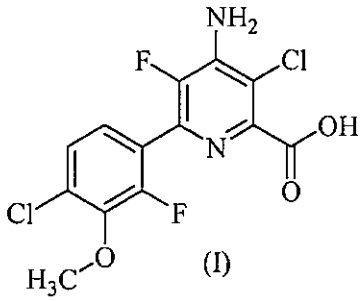
WHAT IS CLAIMED IS:

1. A synergistic herbicidal composition comprising a herbicidally effective amount of (a) a compound of the formula (I)



(I)

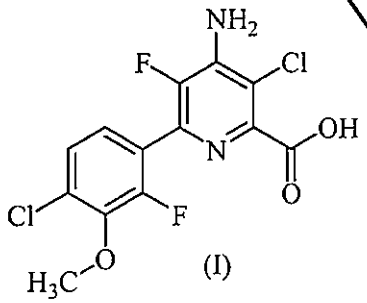
or an agriculturally acceptable salt or ester thereof and (b) at least one compound, or an agriculturally acceptable salt, carboxylic acid, carboxylate salt, or ester thereof, selected from the group consisting of glufosinate-ammonium, glyphosate dimethylammonium (DMA), glyphosate isopropylammonium (IPA), glyphosate trimesium, glufosinate, and glyphosate.

2. The composition of claim 1, wherein (a) is the compound of formula (I), a C_{1-4} alkyl ester of the compound of formula (I), or a benzyl ester of the compound of formula (I).

3. The composition of any of claims 1-2, further comprising an agriculturally acceptable adjuvant or carrier.

4. The composition of any of claims 1-3, further comprising a herbicide safener.

5. A method of controlling undesirable vegetation which comprises contacting the vegetation or the locus thereof with or applying to the soil or water to prevent the emergence or growth of vegetation a herbicidally effective amount of (a) a compound of the formula (I)



(I)

or an agriculturally acceptable salt or ester thereof and (b)at least one compound, or an agriculturally acceptable salt, carboxylic acid, carboxylate salt, or ester thereof, selected from the group consisting of: glufosinate ammonium, glyphosate dimethylammonium, glyphosate isopropylammonium, glyphosate trimesium, glufosinate and glyphosate.

6. The method of claim 5, wherein (a) is the compound of formula (I), a C_{1-4} alkyl ester of the compound of formula (I), or a benzyl ester of the compound of formula (I).

7. The method of any of claims 5-6, wherein the undesirable vegetation is controlled in direct-seeded, water-seeded and transplanted rice, cereals, wheat, barley, oats, rye, sorghum, corn/maize, sugarcane, sunflower, oilseed rape, canola, sugar beet, soybean, cotton, pineapple, pastures, grasslands, rangelands, fallowland, turf, tree and vine orchards, aquatics, industrial vegetation management (IVM) or rights of way (ROW).

8. The method of any of claims 5-7, wherein the (a) and (b) are applied pre-emergently to the weed or the crop.

9. The method of any of claims 5-8, wherein the undesirable vegetation is controlled in glyphosate-, 5-enolpyruvylshikimate-3-phosphate (EPSP) synthase inhibitor-, glufosinate-, glutamine synthetase inhibitor-, dicamba-, phenoxy auxin-, pyridyloxy auxin-, synthetic auxin-, auxin transport inhibitor-, aryloxyphenoxypropionate-, cyclohexanedione-, phenylpyrazoline-, acetyl CoA carboxylase (ACCase) inhibitor-, imidazolinone-, sulfonylurea-, pyrimidinylthiobenzoate-, triazolopyrimidine-, sulfonylaminocarbonyltriazolinone-, acetolactate synthase (ALS) or acetohydroxy acid synthase (AHAS) inhibitors-, 4-hydroxyphenyl-pyruvate dioxygenase (HPPD) inhibitor-, phytoene desaturase inhibitor-, carotenoid biosynthesis inhibitor-, protoporphyrinogen oxidase (PPO) inhibitor-, cellulose biosynthesis inhibitor-, mitosis inhibitor-, microtubule inhibitor-, very long chain fatty acid inhibitor-, fatty acid and lipid biosynthesis inhibitor-, photosystem I inhibitor-, photosystem II inhibitor-, triazine-, or bromoxynil- tolerant crops.

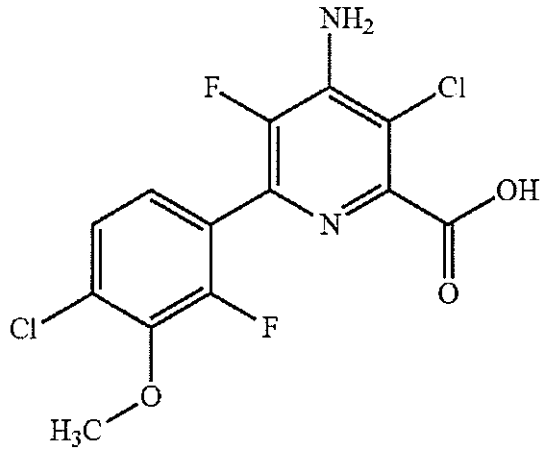
10. The method of claim 9, wherein the tolerant crop possesses multiple or stacked traits conferring tolerance to multiple herbicides or multiple modes of action.

11. The method of any of claims 5-10, wherein the undesirable vegetation comprises a herbicide resistant or tolerant weed.

CLAIMS

1. A herbicidal composition comprising a herbicidally effective amount of (a) a compound of the formula (I):

(I)



or an agriculturally acceptable salt or alkyl ester or benzyl ester thereof and (b) glufosinate-ammonium, glyphosate dimethylammonium, glyphosate isopropylammonium, glyphosate trimesium, glufosinate or glyphosate, or a salt or ester thereof wherein (a) and (b) are present in the composition in a ratio such that the composition exhibits herbicidal synergy.

2. The composition of claim 1, wherein (a) is a benzyl ester of compound (I).

3. The composition of claim 1, wherein (a) is a carboxylic acid of the compound of formula (I).

4. The composition of claim 1, wherein (a) is a C_{1-4} alkyl ester of the compound of formula (I).

5. The composition of claim 1, further comprising a herbicide safener, carrier and/or adjuvant.

6. The composition of claim 1, wherein the weight ratio of the compound of formula (I) or agriculturally acceptable salt or ester thereof to glufosinate-ammonium is from about 1:780 to about 1:1.

7. The composition of claim 1, wherein the weight ratio of the compound of formula (I) or agriculturally acceptable salt or ester thereof to glyphosate dimethylammonium is from about 1:1120 to about 1:4.

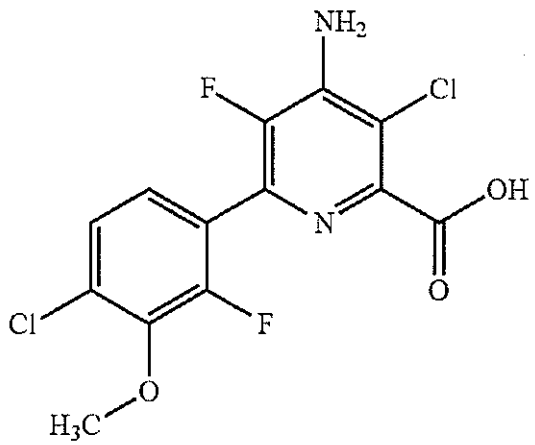
8. The composition of claim 1, wherein the weight ratio of the compound of formula (I) or agriculturally acceptable salt or ester thereof to glyphosate isopropylammonium is from about 1:210 to about 1:3.

9. The composition of claim 1, wherein the weight ratio of the compound of formula (I) or agriculturally acceptable salt or ester thereof to glyphosate trimesium is from about 1:852 to about 1:1.

10. The composition of claim 1, wherein the weight ratio of the compound of formula (I) or agriculturally acceptable salt or ester thereof to glyphosate is from about 1:1120 to about 1:1.

11. A method of controlling undesirable vegetation which comprises contacting the vegetation or the locus thereof with, or applying to the soil or water to prevent the emergence or growth of vegetation, a combination comprising (a) a compound of the formula (I):

(I)



or an agriculturally acceptable salt or ester thereof and (b) a compound selected from: glufosinate ammonium, glyphosate dimethylammonium, glyphosate isopropylammonium, glyphosate trimesium, glufosinate and glyphosate, or a salt thereof wherein (a) and (b) are present in the combination in a ratio such that the combination exhibits herbicidal synergy wherein the undesirable vegetation is controlled in direct-seeded, water-seeded and transplanted rice, cereals, wheat, barley, oats, rye, sorghum, maize, pastures, grasslands, rangelands, fallowland and turf.

12. The method of claim 11, wherein the locus is water in a flooded rice paddy.

13. The method of claim 11, wherein the (a) and (b) are applied pre-emergently and/or post emergently to the undesirable vegetation or the crop.

14. The method of claim 11, wherein the undesirable vegetation is controlled in glyphosate-, 5-enolpyruvylshikimate-3-phosphate synthase inhibitor-, glufosinate-, glutamine synthetase inhibitor-, dicamba-, phenoxy auxin-, pyridyloxy auxin-, synthetic auxin-, auxin transport inhibitor-, aryloxyphenoxypropionate-, cyclohexanedione-, phenylpyrazoline-, acetyl CoA carboxylase inhibitor-, imidazolinone-, sulfonylurea-, pyrimidinylthiobenzoate-, triazolopyrimidine-, sulfonylaminocarbonyltriazolinone-, acetolactate synthase or acetohydroxy acid synthase inhibitor-, 4-hydroxyphenyl-pyruvate dioxygenase inhibitor-, phytoene desaturase inhibitor-, carotenoid biosynthesis inhibitor-, protoporphyrinogen oxidase inhibitor-, cellulose biosynthesis inhibitor-, mitosis inhibitor-, microtubule inhibitor-, long chain fatty acid inhibitor-, fatty acid and lipid biosynthesis inhibitor-, photosystem I inhibitor-, photosystem II inhibitor-, triazine-, or bromoxynil-tolerant crops.

15. The method of claim 14, wherein the tolerant crop possesses multiple or stacked traits conferring tolerance to multiple herbicides.

16. The method of claim 11, wherein the undesirable vegetation comprises a herbicide resistant or tolerant plant.

17. The method of claim 16, wherein the resistant or tolerant plant is resistant and tolerant to multiple herbicides.

18. The method of claim 17, wherein the resistant or tolerant plant is resistant or tolerant to acetolactate synthase or acetohydroxy acid synthase inhibitors, photosystem II inhibitors, acetyl CoA carboxylase inhibitors, synthetic auxins, auxin transport inhibitors, photosystem I inhibitors, 5-enolpyruvylshikimate-3-phosphate synthase inhibitors, microtubule assembly inhibitors, fatty acid and lipid synthesis inhibitors, protoporphyrinogen oxidase inhibitors, carotenoid biosynthesis inhibitors, very long chain fatty acid inhibitors, phytoene desaturase inhibitors, glutamine synthetase inhibitors, 4-hydroxyphenyl-pyruvate-dioxygenase inhibitors, mitosis inhibitors, cellulose biosynthesis inhibitors, herbicides with multiple modes-of-action, quinclorac, arylaminopropionic acids, difenzoquat, endothall, or organoarsenicals.