolclofos-methyl	0.05	5	10 February 1988	6-month dietary dog study; a NOAEL of 5 mg/kg bw/d was based on reduced plasma ChE activity at the next higher dose.	
Tolfenamic acid	0.005	0.5 (H)	16 January 2001	Single dose human therapeutic study; a LOAEL of 0.5 mg/kg bw/d was based on the	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				lowest effective therapeutic (antipyretic) dose in humans.	
Toltrazuril	0.002	1 [LOAEL]	31 December 2019	2-year dietary rat study; based on pre-neoplastic lesions in the uterus at the LOAEL of 1 mg/kg bw/d,	A total uncertainty factor of 500 has been applied.
Topramezone	0.004	0.4	16 June 2016	2-year dietary rat study; a NOAEL of 0.4 mg/kg bw/d was based on effects in the eye (corneal opacity and chronic keratitis), increased kidney weights and an increased incidence of thyroid lesions (diffuse follicular cell hypertrophy, follicular cell hyperplasia and adenoma/carcinoma) at the next higher dose. Supported by 2 studies: 2-gen reproduction rat study; a NOAEL of 0.4 mg/kg bw/d was based on corneal opacity, increased liver, kidney and thyroid weights at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				Developmental rabbit study; a NOAEL of 0.4 mg/kg bw/d was based on incomplete ossification at the next higher dose.	
Tralkoxydim	0.005	0.5	29 August 1991	1-year dietary dog study; a NOAEL of 0.5 mg/kg bw/d was based on increased adrenal weight and histopathological lesions (vacuolation) at the next higher dose.	
Transfluthrin	0.003	0.25	16 October 1995	53-week dietary dog study; a NOAEL of 0.25 mg/kg bw/d was based on the absence of treatment-related changes at 0.25 mg/kg bw/d.	
Triadimefon	0.03	3.4	25 August 2017	3-month dietary rat study; a NOAEL of 3.4 mg/kg bw/d was based on hyperactivity at the next higher dose.	JMPR 2004.
Triadimenol	0.03	3.4	20 January 2023	3-month dietary rat study of triadimefon; a NOAEL of 3.4 mg/kg bw/d was based on	Triadimefon is closely structurally related to triadimenol. Triadimenol is also a major metabolite of triadimefon.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				hyperactivity at the next higher dose.	Same as JMPR 2004
Triallate	0.005	0.5	1 December 1988	2-year dietary rat study; a NOAEL of 0.5 mg/kg bw/d was based on reduced liver weight and testicular changes at the next higher dose.	
Triasulfuron	0.005	0.5	14 February 1991	2-year dietary rat study; a NOAEL of 0.5 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
Tribenuron-methyl	0.01	0.95	15 April 1994	2-year dietary rat study; a NOAEL of 0.95 mg/kg bw/d was based on reduced bodyweight gain and food energy conversion at the next higher dose.	
Trichlorfon	0.002	0.2	29 May 1986	10-year dietary monkey study; a NOAEL of 0.2 mg/kg bw/d was based on reduced plasma and RBC ChE activity, haematological and thyroid wt effects at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Triclabendazole	0.002	0.15	23 May 1996	2-generation gavage rat study; a NOAEL of 0.15 mg/kg bw/d was based on increased pup mortality at the next higher dose.	
Triclopyr	0.005	0.5	5 November 1986	1-year dietary dog study; a NOAEL of 0.5 mg/kg bw/d was based on reduced phenolsulfonphthalein excretion, increased plasma BUN and creatinine at the next higher dose.	
Trifloxystrobin	0.05	5	29 September 1998	1-year capsule fed dog study; a NOAEL of 5 mg/kg bw/d was based on increased absolute and relative liver weights, hepatocellular hypertrophy, biochemical changes, diarrhoea, reduced food consumption and reduced weight gain at the next higher dose.	
Trifloxysulfuron	0.2	15	19 May 2002	1-year dietary dog study; a NOAEL of	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				15 mg/kg bw/d was based on increased liver weight, decreased bilirubin and atrophy in the thymus at the next higher dose.	
Trifludimoxazin	0.1	10.7	28 May 2020	2-year dietary rat study; a NOAEL of 10.7 mg/kg bw/d based on altered liver histopathology associated with enlarged livers and increased serum GGT at the next higher dose.	
Triflumuron	0.007	0.7	2 June 1988	1-year dietary dog study; a NOAEL of 0.7 mg/kg bw/d was based on haematological changes (reduced RBC, Hb, Hct & MCHC; increased Ret) at the next higher dose.	
Trifluralin	0.02	2.5	30 August 1991	2-gen reproduction rat study; a NOAEL of 2.5 mg/kg bw/d was based on haematological changes (reduced RBC, Hb and	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				PCV) observed at the next higher dose.	
Triforine	0.02	2.7	10 September 1987	2-year dietary dog study; a NOAEL of 2.7 mg/kg bw/d was based on haematological changes (reduced Hb), increased erythropoiesis and haemosiderin deposition in the liver and bone marrow at the highest tested dose.	
Trimethoprim	0.02	33	20 May 1993	3-month gavage monkey study; a NOAEL of 33 mg/kg bw/d was based on anaemia (incl. reticulocytosis) at the next higher dose.	
Trinexapac-ethyl	0.01	1.4	14 December 1993	1-year dietary dog study; a NOAEL of 1.4 mg/kg bw/d was based on reduced testes and uterine weights at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Triticonazole	0.02	2	13 January 1997	13-week dietary rat study; a NOAEL of 2 mg/kg bw/d was based on histopathology of the adrenal cortex at the next higher dose. 1-year dietary dog study; a NOAEL of 2.5 mg/kg bw/d was based on adverse effects on the liver (clinical chemistry and enlargement) at the next higher dose.	
Tulathromycin	0.005	(M)	11 August 2006	A microbiological ADI was established at 0.005 mg/kg bw/d based on a MIC <sub>50</sub> of 1 µg/mL in the most sensitive bacterial genus, <i>Bifidobacterium</i> spp found in the human GI tract.	
Tylosin	0.3	30	15 January 1993	2-year dietary rat study; a NOAEL of 30 mg/kg bw/d was based on pituitary tumours at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
<b>U</b>					
Ulocladium oudemansii			12 December 2003		ADI unnecessary. Naturally occurring organism – residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Uniconazole-P	0.02	1.86	3 February 2000	2-year dietary rat study; a NOAEL of 1.86 mg/kg bw/d was based on increased liver weight in association with centrilobular hepatocyte enlargement and vacuolation at the next higher dose.	
<b>V</b>					
Virginiamycin	0.2	25	10 February 1988	2-year dietary rat study; a NOAEL of 25 mg/kg bw/d was based on increased testicular weights at the next higher dose.	
<b>Z</b>					
Zeranol	0.0002	0.015	10 February 1988	2-year dietary rat study; a NOAEL of 0.015 mg/kg bw/d was based on estrogenic changes (stratified squamous epithelium in	



Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				the cervix) at the next higher dose.	
Zeta-cypermethrin				See ζ-Cypermethrin.	
Zilpaterol	0.00004	0.00076[LOAEL]	24 October 2016	Single dose human study; a LOAEL of 0.05 mg/person (equal to 0.00076 mg/kg bw) was based on the observation of tremors at the lowest tested dose.	
Zineb	0.005	5	27 November 1992	1-year dietary dog study; a NOAEL of 5 mg/kg bw/d was based on enlarged thyroids and hyperplastic changes at the highest tested dose.	
Ziram	0.01	1	21 June 1995	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on atrophy of skeletal muscle at the next higher dose.	