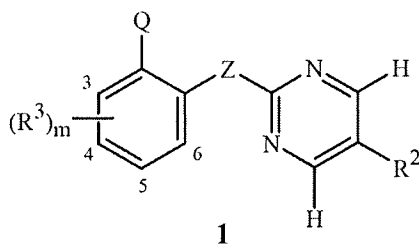


CLAIMS

~~What is claimed is~~

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



Q is a 5- or 6-membered aromatic heterocyclic ring, bound to the remainder of Formula 1 through a carbon atom, and optionally substituted with 1 to 4 R¹;

Z is O or S;

each R¹ is independently halogen, cyano, nitro, SF₅, CHO, C(=O)NH₂, C(=S)NH₂, SO₂NH₂, C₁-C₄ alkyl, C₂-C₄ alkenyl, C₂-C₄ alkynyl, C₁-C₄ haloalkyl, C₂-C₄ haloalkenyl, C₂-C₄ haloalkynyl, C₃-C₆ cycloalkyl, C₃-C₆ halocycloalkyl, C₄-C₈ alkylcycloalkyl, C₄-C₈ cycloalkylalkyl, C₂-C₆ alkylcarbonyl, C₂-C₆ haloalkylcarbonyl, C₂-C₆ alkoxy carbonyl, C₃-C₇ cycloalkylcarbonyl, C₂-C₈ alkylaminocarbonyl, C₃-C₁₀ dialkylaminocarbonyl, C₁-C₄ alkoxy, C₃-C₄ alkenyloxy, C₃-C₄ alkynyloxy, C₁-C₄ haloalkoxy, C₃-C₄ haloalkenyloxy, C₃-C₄ haloalkynyloxy, C₃-C₆ cycloalkoxy, C₃-C₆ halocycloalkoxy, C₄-C₈ cycloalkylalkoxy, C₂-C₆ alkoxyalkyl, C₂-C₆ haloalkoxyalkyl, C₂-C₆ alkoxyhaloalkyl, C₂-C₆ alkoxyalkoxy, C₂-C₄ alkylcarbonyloxy, C₂-C₆ cyanoalkyl, C₂-C₆ cyanoalkoxy, C₁-C₄ hydroxyalkyl, C₂-C₄ alkylthioalkyl, SO_nR^{1A}, Si(CH₃)₃ or B(OC(R^{1B})₂C(R^{1B})₂O-); or a phenyl ring optionally substituted with up to 5 substituents independently selected from R^{1C}; or a 5- or 6-membered heteroaromatic ring containing ring members selected from carbon atoms and up to 4 heteroatoms independently selected from up to 2 O, up to 2 S and up to 4 N atoms, each ring optionally substituted with up to 3 substituents independently selected from R^{1C} on carbon atom ring members and R^{1D} on nitrogen atom ring members;

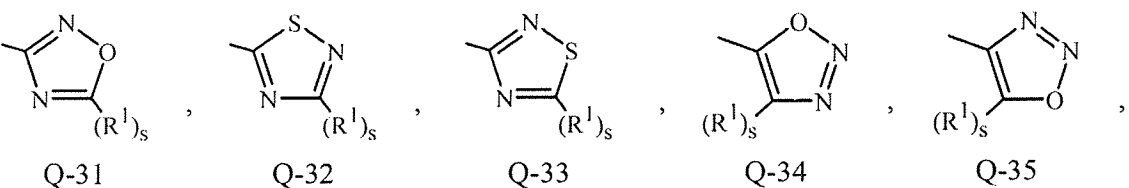
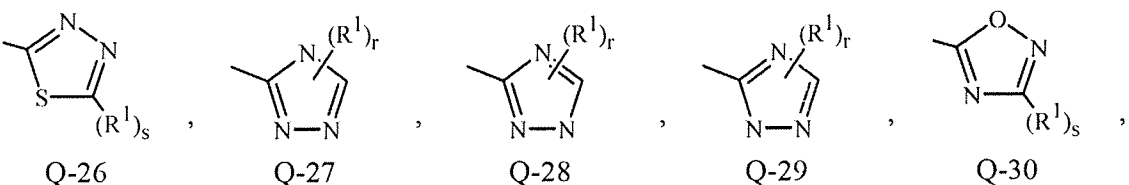
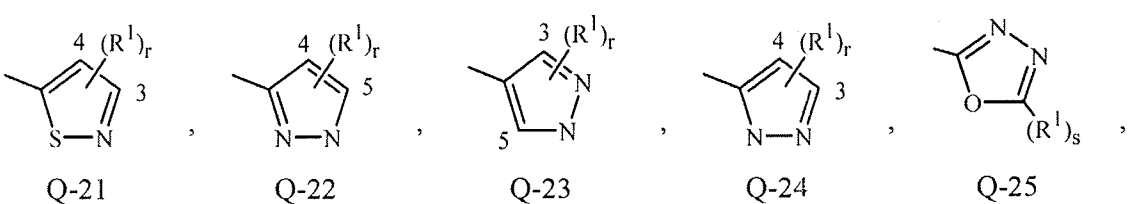
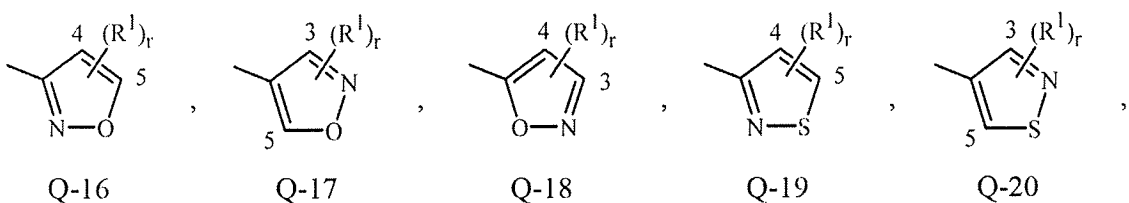
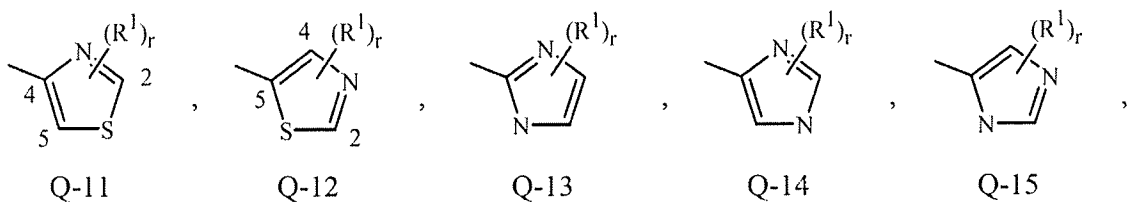
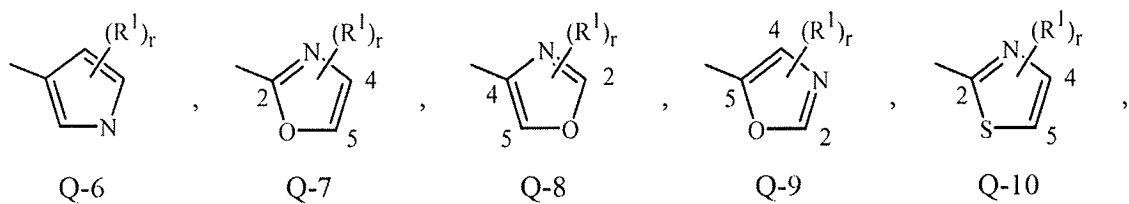
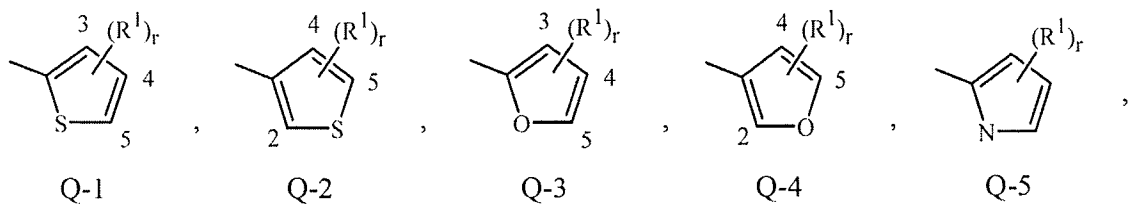
R² is halogen, cyano, nitro, C₁-C₄ alkoxy, C₁-C₄ alkyl, C₂-C₆ alkenyl, C₂-C₆ alkynyl, SO_nR^{2A}, C₁-C₄ haloalkyl or C₃-C₆ cycloalkyl;

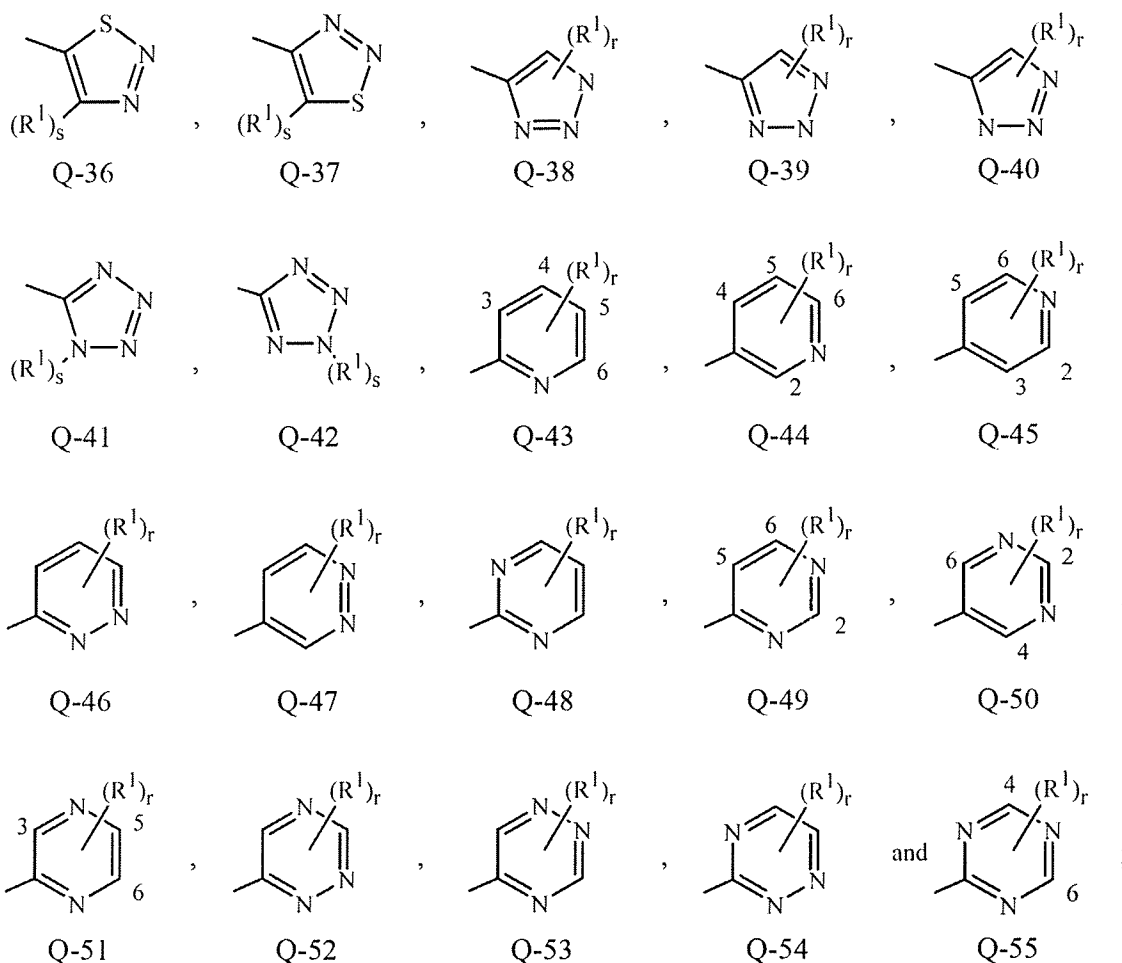
each R³ is independently halogen, cyano, hydroxy, nitro, amino, CHO, C(=O)NH₂, C(=S)NH₂, SO₂NH₂, C₁-C₄ alkyl, C₂-C₄ alkenyl, C₂-C₄ alkynyl, C₁-C₄ haloalkyl, C₂-C₄ haloalkenyl, C₂-C₄ haloalkynyl, C₃-C₆ cycloalkyl, C₃-C₆ halocycloalkyl, C₄-C₈ alkylcycloalkyl, C₄-C₈ cycloalkylalkyl, C₂-C₆

alkylcarbonyl, C₂-C₆ haloalkylcarbonyl, C₂-C₆ alkoxy carbonyl, C₃-C₇
 cycloalkylcarbonyl, C₁-C₄ alkoxy, C₃-C₄ alkenyloxy, C₃-C₄ alkynyloxy, C₁-C₄
 haloalkoxy, C₃-C₄ haloalkenyloxy, C₃-C₄ haloalkynyloxy, C₃-C₆ cycloalkoxy,
 C₃-C₆ halocycloalkoxy, C₄-C₈ cycloalkylalkoxy, C₂-C₆ alkoxyalkyl, C₂-C₆
 haloalkoxyalkyl, C₂-C₆ alkoxyhaloalkyl, C₂-C₆ alkoxyalkoxy, C₂-C₄
 alkylcarbonyloxy, C₂-C₆ cyanoalkyl, C₂-C₆ cyanoalkoxy, C₂-C₄ alkylthioalkyl,
 Si(CH₃)₃, C≡CSi(CH₃)₃, C(=O)N(R^{3A})(R^{3B}), C(=NOR^{3C})H, C(=NR^{3D})H,
 SO_nR^{3E}; or a phenyl ring optionally substituted with up to 5 substituents
 independently selected from R^{3F}; or a 5- or 6-membered heteroaromatic ring
 containing ring members selected from carbon atoms and up to 4 heteroatoms
 independently selected from up to 2 O, up to 2 S and up to 4 N atoms, each ring
 optionally substituted with up to 3 substituents independently selected from R^{3F}
 on carbon atom ring members and R^{3G} on nitrogen atom ring members; or
 pyrimidinyl;

m is 0, 1, 2 or 3;
 each n is independently 0, 1 or 2;
 each R^{1A}, R^{2A} and R^{3E} is independently C₁-C₄ alkyl, C₁-C₄ haloalkyl, C₁-C₄
 alkylamino or C₂-C₆ dialkylamino;
 each R^{1B} is independently H or C₁-C₄ alkyl;
 each R^{1C} is independently hydroxy, halogen, cyano, nitro, C₁-C₆ alkyl, C₁-C₆
 haloalkyl, C₁-C₆ alkoxy or C₁-C₆ haloalkoxy;
 each R^{1D} is independently cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, C₁-C₆ alkoxy or C₂-
 C₆ alkylcarbonyl;
 each R^{3A} is independently C₁-C₄ alkyl or C₁-C₄ haloalkyl;
 each R^{3B} is independently H, C₁-C₄ alkyl or C₁-C₄ haloalkyl;
 each R^{3C} is independently H or C₁-C₄ alkyl;
 each R^{3D} is independently H, amino, C₁-C₄ alkyl or C₁-C₄ alkylamino;
 each R^{3F} is independently hydroxy, halogen, cyano, nitro, C₁-C₆ alkyl, C₁-C₆
 haloalkyl, C₁-C₆ alkoxy or C₁-C₆ haloalkoxy; and
 each R^{3G} is independently cyano, C₁-C₆ alkyl, C₁-C₆ haloalkyl, C₁-C₆ alkoxy or C₂-
 C₆ alkylcarbonyl;

2. A compound of Claim 1 wherein
 Q is selected from





wherein r is 0, 1, 2 or 3; and s is 0 or 1;

each R^1 is independently halogen, cyano, SF_5 , CHO, 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_2 - C_6 alkylcarbonyl, C_2 - C_6 haloalkylcarbonyl, C_2 - C_6 alkoxy carbonyl, C_1 - C_4 alkoxy, C_3 - C_4 alkenyloxy, C_3 - C_4 alkynyloxy, C_1 - C_4 haloalkoxy, C_3 - C_4 haloalkenyloxy, C_3 - C_4 haloalkynyloxy, C_2 - C_6 alkoxyalkyl, C_2 - C_6 haloalkoxyalkyl, C_2 - C_6 cyanoalkyl, C_1 - C_4 hydroxyalkyl, C_2 - C_4 alkylthioalkyl or $SO_n R^{1A}$;

R^3 is independently halogen, cyano, CHO, 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_2 - C_6 alkylcarbonyl, C_2 - C_6 haloalkylcarbonyl, C_2 - C_6 alkoxy carbonyl, C_1 - C_4 alkoxy, C_3 - C_4 alkenyloxy, C_3 - C_4 alkynyloxy, C_1 - C_4 haloalkoxy, C_3 - C_4 haloalkenyloxy, C_3 - C_4 haloalkynyloxy, C_3 - C_6 cycloalkoxy, C_3 - C_6 halocycloalkoxy, C_2 - C_6 alkoxyalkyl, C_2 - C_6 haloalkoxyalkyl, C_2 - C_4 alkylcarbonyloxy, C_2 - C_6 cyanoalkyl, $C(=O)N(R^{3A})(R^{3B})$, $C(=NOR^{3C})H$, $SO_n R^{3E}$; or a phenyl ring optionally substituted with up to 5 substituents independently selected from R^{3F} ; or a 5- or

6-membered heteroaromatic ring containing ring members selected from carbon atoms and up to 4 heteroatoms independently selected from up to 2 O, up to 2 S and up to 4 N atoms, each ring optionally substituted with up to 3 substituents independently selected from R^{3F} on carbon atom ring members and R^{3G} on nitrogen atom ring members;

Z is O; and

m is 0, 1 or 2.

3. A compound of Claim 2 wherein

each R¹ is independently halogen, cyano, CHO, C₁-C₄ alkyl, C₂-C₄ alkenyl, C₂-C₄ alkynyl, C₁-C₄ haloalkyl, C₂-C₄ haloalkenyl, C₂-C₄ haloalkynyl, C₁-C₄ alkoxy, C₃-C₄ alkenyloxy, C₃-C₄ alkynyloxy, C₁-C₄ haloalkoxy, C₃-C₄ haloalkenyloxy, C₃-C₄ haloalkynyloxy, C₂-C₆ alkoxyalkyl, C₂-C₆ haloalkoxyalkyl, C₁-C₄ hydroxyalkyl, C₂-C₄ alkylthioalkyl or SO_nR^{1A};

R² is halogen, C₁-C₄ alkyl or C₁-C₄ haloalkyl;

each R³ is independently halogen, cyano, CHO, C₁-C₄ alkyl, C₂-C₄ alkenyl, C₂-C₄ alkynyl, C₁-C₄ haloalkyl, C₂-C₄ haloalkenyl, C₂-C₄ haloalkynyl, C₃-C₆ cycloalkyl, C₃-C₆ halocycloalkyl, C₂-C₆ alkylcarbonyl, C₂-C₆ haloalkylcarbonyl, C₂-C₆ alkoxy carbonyl, C₁-C₄ alkoxy, C₁-C₄ haloalkoxy, C₂-C₆ alkoxyalkyl, C₂-C₆ haloalkoxyalkyl, C₂-C₆ cyanoalkyl, SO_nR^{3E}; or a 5- or 6-membered heteroaromatic ring containing ring members selected from carbon atoms and up to 4 heteroatoms independently selected from up to 2 O, up to 2 S and up to 4 N atoms, each ring optionally substituted with up to 3 substituents independently selected from R^{3F} on carbon atom ring members and R^{3G} on nitrogen atom ring members; and

m is 0 or 1.

4. A compound of Claim 3 wherein

Q is selected from Q-7 through Q-24;

each R¹ is independently halogen, cyano, C₁-C₄ alkyl, C₁-C₄ haloalkyl, C₁-C₄ alkoxy, C₁-C₄ haloalkoxy or SO_nR^{1A};

R² is halogen or C₁-C₄ alkyl;

each R³ is independently halogen, cyano, C₁-C₄ alkyl, C₂-C₄ alkenyl, C₂-C₄ alkynyl, C₁-C₄ haloalkyl, C₂-C₆ alkylcarbonyl, C₂-C₆ haloalkylcarbonyl, C₂-C₆ alkoxy carbonyl, C₁-C₄ alkoxy, C₁-C₄ haloalkoxy, C₂-C₆ alkoxyalkyl or C₂-C₆ haloalkoxyalkyl; and

each R^{1A} is independently C₁-C₄ alkyl or C₁-C₄ haloalkyl.

5. A compound of Claim 4 wherein

Q is selected from Q-16 and Q-18;

each R¹ is independently halogen, C₁-C₄ alkyl, C₁-C₄ haloalkyl or C₁-C₄ haloalkoxy;
 R² is halogen or CH₃; and
 each R³ is independently halogen, cyano, C₁-C₄ alkyl or C₁-C₄ haloalkyl.

6. A compound of Claim 3 wherein
 5 Q is selected from Q-43, Q-44, Q-45, Q-48, Q-49 and Q-50;
 each R¹ is independently halogen, cyano, C₁-C₄ alkyl, C₁-C₄ haloalkyl, C₁-C₄ alkoxy,
 C₁-C₄ haloalkoxy or SO_nR^{1A};
 R² is halogen or C₁-C₄ alkyl;
 each R³ is independently halogen, cyano, C₁-C₄ alkyl, C₂-C₄ alkenyl, C₂-C₄ alkynyl,
 10 C₁-C₄ haloalkyl, C₂-C₆ alkylcarbonyl, C₂-C₆ haloalkylcarbonyl, C₂-C₆
 alkoxy carbonyl, C₁-C₄ alkoxy, C₁-C₄ haloalkoxy, C₂-C₆ alkoxyalkyl or C₂-C₆
 haloalkoxyalkyl; and
 each R^{1A} is independently C₁-C₄ alkyl or C₁-C₄ haloalkyl.

7. A compound of Claim 6 wherein
 15 Q is selected from Q-43, Q-44 and Q-45;
 each R¹ is independently halogen, C₁-C₄ alkyl, C₁-C₄ haloalkyl or C₁-C₄ haloalkoxy;
 R² is halogen or CH₃; and
 each R³ is independently halogen, cyano, C₁-C₄ alkyl or C₁-C₄ haloalkyl.

8. A compound of Claim 1 selected from the group consisting of
 5-chloro-2-[2-(5-chloro-2-pyridinyl)phenoxy]pyrimidine,
 5-chloro-2-[2-[5-(fluoromethyl)-3-isoxazolyl]phenoxy]pyrimidine,
 2-[2-(3-bromo-5-isoxazolyl)phenoxy]-5-chloropyrimidine,
 5-chloro-2-[2-[5-(trifluoromethyl)-2-pyridinyl]phenoxy]pyrimidine,
 5-chloro-2-[3-chloro-2-(5-chloro-2-pyridinyl)phenoxy]pyrimidine,
 4-[2-[(5-bromo-2-pyrimidinyl)oxy]phenyl]-2-(trifluoromethyl)pyrimidine,
 2-[2-(2-bromo-5-thiazolyl)phenoxy]-5-(trifluoromethyl)pyrimidine,
 5-chloro-2-[4-methyl-2-[2-(trifluoromethyl)-4-pyridinyl]phenoxy]pyrimidine,
 5-chloro-2-[2-[5-(difluoromethyl)-3-isoxazolyl]phenoxy]pyrimidine,
 5-chloro-2-[2-[3-(difluoromethyl)-5-isoxazolyl]phenoxy]pyrimidine,
 5-chloro-2-[2-[5-(difluoromethyl)-3-isoxazolyl]-3-fluorophenoxy]pyrimidine,
 5-bromo-2-[2-[5-(difluoromethyl)-3-isoxazolyl]phenoxy]pyrimidine,
 5-chloro-2-[2-[3-(trifluoromethyl)-5-isoxazolyl]phenoxy]pyrimidine,
 5-chloro-2-[2-[3-(difluoromethyl)-5-isoxazolyl]-3-fluorophenoxy]pyrimidine,
 5-bromo-2-[2-[3-(difluoromethyl)-5-isoxazolyl]-3-fluorophenoxy]pyrimidine,
 5-chloro-2-[2-[5-(trifluoromethyl)-3-isoxazolyl]-3-fluorophenoxy]pyrimidine and
 5-chloro-2-[2-[5-(trifluoromethyl)-3-isoxazolyl]phenoxy]pyrimidine.

<any of Claims 1-8>A

9. A herbicidal composition comprising a compound of ~~Claim 1~~ and at least one component selected from the group consisting of surfactants, solid diluents and liquid diluents.

10. A herbicidal composition comprising a compound of ~~Claim 1~~, 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.

11. A herbicidal mixture comprising (a) a compound of ~~Claim 1~~, and (b) at least one additional active ingredient selected from ~~(b1) through (b16)~~ and salts of compounds of (b1) through (b16).

<insert from page 29>

12. 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 ~~Claim 1~~.

13. A method for controlling the growth of undesired vegetation in a 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, comprising contacting the vegetation or its environment with a herbicidally effective amount of a compound of ~~Claim 1~~.

14. A herbicidal mixture comprising (a) a compound of ~~Claim 1~~, 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.

15. A herbicidal mixture comprising (a) a compound of ~~Claim 1~~, 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, flupyr-sulfuron-methyl, fluroxypyr-meptyl, glyphosate, halauxifen-methyl, isoxaflutole, MCPA, mesotrione, metolachlor, metsulfuron-methyl, nicosulfuron, pyrasulfotole, pyroxasulfone, pyroxsulam, rimsulfuron, saflufenacil, tembotrione, thifensulfuron-methyl, topramazine and tribenuron.