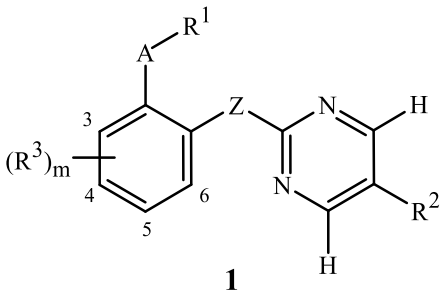
CLAIMS

What is claimed is:

1. A compound selected from Formula **1**, *N*-oxides and salts thereof,



1

wherein

A is



A-3;

B is O or S;

R^1 is C_1–C_6 alkyl, C_2–C_6 alkenyl, C_2–C_6 alkynyl, C_1–C_6 haloalkyl, C_2–C_6 haloalkenyl, C_2–C_6 haloalkynyl, C_3–C_6 cycloalkyl, C_3–C_6 halocycloalkyl, C_3–C_6 halocycloalkylalkyl, C_4–C_8 alkylcycloalkyl, C_4–C_8 cycloalkylalkyl, C_1–C_6 alkylamino, C_1–C_6 haloalkylamino, C_2–C_{10} dialkylamino, C_2–C_{10} halodialkylamino, C_1–C_6 alkoxy, C_3–C_6 alkenyloxy, C_3–C_6 alkynyloxy, C_1–C_6 haloalkoxy, C_3–C_6 haloalkenyloxy, C_3–C_6 haloalkynyloxy, C_3–C_6 cycloalkoxy, C_3–C_6 halocycloalkoxy, C_4–C_8 cycloalkylalkoxy, C_4–C_8 halocycloalkylalkoxy, C_2–C_6 alkoxyalkyl, C_2–C_6 haloalkoxyalkyl, C_2–C_6 alkoxyhaloalkyl, C_2–C_6 alkoxyalkoxy, C_2–C_6 cyanoalkyl, C_2–C_6 cyanoalkoxy, C_3–C_7 cyanoalkoxyalkyl, C_1–C_6 hydroxyalkyl, C_1–C_6 nitroalkyl, C_1–C_6 alkylthio, C_1–C_6 haloalkylthio, C_3–C_8 cycloalkylthio, C_1–C_6 alkenylthio, C_1–C_6 alkylsulfinyl, C_1–C_6 haloalkylsulfinyl, C_1–C_6 alkylsulfonyl, C_1–C_6 haloalkylsulfonyl, C_3–C_8 cycloalkylsulfonyl, C_2–C_6 alkylthioalkyl or C_2–C_6 haloalkylthioalkyl;

Z is O or S;

R^2 is halogen, cyano, nitro, C_1–C_6 alkoxy, C_1–C_6 alkyl, C_2–C_6 alkenyl, C_2–C_6 alkynyl, C_1–C_6 haloalkyl, C_3–C_6 cycloalkyl or $-SO_nR^{10}$;

each R^3 is independently halogen, cyano, nitro, CHO, $C(=O)NH_2$, $C(=S)NH_2$, SO_2NH_2, C_1–C_4 alkyl, C_2–C_4 alkenyl, C_2–C_4 alkynyl, C_1–C_4 haloalkyl, C_2–C_4 haloalkenyl, C_2–C_4 haloalkynyl, C_3–C_6 cycloalkyl, C_3–C_6 halocycloalkyl, C_4–C_8 alkylcycloalkyl, C_4–C_8 cycloalkylalkyl, C_2–C_6 alkylcarbonyl, C_2–C_6 haloalkylcarbonyl, C_2–C_6 alkoxycarbonyl, C_3–C_7 cycloalkylcarbonyl, C_2–C_4 alkoxy, C_3–C_4 alkenyloxy, C_3–C_4 alkynyloxy, C_1–C_4 haloalkoxy, C_3–C_6 cycloalkoxy, C_3–C_6 halocycloalkoxy, C_4–C_8 cycloalkylalkoxy, C_2–C_6 alkoxyalkyl, C_2–C_6 haloalkoxyalkyl, C_2–C_6 alkoxyhaloalkyl, C_2–C_6 alkoxyalkoxy, C_2–C_4 alkylcarbonyloxy, C_2–C_6 cyanoalkyl, C_2–C_6 cyanoalkoxy, C_2–C_4 alkylthioalkyl, $-C(=O)N(R^{11a})(R^{11b})$, $-C(=NOR^{12})H$, $-C(=N(R^{13}))H$ or $-SO_nR^{14}$;

m is 0, 1, 2 or 3;

each n is independently 0, 1 or 2;

R^{10} is independently C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_1–C_6 alkylamino or C_2–C_{10} dialkylamino;

each R^{11a} is independently C_1–C_4 alkyl or C_1–C_4 haloalkyl;

each R^{11b} is independently H, C_1–C_4 alkyl or C_1–C_4 haloalkyl;

each R^{12} is independently H or C_1–C_4 alkyl;

each R^{13} is independently H, amino, C_1–C_4 alkyl or C_1–C_4 alkylamino; and

each R^{14} is independently C_1–C_6 alkyl, C_1–C_6 haloalkyl, C_1–C_6 alkylamino or C_2–C_{10} dialkylamino;

provided that the compound of Formula **1** is other than methyl 2-[(5-chloro-2-pyrimidinyl)oxy]benzoate and methyl 2-[(5-bromo-2-pyrimidinyl)oxy]benzoate, 1-[2-[(5-bromo-2-pyrimidinyl)oxy]phenyl]-ethanone.

2. The compound of Claim 1, wherein

R^1 is C_1–C_6 alkyl, C_2–C_6 alkenyl, C_2–C_6 alkynyl, C_1–C_6 haloalkyl, C_1–C_6 alkoxy, C_3–C_6 alkenyloxy, C_3–C_6 alkynyloxy, C_1–C_6 haloalkoxy, C_3–C_6 haloalkenyloxy, C_3–C_6 cycloalkoxy, C_4–C_8 cycloalkylalkoxy, C_2–C_6 cyanoalkyl, C_2–C_6 cyanoalkoxy, C_1–C_6 alkylthio, C_1–C_6 haloalkylthio or C_1–C_6 alkenylthio;

R^2 is halogen or C_1–C_4 alkyl;

each R^3 is independently halogen, cyano, C_1–C_4 alkyl or C_1–C_4 haloalkyl; and

m is 1 or 2.

3. The compound of Claim 2, wherein

B is O;

R^1 is C_1–C_6 alkyl, C_2–C_6 alkenyl, C_2–C_6 alkynyl, C_1–C_6 haloalkyl, C_1–C_6 alkoxy, C_3–C_6 alkenyloxy, C_3–C_6 alkynyloxy, C_1–C_6 haloalkoxy, C_3–C_6 haloalkenyloxy, C_2–C_6 cyanoalkyl, C_2–C_6 cyanoalkoxy, C_1–C_6 alkylthio, C_1–C_6 haloalkylthio or C_1–C_6 alkenylthio;

Z is O;

R^2 is halogen or CH_3; and

each R^3 is independently halogen, cyano, C_1–C_3 alkyl or C_1–C_3 haloalkyl.

4. The compound of Claim 3, wherein

R^1 is C_1-C_6 haloalkyl.

5. The compound of Claim 1 selected from the group consisting of

3,3,3-trifluoropropyl 2-chloro-6-[(5-chloro-2-pyrimidinyl)oxy]benzoate;

3,3,3-trifluoro-1-methylpropyl 2-bromo-6-[(5-chloro-2-pyrimidinyl)oxy]benzoate;

propyl 2-bromo-6-[(5-chloro-2-pyrimidinyl)oxy]benzoate;

4,4,4-trifluorobutyl 2-bromo-6-[(5-chloro-2-pyrimidinyl)oxy]benzoate;

2-propen-1-yl 2-bromo-6-[(5-chloro-2-pyrimidinyl)oxy]benzoate;

3-buten-1-yl 2-bromo-6-[(5-chloro-2-pyrimidinyl)oxy]benzoate;

2,2,3,3,3-pentafluoropropyl 2-bromo-6-[(5-chloro-2-pyrimidinyl)oxy]benzoate;

3,3,3-trifluoropropyl 2-bromo-6-[(5-chloro-2-pyrimidinyl)oxy]benzoate; and

1-[2-chloro-6-[(5-chloro-2-pyrimidinyl)oxy]phenyl]-4,4,4-trifluoro-1-butanone.

6. A herbicidal composition comprising a compound of any of Claims 1 to 5 and at least one component selected from the group consisting of surfactants, solid diluents and liquid diluents.

7. A herbicidal composition comprising a compound of any of Claims 1 to 5 or methyl 5-nitro-2-[(5-bromo-2-pyrimidinyl)oxy]benzoate, at least one additional active ingredient selected from the group consisting of other herbicides and herbicide safeners, and at least one component selected from the group consisting of surfactants, solid diluents and liquid diluents.

8. A herbicidal mixture comprising (a) a compound of any of Claims 1 to 5 or methyl 5-nitro-2-[(5-bromo-2-pyrimidinyl)oxy]benzoate, and (b) at least one additional active ingredient selected from (b1) photosystem II inhibitors, (b2) acetohydroxy acid synthase (AHAS) inhibitors, (b3) acetyl-CoA carboxylase (ACCase) inhibitors, (b4) auxin mimics, (b5) 5-enol-pyruvylshikimate-3-phosphate (EPSP) synthase inhibitors, (b6) photosystem I electron diverters, (b7) protoporphyrinogen oxidase (PPO) inhibitors, (b8)

glutamine synthetase (GS) inhibitors, (b9) very long chain fatty acid (VLCFA) elongase inhibitors, (b10) auxin transport inhibitors, (b11) phytoene desaturase (PDS) inhibitors, (b12) 4-hydroxyphenyl-pyruvate dioxygenase (HPPD) inhibitors, (b13) homogentisate solenesyltranserase (HST) inhibitors, (b14) cellulose biosynthesis inhibitors, (b15) other herbicides including mitotic disruptors, organic arsenicals, asulam, bromobutide, cinmethylin, cumyluron, dazomet, difenzoquat, dymron, etobenzanid, flurenol, fosamine, fosamine-ammonium, hydantocidin, metam, methyldymron, oleic acid, oxaziclomefone, pelargonic acid and pyributicarb, and (b16) herbicide safeners; and salts of compounds of (b1) through (b16).

9. A herbicidal mixture according to Claim 8 comprising (a) a compound of any of Claims 1 to 5 or methyl 5-nitro-2-[(5-bromo-2-pyrimidinyl)oxy]benzoate, and (b) at least one additional active ingredient selected from (b1) photosystem II inhibitors, (b2) acetohydroxy acid synthase (AHAS) inhibitors, (b4) auxin mimics, (b5) 5-enol-pyruvylshikimate-3-phosphate (EPSP) synthase inhibitors, (b7) protoporphyrinogen oxidase (PPO) inhibitors, (b9) very long chain fatty acid (VLCFA) elongase inhibitors and (b12) 4-hydroxyphenyl-pyruvate dioxygenase (HPPD) inhibitors.

10. A herbicidal mixture according to Claim 8 comprising (a) a compound of any of Claims 1 to 5 or methyl 5-nitro-2-[(5-bromo-2-pyrimidinyl)oxy]benzoate, and (b) at least one additional active ingredient selected from the group consisting of 2,4-D, acetochlor, alachlor, atrazine, bromoxynil, bentazon, bicyclopyrone, carfentrazone-ethyl, cloransulam-methyl, dicamba, dimethenamid-p, florasulam, flufenacet, flumioxazin, flupyrsulfuron-methyl, fluroxypyr-meptyl, glyphosate, halauxifen-methyl, isoxaflutole, MCPA, mesotrione, metolachlor, metsulfuron-methyl, nicosulfuron, pyrasulfotole, pyroxasulfone, pyroxsulam, rimsulfuron, saflufenacil, tembotrione, thifensulfuron-methyl, topramazone and tribenuron.

11. A method for controlling the growth of undesired vegetation comprising contacting the vegetation or its environment with a herbicidally effective amount of a compound of any of Claims 1 to 5 or methyl 5-nitro-2-[(5-bromo-2-pyrimidinyl)oxy]benzoate.

12. A method according to Claim 11, wherein the undesired vegetation is growing in genetically modified plants that exhibit traits of glyphosate tolerance, glufosinate tolerance, ALS herbicide tolerance, dicamba tolerance, imidazolinone herbicide tolerance, 2,4-D tolerance, HPPD tolerance and mesotrione tolerance.