

The Ministry of the Environment has collected the results of monitoring surveys of agricultural chemicals in golf course drains, which is conducted by local governments and regional environment offices in FY 2014.

The monitoring surveys were conducted in accordance with the "Tentative Guideline for the Prevention of Water Pollution by Agricultural Chemicals Used in Golf Courses", hereinafter referred to as "the Guideline". 17,328 samples from 511 golf courses were measured in the survey and no sample of the drains exceeded reference values of concentrations set in the Guideline (Table 1 and Table 2).

Table 1 Summary of survey results

Prefectures	Number of golf courses surveyed***		Number of agricultural chemicals surveyed (**and***)		Total number of samples (*,**and***)		The number of samples surveyed from drains		Number of samples exceeding the reference value	
Hokkaido	44	(2)	57	(14)	466	(14)	109	(6)	0	(0)
Aomori	1	(1)	4	(4)	4	(4)	0	(0)	0	(0)
Iwate	1	(1)	2	(2)	2	(2)	0	(0)	0	(0)
Miyagi	5	(1)	71	(2)	165	(2)	5	(0)	0	(0)
Akita	2		6		6		0		0	
Yamagata	1	(1)	8	(8)	5	(5)	0	(0)	0	(0)
Fukushima	13		43		438		134		0	
Ibaraki	6	(1)	20	(5)	31	(5)	18	(0)	0	(0)
Tochigi	58		100		2,101		556		0	
Gunma	2	(2)	22	(22)	17	(17)	0	(0)	0	(0)
Saitama	25		60		813		677		0	
Chiba	14		74		541		184		0	
Tokyo	3	(1)	23	(9)	42	(6)	24	(6)	0	(0)
Kanagawa	13		43		161		131		0	
Yamanashi	0		0		0		0		0	
Nagano	9		71		314		122		0	
Niigata	6		26		145		52		0	
Toyama	8		60		433		433		0	
Ishikawa	2	(2)	10	(10)	11	(11)	0	(0)	0	(0)
Fukui	5		29		49		6		0	
Gifu	5	(2)	26	(22)	37	(22)	0	(0)	0	(0)
Shizuoka	23		63		816		196		0	
Aichi	25		79		330		111		0	
Mie	3		8		8		0		0	
Shiga	3	(1)	27	(9)	37	(8)	12	(8)	0	(0)
Kyoto	12		79		208		157		0	
Osaka	25		63		546		113		0	
Hyogo	79		99		3,918		442		0	
Nara	24		42		840		385		0	
Wakayama	3		42		380		0		0	
Tottori	1		43		82		0		0	
Shimane	5		31		55		0		0	
Okayama	15		55		741		0		0	
Hiroshima	8		58		432		432		0	
Yamaguchi	2	(1)	3	(1)	5	(1)	0	(0)	0	(0)
Tokushima	1	(1)	4	(4)	4	(4)	0	(0)	0	(0)
Kagawa	8		44		320		0		0	
Ehime	2	(2)	10	(10)	10	(10)	0	(0)	0	(0)
Kochi	1	(1)	5	(5)	4	(4)	0	(0)	0	(0)
Fukuoka	11		81		981		383		0	
Saga	8		46		346		0	(0)	0	(0)
Nagasaki	5		58		540		0		0	
Kumamoto	8		33		496		31		0	
Oita	2		30		89		0		0	
Miyazaki	2	(2)	11	(11)	11	(11)	8	(8)	0	(0)
Kagoshima	10		69		338		41		0	
Okinawa	2	(2)	14	(14)	10	(10)	0	(0)	0	(0)
	511	(24)	-	-	17,328	(136)	4,762	(28)	0	(0)

Notes: * The total number of samples includes those collected from drain, pond in golf courses, and water outside of golf courses.

Notes: ** The total number of samples includes those surveyed by municipalities and reported to their prefectures.

Notes: *** Figures in brackets are results measured by regional environment offices.

Table 2 Summary of survey results of each chemical

Agricultural chemicals	Reference value (mg/L)	Concentration range detected * (mg/L)	Number of samples exceeding the reference value	Number of samples *
Asulam	2	N.D.-0.013	0	127
Acetamiprid	1.8	N.D.	0	34
Acephate	0.063	N.D.	0	48
Azoxystrobin	4.7	N.D.-0.05	0	113
Amisulbrom	2	N.D.	0	4
Alachlor	0.2	N.D.	0	11
Isoxathion	0.08	N.D.	0	76
Isoxaben	1.3	N.D.	0	2
Isoprothiolane	2.6	N.D.	0	69
Iprodione	3	N.D.	0	98
Iprobenfos (IBP)	0.93	-	0	0
Imidacloprid	1.5	N.D.	0	46
Iminoctadine tris(Albesilate)	0.06			
Iminoctadine-Triacetate	(as in Iminoctadine)**	N.D.	0	90
Imibenconazole	0.26	N.D.	0	6
Indaziflam	0.5	N.D.	0	3
Indoxacarb	0.13			
IndoxacarbMP	(as in Indoxacarb)**	N.D.	0	1
Ethoxysulfuron	1.4	N.D.-0.005	0	52
Etofenprox	0.82	N.D.	0	38
Etridiazol (Echlomezol)	0.04	N.D.	0	49
Oxadiazyl	0.2	N.D.	0	10
Oxaziclomefone	0.24	N.D.	0	44
Oxine-Copper	0.2	N.D.	0	78
Cafenstrole	0.07	N.D.	0	63
Quinoclamine (ACN)	0.055	N.D.	0	2
Captan	3	N.D.	0	74
Cumyluron	0.2	N.D.	0	7
Glufosinate	0.24			
Glufosinate-P-Sodium	(as in Glufosinate)**	N.D.	0	5
Kresoxim-Methyl	9.5	-	0	0
Clothianidin	2.5	N.D.-0.003	0	86
Chlorantraniliprole	6.9	N.D.	0	33
Chlorimuron-Ethyl	2	N.D.	0	5
Chlorpyrifos	0.02	N.D.	0	67
Chlorphthalim	0.069	-	0	0

Agricultural chemicals	Reference value (mg/L)	Concentration range detected * (mg/L)	Number of samples exceeding the reference value	Number of samples *
Chlorothalonil (TPN)	0.4	N.D.	0	94
Chloroneb	0.5	N.D.	0	62
Cyazofamid	4.5	N.D.	0	25
Dicamba (MDBA)	9.3 (as in MDBA)	N.D.	0	3
Dicamba-Potassium (MDBA-Potassium)				
Dicamba-Dimethylammonium (MDBA-Dimethylammonium)				
1,3-dichloropropene (D-D)	0.5	-.	0	0
Cyclosulfamuron	0.8	N.D.-0.003	0	72
Dithiopyr	0.095	N.D.	0	63
Siduron	3	N.D.-0.14	0	74
Difenoconazole	0.25	N.D.	0	73
Cyflumetofen	2.4	N.D.	0	4
Cyproconazole	0.3	N.D.-0.0011	0	59
Simazine (CAT)	0.03	N.D.-0.0056	0	76
Simeconazole	0.22	N.D.	0	42
Silafluofen	2.9	N.D.	0	9
Spinetoram	0.63	N.D.	0	1
Diazinon	0.05	N.D.-0.0002	0	96
Daimuron	7.9	N.D.	0	2
Thiamethoxam	0.47	N.D.	0	52
Thiuram(Thiram)	0.2	N.D.	0	104
Thiodicarb	0.8	N.D.	0	87
Thiophanate-Methyl	3	N.D.-0.03	0	67
Thiobencarb	0.2	N.D.	0	9
Thifluzamide	0.37	N.D.-0.0075	0	77
Tetraconazole	0.1	N.D.	0	65
Tebuconazole	0.77	N.D.	0	76
Tebufenozide	0.42	N.D.	0	43
Triaziflam	0.23	N.D.	0	9
Triclopyr	0.06	N.D.-0.0208	0	84
Trichlorfon (DEP)	0.05	N.D.	0	54
Trinexapac-Ethyl	0.15	N.D.	0	44
Triflumizole	0.39	N.D.	0	52
Trifloxystrobin	1	N.D.	0	11
Tolclofos-Methyl	2	N.D.-0.1	0	107
Napropamide	0.3	N.D.-0.0017	0	67
Validamycin	12	N.D.	0	29
Halosulfuron-Methyl	2.6	N.D.	0	75

Agricultural chemicals	Reference value (mg/L)	Concentration range detected * (mg/L)	Number of samples exceeding the reference value	Number of samples *
Hydroxyisoxazol (Hymexazol)	1	N.D.	0	52
Bifenthrin	0.26	-	0	0
Pyraflufen-Ethyl	4.5	N.D.	0	6
Pyributicarb	0.23	N.D.	0	55
Pyribencarb	1.0	N.D.	0	11
Pyroxasulfone	0.5	-	0	0
Fenitrothion (MEP)	0.03	N.D.-0.0003	0	91
Ferimzone	0.5	N.D.	0	12
Butamifos	0.2	N.D.	0	56
Flazasulfuron	0.3	N.D.	0	69
Furametpyr	0.1	-	0	0
Fluxapyroxad	0.55	-	0	0
Fludioxonil	8.7	N.D.	0	17
Flucetosulfuron	1	N.D.	0	4
Flutolanil	2.3	N.D.	0	74
Flubendiamide	0.45	N.D.	0	22
Flupoxam	0.21	N.D.	0	10
Flurprimidol	0.39	N.D.	0	1
Prodiamine	1.7	N.D.	0	27
Propamocarb Hydrochloride	7.7	N.D.	0	15
Propiconazole	0.5	N.D.	0	104
Propyzamide	0.5	N.D.-0.003	0	99
Benomyl	0.2	N.D.	0	39
Permethrin	1	N.D.	0	53
Pencycuron	1.4	N.D.-0.004	0	93
Bensultap	0.9	N.D.	0	33
Penthiopyrad	2	N.D.	0	17
Pendimethalin	3.1	N.D.	0	73
Penflufen	0.53	N.D.	0	1
Benfluralin (Bethrodine)	0.1	N.D.	0	70
Benfuresate	0.69	-.	0	0
Boscalid	1.1	N.D.	0	62
Phosethyl	23	N.D.	0	51
Foramsulfuron	13	N.D.	0	15
Polycarbamate	0.3	N.D.	0	29
Myclobutanil	0.63	N.D.	0	9
Milbemectin	0.7	-.	0	0
Mecoprop-Potassium	0.47			
Mecoprop-Dimethylammonium	(as in	N.D.-0.014	0	57
Mecoprop-P-Isopropylammonium	Mecoprop)**			

Agricultural chemicals	Reference value (mg/L)	Concentration range detected * (mg/L)	Number of samples exceeding the reference value	Number of samples *
Mecoprop-P-Potassium				
Mesotrione	0.07	N.D.	0	0
Metamifop	0.11	N.D.	0	8
Metalaxyl	0.58			
Metalaxyl-M	(as in Metalaxyl)**	N.D.	0	81
Methoxyfenozide	2.6	N.D.	0	7
Metconazole	1	N.D.	0	23
Metolachlor	2.5			
S-Metolachlor	(as in Metolachlor)**	N.D.	0	1
Mepronil	1	N.D.-0.0007	0	68
EPN	0.037	N.D.	0	3
MCPA-Isopropyl	0.051			
MCPA-Sodium	(as in MCPA)**	N.D.	0	36
Total		-	0	4,762

Notes: * The number includes those data collected at drain outlets of golf courses.

Notes:** For the sake of evaluation against the reference value, agricultural chemicals were measured in terms of the chemical shown in the column of "reference value".