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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Contents

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This document includes recommendations made by the former Pesticides and Agricultural Chemicals Standing Committee (PACSC) of the National Health and Medical Research Council (NHMRC) and by the Office of Chemical Safety (OCS).

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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 Pesticide 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 (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 two 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 (eg. potatoes) are examined. Results of completed Australian Total Diet Studies are available on the FSANZ website http://www.foodstandards.gov.au/science/surveillance/Pages/australiantotaldiets1914.aspx.

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 http://apvma.gov.au/registrations-and-permits/data-guidelines.

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 three) 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 1000 to 2000 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

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
A					
Abamectin	0.005	0.5	10-Nov-99	3-week developmental rabbit study; a NOAEL of 0.5 mg/kg bw/d was based on observed teratogenicity at the next higher dose (1 mg/kg bw/d).	ARfD established for acute developmental effects.
Acephate	0.003	0.22	10-Feb-88		
Acetamiprid	0.1	9	27-Jul-01	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.	
Acetyl isovaleryltylosin tartrate	0.0001	0.031 (MIC50)	21-Aug-06	A microbiological ADI of 0.0001 mg/kg bw/d was based on a MIC50 of 0.031 microgram/ml in the most sensitive bacterial genus, (Bifidobacterium) found in the human GI tract.	
Acibenzolar-S-methyl	0.005	5 [LOAEL]	23-Apr-02	1-year dietary dog study; based on haematological changes associated with anaemia	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				observed at the LOAEL of 5 mg/kg bw/d.	
Acifluorfen	0.01	1	15-Sep-99	2-year dietary mouse study; a NOAEL of 1 mg/kg bw/d was based on increases in liver weight and plasma 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.	
Acrolein	0.0005	0.05	15-Mar-94	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.	
Albendazole	0.05	5	9-Aug-94	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	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				the next higher dose. This NOAEL was supported by a 6-month dog (capsule) study; a NOAEL of 5 mg/kg bw/d was based on hypocellularity of the sternum at higher doses.	
Aldicarb	0.001	0.01 (H)	15-Dec-99	Single dose human study; a NOAEL of 0.01 mg/kg bw/d was based on plasma and RBC ChE inhibition at the next higher dose.	
Aldrin	0.0001 (TDI)	JMPR'94	21-Oct-03		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	0.05	4.7	11-Mar-94	13-week dog study; a NOAEL of 4.7 mg/kg bw/d was based on ataxia, body tremors, agitation and abnormal gait at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Altrenogest	0.000002	0.004	13-Aug-92		
Ametoctradin	10	1000	1-Feb-12	2-year studies in rats and mice showed no adverse effects at the highest tested dose of 1000 mg/kg bw/d.	
Ametryn	0.02	2	17-Nov-89	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-Sep-00	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.	
Aminopyralid	0.3	26	28-Sep-05	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-Jun-16	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	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				on increased relative liver weight and hepatocellular adenoma at the next higher dose.	
Amitraz	0.002	0.25	5-Nov-86	2-year oral (gelatin capsule) dog study; a NOAEL of 0.25 mg/kg bw/d was based on elevated blood glucose at the next higher dose.	
Amitrole	0.0003	0.025	3-May-84		
Amoxycillin	0.2	200	8-Mar-95		
Apramycin	0.05	5	29-May-86		
Asulam	0.02	40	Dec-85		
Atrazine	0.005	0.5	1-Dec-96	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-Feb-17		ADI unnecessary. Naturally occurring organism - residues from its use are unlikely to be distinguishable from naturally occurring

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
					background levels of the organism.
Avilamycin	1	108	19-Dec-97	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-Jul-01	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 toxicity at the next higher dose.	
Azamethiphos	0.003	0.25	29-May-96	1-year dietary dog study; a NOAEL of 0.25 mg/kg bw/d was based on inhibition of plasma, RBC and brain cholinesterase activity at the next higher dose.	
Azaperone	0.1	10	5-Aug-83		
Azimsulfuron	0.2	18	9-Sep-02	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Azinphos-methyl	0.025	0.25 (H)	26-Aug-02	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.	
Azoxystrobin	0.1	10	29-Sep-98	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					
Bacillus licheniformis			09-May-02		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			09-May-03		ADI unnecessary. Naturally occurring organism - residues from its use are unlikely to be distinguishable from naturally occurring

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
					background levels of the organism.
Bacillus subtilis			09-May-02		ADI unnecessary. Naturally occurring organism - residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Bacillus thuringiensis			6-Sep-02		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
Bacillus thuringiensis subsp. thuringiensis serotype 1 (strain MPPL 002)			28-Aug-03		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-97	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-Sep-01	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
Benalaxyl	0.05	5	1-Dec-88		
Bendiocarb	0.004	0.4	8-Jun-93	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-Feb-87		
Bensulfuron-methyl	0.02	2.5	10-Sep-87		
Bensulide	0.04	4	4-Feb-82		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Bentazone	0.1	10	10-Jun-05	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-Mar-98	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.	
Benzylpenicillin procaine	0.03 mg/person/d		10-Oct-16	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	0.02	30	15-Aug-79		
Beta-cyfluthrin	0.01	1.5	5-Dec-90	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Beta-cypermethrin	0.05	5	19-Mar-02	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.
Bicyclopyrone	0.001	0.28	26-Nov-15	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-Dec-02	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,	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				urine changes, organ weight changes and histopathological effects at the next higher dose.	
Bifenthrin	0.01	1	26-Nov-92	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-Jun-91	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-Nov-82		
Bixafen	0.02	2	18-Jan-16	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 alteration) at the next higher dose.	
Boscalid	0.06	6	15-Aug-03	2-year dietary rat study; a NOAEL of 6 mg/kg bw/d was based on	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				clinical signs at the next higher dose.	
Brodifacoum	0.0000005 (TDI)	0.001	16-May-90	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-Feb-88		
Bromadiolone	0.000002 (TDI)	0.004	18-Jan-94	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.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Bromide	1	9 (H)	10-Oct-16	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-94	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-Feb-93	1-year dietary dog study; a NOAEL of 0.3 mg/kg bw/d was based on reduced body weight gain at the next higher dose.	
Bromuconazole	0.02	2	17-Jun-94	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-Jun-78		
Bupivacaine	0.001	1 [LOAEL]	10-Jun-08	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-Jan-00	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 foetotoxicty at the next higher dose.	
Butafenacil	0.004	0.36	12-Apr-01	18-month dietary mouse study; a NOAEL of 0.36 mg/kg bw/d was based on haematological effects and liver toxicity at the next higher dose.	
Butralin	0.2	15	14-Aug-92	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.	
Butroxydim	0.005	0.5	18-Jan-93	1-year dietary dog study; a NOAEL of 0.5 mg/kg bw/d was based on organ weight changes and increased alkaline	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				phosphatase levels at the next higher dose.	
C					
Cadusafos	0.00001	0.001	13-Aug-92	1-year oral (gelatin capsule) dog study; a NOAEL of 0.001 mg/kg bw/d was based on inhibition of plasma cholinesterase activity at the next higher dose.	
Captan	0.1	10	5-Feb-97	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-Dec-02	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-79		
Carbofuran	0.003	0.33	10-Sep-87		
Carbosulfan	0.01	1	17-Jan-97	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-Feb-87		
Carfentrazone ethyl	0.03	3	3-Aug-98	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-Sep-97	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-Sep-97	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-Jan-93	3-month oral (gelatin capsule) dog study; a NOAEL of 30 mg/kg bw/d was based on clinical signs, reduction in blood platelet counts (thrombocytopenia) and low RBC (mild anaemia) at the next higher dose.	Large uncertainty (safety) factor applied due to incomplete database; absence of chronic toxicity studies.
Cefuroxime sodium	0.4	400	12-Aug-96	27-week gavage dog study; a NOAEL of 400 mg/kg bw/d was based on anaemia, reduced plasma cholesterol, and	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				increased triglycerides at the next higher dose.	
Cephalexin	0.01	(M)	22-Nov-00		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-Jul-96	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-Jun-08	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-08	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-Oct-03		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-Aug-95	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-Oct-98	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 based on plasma and brain ChE	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				inhibition at the next higher dose.	
Chlorfluazuron	0.005	0.56	12-Nov-87		
Chlorhexidine	0.2	25	14-Feb-85		
Chloridazon	0.04	4.1	2-Dec-88		
Chlormequat	0.07	7.5	30-Aug-91	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.	
Chloropicrin	0.001	0.1	16-Jan-14	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-Feb-91		
Chlorpropham	0.05	5	16-Jul-96	60-week dietary dog study; a NOAEL of 5 mg/kg bw/d was based on altered thyroid function at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Chlorpyrifos	0.003	0.03 (H)	17-Dec-98	28-day human study; a NOAEL of 0.03 mg/kg bw/d was based on inhibition of plasma cholinesterase activity at the next higher dose.	
Chlorpyrifos-methyl	0.01	0.1	10-Feb-88		
Chlorsulfuron	0.05	5	5-Aug-82		
Chlortetracycline	0.003	0.03(H)	15-May-95	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.
Chlorthal-dimethyl	0.01	1	29-Apr-94	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Cinmethylin	0.01	11 [LOAEL]	20-Aug-03	Reproduction rat study; based on an increased incidence of parenchymal hepatocellular vacuolation in the liver at the lowest tested dose (LOAEL) of 11 mg/kg bw/d.	The LOAEL was considered appropriate, as the figure is lower than the lowest clear NOAEL of 3 mg/kg/d in a rabbit developmental study, with an uncertainty (safety) factor of 100.
Clavulanic acid	0.01	10	8-Mar-95	6-month gavage dog study; based on liver toxicity at the next highest dose of 20 mg/kg bw/d.	Large uncertainty (safety) factor applied due to incomplete database; no chronic studies
Clethodim	0.01	1	20-Jun-91		
Clitoria ternatea	10	1000	23-Nov-15	3-month dietary rat study; a NOAEL of 1000 mg/kg bw/d was based on an absence of any adverse effects at the highest tested dose.	
Clodinafop-propargyl	0.004	0.37	28-Apr-94	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.	
Clofentezine	0.02	2	11-Sep-86		
Clomazone	0.1	14	19-Dec-97	1-year dietary dog study; a NOAEL of 14 mg/kg bw/d was based on increased absolute and	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				relative liver weights at the next higher dose.	
Cloprostenol	0.0005	0.05	11-Nov-75		
d-Cloprostenol	0.000075	0.00015	21-Feb-17	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.	
Clopyralid	0.5	50	12-Nov-82		
Cloquintocet-mexyl	0.04	4	28-Apr-94		
Cloquintocet acid	0.04	4.3	5-Jul-16	2-year dietary rat study; a NOAEL of 4.3 mg/kg bw/d was based on thyroid follicular epithelium hyperplasia at the next higher dose.	
Clorsulon	0.02	2	11-Jun-93	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-Nov-81	2-year dietary rat study; a NOAEL of 2.5 mg/kg bw/day 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-Aug-03	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-Jun-01	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-Nov-11		ADI unnecessary. Naturally occurring organism - residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Coumaphos	0.0005	0.05	7-Dec-71	1-year dietary dog study; a NOAEL of 0.05 mg/kg bw/d was based on inhibition of plasma	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				cholinesterase activity at the next higher dose.	
Coumatetralyl	0.000003 (TDI)	0.0068	15-Sep-00	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-Aug-92		
Cyanazine	0.002	0.2	11-Sep-86		
Cyantraniliprole	0.01	1	21-Jan-13	1-year dietary dog study; a NOAEL of 1 mg/kg/bw/d was based on increased liver weight and a reduced cholesterol concentration at the next higher dose.	
Cyazofamid	1.2	124	6-Jun-13	18-month carcinogenicity mouse study; a NOAEL of 124 mg/kg/bw/d was based on increased indicence of	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				hematocysts in the ovaries at the next higher dose.	
Cyclanilide	0.01	2.5	17-Apr-98	2-gen reproduction rat study; a NOAEL of 2.5 mg/kg bw/d was based on renal tubular mineralisation at the next higher dose.	
Cyclaniliprole	0.04	4	29-Feb-16	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-90		
Cyflufenamid	0.04	4.14	29-May-12	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.	
Cyfluthrin	0.02	2.5	14-Feb-85		
Cyhalofop-butyl	0.002	0.2	28-Jan-05	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Gamma-cyhalothrin	0.0005	0.5	12-Aug-03	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.	
Cypermethrin	0.05	5	10-Feb-88	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.	
Cyphenothrin	0.03	3	30-Aug-91	13 and 52 week dietary dog studies; a NOAEL of 3 mg/kg/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-Feb-90	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 findings at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Cyprodinil	0.03	2.7	19-Aug-94	2-year dietary rat study; a NOAEL of 2.7 mg/kg bw/d was based on an increased incidence of cystic degeneration/spongiosis hepatis in the liver at higher doses.	
Cyromazine	0.02	1.8	8-Apr-98	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.	
D					
Daminozide	0.7	75	11-Sep-86		
Dazomet	0.0005	0.5	27-Nov-96		
DDT	0.002 (TDI)	0.25	21-Oct-03		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-Jun-13	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-Nov-80	2-year dietary dog study; a NOAEL of 1 mg/kg bw/d was based on an absence of any	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				adverse effects at the highest tested dose.	
Derquantel	0.0005	0.1 [LOAEL]	27-May-11	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.	
Dexamethasone	0.000015	0.0015	10-Oct-16	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).
Diafenthiuron	0.003	0.3	5-Jan-93	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-Apr-99	37-43 day human study; a NOAEL of 0.02 mg/kg bw/d was based	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				on plasma ChE inhibition at the next higher dose.	
Dicamba	0.03	3	20-Jun-91	Developmental rabbit study; a NOAEL of 3 mg/kg bw/d was based on reduced maternal body weight gain at the next higher dose.	
Dichlobenil	0.01	1.25	14-Aug-92	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-dichlobenzamide (BAM) - major plant metabolite
Dichlofluanid	0.03	2.7	29-May-86	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-Nov-15	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 degeneration in the liver at the next higher dose.	An important plant metabolite common to dichlobenil and fluopicolide

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.01	1	23-Jun-06	2-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on abnormal renal morphology at the next higher dose.	
Dichlorprop	0.03	3	9-Jul-98	13-week dog dietary study; a NOAEL of 3 mg/kg bw/d was based on changes in clinical chemistry and kidney discolouration at the next higher dose.	
2,2-Dichloropropionic acid (2,2-DPA)	0.2	15	17-Nov-89		
Dichlorprop-P	0.03	6	2-Nov-06	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-Apr-04	28-day human study; a NOAEL of 0.014 mg/kg bw/d was based on inhibition of plasma cholinesterase activity at the next higher dose.	
Diclofop-methyl	0.002	0.25	6-Feb-86	2-year dietary mouse study; a NOAEL of 0.25 mg/kg bw/d was based on increased organs weights and serum alkaline	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				phosphatase levels at the next higher dose.	
Dicofol	0.001	0.12	5-Dec-90		
Dicyclanil	0.007	0.7	14-Oct-05	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-Oct-03		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.
Difenoconazole	0.01	1	5-Dec-90		
Difethialone	0.0000006 (TDI)	0.00125	19-Jul-93	Developmental rabbit study; a NOAEL of 0.00125 mg/kg/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

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
					assessments to be undertaken in the event of unintentional presence.
Diflubenzuron	0.02	2	14-Feb-85	2-year rat and 1-year dog dietary studies; a NOAEL of 2 mg/kg/d based on increased pigmentation in macrophages and Kupffer cells of the liver at the next higher dose.	
Diflufenican	0.2	16.3	11-Aug-88	2-year dietary rat study; a NOAEL of 16.3 mg/kg bw/d based on a reduction in body weight gain at the next higher dose.	
Dimethenamid-P	0.03	5 [LOAEL]	12-Aug-03	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-12	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-Jul-96	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Dinoprost	0.0005	1	17-Mar-76		
Dinotefuran	0.2	22	10-Aug-15	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	0.02	1.5	2-Jun-88		
Diquat	0.002	0.2	28-May-02	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-Nov-94		
Dithianon	0.007	0.66	2-Feb-93	2-year dietary rat study; a NOAEL of 0.66 mg/kg bw/d was based on reduced body weight, food intake and increased liver and kidney weights at the next higher dose.	
Dithiopyr	0.005	0.5	13-Aug-92		
Diuron	0.007	0.7	4-Feb-05	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	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				mg/kg bw/d was based on abnormal haemoglobin spectral pigments at higher doses.	
Dodine	0.1	10	26-Nov-02	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	0.001	0.1	14-Oct-02	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.	
E					
Emamectin	0.002	0.25	26-Feb-99	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 elevated serum triglyceride and bilirubin levels at the next higher dose.	
Endothal	0.03	3.75	5-Dec-90		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Endrin	0.0002 (TDI)	JMPR'94	21-Oct-03		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-Sep-02		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-Apr-02	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 reduced bodyweight gain and increased liver weight at the higher dose (36 mg/kg bw/d).	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Eprinomectin	0.005	1	13-Oct-97	2-gen reproduction dietary rat study; a NOAEL of 1 mg/kg bw/d was based on tremors in pups at the next higher dose. 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.	
Esbiothrin	0.03	3	15-Sep-93	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-Mar-93	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.	
Ethametsulfuron-methyl	0.2	21	17-Jan-01	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-Feb-87	3-week human study; a NOAEL of 0.17 mg/kg bw/d was based on inhibition of plasma	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				cholinesterase levels at the next higher dose.	
Ethion	0.001	0.1	10-Jun-87	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 cholinesterase activity at the next higher dose.	
Ethofumesate	0.3	30	11-Nov-76		
Ethoxysulfuron	0.06	6.2	12-May-04	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-Jan-95	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-Nov-03		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

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
					ADI for formic acid (3 mg/kg bw/d).
Etoxazole	0.04	4	17-Dec-03	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.	
Etridiazole	0.03	3	30-Aug-91	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.	
F					
Febantel	0.02	2	15-Jul-96	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Fenamiphos	0.0001	0.014	7-Nov-05	2-year dietary dog study; a NOAEL of 0.014 mg/kg bw/d was based on inhibition of plasma cholinesterase activity at the next higher dose.	
Fenbendazole	0.05	5	14-Feb-91		
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 and pup body weights at the next higher dose.	
Fenbutatin-oxide	0.01	1	10-Sep-87		
Fenhexamid	0.2	17.4	16-Dec-98	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Fenitrothion	0.002	0.2	6-Nov-97	1-year dietary dog study; a NOAEL of 0.2 mg/kg bw/d was based on a reduction in plasma cholinesterase activity at the next higher dose.	
Fenoxaprop-P-ethyl	0.004	0.4	14-Feb-91	2-year dietary dog study; a NOAEL of 0.4 mg/kg bw/d was based on reduced bodyweight gain at the next higher dose.	
Fenoxycarb	0.05	5	29-Oct-98	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.	
Fenpyrazamine	0.1	12.7	11-May-15	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	24-May-93		
Fenvalerate	0.02	1.7	10-Jun-87		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Fipronil	0.0002	0.02	27-Jun-94	2-year dietary rat study; a NOAEL of 0.02 mg/kg bw/d was based on clinical signs of neurotoxicity, increased thyroid weight, decreased thyroxine (T4) levels and increased severity of progressive senile nephropathy at the next higher dose.	This is a group ADI which includes fipronil, desulfinyl fipronil, fipronil suphide and fipronil sulphone.
Flamprop-M-methyl	0.001	0.125	29-Aug-91	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-Sep-11	2-year dietary rat study; a NOAEL of 1.3 mg/kg bw/d was based on chronic nephropathy observed at the next higher dose.	
Flocoumafen	0.000001	0.0014	20-Sep-95	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Flonicamid	0.025	2.5	7-Jun-12	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-Dec-07	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-Aug-01	1-year dietary dog study; a NOAEL of 1 mg/kg bw/d was based on increased liver weight and cystic epithelial hyperplasia of the gall bladder at the next higher dose.	
Fluazifop-butyl	0.003	0.3	5-Aug-82		
Fluazinam	0.004	0.4	18-Jun-93		
Fluazuron	0.04	4.27	14-Sep-93	2-year dietary mouse study; a NOAEL of 4.27 mg/kg bw/d was based on lenticular cataracts at the next higher dose.	
Flubendiamide	0.01	1	14-Dec-07	1-year dietary rat study; a NOAEL of 1 mg/kg bw/d was based on hepatoxicity and microcytic anaemia at the nex higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Fludioxonil	0.03	3.1	23-Apr-97	2-year dietary rat study study; a NOAEL of 3.7 mg/kg bw/d was based on clinical signs, discoloured urine and reduced body weight gain at the next higher dose. 1-year dietary dog study; a NOAEL of 3.1 mg/kg bw/d was based on blue faeces, discoloured gastrointestinal tract and reduced body weight gain at the next higher dose.	
Flufenoxuron	0.02	2.5	21-Jan-97	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.	
Flugestone acetate	0.0001	0.2	19-Feb-81		
Flumethrin	0.003	0.31	18-Oct-01	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Flumetsulam	1	100	14-Feb-92		
Flumiclorac pentyl	0.3	32	8-Dec-04	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	0.003	3	12-Dec-02	Developmental rat study; a NOAEL of 3 mg/kg bw/d was based on increased incidence of cardiovascular abnormalities at the next higher dose.	
Flunixin meglumine	0.006	0.6	29-Sep-00	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-Feb-89		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Fluopicolide	0.08	7.9	26-Nov-15	18-month dietary mouse study; a NOAEL of 7.9 mg/kg bw/d was based on increased liver 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.	See 2,6-dichlobenzamide (BAM) -major plant metabolite
Fluopyram	0.01	1.2	2015	2-year dietary combined carcinogenicity/chronic toxicity study in rats using a NOAEL of 1.2 mg/kg/bw/d for effects seen on the liver, kidney, thyroid and eyes at the next highest dose and applying a 100 fold uncertainty (safety) factor to account for both intra- and inter-species variation.	
Flupropanate	0.002	5	10-Sep-87		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Flupyradifurone	0.08	7.8	11-Aug-15	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-Jul-97	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. 1-year dietary dog study; a NOAEL of 0.5 mg/kg bw/d was based on clinical signs at the next higher dose.	
Fluroxypyr	0.2	20	6-Feb-86	2-year dietary mouse study; a NOAEL of 20 mg/kg bw/d was based on lenticular cataracts at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Flutolanil	0.02	2	16-Oct-01	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 the sinusoid in the liver in females at the next higher dose.	
Flutriafol	0.01	1	20-Jun-91		
tau-Fluvalinate	0.005	0.5	5-Nov-86		
Fluxapyroxad	0.02	2.1	30-Jan-12	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-Apr-05	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.	
Fosetyl aluminium	1	103	18-Feb-87		
G					
Gentamicin	0.05	5	6-May-83		
Gibberellic acid	5	550	13-Jan-93	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-Aug-88		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Glufosinate ammonium	0.02	2.1	28-Aug-01	130-week dietary rat study; a NOAEL of 2.1 mg/kg bw/d was based on inhibition of glutamine synthetase activity in the liver and brain, and decreased glutathione levels in the liver and blood at the next higher dose.	
Glyphosate	0.3	30	14-Feb-85	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.	
Guazatine	0.006	0.625	25-Mar-97	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-Sep-14	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	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				vacuolation at the next higher dose.	
Halofuginone	0.0003	0.025	16-Jun-06	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.	
Halosulfuron-methyl	0.01	1	19-Nov-93		
Haloxyfop	0.0003	0.03	12-Nov-87		
Heptachlor	0.0005 (TDI)	JMPR'94	21-Oct-03		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-90		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Hexaflumuron	0.02	2	31-Aug-01	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 (Fe3+) state and not the usual ferrous (Fe2+) state) formation at the next higher dose.	
Hexazinone	0.1	10	12-Nov-87	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-86	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.	
I					
Imazalil	0.03	2.5	24-Jul-97	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Imazamox	2.8	282	11-Mar-99	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-96	1-year dietary dog study; a NOAEL of 137 mg/kg bw/d was based on mild anaemia (reduced Hct, Hb and RBC levels) at the next higher dose.	
Imazapyr	2.5	250	2-Jun-98	1-year dietary dog study; a NOAEL of 250 mg/kg bw/d was based on the absence of signs of toxicity at the highest tested dose.	
Imazethapyr	2.8	276	22-Feb-90	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-Feb-93	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-Aug-79		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Imiprothrin	0.05	5	30-Sep-96	1-year dietary dog study; a NOAEL of 5 mg/kg bw/d was based on increased salivation, diarrhoea, and incidence and severity of centrilobular hepatocytes, Kupffer cell pigmentation, and perivascular inflammatory cell infiltration in the liver at the next higher dose.	
Indoxacarb	0.01	1	21-Aug-06	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 in dams at the next higher dose.	
Iodosulfuron-methyl-sodium	0.03	3	29-Sep-00	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	18-Feb-87		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Ipconazole	0.015	1.5	18-Jan-10	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 hypertrophy at the next higher dose.	
Iprodione	0.04	4	16-Jun-86	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.	
Isoeugenol	0.2	500	20-Aug-96	16-week dietary rat study; a NOAEL of 500 mg/kg bw/d was based on the absence of signs of toxicity at the highest tested dose.	Large uncertainty (safety) factor due to limited toxicological data; no reproduction or developmental studies.
Isofetamid	0.05	5	9-Mar-17	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	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				hypertrophy at the next higher dose.	
Isopyrazam	0.06	5.5	24-May-16	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.	
Isoxaben	0.05	5	9-Aug-95	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-97	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,	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				vacuolation, reduced pup weight and viability.	
Ivermectin	0.001	0.1	16-Oct-98	Developmental mouse study; a NOAEL of 0.1 mg/kg bw/d was based on maternotoxicity at the next higher dose.	
k					
Ketoprofen	0.001	0.1	8-Dec-00	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-Mar-79		
Kresoxim-methyl	0.4	36	25-Jun-99	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.	
L					

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Lactobacillus acidophilus			4-Sep-02		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-Sep-02		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-Sep-02		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
Lactobacillus plantarum			4-Sep-02		ADI unnecessary. Naturally occurring organism - residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
Lambda-cyhalothrin	0.001	0.1	5-Dec-90	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.	
Lasalocid	0.001	2	9-Feb-77		
Levamisole	0.003	6	14-Nov-74	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	0.009	8.6 [LOAEL]	10-Jun-08	An effective human therapeutic dose is 3 mg/kg bw. Assuming a 35% bioavailability via the oral route, a corresponding oral dose can be estimated to be 3/0.35 = 8.6 mg/kg bw.	
Lincomycin	1	100	5-Aug-83		
Linuron	0.01	1.25	11-Sep-86		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Lufenuron	0.02	2.1	4-Mar-94	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.	
M					
Maduramicin	0.001	0.1	5-Nov-86		
Maldison	0.02	2	12-Apr-05	2-year dietary rat study; a NOAEL of 2 mg/kg bw/d was based on inhibition of RBC cholinesterase activity at the next higher dose.	
Maleic hydrazide	5	571	5-Jan-93		
Mancozeb	0.006	0.6	27-Nov-92	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.	
Mandestrobin	0.2	19.2	30-Mar-16	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Mandipropamid	0.05	5	9-Apr-10	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-Apr-94	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-94		
Mebendazole	0.08	8	14-Feb-75		
Mecoprop	0.01	1	3-Jul-98	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	0.04	4	17-Jan-01	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.	
Mefenpyr-diethyl	0.03	2.8	13-May-97	87-week dietary mouse study; a NOAEL of 2.8 mg/kg bw/d was based on hepatocellular	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				hypertrophy in the liver at the next higher dose.	
Meloxicam	0.0001	0.125 [LOAEL]	5-Feb-99	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-Aug-91		
Mesosulfuron-methyl	1	100	27-May-02	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.	
Metalaxyl	0.03	3	7-May-81	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-Sep-86		
Metarhizium Anisopliae var. Acridum (isolate FI-985)			4-Sep-03		ADI unnecessary. Naturally occurring organism - residues from its use are unlikely to be distinguishable from naturally occurring

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
					background levels of the organism.
Metazachlor	0.2	17.6	15-Jul-16	2-year dietary rat study; a NOAEL of 17.6 mg/kg bw/d was based on reduced food consumption and bodyweight gain, increased liver weight with enlarged hepatocytes and hepatocyte vacuolation, and decreased haemoglobin concentration at the next higher dose.	
Methabenzthiazuron	0.004	7.5	22-Jul-69		
Methamidophos	0.0003	0.03	30-Jan-04	8-week dietary rat study; a NOAEL of 0.03 mg/kg bw/d was based on inhibition of plasma, RBC and brain cholinesterase activity at the next higher dose.	
Methidathion	0.002	0.16	31-May-04	3-month dietary dog study; a NOAEL 0.16 mg/kg bw/d was based on evidence of liver cholestasis and inhibition of RBC cholinesterase activity at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Methiocarb	0.002	0.2	1-Mar-00	2-year dietary dog study; a NOAEL 0.2 mg/kg bw/d was based on inhibition of plasma cholinesterase activity and reduced food consumption at the next higher dose.	
Methomyl	0.01	1.25	14-Feb-91		
Methoprene	0.4	35	14-Jan-00	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-Oct-03		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.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Methoxyfenozide	0.1	10	12-Jan-01	89-99 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 (Fe3+) state and not the usual ferrous (Fe2+) state) and platelet count and reduced RBC at the next higher dose.	
Methyl benzoquat	0.05	100	10-Nov-77		
Methyl bromide	0.0004	0.4	14-Sep-01	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-Oct-03	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-Feb-88	13-week dietary rat study; a NOAEL of 5 mg/kg bw/d was based on atrophy of skeletal muscle fibres, decreased	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				thyroxine (T4) levels and altered thyroid function at the next higher dose.	
Metolachlor	0.08	7.5	12-Nov-87		
Metosulam	0.05	5	18-Jan-93		
Metrafenone	0.25	25	13-Apr-10	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-Nov-82		
Metsulfuron-methyl	0.01	1	1-Aug-85	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-Oct-98	30-day oral human study; a NOAEL of 0.015 mg/kg bw/d was based on the inhibition of RBC cholinesterase activity at the next higher dose.	
Milbemectin	0.007	0.7	29-Aug-05	2-year dietary rat study; a NOAEL of 0.7 mg/kg bw/d was based on increased kidney weight and	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				endometrial polyps at the next higher dose.	
Molinate	0.002	0.2	5-Nov-86	3-gen reproduction rat study; a NOAEL of 0.2 mg/kg bw/d was based on testicular degeneration at the next higher dose.	
Monensin	0.01	1.25	10-Nov-77		
Monepantel	0.03	2.96	10-Nov-09	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.	
Monosodium Methylarsonate (MSMA)	0.0005	0.5	10-Nov-94		
Morantel	0.01	1.2	26-Nov-02	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	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				adrenal and liver weights at the next higher dose.	
Moxidectin	0.01	1	7-Jun-04	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 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-Nov-87	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-Dec-71		
Napropamide	0.1	11	29-Jul-94		
Narasin	0.01	1.5	5-Aug-83		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Neomycin	0.06	6 (JECFA'96)	28-Feb-96	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-Nov-82		
Niclosamide	0.1	14 (H)	20-Sep-16	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.	
Nitroxynil	0.02	2	20-Aug-74		
Norflurazon	0.02	1.5	1-Nov-84		
Norgestomet	0.0000005	0.001	5-Dec-85		
Novaluron	0.01	1.1	17-Jan-01	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 helicoverpa armigera occlusion bodies			17-Dec-03		ADI unnecessary. Naturally occurring organism - residues from its use are unlikely to be distinguishable from naturally occurring background levels of the organism.
O					
n-Octyl bicycloheptene dicarboximide	0.07	7.5	25-May-95	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.	
Olaquindox	0.06	6	7-May-81		
Omethoate	0.0004	0.04	20-Oct-05	2-year dietary rat study; a NOAEL of 0.04 mg/kg bw/d was based on inhibition of plasma cholinesterase activity at the next higher dose.	
ortho-Phenylphenol	0.4	JMPR'99	21-Oct-03		
Oryzalin	0.1	12	5-May-82		
Oxabetrinil	0.005	10	2-May-85	3-month dietary dog study; a NOAEL of 10 mg/kg bw/d was based on reduced body and	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				thymus weights at the next higher dose.	
Oxadiargyl	0.008	0.8	28-Jun-99	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-Aug-89		
Oxadixyl	0.01	1.3	2-Jun-88		
Oxamyl	0.002	0.2	18-May-93		
Oxathiapiprolin	4	411	30-Jul-15	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-Oct-90		
Oxibendazole	0.01	10	2-Jun-98	3-month capsule fed dog study; a NOAEL of 10 mg/kg bw/d was based on reduced food consumption, reduced body weight gains and reduced testes weights at the next higher dose.	
Oxycarboxin	0.15	15	15-Aug-79		
Oxyclozanide	0.002	5	18-Mar-76		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Oxydemeton-methyl	0.0003	0.027	16-Dec-97	2-year dietary rat study; a NOAEL of 0.027 mg/kg bw/d was based on inhibition of plasma and RBC cholinesterase activity at the next higher dose.	
Oxyfluorfen	0.025	2.5	5-Aug-82	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-Oct-16	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).
P					
Paclobutrazol	0.01	1.4	10-Feb-88	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Paraquat (as cation)	0.004	0.45	27-Jun-03	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-Dec-90		
Penconazole	0.007	0.71	6-Feb-86		
Pencycuron	0.02	2	23-May-94		
Pendimethalin	0.1	12.5	18-Feb-87	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-Oct-12	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-Feb-12	2-gen reproduction rat study; a NOAEL of 11 mg/kg bw/d was based on reduced body weight gain, increased adrenal weight and an increased incidence of cortical hypertrophy at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Permethrin	0.05	5	29-May-86	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-Apr-11	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 degeneration of the adrenal cortex at the next higher dose.	
Phenothrin	0.02	2.5	10-Feb-88		
Phorate	0.0005	0.05	30-Aug-91		
Phosmet	0.01	1	12-Nov-87		
Picloram	0.07	7	18-Feb-87	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Picolinafen	0.007	1.4 [LOAEL]	1-Aug-00	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-Aug-05	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	0.1	16	20-Mar-97	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.	
Pirimicarb	0.002	0.4	10-Sep-87	3-month dietary dog study; a NOAEL of 0.4 mg/kg bw/d was based on a slight increase in megalobasts (large, abnormally developed red blood cells) in the bone marrow at the next higher dose.	
Pirimiphos-methyl	0.02	0.25 (H)	30-Aug-91		
Porcine gonadotrophins			25-Jun-02		ADI considered to be unnecessary due to its low oral toxicity.

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Porcine somatotropin			29-Aug-91		ADI considered to be unnecessary due to its low oral toxicity.
Prallethrin	0.02	2.5	18-Jan-93	1-year capsule fed dog study; a NOAEL of 2.5 mg/kg bw/d was based on increased deposition of lipofuscin in kidney and bladder at the next higher dose.	
Praziquantel	0.02	20	22-Jun-95	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-Aug-82		
Procymidone	0.03	2.5	13-Dec-04	1-gen reproductive rat study; a NOAEL of 2.5 mg/kg bw/d was based on increased (parental) testes weights and reduced epididymides and prostate weights at the next higher dose.	
Prodiamine	0.05	5	22-Dec-94		
Profenofos	0.0001	0.0072	4-Feb-82	6-month dietary dog study; a NOAEL of 0.0072 mg/kg bw/d was based on a reduction in plasma cholinesterase activity at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Profoxydim	0.05	5	29-Nov-06	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-Dec-07	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 haematology, clinical chemistry and renal histopathology at the next higher dose.	
Prometryn	0.03	3	17-May-90		
Propachlor	0.02	2	11-Aug-88		
Propamocarb	0.4	39	26-Nov-15	1-year dietary dog study; a NOAEL of 39 mg/kg bw/d was based on vacuolization in epididymes, lacrimal glands, lymph nodes, oesophageal	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				glands, salivary glands and uterine cervix at the next higher dose.	
Propanil	0.2	20	19-Feb-81		
Propaquizafop	0.003	0.3	26-Nov-92		
Propargite	0.002	2	17-Jun-99	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-Jun-86	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-Feb-85	6-month dietary dog study; a NOAEL of 0.1 mg/kg bw/d was based on a reduction of plasma and RBC cholinesterase activity at the next higher dose.	
Propiconazole	0.04	4	5-May-83	2-year dietary rat study; a NOAEL of 4 mg/kg bw/d was based on reduced body weight at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Propineb	0.0005	0.05 for PTU	15-Feb-07	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).
Propoxur	0.02	0.2	5-Nov-86		
Propylene oxide	0.006	2.9	24-Jul-06	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-Dec-88		
Propyzamide	0.02	1.9	7-Jul-94	2-year dietary mouse study; a NOAEL of 1.9 mg/kg bw/d was based on hepatocellular tumour incidence at the next higher dose.	
Proquinazid	0.01	1.2	6-Dec-11	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Prosulfocarb	0.02	1.9	21-Aug-06	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.	
Prothioconazole	0.01	1.1	28-Mar-06	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-Oct-93		
Pydiflumetofen	0.1	10	21-Feb-17	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-Dec-00	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 and phospholipid level at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Pyraclofos	0.001	0.1	29-Aug-91		
Pyraclostrobin	0.03	3	26-Jun-08	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-Dec-04	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 20 mg/kg bw/d was based on increased mortality at the next higher dose.	
Pyrasulfotole	0.01	1	19-Oct-07	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Pyrethrins (pyrethrum extracts)	0.04	4	21-Oct-03	2-year dietary rat study; a NOAEL of 40 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.	JMPR'03
Pyridaben	0.01	1	13-Aug-92		
Pyrimethanil	0.2	17	1-Nov-95	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-Nov-14	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 kidneys at the next higher dose.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Pyriproxyfen	0.07	7	11-Mar-94	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.	
Pyrithiobac sodium	0.2	21	18-May-95	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-Feb-17	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-Apr-08	18-month dietary mouse study, a NOAEL of 100 mg/kg bw/d was based on increased absolute and relative liver weight associated with histopathological changes (increased incidence of clear cell foci of alteration) at the next higher dose.	
Q					

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Quinclorac	0.3	35	13-Sep-04	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.	
Quinoxyfen	0.2	20	15-Jan-02	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 reduced body weight gain, increased liver weight, liver pathological changes and anaemia at the next higher dose.	
Quintozene	0.007	0.7	10-Sep-87		
Quizalofop-ethyl	0.01	1.25	12-Nov-87		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Quizalofop-P-tefuryl	0.01	1.3	14-Nov-96	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 liver and testis at the next higher dose.	
R					
Ractopamine	0.001	0.125	30-Jul-02	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-Jun-97	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-Sep-97	2-year dietary 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 increased liver weight at the next higher dose.	
S					
Saccharomyces cerevisiae			4-Sep-02		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-Feb-17	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-Nov-81		
Semduramicin	0.003	0.3	11-Jun-97	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-Aug-82		
Siduron	0.025	2.5	2-Mar-94		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Simazine	0.005	0.5	5-Dec-90		
Spectinomycin	1	100	5-Aug-83		
Spinetoram	0.06	6	5-May-08	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-97	2-year dietary rat study; a NOAEL of 2.4 mg/kg bw/d was based on thyroid vacuolation at the next higher dose.	
Spiramycin	0.75	75	9-Feb-78		
Spirotetramat	0.05	5	18-Aug-08	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-Jul-01	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	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				(reduced RBC, Hb and Hct) at the next higher dose.	
Streptomycin (and dihydrostreptomycin)	0.05	5 (JECFA '97)	28-Jun-01	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 two drugs.
Streptomyces lydicus			7-Jun-16		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-93		
Sulfadimidine	0.02	2	20-May-93		
Sulfadoxine	0.05	50	22-May-95	3-month gavage monkey study; a NOAEL of 50 mg/kg bw/d was	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				based on increased liver weights at the next higher dose.	
Sulfaquinoxaline	0.01	1	24-Jul-97	3-month dietary dog study; a NOAEL of 1 mg/kg bw/d was based on increased thyroid weights at the next higher dose.	
Sulfometuron-methyl	0.02	2.5	29-Aug-91		
Sulfosulfuron	0.2	24	19-Dec-97	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-Jun-13	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.	
Sulfur dioxide and equivalents (metabisulfites, sulfites, hydrogensulfites, thiosulfites)	0.7	JECFA'98	28-Feb-98		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Sulfuryl Fluoride	0.01	20 ppm	25-Aug-06	2-year inhalation rat study; a NOAEL of (20 ppm) (approximately 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.	
T					
Tebuconazole	0.03	2.96	27-Aug-10	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.	
Tebufenozide	0.02	1.8	9-Oct-96	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.	
Tebufenpyrad	0.002	0.2	15-Jan-93		
Tebuthiuron	0.07	7	14-Feb-85	2-gen reproduction rat study; a NOAEL of 7 mg/kg bw/d was based on reduced body weight	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				gain in adults and pups at the next higher dose.	
Temephos	0.1	1 (H)	10-Feb-88	4-week human study; a NOAEL of 1 mg/kg bw/d was based on a reduction in plasma cholinesterase activity and clinical signs at the next higher dose.	
Tepraloxydim	0.05	5	19-May-02	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.	
Terbacil	0.06	6.25	12-Nov-87		
Terbufos	0.0002	0.0025	26-Nov-92		
Terbuthylazine	0.003	0.35	4-May-01	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-86		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Tetraconazole	0.004	0.4	12-Dec-02	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-Aug-92	2-year dietary mouse study; a NOAEL of 2 mg/kg bw/d was based on reduced pituitary and thyroid/parathyroid weight at the next higher dose.	
Thiabendazole	0.3	3 (H)	2-Jun-88	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-Jul-01	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-Apr-00	2-generation reproduction rat study; a NOAEL of 2 mg/kg bw/d was based on lower bodyweight gains in the pups at the next higher dose.	
Thidiazuron	0.02	2.5	20-Jun-91		
Thiobencarb	0.007	0.75	10-Nov-77		
Thiodicarb	0.03	3	5-Aug-83	2-year dietary rat study; a NOAEL of 3 mg/kg bw/d was based on 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-Feb-11	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-Mar-95	2-year dietary dog study; a NOAEL of 0.4 mg/kg bw/d was based on neurological disturbances, anaemia and	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
				changes in the liver at the next higher dose.	
Tilmicosin	0.002	4	13-Aug-92	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-Feb-88		
Tolfenamic acid	0.005	0.5 (H)	16-Jan-01	Single dose human therapeutic study; a LOAEL of 0.5 mg/kg bw/d was based on the lowest effective therapeutic (antipyretic) dose in humans.	
Toltrazuril	0.01	1	4-Jan-93		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Topramezone	0.004	0.4	16-Jun-16	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 two 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. 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-Aug-91		
Transfluthrin	0.003	0.25	16-Oct-95	53-week dietary dog study; a NOAEL of0.25 mg/kg bw/d was based on the absence of treatment-related changes at 0.25 mg/kg bw/d.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Triadimefon	0.03	2.5	18-Feb-87		
Triadimenol	0.06	6.25	2-Jun-88	2-year dietary rat study; a NOAEL of 6.25 mg/kg bw/d was based on reduced body weight gain, increased liver enzyme activity (ALT, AST, glutamate dehydrogenase) at the next higher dose.	
Triallate	0.005	0.5	1-Dec-88	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-Feb-91		
Tribenuron-methyl	0.01	0.95	15-Apr-94		
Trichlorfon	0.002	0.2	29-May-86	10-year dietary monkey study; a NOAEL of 0.2 mg/kg bw/d was based on reduced plasma and RBC cholinesterase activity, haematological and thyroid wt effects at the next higher dose.	
Triclabendazole	0.002	0.15	23-May-96	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.	

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Triclopyr	0.005	0.5	5-Nov-86	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-Sep-98	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-02	1-year dietary dog study; a NOAEL of 15 mg/kg bw/d was based on increased liver weight, decreased bilirubin and atrophy in the thymus at the next higher dose.	
Triflumuron	0.007	0.7	2-Jun-88		
Trifluralin	0.02	2.5	30-Aug-91		
Triforine	0.02	2.7	10-Sep-87		
Trimethoprim	0.02	33	20-May-93		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Trinexapac-ethyl	0.01	1.4	14-Dec-93	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.	
Triticonazole	0.02	2	13-Jan-97	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-Aug-06	A microbiological ADI was established at 0.005 mg/kg bw/d based on a MIC50 of 1 µg/mL in the most sensitive bacterial genus, Bifidobacterium spp found in the human GI tract.	
Tylosin	0.3	30	15-Jan-93	2-year dietary rat study; a NOAEL of 30 mg/kg bw/d was based on pituitary tumours at the next higher dose.	
U					

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Ulocladium oudemansii			12-Dec-03		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-Feb-00	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	
V					
Virginiamycin	0.2	25	10-Feb-88	2-year dietary rat study; a NOAEL of 25 mg/kg bw/d was based on increased testicular weights at the next higher dose.	
Z					
Zeranol	0.0002	0.015	10-Feb-88		

Chemical	ADI (mg/kg bw/d)	NOAEL (mg/kg bw/d)	Date	Study	Comments
Zeta-cypermethrin	0.07	7	23-May-96	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.	
Zilpaterol	0.00004	0.00076[LOAEL]	24-Oct-16	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-Nov-92		
Ziram	0.01	1	21-Jun-95	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.	