

ANNEX 1: UK Approvals for pesticides on outdoor hops

Active	Product Name (not exhaustive)	Acceptability for brewing	Latest UK expiry date	Comments	EU/UK MRL as of February 2015
Key: * value at limit of detection		**Extension of Authorisation for Minor Uses ("Off-label") allows a product which is authorised for use on a major crop to be used on a minor crop such as hops for as long as the product retains its main authoriisation. Efficacy and phytotoxicity on the minor crop has not been tested: this is the user's responsibility.			
Fungicides					
Boscalid	Bellis (also contains pyraclostrobin)	Limited small scale trials with treated barleys at IFBM showed no effect on beer quality. Accepted for barley, but prior to ear emergence only. Hops not tested .	31/07/2019	UK authorisation under Minor Uses Authorisation**	60
Bupirimate	Nimrod	Accepted on the basis of brewing trials at Campden BRI	31/12/2021		10
Copper oxychloride	Cuprokylt	Accepted on the basis of brewing trials at Campden BRI using metalaxyl-copper mixture	31/12/2021		1000 (Cu)
Cymoxanil	Option	Accepted on the basis of brewing trials at Campden BRI	31/12/2021	UK authorisation under Minor Uses Authorisation**	2
Fenpropimorph	Corbel	Accepted on the basis of brewing trials at Campden BRI	31/12/2021	UK authorisation under Minor Uses Authorisation**	10
Mandipropamide	Revus	Not tested	31/05/2016	UK authorisation under Minor Uses Authorisation**	50
Metalaxyl -M	SL 567A	Accepted on the basis of brewing trials at Campden BRI	30/06/2018	UK authorisation under Minor Uses Authorisation**	10
Myclobutanil	Systhane 20EW	Accepted on the basis of brewing trials at Campden BRI	31/12/2021	UK authorisation under Minor Uses Authorisation**	2
Penconazole	Topas	Accepted on the basis of brewing trials at Campden BRI	31/12/2021		0.5
Potassium bicarbonate	Potassium bicarbonate	Accepted on the basis of evaluation at CampdenBRI	31/08/2019	Authorised as a commodity substance	No limit set

Pyraclostrobin	Bellis (also contains boscalid)	Limited small scale trials with treated barleys at IFBM showed some small effect on alcohol production. Accepted for barley, but prior to ear emergence only	31/07/2019	UK authorisation under Minor Uses Authorisation**	10
Quinoxifen	Fortress	Accepted for barley on the basis of trials at TNO. Not tested with hops.	31/10/2019	UK authorisation under Minor Uses Authorisation**	0.5
Sulphur	Thiovit Jet	Accepted for use before burr stage only on the basis of brewing trials at CampdenBRI	31/12/2021		no MRL required

Insecticides and Acaricides

Abamectin	Agrimec	Not tested	31/12/2021	UK authorisation under Minor Uses Authorisation**	0.05
Flonicamid	Mainman	Not tested	28/02/2023	UK authorisation under Minor Uses Authorisation**	2
Imidacloprid	Imidamex 700WG	Accepted on the basis of brewing trials at Campden BRI	31/12/2021	Imidacloprid is a neonicotinoid: use on many crops to be temporarily withdrawn from Dec 2013 but this does not appear to apply to hops.	10
Lambda-cyhalothrin	Hallmark	Accepted on the basis of brewing trials at Campden BRI	30/06/2018	UK authorisation under Minor Uses Authorisation**	10
Pymetrozine	Plenum WG	Accepted on the basis of brewing trials at Campden BRI	30/06/2018		15
Pyrethrins	various	Accepted on the basis of brewing trials at Campden BRI with several synthetic pyrethroids for both barley and hops.	31/12/2021	General acceptance for all edible crops. Pyrethrins are natural products and allowed for organic crops.	0.5
Spirodiclofen	Envidor	Not tested	31/07/2015	UK authorisation under Minor Uses Authorisation**	40
Spirotetramat	Movento	Not tested	31/07/2015	UK authorisation under Minor Uses Authorisation**	15
Tebufenpyrad	Masai	Accepted on the basis of brewing trials at Campden BRI	31/12/2021		0.5

Herbicides					
Carfentrazone-ethyl	Shark, Spotlight	Accepted on the basis of evaluation at Campden BRI	31/01/2019	General acceptance for all edible crops	0.02*
Diquat	Dragoon	Accepted on the basis of established use prior to 1980 with no problems.	30/06/2018		0.1*
Fluazifop-P	Fusilade Max	Accepted on the basis of evaluation at CampdenBRI	31/12/2021		0.1
Glyphosate (including trimesium salt)	various	Accepted on the basis of brewing trials at Campden BRI using treated barley	30/06/2018	General acceptance for all edible crops	0.1* (0.05* for trimesium ion)
Isoxaben	Flexidor	Accepted on the basis of established use prior to 1980 with no problems.	31/12/2021		0.05
Propyzamide	Kerb Flo	Accepted on the basis of early application and established use prior to 1980 with no problems.	31/07/2019		0.05*
Pyraflufen-ethyl	Quickdown	Not tested	25/05/2016		0.1*
Defoliants					
Diquat	Reglone	Accepted on the basis of brewing trials at Campden BRI	31/12/2015	UK authorisation under Minor Uses Authorisation**	0.1 *
Miscellaneous					
Aluminium ammonium sulphate	various	Not tested		Animal repellent, approved for all edible crops	default (0.01*)
Metaldehyde	various	Accepted on the basis of application type and established use prior to 1980 with no problems.	31/12/2021	Slug bait, approved for all edible crops. Applied to soil.	0.05*

ANNEX 2. Pesticides approved for use on hops in EU countries, as of Feb 2015 (reproduced courtesy of Peter Glendinning, British Hops)

Chemical Active Ingredient	Activity	Germany	Czech Rep.	Slovenia	Poland	France	Spain	Belgium	UK	EU MRL (ppm)	BBPA: Acceptability for Brewing.
Abamectin	Acaricide	Agrimek, Vertimec	Vertimec	Vertimec 1.8%EC	na	na	na	Agrimec	Agrimec	0.05	Not tested
Acetamiprid	Insecticide	na	Mospilan	na	na	na	na	na	na	0.1*	Not tested
Azoxystrobin	Fungicide	Ortiva	Ortiva	Quadris	na	na	na	na	na	30	Acceptable on the basis of brewing trials on barley, 1997
Boscalid	Fungicide	Bellis	Bellis	na	na	na	na	Bellis	Bellis	60	Acceptable on the basis of brewing trials on barley, 2004
Bromoxynil	Herbicide	Buctril	na	na	na	na	na	na	na	0.1*	Accepted on barley
Bupirimate	Fungicide	na	na	na	na	na	Nimrod, Quatro	na	Nimrod	10	Accepted on the basis of brewing trials at Campden BRI
Carfentrazone-ethyl	Herbicide	na	na	na	na	Spotlight Plus	na	na	Spotlight #	0.02*	Accepted on the basis of evaluation at Campden BRI
Copper	Fungicide	Funguran	various	various	various	various	various	various	Cuprokyt	1000	Accepted on the basis of brewing trials at Campden BRI using metalaxyl-copper mixture
Cymoxanil	Fungicide	Aktuan	Curzate K	Curzate R	Curzate Cu	Cpral NC	na	na	Option	2	Accepted on the basis of brewing trials at Campden BRI
Cypermethrin	Insecticide	na	Vaztak	na	various	na	various	na	na	30	Accepted on the basis of brewing trials at Campden BRI
Deltamethrin	Insecticide	na	na	na	na	na	Decis Expert, Delaplan	na	na	5	Accepted on the basis of brewing trials at Campden BRI
Dimethomorph	Fungicide	Forum	na	na	na	na	na	na	na	80	Not tested
Diquat	Herbicide	Reglone	na	Reglone 200SL	na	various	na	Reglone	Reglone	0.1*	Accepted on the basis of established use prior to 1980 with no problems.
Dithianon	Fungicide	Delan 700WG	na	Delan 700WG	na	na	na	various	na	100	Not tested
Fenpropimorph	Fungicide	na	na	na	na	na	na	na	Corbel	10	Accepted on the basis of brewing trials at Campden BRI

Fenpyroximate	Acaricide	na	Ortus	na	na	na	na	na	na	10	Not tested
Flonicamid	Insecticide	Teppeki	Teppeki	Teppeki	na	Teppeki	na	Teppeki	Mainman	2	Not tested
Fluazifop-p-butyl	Herbicide	Fusilade Max	Fusilade	na	na	na	na	na	Fusilade	0.1	Accepted on the basis of evaluation at CampdenBRI
Folpet	Fungicide		Folpan	Folpan 80WDG	na	na	na	na	na	150	Under test for barley
Fosetyl-Al	Fungicide	Aliette	Aliette	Aliette flash	Aliette	Aliette flash	various	Aliette	na	1500	Accepted on the basis of brewing trials at Campden BRI
Glyphosate	Herbicide	na	na	na	na	na	na	na	various #	0.1*	Accepted on the basis of brewing trials at Campden BRI using treated barley
Hexythiazox	Acaricide	Ordoval	Nissorun	Nissorun 10WP	na	na	na	na	na	20	Not tested
Imidacloprid	Insecticide	Confidor 70WG	Confidor	Confidor, Kohinor SL 200	Confidor 200SL	na	Confidor 20 LS, Kohinor	Confidor 200SL	Admire	10	Accepted on the basis of brewing trials at Campden BRI
Isoxaben	Herbicide	na	na	na	na	na	na	na	Flexidor	0.05	Accepted on the basis of established use prior to 1980 with no problems.
Lambda Cyhalothrin	Insecticide	Karate Zeon	Karate Zeon	Karate Zeon 5	various	Karate Xpress	Karate King-Zeon	na	Hallmark	10	Accepted on the basis of brewing trials at Campden BRI
Mandipropamid	Fungicide	Revus	Pergado	na	na	na	na	Revus	Revus	50	Not tested
MCPA	Herbicide	U 46 M fluid	Dicopur	na	na	na	na	na	na	0.1*	Accepted for barley. Not tested for hops.
Metalaxyl-m / Mefenoxam	Fungicide	Fonganil Gold, Ridomil	Ridomil Gold	Fonganil Gold, Ridomil	na	na	na	na	SL567A	10	Accepted on the basis of brewing trials at Campden BRI
Metaldehyde	Molluscicide	na	na	na	na	na	na	various	Metarex #	0.05*	Accepted on the basis of application type and established use prior to 1980 with no problems.
Milbemectin	Acaricide	Milbeknock	na	Milbeknock	na	na	na	na	na	0.1	Not tested
Myclobutanil	Fungicide	Systhane 20EW	na	Systhane	na	Systhane New	Systhane Forte	Systhane 20EW	Systhane	2	Accepted on the basis of brewing trials at Campden BRI
Oxadiazon	Herbicide	na	na	na	na	na	na	na	Ronstar	0.05*	Accepted on the basis of established use prior to 1980 with no problems.
Penconazole	Fungicide	na	na	na	na	na	na	na	Topas	0.5	Accepted on the basis of brewing trials at Campden BRI
Potassium bicarbonate	Fungicide	na	na	na	na	na	na	na	Potassium Bicarbonate	exempt	Accepted on the basis of evaluation at CampdenBRI

Propargite	Insecticide	na	Omite	na	Omite 30WP	na	na	na	na	100	Not tested
Propyzamide	Herbicide	na	na	na	na	na	na	na	Kerb Flo	0.05*	Accepted on the basis of early application and established use prior to 1980 with no problems.
Pymetrozine	Insecticide	Plenum 50WG	Chess	Chess 50WG	na	Plenum 50WG	na	Plenum	Plenum 50WG	15	Accepted on the basis of brewing trials at Campden BRI
Pyraclostrobin	Fungicide	Bellis	na	na	na	na	na	na	Bellis (+boscalid)	10	Accepted for barley. Not tested for hops.
Pyraflufen-ethyl	Herbicide	Quickdown	na	na	na	na	na	na	Quickdown	0.1*	Not tested
Quinoxifen	Fungicide	Fortress 250	IQ Crystal	na	na	na	na	Fortress	Fortress	0.5	Accepted for barley on the basis of trials at TNO. Not tested with hops.
Spirodiclofen	Insecticide	Envidor	na	na	na	na	na	na	Envidor	40	Not tested
Spirotetramat	Insecticide	na	Movento	na	Movento	na	na	Movento 100SC	Movento	15	Not tested
Sulphur	Fungicide	Sulfur	Kumulus	various	various	various	Sulfur	various	various	100	Accepted for use before burr stage only on the basis of brewing trials at CampdenBRI
Tebuconazole	Fungicide	na	Horizon	na	na	na	na	na	na	30	Accepted on the basis of established use prior to 1980 with no problems.
Tebufenpyrad	Acaricide	na	na	na	na	na	na	Masai 20 WP	Masai	0.5	Accepted on the basis of brewing trials at Campden BRI
Tepraloxydim	Herbicide	Aramo	na	na	na	na	na	na	na	0.1*	Not tested
Thiamethoxam	Insecticide	Actara	Actara	na	na	na	na	na	na	0.1	Not tested
Triadimenol	Fungicide	Bayfidan	Bayfidan	na	na	na	Bayfidan 312 SC	Exact	na	10	Accepted on the basis of established use prior to 1980 with no problems.
Trifloxystrobin	Fungicide	D- Flint	na	Zato 50WG	na	Flint	na	na	na	30	Accepted for barley. Not tested for hops.
		na = not approved							# = approval for use on all edible crops	* = Limit of Determination	

Annex 3: Non-EU Registration and MRLs for pesticides used on HOPS

COLOUR CODE

MRL same as or close to EU

MRL LOWER than EU

KEY

T = temporary

E = extraneous (ie no current registration)

Default value is residue allowed if no MRL is set

ues in BOLD are higher than the detection limit

* = value set at the limit of determination

In the EU, MRLs are set for ALL crop/chemical combinations even if the chemical is not used on that crop. MRLs shown here are for chemicals known to have MRLs for hops in at least 1 other country. (Except for ubiquitous environmental contaminants such as DDT). NL = no limit needed. Default = 0.01mg/kg

[illegible]

aluminium ammonium sulphate									default
Ametoctradin		10				15	10		15
Amitrole	0.01*								0.02
Aramite									0.1*
asulam	0.1*				0.1				0.05*
atrazine					0.1*				0.1*
azoxystrobin		20		30	30	30	20	30	30
Barban									0.1*
benalaxyl					0.2				0.1*
benfuracarb					5				0.1*
benomyl	see carbendazim								
bensulfuron-methyl									default
bensulide					0.03				default
bentazone					0.02				0.1*
benzyladenine					0.02				default
bifenazate	3(T)	15			20	20	15	20	20
bifenthrin				20	20	20	10	20	10
bilanafos					0.008				default
bioresmethrin					0.1				default
bitertanol					0.1				0.1*
boscalid	0.5	35		60	60	60	35	60	60
brodifacoum					0.001				default
bromide (inorganic)					400				20
bromophos-ethyl									0.1*
bromopropylate					1				0.05*
bromoxynil									0.1*
bupirimate									10
buprofezin									5
butylamine					0.1				default
Carbendazim					0.1				0.1*
carbofuran					10				0.05*
carbosulfan					1				0.05*

carfentrazone ethyl	0.05*			0.1	0.3	0.02*	0.1		0.02*
cartap					10				default
chlorantraniliprole	0.01*				90	0.02*	90		0.02*
chlorbenside									0.1*
chlorbufam									0.1*
chlordane					0.02				0.02*
chlorfenapyr						0.05			0.05*
chlorfenson									0.1*
chlorfluazuron					0.05				default
chlormequat					0.1*				0.1*
chlorobenzilate					0.1*				0.1*
chlorothalonil					0.1				50
chloroxuron									0.1*
chlorpyrifos					0.1*	0.1*			0.1*
chlorpyrifos-methyl					0.1*				0.1*
chlozolate									0.1*
cinidon-ethyl					0.1				0.1*
clethodim						0.1	0.5		0.1
clodinafop-propargyl					0.02				0.05*
clofentezine	0.2*				0.2				0.05*
clomazone					0.02*				0.02*
clpyralid	2	5		5	5	5	5		5
clothianidin					0.1				0.05*
copper (from copper salts)					see individual salts				1000
copper nonylphenolsulfonate					0.04				default
copper tetraphthalate									default
4-CPA (chlorophenoxyacetic acid)					0.02				default
cyanamide									0.2
cyazofamid					0.02*	0.02*	10		0.02*
cycloprothrin					0.02				default
cycloxydim					0.05*				0.05*

[illegible]

diphenylamine					0.05*				0.05*
diquat	0.2 (T)				0.04*	0.1*	0.2		0.1*
disulfoton	0.5				0.3				0.05*
dithianon				100	100			100	100
dithiocarbamates	10 (T)			30	30			30	25
diuron					0.02				0.5
2,2-DPA					0.05				default
E ndosulfan					0.1*				0.1*
endothall					0.1		0.1		default
endrin					0.1*				0.1*
epoxiconazole									0.1
esfenvalerate	see fenvalerate				5	0.05*			0.05*
ethephon					0.1*				0.1*
ethiofencarb									default
ethirimol									10
ethoprop (ethoprophos)				0.02		0.02*	0.02		0.02*
ethoxyquin									0.05*
ethyclozate									default
ethylene dibromide (EDB)					0.01*				0.02*
ethylene dichloride					0.02*				0.02*
etoxazole					15	15	7	15	15
F amoxadone				80	80	0.05*	80		0.05*
fenamiphos					0.05*				0.05*
fenarimol					5	5	5	5	5
fenbutatin oxide	20				25				0.1*
fenchlorphos									0.1*
fenhexamid					100				0.1*
fenoxycarb					0.05*				0.05*
fenpropathrin					0.5				0.02*
fenpropimorph					0.1				10
fenpyroximate				10	15	10	10	10	10

fentin					0.5				0.1*
fenvalerate					5				0.05*
ferric phosphate				exempt					NL
fipronil					0.002*				0.01*
flazasulfuron					0.02*				0.02*
flonicamid		7		7	5	2	7		2
fluazifop-P butyl	0.05				0.05				0.1
flucythrinate					10				0.1*
flumioxazin				0.05		0.1*	0.05		0.1*
fluometuron					0.02*				0.02*
fluoride ion									10
fluoroimide					0.04				default
fluridone									default
fluroxypyr					0.1*				0.1*
fluvalinate					10				see tau-fluvalinate (10)
folpet				120	120	150	120		150
formothion									0.05*
fosetyl aluminium				45	1440	1500	45		1500
furathiocarb					5				0.05*
furfural									1
Gibberellic acid									5
glufosinate ammonium	1 (T)				0.2				0.1*
glyphosate	0.1*			7	0.1	0.1*	7		0.1*
Haloxypop					0.02*				0.05
heptachlor					0.01*				0.02*
HCB					0.02*				0.02*
hexaconazole					0.05*				0.05*
hexythiazox				2	30	20	2	3	20
hydrogen cyanide					1				default
hydrogen phosphide (phosphine)					0.01	0.02*			0.02*
hydroprene							0.2		default

hymexazol					0.02				0.05*
I mazalil					0.1*				0.1*
imazaquin					0.05				0.05*
imazethapyr ammonium					0.05				default
imidacloprid	10 (T)			10	7	10	6	10	10
iminoctadine					0.02				default
iprodione					0.1*				0.1*
isouron					0.02				default
isoxaben	0.01*								0.05
K resoxim-methyl									0.1*
L ambda cyhalothrin		0.01*			10	10	10		10
lindane					0.05*				0.05*
linuron					0.02*				0.1*
M alathion				1	1	0.02*	1		0.02*
maleic hydrazide					0.2*				0.5*
mancozeb					30				25
mandipropamid		18		50	50	50	50		50
MCPA									0.1*
mecarbam									0.1*
metalaxyl		8		10				10	
metalaxyl-M					10	10	20		10
metaldehyde									0.05*
methacrifos									0.1*
methamidophos	5				5				0.02*
methidathion				5	5			5	0.1*
methiocarb									0.1*
methomyl	0.5				8				10
methoxychlor					0.1*				0.1*
metribuzin					0.1*				0.1*
MGK 264 (n-octyl bicycloheptene							5		default

dicarboximid									
milbemectin					0.1				0.1*
molinate									0.1*
monolinuron									0.1*
myclobutanil				2	10	2	10	2	2
N aled				0.5	0.1		0.5		default
nitenpyram					0.03				default
novaluron						0.01*			0.01*
norflurazon				3	3		3		default
O xadiazon									0.05*
oxine-copper					10				default
oxydemeton-methyl					0.05				0.02*
p araquat	0.2			0.5	0.2	0.1	0.5	0.1	0.05*
parathion					0.6				0.1*
parathion methyl					0.05				0.05*
penconazole				0.5	0.5			0.5	0.5
pendimethalin	0.1*								0.1*
permethrin				50	50			50	0.1*
d-phenothrin					0.02	0.05*			0.05*
phorate				2	0.3	0.05*	2		0.05*
phoxim					0.02*				0.02*
pindone					0.001				default
pirimicarb	0.5				0.5				4
pirimiphos-methyl					0.05*				0.05*
probenazole					0.03				default
prochoraz					0.1*				0.1*
procymidone					0.1*				0.05*
profenofos					0.1*				0.05*
prohexadione calcium					0.1*				0.1*
propargite	3	30		100	100	100	100	100	100
propiconazole					0.1*				0.1*

propineb					30				25
propoxur					0.1*				0.1*
propyzamide									0.05*
pymetrozine		6		6	15	15	6		15
pyraclostrobin		23		15	15	15	23	15	10
pyraflufen-ethyl					0.05				0.1*
pyrazolynate					0.02*				default
pyrazophos					0.1*				0.1*
pyrethrins					0.05	0.5			0.5
pyridaben				10	10	10	10		10
pyriproxyfen						0.05*			0.05*
Quinalfos					0.1*				0.1*
quinoxifen		2.5		1	1	1	3	1	0.5
quintozene					0.05				0.1*
Resmethrin					0.2	0.2*			0.2*
Spinetorum						0.1*	22		0.1*
spinosad						22	22		22
spirodiclofen		40		40	40	40	30	40	40
spirotetramet		10		15	15	15	10	15	15
spiroxamine				50	50	0.1*	50		0.1*
sulfentrazone					0.05				default
sulphur				exempt					NL
Tau-fluvalinate					10				10
tebuconazole				35	40	40	35	40	40
tebufenoxide									0.1
tebufenpyrad									0.5
tebuthiuron					0.02*				default
tecnazene					0.1*				0.1*
teflubenzuron					0.02*				0.05*
tepraloxydim					0.05*				0.1*
terbufos					0.005*				0.01*

tetradifon	5				60				0.05*
thiabendazole					0.1*				0.1*
thiacloprid									0.1
thiamethoxam		0.1			0.1	0.1	0.1		0.1
thiodicarb					8				10
thiometon					0.2				default
tolyfluanid				50	50			50	1*
triadimefon					10				10
triadimenol					5				
triazolyl alanine		2							default
triclopyr					0.03*				0.1*
tricyclazole					0.02*				0.05*
tridemorph					0.1*				0.05*
trifloxystrobin				40	40	40	11	40	30
triflumizole		0.1 (default)		50	8	0.1*	50		0.1*
triflumuron					0.02*				0.05*
trifluralin		0.1 (default)		0.05	0.05	0.1*	0.05		0.05*
triforine					30				0.05*
Vamidothion									default
vinclozolin					40				0.05*
Warfarin					0.001				default
Zeta-cypermethrin					20	30			30