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Description

The invention is in the technical field of crop protection products that can be used to counter unwanted plant growth on uncultivated land, for preparation for seeding or in plant crops, and comprise a combination of at least two herbicides as herbicidally active ingredients, wherein the compositions comprise herbicidally active compounds (A) and (B), in which (A) is A1 or agrochemically acceptable salts thereof [herbicides (A) or component (A)] and (B) is one or more herbicides (component B).

Compounds from the structure class of the 3-phenylisoxazoline-5-carboxamides are known as herbicides (see, for example, WO 2012/130798 A1, WO 2019/034602 A1). The compounds are effective against a broad spectrum of harmful plants when applied by the pre-emergence method or else by the post-emergence method, with the possibility of non-selective use for control of unwanted plant growth or selective use in plant crops.

The efficacy of these herbicides against harmful plants is at a high level, but generally depends on the application rate, the form of the respective preparation, the spectrum of harmful plants, the harmful plants to be controlled in each case, climate and soil conditions, etc. A further criterion is the duration of action or the rate of degradation of the herbicide. Other considerations, as the case may be, are changes in the susceptibility of harmful plants which may occur on prolonged use of the herbicides or in a geographically restricted manner. Compensation for losses in action in the case of individual plants by higher application rates of the herbicides is only possible to a limited degree, for example because this frequently worsens the selectivity of the herbicides or because there is no improvement in action, even in the case of a higher application rate. There is generally need for methods of achieving herbicidal action with a lower application rate of active ingredients. A lower application rate not only reduces the amount of active ingredient required for the application but

generally also reduces the amount of formulation auxiliaries needed. Both reduce economic expenditure and improve the environmental compatibility of the herbicide treatment.

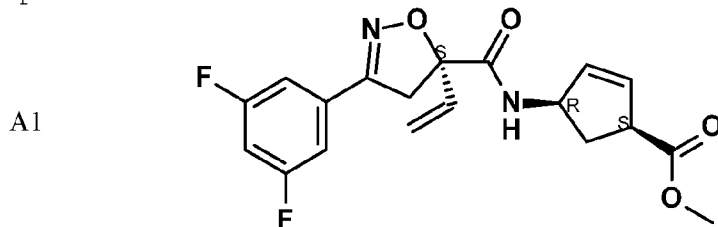
5 One way of improving the application profile of a herbicide may be to combine the active ingredient with one or more other active ingredients which contribute the desired additional properties. However, in the case of combined application of two or more active ingredients, it is not uncommon for there to be phenomena
10 of physical and biological incompatibility, for example lack of stability in a coformulation, decomposition of an active ingredient and/or antagonism of the active ingredients. What are desired, by contrast, are combinations of active ingredients having a favourable profile of activity, high stability and
15 ideally an unexpectedly synergistically enhanced activity which allows the application rate to be reduced compared to the individual application of the active ingredients to be combined.

It is an object of the present invention to provide alternative
20 or advantageous herbicidal compositions that have a good profile of biological use and have as many as possible of the abovementioned desirable favourable properties.

It has now been found that, surprisingly, this object can be
25 achieved by using a composition comprising herbicidally active compounds (A) and (B), wherein (A) is A1 or agrochemically acceptable salts thereof [component (A)] and (B) is one or more herbicides [component (B)]. The compositions of the invention interact in a particularly favourable manner, for example when
30 they are used to control unwanted plant growth in crop plants such as wheat (hard and soft wheat), maize, soya, sugarbeet, sugarcane, cotton, rice, beans (for example, bush beans and broad beans), flax, barley, oats, rye, triticale, potato and millet/sorghum, uncultivated land, pastureland and areas of
35 grass/lawn and plantation crops.

The present invention thus provides compositions comprising herbicidally active compounds (A) and (B), wherein (A) is

A1, or an agrochemically acceptable salt of that compound, where compound A1 is defined as follows:



5 and

(B) is

one or more components (B) selected from

(B2.18) diflufenican,

(B2.28) flufenacet,

10 (B2.31) foramsulfuron,

(B2.37) mesosulfuron,

(B2.58) propyzamide,

(B2.68) thien carbazone,

(B3.1) bromoxynil,

15 (B4.22) pyrasulfotole,

(B5.31) halauxifen,

(B7.4) glufosinate,

(B7.5) glyphosate,

(B11.6) indaziflam.

20

For active ingredients that exist in various forms, the name of the neutral compound is given in each case in the above list. Only the neutral compound is ever mentioned hereinafter, and hence encompasses all existing forms as listed, unless a
 25 specific form of the active ingredient is relevant in a particular context, for example in table examples below for biological efficacy.

30

The compositions of the invention may contain further components, for example other active ingredients to counter harmful organisms such as harmful plants, plant-damaging animals or plant-damaging fungi, especially active ingredients from the group of the herbicides, fungicides, insecticides, acaricides, nematocides and miticides, and related substances, or else other

kinds of active ingredients for crop protection (e.g. resistance inductors), plant growth regulators, and/or additions and/or formulation auxiliaries that are customary in crop protection. The components may be formulated together here (ready-to-use
5 formulation) and employed as such, or they may be formulated separately and employed together, for example in a tankmix or in sequential application.

The individual active herbicidal ingredients of the general
10 formula (I) present as component (A) are also referred to hereinafter as compounds (A), active ingredients (A), components (A) or herbicides (A). Correspondingly, the individual active herbicidal ingredients present as component (B) are also referred to hereinafter as compounds (B), active ingredients
15 (B), components (B) or herbicides (B).

An advantageous property of the inventive combination of herbicides (A) and (B) is found to be that active ingredients (A) and (B) are compatible with one another, meaning that they
20 can be employed together without occurrence of significant chemical incompatibility between the active ingredients (A) and/or (B) that leads to destruction of one or more active ingredients. This avoids any reduction in the active ingredient content in formulations or spray liquors. The favourable
25 compatibility also extends to the biological properties of the active ingredients on combined use. For instance, antagonistic effects are generally not observed in the case of control of harmful plants with the active ingredient combinations of the invention. The active ingredients (A) and (B) are thus
30 particularly suitable for employment together with or in addition to further active ingredients for crop protection or agrochemicals. The combined application enabled permits the utilization of advantageous effects, for example the broadening of the spectrum of harmful plants to be controlled on
35 application, or the reduction of the application rate of the individual herbicides (A) or (B) compared to the respective application rate of the herbicide in question in the case of individual application. It is thus possible to influence the

degradation characteristics of the active ingredients and to achieve more favourable conditions for the subsequent growing of crop plants. A further advantage is considered to be that the development of resistances of the harmful plants to the active ingredients can often be significantly reduced or avoided through the combination of active ingredients having different mechanisms of action.

More particularly, superadditive (= synergistic) effects surprisingly occur in the case of combined use of active ingredients (A) and (B) for a greater number of economically important harmful plants. The activity in the combination is higher here than the expected sum of the activities of the individual herbicides used. The synergistic effects allow the application rate to be reduced further, a broader spectrum of broadleaved weeds and weed grasses to be controlled, a more rapid onset of the herbicidal action, longer persistence, better control of the harmful plants with only one or a few applications, and extension of the application period possible. To some extent, the use of the products also reduces the amount of harmful ingredients, such as nitrogen or oleic acid, and their introduction into the soil.

Said properties and advantages are desirable in practical weed control in order to keep agricultural crops clear of unwanted competing plants and hence to ensure and/or increase the yields in terms of quality and quantity. The technical standard is clearly surpassed by the novel combinations with regard to the properties described.

The synergistic effects are observed in the case of joint deployment of active ingredients (A) and (B), but can also frequently occur in the case of offset application (splitting). It is also possible to apply the herbicides (A) or (B) or the herbicidal composition (A) and (B) in multiple portions (sequential application). For example, one or more pre-emergence applications may be followed by a post-emergence application, or an early post-emergence application may be followed by a

moderately late or late post-emergence application. Preference is given to the simultaneous or immediately successive application of the active ingredients of the respective combination, if appropriate in several portions. But application of the individual active ingredients of a combination at different times is also possible, and may be advantageous in the individual case. It is also possible to integrate other crop protection products into the system for application, for example the other active ingredients mentioned (other herbicides, fungicides, insecticides, acaricides etc.) and/or various auxiliaries, adjuvants and/or applications of fertilizer.

Application by the pre-emergence method or by the post-emergence method, according to the context in which the terms are used, is respectively understood to mean the application of the active ingredients before and after the visible appearance of the harmful plants above the ground, or the use of the active ingredients against the harmful plants before emergence of the crop plants and after emergence of the crop plants.

A1 is identified by the chemical formula of the main component, this component being present in a chemical purity of preferably at least 95 per cent by weight of the compound. The compounds can naturally also be used with lower purities. Especially when secondary components of the compounds consist entirely or predominantly of stereoisomers of the compound (A), efficacies are achieved on application.

In A1, the stereochemical orientation is defined by the carbon atoms; this is the main component of the compound: a stereoisomer or stereoisomer mixture having the R or S configuration at the carbon atom in question.

It is preferable here that the respective compounds listed are also present in a stereochemical purity of 60% to 100%, preferably 70-100%, especially 80% to 100%.

Preference is also given to the detailed mixtures of stereoisomeric compounds (A).

The compound of the formula (A1) is known from the application
5 having reference WO 2019/145245 A1, which was yet to be published at the priority date of the present application, and can be prepared by the processes described therein.

The application rates of the herbicide (A) are in the range of
10 0.01 to 2000 g of active substance per hectare (g a.i./ha hereinafter), preferably 0.02 to 1000 g a.i./ha, especially 0.5 to 750 g a.i./ha. In the combinations of the invention, within the scope of the application rates mentioned by comparison to individual application, required application rates of the
15 respective active ingredient are usually lower, preferably 0.01 to 1000 g a.i./ha, especially 0.02 to 500 g a.i./ha, and most preferably 5 to 250 g a.i./ha.

Furthermore, the combinations of the invention can be used
20 together with other active ingredients such as the active ingredients mentioned (herbicides, fungicides, insecticides, acaricides etc.) and/or plant growth regulators or auxiliaries from the group of additives customary in crop protection, such as adjuvants and formulation aids. The combination of the active
25 crop protection ingredients comprising the active ingredients (A) and (B) and optionally further active ingredients are referred to here as "herbicide combination" for short. Their use forms such as formulations or tankmixes are herbicidal products (compositions).

30 The invention therefore also provides the herbicidal products comprising the active ingredient combinations of the invention with additives customary in crop protection, such as adjuvants and formulation aids, and optionally further active crop
35 protection ingredients.

The invention also provides for the use of, or the application method using, the active ingredient combinations of the

invention as herbicides and plant growth regulators, preferably as herbicides and plant growth regulators having a synergistically active content of the respective active ingredient combination present.

5

The application rates of the herbicides (B) are known in principle and are generally in the range of 0.01 to 4000 g a.i./ha, preferably in the range of 0.02 to 2000 g a.i./ha, especially 1 to 2000 g a.i./ha.

10

In the mixtures of the invention, in the context of the application rates mentioned, required application rates of the respective active ingredient are generally lower compared to individual application.

15

For the active ingredients from group (B2), the application rate is preferably in the range of 1 to 4000 g a.i./ha, especially in the range of 1 to 2000 g a.i./ha and most preferably in the range of 1 to 400 g a.i./ha.

20

For the active ingredient from group (B3), the application rate is preferably in the range of 10 to 1000 g a.i./ha, especially in the range of 10 to 500 g a.i./ha and most preferably in the range of 10 to 300 g a.i./ha.

25

For the active ingredient from group (B4), the application rate is preferably in the range of 1 to 700 g a.i./ha, especially in the range of 1 to 400 g a.i./ha and most preferably in the range of 1 to 200 g a.i./ha.

30

For the active ingredient from group (B5), excluding pelargonic acid (B5.38), the application rate is preferably in the range of 1 to 2400 g a.i./ha, especially in the range of 1 to 1200 g a.i./ha and most preferably in the range of 1 to 400 g a.i./ha.

35

For pelargonic acid (B5.38), the application rate is preferably 1 to 100 000 g a.i./ha, more preferably 1 to 40 000 g a.i./ha and especially in the range from 1 to 30 000 g a.i./ha.

For the active ingredient from group (B7), the application rate is preferably in the range of 20 to 3500 g a.i./ha, especially in the range of 20 to 2500 g a.i./ha and most preferably in the range of 20 to 2000 g a.i./ha.

5

For the active ingredient from group (B11), the application rate is preferably in the range of 25 to 3000 g a.i./ha, especially in the range of 25 to 2500 g a.i./ha and most preferably in the range of 25 to 2000 g a.i./ha.

10

The ratios of (A):(B) based on weight, depending on the effective application rates, are generally in the range of 1:100 000 to 2000:1, preferably 1:40 000 to 750:1, especially in the range of 1:15 000 to 500:1 and even further preferably in the range of 1:300 to 400:1.

15

For the active ingredients from groups (B2), (B3), (B4), (B5), (B7) and (B11), the preferred weight ratios (A):(B) are as follows:

20

(A):(B2) preferably in the range of 400:1 to 1:400, especially of 200:1 to 1:200;

(A):(B3) preferably in the range of 30:1 to 1:30, especially of 15:1 to 1:15;

25

(A):(B4) preferably in the range of 300:1 to 1:300, especially of 150:1 to 1:150;

(A):(B5) preferably in the range of 400:1 to 1:300, especially of 300:1 to 1:150;

(A):(B7) preferably in the range of 10:1 to 1:200, especially of 1:1 to 1:100;

30

(A):(B11) preferably in the range of 30:1 to 1:300, especially of 15:1 to 1:150.

35

The herbicidal compositions of the invention can also be combined with further herbicides and plant growth regulators, for example to supplement the activity spectrum. Combination partners usable for the compounds according to the invention in mixed formulations or in a tankmix are, for example, known active ingredients based on inhibition of, for example, acetolactate

synthase, acetyl-CoA carboxylase, cellulose synthase, enolpyruvylshikimate-3-phosphate synthase, glutamine synthetase, p-hydroxyphenylpyruvate dioxygenase, phytoene desaturase, photosystem I, photosystem II, protoporphyrinogen oxidase, as known, for example, from Weed Research 26 (1986) 441-445 or "The Pesticide Manual", 14th edition, The British Crop Protection Council and the Royal Soc. of Chemistry, 2006, the corresponding "e-Pesticide Manual Version 4 (2006)", and literature cited therein. Further trade names and "common names" are listed in the "Compendium of Pesticide Common Names" (available on the Internet under <http://www.alanwood.net/pesticides>).

Examples of known herbicides which can be combined with the compounds of the invention include the active ingredients which follow (N.B.: the compounds are designated either by the common name according to the International Organization for Standardization (ISO) or by the chemical name, in some cases together with a standard code number) and always encompass all use forms, such as acids, salts, esters and isomers, such as stereoisomers and optical isomers. The list includes one and in some cases also more than one application form:

2,4-D, acetochlor, acifluorfen, acifluorfen-sodium, aclonifen, alachlor, alloxymid, alloxymid-sodium, ametryn, amicarbazone, amidosulfuron, amitrole, anilofos, asulam, atrazine, azafenidin, azimsulfuron, beflubutamid, benazolin, benazolin-ethyl, benfuresate, bensulfuron-methyl, bentazone, benzfendazole, benzobicyclon, benzofenap, bifenox, bilanafos, bispyribac-sodium, bromacil, bromobutide, bromofenoxim, bromoxynil, butachlor, butafenacil, butenachlor, butralin, butoxydim, butylate, cafenstrole, carbetamide, carfentrazone-ethyl, chlomethoxyfen, chloridazon, chlorimuron-ethyl, chlornitrofen, chlorotoluron, chlorsulfuron, cinidon-ethyl, cinmethylin, cinosulfuron, clefoxydim, clethodim, clodinafop-propargyl, clomazone, clomeprop, clopyralid, cloransulam-methyl, cumyluron, cyanazine, cyclosulfamuron, cycloxydim, cyhalofop-butyl, desmedipham, dicamba, dichlobenil,

dichlorprop, dichlorprop-P, diclofop-methyl, diclosulam,
 difenzoquat, diflufenican, diflufenzopyr, dikegulac-sodium,
 dimefuron, dimepiperate, dimethachlor, dimethametryn,
 dimethenamid, triaziflam, diquat-dibromide, dithiopyr, diuron,
 5 dymron, EPTC, esprocarb, ethalfluralin, ethametsulfuron-methyl,
 ethoxyfen, ethoxysulfuron, etobenzanid, fenoxaprop-ethyl,
 fenoxaprop-P-ethyl, fentrazamide, flamprop-M-isopropyl,
 flamprop-M-methyl, flazasulfuron, florasulam, fluazifop,
 fluazifop-butyl, fluazifop-butyl, fluazolate, flucarbazone-
 10 sodium, flucetosulfuron, fluchloralin, flufenacet, flufenpyr,
 flumetsulam, flumiclorac-pentyl, flumioxazin, fluometuron,
 fluorochloridone, fluoroglycofen-ethyl, flupoxam,
 flupyrsulfuron-methyl-sodium, fluridone, fluroxypyr,
 fluroxypyr-butoxypropyl, fluroxypyr-meptyl, flurprimidol,
 15 flurtamone, fluthiacet-methyl, fomesafen, foramsulfuron,
 glufosinate, glufosinate-ammonium, glyphosate, halosulfuron-
 methyl, haloxyfop, haloxyfop-ethoxyethyl, haloxyfop-methyl,
 haloxyfop-P-methyl, hexazinone, imazamethabenz-methyl,
 imazamox, imazapic, imazapyr, imazaquin, imazethapyr,
 20 imazosulfuron, indanofan, iodosulfuron-methyl-sodium, ioxynil,
 isoproturon, isouron, isoxaben, isoxachlortole, isoxaflutole,
 ketospiradox, lactofen, lenacil, linuron, MCPA, mecoprop,
 mecoprop-P, mefenacet, mesosulfuron-methyl, mesotrione,
 metamifop, metamitron, metazachlor, methabenzthiazuron,
 25 methyl-dymron, metobromuron, metolachlor, metosulam, metoxuron,
 metribuzin, metsulfuron-methyl, molinate, monolinuron,
 naproanilide, napropamide, neburon, nicosulfuron, norflurazon,
 orbencarb, oryzalin, oxadiargyl, oxadiazon, oxasulfuron,
 oxaziclomefone, oxyfluorfen, paraquat, pelargonic acid,
 30 pendimethalin, pendralin, pentoxazone, pethoxamid,
 phenmedipham, picloram, picolinafen, pinoxaden, piperophos,
 pretilachlor, primisulfuron-methyl, profluazol, profoxydim,
 prometryn, propachlor, propanil, propaquizafop, propisochlor,
 propoxycarbazone-sodium, propyzamide, prosulfocarb,
 35 prosulfuron, pyraclonil, pyraflufen-ethyl, pyrazolate,
 pyrazosulfuron-ethyl, pyrazoxyfen, pyribenzoxim, pyributicarb,
 pyridafol, pyridate, pyriftalid, pyriminobac-methyl,
 pyri-thiobac-sodium, quinclorac, quinmerac, quinclamine,

quizalofop-ethyl, quizalofop-P-ethyl, quizalofop-P-tefuryl, rimsulfuron, sethoxydim, simazine, simetryn, S-metolachlor, sulcotrione, sulfentrazone, sulfometuron-methyl, sulfosate, sulfosulfuron, tebuthiuron, tepraloxym, terbutylazine, 5 terbutryn, thenylchlor, thiazopyr, thifensulfuron-methyl, thiobencarb, tiocarbazil, tralkoxydim, triallate, triasulfuron, tribenuron-methyl, triclopyr, tridiphane, trifloxysulfuron, trifluralin, triflusulfuron-methyl, tritosulfuron, WL 110547, i.e. 5-phenoxy-1-[3-(trifluoromethyl)phenyl]-1H-tetrazole; HOK- 10 201, HOK-202, UBH-509; D-489; LS 82-556; KPP-300; NC-324; NC-330; KH-218; DPX-N8189; SC-0774; TH-547, DOWCO-535; DK-8910; V-53482; PP-600; MBH-001; KIH-9201; ET-751; KIH-6127; KIH-2023 and KIH5996.

15 If the respective common name encompasses more than one form of the active ingredient, the name preferably defines the commercially available form.

Each of the further active ingredients mentioned (= active 20 ingredients (C*), (C1*), (C2*) etc.) may then preferably be combined with one of the binary combinations according to the present invention, according to the scheme (A)+(B)+(C*) or else according to the scheme (A)+(B)+(C1*)+(C2*) etc.

25 The stated amounts are application rates (g a.i./ha = grams of active substance per hectare) and hence also define the ratios in a co-formulation, a premix, a tankmix or a sequential application of the combined active ingredients.

30 The combinations can be applied both by the pre-emergence method and by the post-emergence method. This applies both to pre- and post-emergence with respect to the harmful plants and, in the case of selective control of the harmful plants, to pre- or post-emergence of the crop plants. Mixed forms are also 35 possible, for example control of the harmful plants at their pre- or post-emergence stage after emergence of the crop plants.

The herbicide combinations of the invention may comprise further

components, for example other active ingredients against harmful organisms such as harmful plants, plant-damaging animals or plant-damaging fungi, in this case especially active ingredients from the group of herbicides, fungicides, insecticides, acaricides, nematocides, miticides and related substances.

Fungicidally active compounds that can be used in combination with the herbicide combinations of the invention are preferably standard commercial active ingredients, for example (analogously to the herbicides, the compounds are generally named by their common names):

- 1) Ergosterol biosynthesis inhibitors, for example (1.001) cyproconazole, (1.002) difenoconazole, (1.003) epoxiconazole, (1.004) fenhexamid, (1.005) fenpropidin, (1.006) fenpropimorph, (1.007) fenpyrazamine, (1.008) fluquinconazole, (1.009) flutriafol, (1.010) imazalil, (1.011) imazalil sulfate, (1.012) ipconazole, (1.013) metconazole, (1.014) myclobutanil, (1.015) paclobutrazole, (1.016) prochloraz, (1.017) propiconazole, (1.018) prothioconazole, (1.019) pyrisoxazole, (1.020) spiroxamine, (1.021) tebuconazole, (1.022) tetraconazole, (1.023) triadimenol, (1.024) tridemorph, (1.025) triticonazole, (1.026) (1R,2S,5S)-5-(4-chlorobenzyl)-2-(chloromethyl)-2-methyl-1-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanol, (1.027) (1S,2R,5R)-5-(4-chlorobenzyl)-2-(chloromethyl)-2-methyl-1-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanol, (1.028) (2R)-2-(1-chlorocyclopropyl)-4-[(1R)-2,2-dichlorocyclopropyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol, (1.029) (2R)-2-(1-chlorocyclopropyl)-4-[(1S)-2,2-dichlorocyclopropyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol, (1.030) (2R)-2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol, (1.031) (2S)-2-(1-chlorocyclopropyl)-4-[(1R)-2,2-dichlorocyclopropyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol, (1.032) (2S)-2-(1-chlorocyclopropyl)-4-[(1S)-2,2-dichlorocyclopropyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol, (1.033) (2S)-2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol, (1.034) (R)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol,

(1.035) (S)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl] (pyridin-3-yl)methanol,
(1.036) [3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl] (pyridin-3-yl)methanol, (1.037) 1-({(2R,4S)-2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl}methyl)-1H-1,2,4-triazole, (1.038) 1-({(2S,4S)-2-[2-chloro-4-(4-chlorophenoxy)phenyl]-4-methyl-1,3-dioxolan-2-yl}methyl)-1H-1,2,4-triazole, (1.039) 1-{[3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazol-5-yl
10 thiocyanate, (1.040) 1-{[rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazol-5-yl
thiocyanate, (1.041) 1-{[rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazol-5-yl
thiocyanate, (1.042) 2-[(2R,4R,5R)-1-(2,4-dichlorophenyl)-5-
15 hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-
triazole-3-thione, (1.043) 2-[(2R,4R,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-
dihydro-3H-1,2,4-triazole-3-thione, (1.044) 2-[(2R,4S,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-
2,4-dihydro-3H-1,2,4-triazole-3-thione, (1.045) 2-[(2R,4S,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-
2,4-dihydro-3H-1,2,4-triazole-3-thione, (1.046) 2-[(2S,4R,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-
2,4-dihydro-3H-1,2,4-triazole-3-thione, (1.047) 2-[(2S,4R,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-
2,4-dihydro-3H-1,2,4-triazole-3-thione, (1.048) 2-[(2S,4S,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-
2,4-dihydro-3H-1,2,4-triazole-3-thione, (1.049) 2-[(2S,4S,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-
2,4-dihydro-3H-1,2,4-triazole-3-thione, (1.050) 2-[1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-
dihydro-3H-1,2,4-triazole-3-thione, (1.051) 2-[2-chloro-4-(2,4-dichlorophenoxy)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol,
(1.052) 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol,
35 triazol-1-yl)butan-2-ol, (1.053) 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)butan-2-ol,
(1.054) 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-1-yl)pentan-2-ol, (1.055) 2-[4-(4-

chlorophenoxy)-2-(trifluoromethyl)phenyl]-1-(1H-1,2,4-triazol-
 1-yl)propan-2-ol, (1.056) 2-{[3-(2-chlorophenyl)-2-(2,4-
 difluorophenyl)oxiran-2-yl]methyl}-2,4-dihydro-3H-1,2,4-
 triazole-3-thione, (1.057) 2-{[rel(2R,3R)-3-(2-chlorophenyl)-2-
 5 (2,4-difluorophenyl)oxiran-2-yl]methyl}-2,4-dihydro-3H-1,2,4-
 triazole-3-thione, (1.058) 2-{[rel(2R,3S)-3-(2-chlorophenyl)-2-
 (2,4-difluorophenyl)oxiran-2-yl]methyl}-2,4-dihydro-3H-1,2,4-
 triazole-3-thione, (1.059) 5-(4-chlorobenzyl)-2-(chloromethyl)-
 2-methyl-1-(1H-1,2,4-triazol-1-ylmethyl)cyclopentanol, (1.060)
 10 5-(allylsulfanyl)-1-{[3-(2-chlorophenyl)-2-(2,4-
 difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazole, (1.061)
 5-(allylsulfanyl)-1-{[rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-
 difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazole, (1.062)
 5-(allylsulfanyl)-1-{[rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-
 15 difluorophenyl)oxiran-2-yl]methyl}-1H-1,2,4-triazole, (1.063)
 N'-(2,5-dimethyl-4-{[3-(1,1,2,2-
 tetrafluoroethoxy)phenyl]sulfanyl}phenyl)-N-ethyl-N-
 methylimidofornamide, (1.064) N'-(2,5-dimethyl-4-{[3-(2,2,2-
 trifluoroethoxy)phenyl]sulfanyl}phenyl)-N-ethyl-N-
 20 methylimidofornamide, (1.065) N'-(2,5-dimethyl-4-{[3-(2,2,3,3-
 tetrafluoropropoxy)phenyl]sulfanyl}phenyl)-N-ethyl-N-
 methylimidofornamide, (1.066) N'-(2,5-dimethyl-4-{[3-
 (pentafluoroethoxy)phenyl]sulfanyl}phenyl)-N-ethyl-N-
 methylimidofornamide, (1.067) N'-(2,5-dimethyl-4-{3-[(1,1,2,2-
 25 tetrafluoroethyl)sulfanyl]phenoxy}phenyl)-N-ethyl-N-
 methylimidofornamide, (1.068) N'-(2,5-dimethyl-4-{3-[(2,2,2-
 trifluoroethyl)sulfanyl]phenoxy}phenyl)-N-ethyl-N-
 methylimidofornamide, (1.069) N'-(2,5-dimethyl-4-{3-[(2,2,3,3-
 tetrafluoropropyl)sulfanyl]phenoxy}phenyl)-N-ethyl-N-
 30 methylimidofornamide, (1.070) N'-(2,5-dimethyl-4-{3-
 [(pentafluoroethyl)sulfanyl]phenoxy}phenyl)-N-ethyl-N-
 methylimidofornamide, (1.071) N'-(2,5-dimethyl-4-
 phenoxyphenyl)-N-ethyl-N-methylimidofornamide, (1.072) N'-(4-
 {[3-(difluoromethoxy)phenyl]sulfanyl}-2,5-dimethylphenyl)-N-
 35 ethyl-N-methylimidofornamide, (1.073) N'-(4-{3-
 [(difluoromethyl)sulfanyl]phenoxy}-2,5-dimethylphenyl)-N-
 ethyl-N-methylimidofornamide, (1.074) N'-[5-bromo-6-(2,3-
 dihydro-1H-inden-2-yloxy)-2-methylpyridin-3-yl]-N-ethyl-N-

methylimidoformamide, (1.075) N'-{4-[(4,5-dichloro-1,3-thiazol-2-yl)oxy]-2,5-dimethylphenyl}-N-ethyl-N-methylimidoformamide, (1.076) N'-{5-bromo-6-[(1R)-1-(3,5-difluorophenyl)ethoxy]-2-methylpyridin-3-yl}-N-ethyl-N-methylimidoformamide, (1.077) N'-{5-bromo-6-[(1S)-1-(3,5-difluorophenyl)ethoxy]-2-methylpyridin-3-yl}-N-ethyl-N-methylimidoformamide, (1.078) N'-{5-bromo-6-[(cis-4-isopropylcyclohexyl)oxy]-2-methylpyridin-3-yl}-N-ethyl-N-methylimidoformamide, (1.079) N'-{5-bromo-6-[(trans-4-isopropylcyclohexyl)oxy]-2-methylpyridin-3-yl}-N-ethyl-N-methylimidoformamide, (1.080) N'-{5-bromo-6-[1-(3,5-difluorophenyl)ethoxy]-2-methylpyridin-3-yl}-N-ethyl-N-methylimidoformamide, (1.081) mefentrifluconazole, (1.082) ipfentrifluconazole.

2) Respiratory chain inhibitors acting on complex I or II, for example (2.001) benzovindiflupyr, (2.002) bixafen, (2.003) boscalid, (2.004) carboxin, (2.005) fluopyram, (2.006) flutolanil, (2.007) fluxapyroxad, (2.008) furametpyr, (2.009) isofetamid, (2.010) isopyrazam (anti-epimeric enantiomer 1R,4S,9S), (2.011) isopyrazam (anti-epimeric enantiomer 1S,4R,9R), (2.012) isopyrazam (anti-epimeric racemate 1RS,4SR,9SR), (2.013) isopyrazam (mixture of the syn-epimeric racemate 1RS,4SR,9RS and the anti-epimeric racemate 1RS,4SR,9SR), (2.014) isopyrazam (syn-epimeric enantiomer 1R,4S,9R), (2.015) isopyrazam (syn-epimeric enantiomer 1S,4R,9S), (2.016) isopyrazam (syn-epimeric racemate 1RS,4SR,9RS), (2.017) penflufen, (2.018) penthiopyrad, (2.019) pydiflumetofen, (2.020) pyraziflumid, (2.021) sedaxane, (2.022) 1,3-dimethyl-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-carboxamide, (2.023) 1,3-dimethyl-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide, (2.024) 1,3-dimethyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide, (2.025) 1-methyl-3-(trifluoromethyl)-N-[2'-(trifluoromethyl)biphenyl-2-yl]-1H-pyrazole-4-carboxamide, (2.026) 2-fluoro-6-(trifluoromethyl)-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)benzamide, (2.027) 3-(difluoromethyl)-1-methyl-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-carboxamide, (2.028) 3-(difluoromethyl)-1-methyl-N-[(3R)-1,1,3-

trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-
 carboxamide, (2.029) 3-(difluoromethyl)-1-methyl-N-[(3S)-1,1,3-
 trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-
 carboxamide, (2.030) 3-(difluoromethyl)-N-(7-fluoro-1,1,3-
 5 trimethyl-2,3-dihydro-1H-inden-4-yl)-1-methyl-1H-pyrazole-4-
 carboxamide, (2.031) 3-(difluoromethyl)-N-[(3R)-7-fluoro-1,1,3-
 trimethyl-2,3-dihydro-1H-inden-4-yl]-1-methyl-1H-pyrazole-4-
 carboxamide, (2.032) 3-(difluoromethyl)-N-[(3S)-7-fluoro-1,1,3-
 trimethyl-2,3-dihydro-1H-inden-4-yl]-1-methyl-1H-pyrazole-4-
 10 carboxamide, (2.033) 5,8-difluoro-N-[2-(2-fluoro-4-{4-
 (trifluoromethyl)pyridin-2-yl}oxy}phenyl)ethyl]quinazolin-4-
 amine, (2.034) N-(2-cyclopentyl-5-fluorobenzyl)-N-cyclopropyl-
 3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-
 carboxamide, (2.035) N-(2-tert-butyl-5-methylbenzyl)-N-
 15 cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-
 4-carboxamide, (2.036) N-(2-tert-butylbenzyl)-N-cyclopropyl-3-
 (difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide,
 (2.037) N-(5-chloro-2-ethylbenzyl)-N-cyclopropyl-3-
 (difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide,
 20 (2.038) N-(5-chloro-2-isopropylbenzyl)-N-cyclopropyl-3-
 (difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide,
 (2.039) N-[(1R,4S)-9-(dichloromethylene)-1,2,3,4-tetrahydro-
 1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-
 pyrazole-4-carboxamide, (2.040) N-[(1S,4R)-9-
 25 (dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-
 5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide,
 (2.041) N-[1-(2,4-dichlorophenyl)-1-methoxypropan-2-yl]-3-
 (difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide, (2.042) N-
 [2-chloro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-
 30 (difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide,
 (2.043) N-[3-chloro-2-fluoro-6-(trifluoromethyl)benzyl]-N-
 cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-
 4-carboxamide, (2.044) N-[5-chloro-2-(trifluoromethyl)benzyl]-
 N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-
 35 pyrazole-4-carboxamide, (2.045) N-cyclopropyl-3-
 (difluoromethyl)-5-fluoro-1-methyl-N-[5-methyl-2-
 (trifluoromethyl)benzyl]-1H-pyrazole-4-carboxamide, (2.046) N-
 cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-fluoro-6-

isopropylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide, (2.047) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropyl-5-methylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide, (2.048) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carbothioamide, (2.049) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide, (2.050) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(5-fluoro-2-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carboxamide, (2.051) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-4,5-dimethylbenzyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide, (2.052) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-fluorobenzyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide, (2.053) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-methylbenzyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide, (2.054) N-cyclopropyl-N-(2-cyclopropyl-5-fluorobenzyl)-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide, (2.055) N-cyclopropyl-N-(2-cyclopropyl-5-methylbenzyl)-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide, (2.056) N-cyclopropyl-N-(2-cyclopropylbenzyl)-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide.

3) Respiratory chain inhibitors acting on complex III, for example (3.001) ametocetradin, (3.002) amisulbrom, (3.003) azoxystrobin, (3.004) coumethoxystrobin, (3.005) coumoxystrobin, (3.006) cyazofamid, (3.007) dimoxystrobin, (3.008) enoxastrobin, (3.009) famoxadon, (3.010) fenamidon, (3.011) flufenoxystrobin, (3.012) fluoxastrobin, (3.013) kresoxim-methyl, (3.014) metominostrobin, (3.015) orysastrobin, (3.016) picoxystrobin, (3.017) pyraclostrobin, (3.018) pyrametostrobin, (3.019) pyraoxystrobin, (3.020) trifloxystrobin, (3.021) (2E)-2-{2-[(1E)-1-(3-{(E)-1-fluoro-2-phenylvinyl}oxy)phenyl)ethylidene]amino}oxy)methyl]phenyl}-2-(methoxyimino)-N-methylacetamide, (3.022) (2E,3Z)-5-{[1-(4-chlorophenyl)-1H-pyrazol-3-yl]oxy}-2-(methoxyimino)-N,3-dimethylpent-3-enamide, (3.023) (2R)-2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide, (3.024) (2S)-2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-

methoxy-N-methylacetamide, (3.025) (3S,6S,7R,8R)-8-benzyl-3-
 [({3-[(isobutyryloxy)methoxy]-4-methoxypyridin-2-
 yl}carbonyl)amino]-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl 2-
 methylpropanoate, (3.026) 2-{2-[(2,5-
 5 dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide,
 (3.027) N-(3-ethyl-3,5,5-trimethylcyclohexyl)-3-formamido-2-
 hydroxybenzamide, (3.028) (2E,3Z)-5-{[1-(4-chloro-2-
 fluorophenyl)-1H-pyrazol-3-yl]oxy}-2-(methoxyimino)-N,3-
 dimethylpent-3-enamide, (3.029) methyl {5-[3-(2,4-
 10 dimethylphenyl)-1H-pyrazol-1-yl]-2-methylbenzyl}carbamate.
 4) Mitosis and cell division inhibitors, for example (4.001)
 carbendazim, (4.002) diethofencarb, (4.003) ethaboxam, (4.004)
 fluopicolid, (4.005) pencycuron, (4.006) thiabendazole, (4.007)
 thiophanate-methyl, (4.008) zoxamide, (4.009) 3-chloro-4-(2,6-
 15 difluorophenyl)-6-methyl-5-phenylpyridazine, (4.010) 3-chloro-
 5-(4-chlorophenyl)-4-(2,6-difluorophenyl)-6-methylpyridazine,
 (4.011) 3-chloro-5-(6-chloropyridin-3-yl)-6-methyl-4-(2,4,6-
 trifluorophenyl)pyridazine, (4.012) 4-(2-bromo-4-fluorophenyl)-
 N-(2,6-difluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine,
 20 (4.013) 4-(2-bromo-4-fluorophenyl)-N-(2-bromo-6-fluorophenyl)-
 1,3-dimethyl-1H-pyrazol-5-amine, (4.014) 4-(2-bromo-4-
 fluorophenyl)-N-(2-bromophenyl)-1,3-dimethyl-1H-pyrazol-5-
 amine, (4.015) 4-(2-bromo-4-fluorophenyl)-N-(2-chloro-6-
 fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine, (4.016) 4-(2-
 25 bromo-4-fluorophenyl)-N-(2-chlorophenyl)-1,3-dimethyl-1H-
 pyrazol-5-amine, (4.017) 4-(2-bromo-4-fluorophenyl)-N-(2-
 fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine, (4.018) 4-(2-
 chloro-4-fluorophenyl)-N-(2,6-difluorophenyl)-1,3-dimethyl-1H-
 pyrazol-5-amine, (4.019) 4-(2-chloro-4-fluorophenyl)-N-(2-
 30 chloro-6-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine,
 (4.020) 4-(2-chloro-4-fluorophenyl)-N-(2-chlorophenyl)-1,3-
 dimethyl-1H-pyrazol-5-amine, (4.021) 4-(2-chloro-4-
 fluorophenyl)-N-(2-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-
 amine, (4.022) 4-(4-chlorophenyl)-5-(2,6-difluorophenyl)-3,6-
 35 dimethylpyridazine, (4.023) N-(2-bromo-6-fluorophenyl)-4-(2-
 chloro-4-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine,
 (4.024) N-(2-bromophenyl)-4-(2-chloro-4-fluorophenyl)-1,3-
 dimethyl-1H-pyrazol-5-amine, (4.025) N-(4-chloro-2,6-

difluorophenyl)-4-(2-chloro-4-fluorophenyl)-1,3-dimethyl-1H-pyrazol-5-amine.

- 5) Compounds with multisite activity, for example (5.001) Bordeaux mixture, (5.002) captafol, (5.003) captan, (5.004) chlorthalonil, (5.005) copper hydroxide, (5.006) copper naphthenate, (5.007) copper oxide, (5.008) copper oxychloride, (5.009) copper(2+) sulfate, (5.010) dithianon, (5.011) dodine, (5.012) folpet, (5.013) mancozeb, (5.014) maneb, (5.015) metiram, (5.016) zinc metiram, (5.017) copper oxine, (5.018) propineb, (5.019) sulfur and sulfur preparations including calcium polysulfide, (5.020) thiram, (5.021) zineb, (5.022) ziram, (5.023) 6-ethyl-5,7-dioxo-6,7-dihydro-5H-pyrrolo[3',4':5,6][1,4]dithiino[2,3-c][1,2]thiazole-3-carbonitrile.
- 6) Compounds capable of triggering host defence, for example (6.001) acibenzolar-S-methyl, (6.002) isotianil, (6.003) probenazole, (6.004) tiadinil.
- 7) Amino acid and/or protein biosynthesis inhibitors, for example (7.001) cyprodinil, (7.002) kasugamycin, (7.003) kasugamycin hydrochloride hydrate, (7.004) oxytetracycline, (7.005) pyrimethanil, (7.006) 3-(5-fluoro-3,3,4,4-tetramethyl-3,4-dihydroisoquinolin-1-yl)quinoline.
- (8) ATP production inhibitors, for example (8.001) silthiofam.
- 9) Cell wall synthesis inhibitors, for example (9.001) benthiavalicarb, (9.002) dimethomorph, (9.003) flumorph, (9.004) iprovalicarb, (9.005) mandipropamid, (9.006) pyrimorph, (9.007) valifenalate, (9.008) (2E)-3-(4-tert-butylphenyl)-3-(2-chloropyridin-4-yl)-1-(morpholin-4-yl)prop-2-en-1-one, (9.009) (2Z)-3-(4-tert-butylphenyl)-3-(2-chloropyridin-4-yl)-1-(morpholin-4-yl)prop-2-en-1-one.
- 10) Lipid and membrane synthesis inhibitors, for example (10.001) propamocarb, (10.002) propamocarb hydrochloride, (10.003) tolclofos-methyl.
- 11) Melanin biosynthesis inhibitors, for example (11.001) tricyclazole, (11.002) 2,2,2-trifluoroethyl-{3-methyl-1-[(4-methylbenzoyl)amino]butan-2-yl}carbamate.

12) Nucleic acid synthesis inhibitors, for example (12.001) benalaxyl, (12.002) benalaxyl-M (kiralaxyl), (12.003) metalaxyl, (12.004) metalaxyl-M (mefenoxam).

13) Signal transduction inhibitors, for example (13.001) fludioxonil, (13.002) iprodione, (13.003) procymidone, (13.004) proquinazid, (13.005) quinoxifen, (13.006) vinclozolin.

14) Compounds that can act as decouplers, for example (14.001) fluazinam, (14.002) meptyldinocap.

15) Further compounds, for example (15.001) abscisic acid, (15.002) benthiazole, (15.003) bethoxazin, (15.004) capsimycin, (15.005) carvone, (15.006) chinomethionat, (15.007) cufraneb, (15.008) cyflufenamid, (15.009) cymoxanil, (15.010) cyprosulfamide, (15.011) flutianil, (15.012) fosetyl-aluminium, (15.013) fosetyl-calcium, (15.014) fosetyl-sodium, (15.015) methyl isothiocyanate, (15.016) metrafenon, (15.017) mildiomycin, (15.018) natamycin, (15.019) nickel dimethyldithiocarbamate, (15.020) nitrothal-isopropyl, (15.021) oxamocarb, (15.022) oxathiapirolin, (15.023) oxyfenthiin, (15.024) pentachlorophenol and salts, (15.025) phosphonic acid and salts thereof, (15.026) propamocarb-fosetate, (15.027) pyriofenone (chlazafenone), (15.028) tebufloquin, (15.029) tecloftalam, (15.030) tolnifanide, (15.031) 1-(4-{4-[(5R)-5-(2,6-difluorophenyl)-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone, (15.032) 1-(4-{4-[(5S)-5-(2,6-difluorophenyl)-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone, (15.033) 2-(6-benzylpyridin-2-yl)quinazoline, (15.034) 2,6-dimethyl-1H,5H-[1,4]dithiino[2,3-c:5,6-c']dipyrrole-1,3,5,7(2H,6H)-tetrone, (15.035) 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-thiazol-2-yl)piperidin-1-yl]ethanone, (15.036) 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-chloro-6-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-thiazol-2-yl)piperidin-1-yl]ethanone, (15.037) 2-[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]-1-[4-(4-{5-[2-fluoro-6-(prop-2-yn-1-yloxy)phenyl]-4,5-dihydro-1,2-oxazol-3-yl}-1,3-

thiazol-2-yl)piperidin-1-yl]ethanone, (15.038) 2-[6-(3-fluoro-4-methoxyphenyl)-5-methylpyridin-2-yl]quinazoline, (15.039) 2-
 { (5R)-3-[2-(1-{[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-
 5 oxazol-5-yl}-3-chlorophenyl methanesulfonate, (15.040) 2-{(5S)-3-[2-(1-{[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-
 oxazol-5-yl}-3-chlorophenyl methanesulfonate, (15.041) 2-{2-
 [(7,8-difluoro-2-methylquinolin-3-yl)oxy]-6-
 10 fluorophenyl}propan-2-ol, (15.042) 2-{2-fluoro-6-[(8-fluoro-2-methylquinolin-3-yl)oxy]phenyl}propan-2-ol, (15.043) 2-{3-[2-(1-{[3,5-bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl}-3-
 chlorophenyl methanesulfonate, (15.044) 2-{3-[2-(1-{[3,5-
 15 bis(difluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-1,3-thiazol-4-yl]-4,5-dihydro-1,2-oxazol-5-yl}phenyl
 methanesulfonate, (15.045) 2-phenylphenol and salts thereof, (15.046) 3-(4,4,5-trifluoro-3,3-dimethyl-3,4-
 dihydroisoquinolin-1-yl)quinoline, (15.047) 3-(4,4-difluoro-
 20 3,3-dimethyl-3,4-dihydroisoquinolin-1-yl)quinoline, (15.048) 4-amino-5-fluoropyrimidin-2-ol (tautomeric form: 4-amino-5-fluoropyrimidin-2(1H)-one), (15.049) 4-oxo-4-[(2-phenylethyl)amino]butyric acid, (15.050) 5-amino-1,3,4-
 thiadiazole-2-thiol, (15.051) 5-chloro-N'-phenyl-N'-(prop-2-yn-
 25 1-yl)thiophene 2-sulfonohydrazide, (15.052) 5-fluoro-2-[(4-fluorobenzyl)oxy]pyrimidin-4-amine, (15.053) 5-fluoro-2-[(4-methylbenzyl)oxy]pyrimidin-4-amine, (15.054) 9-fluoro-2,2-
 dimethyl-5-(quinolin-3-yl)-2,3-dihydro-1,4-benzoxazepine, (15.055) but-3-yn-1-yl {6-[[{(Z)-(1-methyl-1H-tetrazol-5-yl)(phenyl)methylene]amino}oxy)methyl]pyridin-2-yl}carbamate, (15.056) ethyl (2Z)-3-amino-2-cyano-3-phenylacrylate, (15.057) phenazine-1-carboxylic acid, (15.058) propyl 3,4,5-trihydroxybenzoate, (15.059) quinolin-8-ol, (15.060) quinolin-8-ol sulfate (2:1), (15.061) tert-butyl {6-[[{(1-methyl-1H-tetrazol-5-yl)(phenyl)methylene]amino}oxy)methyl]pyridin-2-yl}carbamate, (15.062) 5-fluoro-4-imino-3-methyl-1)sulfonyl]-3,4-dihdropyrimidin-2(1H)-one.

Preferred fungicides are selected from the group consisting of benalaxyl, bitertanol, bromuconazole, captafol, carbendazim, carpropamid, cyazofamid, cyproconazole, diethofencarb, edifenphos, fenpropimorph, fentine, fluquinconazole, fosetyl, fluoroimide, folpet, iminoctadine, iprodionem, iprovalicarb, kasugamycin, maneb, nabam, pencycuron, prochloraz, propamocarb, propineb, pyrimethanil, spiroxamine, quintozone, tebuconazole, tolylfluanid, triadimefon, triadimenol, trifloxystrobin, zineb.

10 Insecticidal, acaricidal, nematocidal, miticidal and related active ingredients are, for example (analogously to the herbicides and fungicides, the compounds are, if possible, referred to by their common names):

(1) Acetylcholinesterase (AChE) inhibitors, preferably carbamates selected from alanycarb, aldicarb, bendiocarb, benfuracarb, butocarboxim, butoxycarboxim, carbaryl, carbofuran, carbosulfan, ethiofencarb, fenobucarb, formetanate, furathiocarb, isoprocarb, methiocarb, methomyl, metolcarb, oxamyl, pirimicarb, propoxur, thiodicarb, thiofanox, triazamate, trimethacarb, XMC and xylylcarb; or organophosphates selected from acephate, azamethiphos, azinphos-ethyl, azinphos-methyl, cadusafos, chlorethoxyfos, chlorfenvinphos, chlormephos, chlorpyrifos-methyl, coumaphos, cyanophos, demeton-S-methyl, diazinon, dichlorvos/DDVP, dicrotophos, dimethoate, dimethylvinphos, disulfoton, EPN, ethion, ethoprophos, famphur, fenamiphos, fenitrothion, fenthion, fosthiazate, heptenophos, imicyafos, isofenphos, isopropyl O-(methoxyaminothiophosphoryl) salicylate, isoxathion, malathion, mecarbam, methamidophos, methidathion, mevinphos, monocrotophos, naled, omethoate, oxydemeton-methyl, parathion-methyl, phenthoate, phorate, phosalone, phosmet, phosphamidon, phoxim, pirimiphos-methyl, profenofos, propetamphos, prothiofos, pyraclofos, pyridaphenthion, quinalphos, sulfotep, tebupirimfos, temephos, terbufos, tetrachlorvinphos, thiometon, triazophos, triclorfon and vamidothion.

(2) GABA-gated chloride channel blockers, preferably cyclodiene-organochlorines selected from chlordane and endosulfan, or phenylpyrazoles (fiproles) selected from ethiprole and fipronil.

(3) Sodium channel modulators, preferably pyrethroids selected from acrinathrin, allethrin, d-cis-trans allethrin, d-trans allethrin, bifenthrin, bioallethrin, bioallethrin S-cyclopentenyl isomer, bioresmethrin, cycloprothrin, cyfluthrin, 5 beta-cyfluthrin, cyhalothrin, lambda-cyhalothrin, gamma-cyhalothrin, cypermethrin, alpha-cypermethrin, beta-cypermethrin, theta-cypermethrin, zeta-cypermethrin, cyphenothrin [(1R)-trans isomer], deltamethrin, empenethrin [(EZ)-(1R) isomer], esfenvalerate, etofenprox, fenpropathrin, 10 fenvalerate, flucythrinate, flumethrin, tau-fluvalinate, halfenprox, imiprothrin, kadethrin, momfluorothrin, permethrin, phenothrin [(1R)-trans isomer], prallethrin, pyrethrins (pyrethrum), resmethrin, silafluofen, tefluthrin, tetramethrin, tetramethrin [(1R) isomer], tralomethrin and transfluthrin or 15 DDT or methoxychlor.

(4) Nicotinic acetylcholine receptor (nAChR) competitive modulators, preferably neonicotinoids selected from acetamiprid, clothianidin, dinotefuran, imidacloprid, nitenpyram, thiacloprid and thiamethoxam, or nicotine, or 20 sulfoximines selected from sulfoxaflor, or butenolides selected from flupyradifurone.

(5) Nicotinic acetylcholine receptor (nAChR) allosteric modulators, preferably spinosyns selected from spinetoram and spinosad.

25 (6) Glutamate-gated chloride channel (GluCl) allosteric modulators, preferably avermectins/milbemycins selected from abamectin, emamectin benzoate, lepimectin and milbemectin.

(7) Juvenile hormone mimics, preferably juvenile hormone analogues selected from hydroprene, kinoprene and methoprene, 30 or fenoxycarb or pyriproxyfen.

(8) Miscellaneous non-specific (multi-site) inhibitors, preferably alkyl halides selected from methyl bromide and other alkyl halides; or chloropicrin or sulfuryl fluoride or borax or tartar emetic or methyl isocyanate generators selected from 35 diazomet and metam.

(9) Chordotonal organ TRPV channel modulators selected from pymetrozine and pyrifluquinazon.

(10) Mite growth inhibitors selected from clofentezine, hexythiazox, diflovidazin and etoxazole.

(11) Microbial disruptors of insect midgut membranes selected from *Bacillus thuringiensis* subspecies *israelensis*, *Bacillus sphaericus*, *Bacillus thuringiensis* subspecies *aizawai*, *Bacillus thuringiensis* subspecies *kurstaki*, *Bacillus thuringiensis* subspecies *tenebrionis*, and *B.t.* plant proteins selected from Cry1Ab, Cry1Ac, Cry1Fa, Cry1A.105, Cry2Ab, VIP3A, mCry3A, Cry3Ab, Cry3Bb and Cry34Ab1/35Ab1.

(12) Inhibitors of mitochondrial ATP synthase, preferably ATP disruptors selected from diafenthiuron, or organotin compounds selected from azocyclotin, cyhexatin and fenbutatin oxide, or propargite or tetradifon.

(13) Uncouplers of oxidative phosphorylation via disruption of the proton gradient, selected from chlorfenapyr, DNOC and sulfluramid.

(14) Nicotinic acetylcholine receptor channel blockers selected from bensultap, cartap hydrochloride, thiocyclam, and thiosultap-sodium.

(15) Inhibitors of chitin biosynthesis, type 0, selected from bistrifluron, chlorfluazuron, diflubenzuron, flucycloxuron, flufenoxuron, hexaflumuron, lufenuron, novaluron, noviflumuron, teflubenzuron and triflumuron.

(16) Inhibitors of chitin biosynthesis, type 1, selected from buprofezin.

(17) Moulting disruptors (especially in the case of Diptera) selected from cyromazine.

(18) Ecdysone receptor agonists selected from chromafenozide, halofenozide, methoxyfenozide and tebufenozide.

(19) Octopamine receptor agonists selected from amitraz.

(20) Mitochondrial complex III electron transport inhibitors selected from hydramethylnon, acequinocyl and fluacrypyrim.

(21) Mitochondrial complex I electron transport inhibitors, preferably METI acaricides selected from fenazaquin, fenpyroximate, pyrimidifen, pyridaben, tebufenpyrad and tolfenpyrad, or rotenone (Derris).

(22) Voltage-dependent sodium channel blockers selected from indoxacarb and metaflumizone.

(23) Inhibitors of acetyl-CoA carboxylase, preferably tetronic and tetramic acid derivatives selected from spiroadiclofen, spiromesifen and spirotetramat.

(24) Mitochondrial complex IV electron transport inhibitors, preferably phosphines selected from aluminium phosphide, calcium phosphide, phosphine and zinc phosphide, or cyanides selected from calcium cyanide, potassium cyanide and sodium cyanide.

(25) Mitochondrial complex II electron transport inhibitors, preferably beta-keto nitrile derivatives selected from cyenopyrafen and cyflumetofen, or carboxanilides selected from pyflubumide.

(28) Ryanodine receptor modulators, preferably diamides selected from chlorantraniliprole, cyantraniliprole and flubendiamide.

(29) Chordotonal organ modulators (with undefined target structure) selected from flonicamid.

(30) Further active ingredients selected from acynonapyr, afidopyropen, afoxolaner, azadirachtin, benclouthiaz, benzoximate, benzpyrimoxan, bifenazate, broflanilide, bromopropylate, chinomethionat, chloroprallethrin, cryolite, cyclaniliprole, cycloxaprid, cyhalodiamide, dicloromezotiaz, dicofol, epsilon metofluthrin, epsilon momfluthrin, flometoquin, fluazaindolizine, fluensulfone, flufenerim, flufenoxystrobin, flufiprole, fluhexafon, fluopyram, flupyrimin, fluralaner, fluxametamide, fufenozide, guadipyr, heptafluthrin, imidaclothiz, iprodione, kappa bifenthrin, kappa tefluthrin, lotilaner, meperfluthrin, oxazosulfyl, paichongding, pyridalyl, pyrifluquinazon, pyriminostrobin, spiobudiclofen, spiropidion, tetramethylfluthrin, tetraniliprole, tetrachlorantraniliprole, tigolaner, tioxazafen, thiofluoximate, triflumezopyrim and iodomethane; additionally preparations based on *Bacillus firmus* (I-1582, BioNeem, Votivo), and the following compounds: 1-{2-fluoro-4-methyl-5-[(2,2,2-trifluoroethyl)sulfinyl]phenyl}-3-(trifluoromethyl)-1H-1,2,4-triazole-5-amine (known from WO2006/043635) (CAS 885026-50-6), {1'-[(2E)-3-(4-chlorophenyl)prop-2-en-1-yl]-5-fluorospiro[indole-3,4'-piperidine]-1(2H)-yl}(2-chloropyridin-4-yl)methanone (known from WO2003/106457) (CAS 637360-23-7), 2-chloro-N-[2-{1-[(2E)-

3-(4-chlorophenyl)prop-2-en-1-yl]piperidin-4-yl}-4-(trifluoromethyl)phenyl]isonicotinamide (known from WO2006/003494) (CAS 872999-66-1), 3-(4-chloro-2,6-dimethylphenyl)-4-hydroxy-8-methoxy-1,8-diazaspiro[4.5]dec-3-en-2-one (known from WO 2010052161) (CAS 1225292-17-0), 3-(4-chloro-2,6-dimethylphenyl)-8-methoxy-2-oxo-1,8-diazaspiro[4.5]dec-3-en-4-yl ethylcarbonate (known from EP 2647626) (CAS-1440516-42-6), 4-(but-2-yn-1-yloxy)-6-(3,5-dimethylpiperidin-1-yl)-5-fluoropyrimidine (known from WO2004/099160) (CAS 792914-58-0), PF1364 (known from JP2010/018586) (CAS Reg.No. 1204776-60-2), (3E)-3-[1-[(6-chloro-3-pyridyl)methyl]-2-pyridylidene]-1,1,1-trifluoropropan-2-one (known from WO2013/144213) (CAS 1461743-15-6), N-[3-(benzylcarbamoyl)-4-chlorophenyl]-1-methyl-3-(pentafluoroethyl)-4-(trifluoromethyl)-1H-pyrazole-5-carboxamide (known from WO2010/051926) (CAS 1226889-14-0), 5-bromo-4-chloro-N-[4-chloro-2-methyl-6-(methylcarbamoyl)phenyl]-2-(3-chloro-2-pyridyl)pyrazole-3-carboxamide (known from CN103232431) (CAS 1449220-44-3), 4-[5-(3,5-dichlorophenyl)-4,5-dihydro-5-(trifluoromethyl)-3-isoxazolyl]-2-methyl-N-(cis-1-oxido-3-thietanyl)benzamide, 4-[5-(3,5-dichlorophenyl)-4,5-dihydro-5-(trifluoromethyl)-3-isoxazolyl]-2-methyl-N-(trans-1-oxido-3-thietanyl)benzamide and 4-[(5S)-5-(3,5-dichlorophenyl)-4,5-dihydro-5-(trifluoromethyl)-3-isoxazolyl]-2-methyl-N-(cis-1-oxido-3-thietanyl)benzamide (known from WO 2013/050317 A1) (CAS 1332628-83-7), N-[3-chloro-1-(3-pyridinyl)-1H-pyrazol-4-yl]-N-ethyl-3-[(3,3,3-trifluoropropyl)sulfinyl]propanamide, (+)-N-[3-chloro-1-(3-pyridinyl)-1H-pyrazol-4-yl]-N-ethyl-3-[(3,3,3-trifluoropropyl)sulfinyl]propanamide and (-)-N-[3-chloro-1-(3-pyridinyl)-1H-pyrazol-4-yl]-N-ethyl-3-[(3,3,3-trifluoropropyl)sulfinyl]propanamide (known from WO 2013/162715 A2, WO 2013/162716 A2, US 2014/0213448 A1) (CAS 1477923-37-7), 5-[[(2E)-3-chloro-2-propen-1-yl]amino]-1-[2,6-dichloro-4-(trifluoromethyl)phenyl]-4-[(trifluoromethyl)sulfinyl]-1H-pyrazole-3-carbonitrile (known from CN 101337937 A) (CAS 1105672-77-2), 3-bromo-N-[4-chloro-2-methyl-6-[(methylamino)thioxomethyl]phenyl]-1-(3-chloro-2-pyridinyl)-

1H-pyrazole-5-carboxamide (Liudaibenjiaxuanan, known from CN 103109816 A) (CAS 1232543-85-9); N-[4-chloro-2-[(1,1-dimethylethyl)amino]carbonyl]-6-methylphenyl]-1-(3-chloro-2-pyridinyl)-3-(fluoromethoxy)-1H-pyrazole-5-carboxamide (known from WO 2012/034403 A1) (CAS 1268277-22-0), N-[2-(5-amino-1,3,4-thiadiazol-2-yl)-4-chloro-6-methylphenyl]-3-bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazole-5-carboxamide (known from WO 2011/085575 A1) (CAS 1233882-22-8), 4-[3-[2,6-dichloro-4-[(3,3-dichloro-2-propen-1-yl)oxy]phenoxy]propoxy]-2-methoxy-6-(trifluoromethyl)pyrimidine (known from CN 101337940 A) (CAS 1108184-52-6); (2E)- and 2(Z)-2-[2-(4-cyanophenyl)-1-[3-(trifluoromethyl)phenyl]ethylidene]-N-[4-(difluoromethoxy)phenyl]hydrazinecarboxamide (known from CN 101715774 A) (CAS 1232543-85-9); cyclopropanecarboxylic acid 3-(2,2-dichloroethenyl)-2,2-dimethyl-4-(1H-benzimidazol-2-yl)phenyl ester (known from CN 103524422 A) (CAS 1542271-46-4); (4aS)-7-chloro-2,5-dihydro-2-[(methoxycarbonyl)[4-[(trifluoromethyl)thio]phenyl]amino]carbonyl]indeno[1,2-e][1,3,4]oxadiazine-4a(3H)-carboxylic acid methyl ester (known from CN 102391261 A) (CAS 1370358-69-2); 6-deoxy-3-O-ethyl-2,4-di-O-methyl-1-[N-[4-[1-[4-(1,1,2,2,2-pentafluoroethoxy)phenyl]-1H-1,2,4-triazol-3-yl]phenyl]carbamate]- α -L-mannopyranose (known from US 2014/0275503 A1) (CAS 1181213-14-8); 8-(2-cyclopropylmethoxy-4-trifluoromethylphenoxy)-3-(6-trifluoromethylpyridazin-3-yl)-3-azabicyclo[3.2.1]octane (CAS 1253850-56-4), (8-anti)-8-(2-cyclopropylmethoxy-4-trifluoromethylphenoxy)-3-(6-trifluoromethylpyridazin-3-yl)-3-azabicyclo[3.2.1]octane (CAS 933798-27-7), (8-syn)-8-(2-cyclopropylmethoxy-4-trifluoromethylphenoxy)-3-(6-trifluoromethylpyridazin-3-yl)-3-azabicyclo[3.2.1]octane (known from WO 2007040280 A1, WO 2007040282 A1) (CAS 934001-66-8), N-[3-chloro-1-(3-pyridinyl)-1H-pyrazol-4-yl]-N-ethyl-3-[(3,3,3-trifluoropropyl)thio]propanamide (known from WO 2015/058021 A1, WO 2015/058028 A1) (CAS 1477919-27-9) and N-[4-(aminothioxomethyl)-2-methyl-6-[(methylamino)carbonyl]phenyl]-3-bromo-1-(3-chloro-2-pyridinyl)-1H-pyrazole-5-carboxamide (known from CN 103265527 A) (CAS 1452877-50-7), 5-(1,3-dioxan-

2-yl)-4-[[4-(trifluoromethyl)phenyl]methoxy]pyrimidine (known from WO 2013/115391 A1) (CAS 1449021-97-9), 3-(4-chloro-2,6-dimethylphenyl)-8-methoxy-1-methyl-1,8-diazaspiro[4.5]decane-2,4-dione (known from WO 2014/187846 A1) (CAS 1638765-58-8),
 5 ethyl 3-(4-chloro-2,6-dimethylphenyl)-8-methoxy-1-methyl-2-oxo-1,8-diazaspiro[4.5]dec-3-en-4-ylcarboxylate (known from WO 2010/066780 A1, WO 2011151146 A1) (CAS 1229023-00-0), 4-[(5S)-5-(3,5-dichloro-4-fluorophenyl)-4,5-dihydro-5-(trifluoromethyl)-3-isoxazolyl]-N-[(4R)-2-ethyl-3-oxo-4-isoxazolidinyl]-2-methylbenzamide (known from WO 2011/067272, WO2013/050302) (CAS 1309959-62-3).

Insecticides that can preferably be used together with the herbicides are, for example, as follows:

15 acetamiprid, acrinathrin, aldicarb, amitraz, acinphos-methyl, cyfluthrin, carbaryl, cypermethrin, deltamethrin, endosulfan, ethoprophos, fenamiphos, fenthion, fipronil, imidacloprid, methamidophos, methiocarb, niclosamide, oxydemeton-methyl, prothiophos, silafluofen, thiacloprid, thiodicarb,
 20 tralomethrin, triazophos, trichlorfon, triflumuron, terbufos, fonofos, phorate, chlorpyrifos, carbofuran, tefluthrin.

The active ingredient combinations of the invention are suitable for control of a broad spectrum of weeds on uncultivated land, on pathways, on railway tracks, in industrial areas ("industrial weed control") or in plantation crops, such as temperate, subtropical and tropical climates or geographies. Examples of plantation crops are oil palms, nuts (e.g. almonds, hazelnuts, walnuts, macadamia), coconut, berries, rubber trees, citrus
 30 (e.g. oranges, lemons, mandarins), bananas, pineapples, cotton, sugarcane, tea, coffee, cacao and the like. They are likewise suitable for use in pomiculture (e.g. pomaceous fruits such as apples, pears, cherries, mangoes and kiwis) and viticulture. The compositions can also be used for preparation for seeding ("burn-down", "no-till" or "zero-till" method) or for treatment after harvesting ("chemical fallow"). The possible uses of the active ingredient combinations also extend to weed control in tree crops, for example young Christmas tree crops or eucalyptus

crops, in each case before planting or after planting (including "over-top" treatment).

The compositions can also be used to control unwanted plant growth in economically important crop plants such as wheat (hard and soft wheat), maize, soya, sugarbeet, sugarcane, cotton, rice, beans (for example, bush beans and broad beans), flax, barley, oats, rye, triticale, potato and millet/sorghum, pastureland and areas of grass/lawn and plantation crops. Plantation crops are, *inter alia*, pomaceous fruit (apple, pear, quince), *Ribes* species (blackberry, raspberry), citrus, *Prunus* species (cherries, nectarines, almonds), nuts (walnut, pecan nut, hazelnut, cashew, macadamia), mango, cacao, coffee, grapevines (for eating or for making wine), palms (such as oil palms, date palms, coconut palms), eucalyptus, kaki, persimmon, caoutchouc, pineapple, banana, avocado, lychee, forest cultures (Eucalypteae, Piniaceae, Piceae, Meliaceae, etc.).

The active herbicidal ingredient combinations of the invention, in the respective use forms (= herbicidal products), have synergies with regard to herbicidal action and selectivity, and favourable action with regard to the spectrum of weeds. They have excellent herbicidal efficacy against a broad spectrum of economically important monocotyledonous and dicotyledonous annual harmful plants. The active ingredients also have good control over perennial harmful plants which are difficult to control and produce shoots from rhizomes, rootstocks or other perennial organs.

For application, the active ingredient combinations can be deployed onto the plants (e.g. harmful plants such as mono- or dicotyledonous weeds or unwanted crop plants), the seed (e.g. grains, seeds or vegetative propagation organs such as tubers or parts of shoots having buds), or the area in which the plants grow (e.g. the growing area).

The substances can be deployed prior to sowing (if appropriate also by incorporation into the soil), prior to emergence or

after emergence. Preference is given to use by the early post-seeding pre-emergence method or by the post-emergence method in plantation crops against harmful plants that have not yet emerged or have already emerged. The application can also be integrated into weed management systems with divided repeated applications (sequentials).

Specific examples of some representatives of the mono- and dicotyledonous weed flora which can be controlled by the active ingredient combinations according to the invention are as follows, although the enumeration is not intended to impose a restriction to particular species.

Among the monocotyledonous weed species, for example, Aegilops, Agropyron, Agrostis, Alopecurus, Apera, Avena, Brachicaria, Bromus, Cynodon, Dactyloctenium, Digitaria, Echinochloa, Eleocharis, Eleusine, Eragrostis, Eriochloa, Festuca, Fimbristylis, Imperata, Ischaemum, Heteranthera, Imperata, Ischaemum, Leptochloa, Lolium, Monochoria, Panicum, Paspalum, Phalaris, Phleum, Poa, Rottboellia, Sagittaria, Scirpus, Setaria, Sorghum, Sphenoclea and Cyperus species are covered by the annual group.

In the case of dicotyledonous weed species, the spectrum of action extends to species such as, for example, Abutilon, Amaranthus, Ambrosia, Anoda, Anthemis, Aphanes, Artemisia, Atriplex, Bellis, Bidens, Capsella, Carduus, Cassia, Centaurea, Chenopodium, Cirsium, Convolvulus, Datura, Desmodium, Emex, Erodium, Erysimum, Euphorbia, Galeopsis, Galinsoga, Galium, Geranium, Hibiscus, Ipomoea, Kochia, Lamium, Lepidium, Lindernia, Matricaria, Mentha, Mercurialis, Mullugo, Myosotis, Papaver, Pharbitis, Plantago, Polygonum, Portulaca, Ranunculus, Raphanus, Rorippa, Rotala, Rumex, Salsola, Senecio, Sesbania, Sida, Sinapis, Solanum, Sonchus, Sphenoclea, Stellaria, Taraxacum, Thlaspi, Trifolium, Urtica, Veronica, Viola, Xanthium.

If the active ingredient combinations of the invention are applied to the soil surface before germination, either the emergence of the weed seedlings is prevented completely or the weeds grow until they have reached the cotyledon stage, but then
5 stop growing and ultimately die completely after three to four weeks have passed.

If the active ingredients are applied post-emergence to the green parts of the plants, growth stops after the treatment, and
10 the harmful plants remain at the growth stage at the time of application, or they die completely after a certain time, and so this eliminates competition by the weeds, which is harmful to the crop plants, very early and in a sustained manner.

The herbicidal products of the invention are notable for a rapid onset and long duration of herbicidal action. In general, the rainfastness of the active ingredients in the combinations of the invention is favourable. A particular advantage is that the effective dosages of compounds (A) and (B) that are used in the
20 combinations can be adjusted to such a low level that their soil action is optimally low. Therefore, the use thereof in sensitive crops is not just enabled, but groundwater contamination is also virtually prevented. The inventive combination of active ingredients allows the required application rate of the active
25 ingredients to be reduced considerably.

The combined use of herbicides (A) and (B) achieves performance properties extending beyond what was to be expected on account of the known properties of the individual herbicides for the
30 combination thereof. For example, the herbicidal effects for a particular harmful plant species exceed the expected value as can be estimated by standard methods, for example according to Colby or other extrapolation methods.

A synergistic effect exists whenever the effect, the herbicidal effect here, of the active ingredient combination is greater than the sum total of the effects of the active ingredients applied individually. The expected activity for a given

combination of two active ingredients can be calculated according to S.R. Colby ("Calculating Synergistic and Antagonistic Responses of Herbicide Combinations", Weeds 15 (1967), 20-22) (see below).

5

The synergistic effects therefore permit, for example, a reduction in the application rates of the individual active ingredients, a higher efficacy at the same application rate, the control of species of harmful plants which are as yet uncovered (gaps), elevated residual action, an extended period of efficacy, an elevated speed of action, an extension of the period of application and/or a reduction in the number of individual applications required and - as a result for the user - weed control systems which are more advantageous economically and ecologically.

15

Even though the combinations of the invention have excellent herbicidal activity with respect to mono- and dicotyledonous weeds, many economically important crop plants, depending on the structure of the respective active ingredient combinations of the invention and the application rate thereof, are damaged only insignificantly, if at all. Economically important crops here are, for example, dicotyledonous crops from the genera of Arachis, Beta, Brassica, Cucumis, Cucurbita, Helianthus, Daucus, Glycine, Gossypium, Ipomoea, Lactuca, Linum, Lycopersicon, Nicotiana, Phaseolus, Pisum, Solanum, Vicia, or monocotyledonous crops from the genera of Allium, Ananas, Asparagus, Avena, Hordeum, Oryza, Panicum, Saccharum, Secale, Sorghum, Triticale, Triticum and Zea.

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In addition, the compositions of the invention in some cases have outstanding growth-regulating properties in crop plants. They intervene in the plants' own metabolism with regulatory effect, and can thus be used for the controlled influencing of plant constituents and to facilitate harvesting, for example by triggering desiccation and stunted growth. Furthermore, they are also suitable for the general control and inhibition of unwanted vegetative growth without killing the plants in the process.

35

Inhibition of vegetative growth plays a major role for many mono- and dicotyledonous crops since this can reduce or completely prevent lodging.

5 Owing to their herbicidal and plant growth-regulatory properties, the compositions can be used to control harmful plants in known plant crops or in tolerant crop plants still to be developed, modified by conventional mutagenesis or modified by genetic engineering. In general, transgenic plants feature
10 particular advantageous properties in addition to resistances to the compositions of the invention, for example resistances to plant diseases or the organisms that cause plant diseases such as certain insects, or microorganisms such as fungi, bacteria or viruses. Other particular properties relate, for
15 example, to the harvested material with regard to quantity, quality, storability, composition and specific constituents. For instance, there are known transgenic plants with an elevated starch content or altered starch quality, or those with a different fatty acid composition in the harvested material.
20 Other particular properties may be tolerance or resistance to abiotic stressors, for example heat, low temperatures, drought, salinity and ultraviolet radiation.

The active ingredient combinations of the invention can
25 preferably be used as herbicides in crops of crop plants that are resistant, or have been made resistant by genetic engineering, to the phytotoxic effects of the herbicides.

Conventional ways of producing novel plants which have modified
30 properties in comparison to existing plants consist, for example, in traditional cultivation methods and the generation of mutants. Alternatively, novel plants with modified properties can be generated with the aid of recombinant methods (see, for example, EP-A-0221044, EP-A-0131624). For example, there have
35 been descriptions in several cases of:

- genetic modifications of crop plants for the purpose of modifying the starch synthesized in the plants (e.g. WO 92/11376, WO 92/14827,

WO 91/19806),

- transgenic crop plants which exhibit resistances to other herbicides, for example to sulfonylureas (EP-A-0257993, US-A-5013659),

5 - transgenic crop plants with the ability to produce *Bacillus thuringiensis* toxins (Bt toxins), which make the plants resistant to particular pests (EP-A-0142924, EP-A-0193259),

10 - transgenic crop plants with a modified fatty acid composition (WO 91/13972),

- genetically modified crop plants with novel constituents or secondary metabolites, for example novel phytoalexins, which bring about an increased disease resistance (EPA 309862, 15 EPA0464461),

- genetically modified plants having reduced photorespiration, which have higher yields and higher stress tolerance (EPA 0305398),

20 - transgenic crop plants which produce pharmaceutically or diagnostically important proteins ("molecular pharming"),

- transgenic crop plants which feature higher yields or better quality,

25 - transgenic crop plants which feature a combination, for example, of the abovementioned novel properties ("gene stacking").

Numerous molecular biology techniques which can be used to produce novel transgenic plants with modified properties are known in principle; see, for example, I. Potrykus and 30 G. Spangenberg (eds.) *Gene Transfer to Plants*, Springer Lab Manual (1995), Springer Verlag Berlin, Heidelberg, or Christou, "Trends in Plant Science" 1 (1996) 423-431.

35 For such recombinant manipulations, nucleic acid molecules which allow mutagenesis or sequence alteration by recombination of DNA sequences can be introduced into plasmids. With the aid of standard methods, it is possible, for example, to undertake base exchanges, remove parts of sequences or add natural or synthetic

sequences. For the connection of the DNA fragments to one another, it is possible to add adapters or linkers to the fragments; see, for example, Sambrook et al., 1989, Molecular Cloning, A Laboratory Manual, 2nd ed., Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY; or Winnacker "Gene und Klone" [Genes and Clones], VCH Weinheim, 2nd edition, 1996.

For example, the generation of plant cells with a reduced activity of a gene product can be achieved by expressing at least one corresponding antisense RNA, a sense RNA for achieving a cosuppression effect, or by expressing at least one suitably constructed ribozyme which specifically cleaves transcripts of the abovementioned gene product.

To this end, it is firstly possible to use DNA molecules which encompass the entire coding sequence of a gene product inclusive of any flanking sequences which may be present, and also DNA molecules which only encompass portions of the coding sequence, in which case it is necessary for these portions to be long enough to have an antisense effect in the cells. It is also possible to use DNA sequences which have a high degree of homology to the coding sequences of a gene product, but are not completely identical to them.

When expressing nucleic acid molecules in plants, the protein synthesized may be localized in any desired compartment of the plant cell. However, to achieve localization in a particular compartment, it is possible, for example, to join the coding region to DNA sequences which ensure localization in a particular compartment. Such sequences are known to those skilled in the art (see, for example, Braun et al., EMBO J. 11 (1992), 3219-3227; Wolter et al., Proc. Natl. Acad. Sci. USA 85 (1988), 846-850; Sonnewald et al., Plant J. 1 (1991), 95-106). The nucleic acid molecules can also be expressed in the organelles of the plant cells.

The transgenic plant cells can be regenerated by known techniques to give rise to entire plants. In principle, the

transgenic plants may be plants of any desired plant species, i.e. not only monocotyledonous but also dicotyledonous plants. Obtainable in this way are transgenic plants having properties altered by overexpression, suppression or inhibition of homologous (= natural) genes or gene sequences or expression of heterologous (= foreign) genes or gene sequences.

The active ingredient combinations of the invention can preferably be used in transgenic crops that are tolerant or have been rendered tolerant to the active ingredients used.

The active ingredient combinations of the invention can preferably also be used in transgenic crops which are resistant to growth regulators, for example dicamba, or to herbicides which inhibit essential plant enzymes, for example acetolactate synthases (ALS), EPSP synthases, glutamine synthases (GS) or hydroxyphenylpyruvate dioxygenases (HPPD), or to herbicides from the group of the sulfonylureas, the glyphosates, glufosinates or benzoilsoxazoles and analogous active ingredients.

The invention therefore also provides a method of controlling unwanted plant growth, optionally in crops of crop plants, preferably on uncultivated land or in plantation crops, characterized in that one or more herbicides of type (A) is/are applied with one or more herbicides of type (B) to the harmful plants, parts of plants or plant seeds (seed) or to the growing area.

The invention also provides for the use of the novel combinations of compounds (A)+(B) for control of harmful plants, optionally in crops of crop plants, preferably on uncultivated land and plantation crops, but also for control of harmful plants before the sowing of the subsequent crop plant, such as, in particular, for preparation for seeding ("burn-down application").

The active ingredient combinations of the invention may either take the form of mixed formulations of the two components, if appropriate with further active ingredients, additives and/or

customary formulation auxiliaries, which are then applied in a customary manner diluted with water, or can be prepared as what are called tankmixes by joint dilution of the separately formulated or partially separately formulated components with
5 water.

The compounds (A) and (B) or their combinations can be formulated in various ways according to which biological and/or physicochemical parameters are required. Examples of general
10 formulation options are: wettable powders (WP), water-soluble powders (SP), emulsifiable concentrates (EC), water-soluble concentrates, aqueous solutions (SL), emulsions (EW), such as oil-in-water and water-in-oil emulsions, sprayable solutions or emulsions, dispersions based on oil or water, oil dispersions
15 (OD), suspoemulsions, suspension concentrates (SC), oil-miscible solutions, capsule suspensions (CS), dusting products (DP), dressings, granules for soil application or scattering, granules (GR) in the form of microgranules, spray granules, absorption and adsorption granules, water-dispersible granules
20 (WG), water-soluble granules (SG), ULV formulations, microcapsules or waxes.

The invention therefore also provides herbicidal and plant-growth-regulating compositions containing the active ingredient
25 combinations of the invention.

The individual types of formulation are known in principle and are described, for example, in: Winnacker-Küchler, "Chemische Technologie" [Chemical Technology], Volume 7, C. Hanser Verlag
30 Munich, 4th Ed. 1986; van Valkenburg, "Pesticides Formulations", Marcel Dekker, N.Y., 1973; K. Martens, "Spray Drying Handbook", 3rd Ed. 1979, G. Goodwin Ltd. London.

The formulation auxiliaries required, such as inert materials,
35 surfactants, solvents and further additives, are likewise known and are described, for example, in: Watkins, "Handbook of Insecticide Dust Diluents and Carriers", 2nd Ed., Darland Books, Caldwell N.J.; H.v. Olphen, "Introduction to Clay Colloid

Chemistry"; 2nd Ed., J. Wiley & Sons, N.Y. Marsden, "Solvents Guide", 2nd Ed., Interscience, N.Y. 1963; McCutcheon's "Detergents and Emulsifiers Annual", MC Publ. Corp., Ridgewood N.J.; Sisley and Wood, "Encyclopedia of Surface Active Agents", Chem. Publ. Co. Inc., N.Y. 1964, Schönfeldt, "Grenzflächenaktive Äthylenoxidaddukte" ["Interface-active Ethylene Oxide Adducts"], Wiss. Verlagsgesellschaft, Stuttgart 1976, Winnacker-Küchler, "Chemische Technologie", Volume 7, C. Hanser Verlag Munich, 4th Ed. 1986.

10

On the basis of these formulations, it is also possible to produce combinations with other pesticidally active substances, such as other herbicides, fungicides, insecticides or other pesticides (for example acaricides, nematocides, molluscicides, rodenticides, aphicides, avicides, larvicides, ovicides, bactericides, viricides etc.), and also with fertilizers and/or growth regulators, for example in the form of a finished formulation or as a tankmix.

15

20

Wettable powders are preparations which can be dispersed uniformly in water and, in addition to the active ingredient, apart from a diluent or inert substance, also comprise surfactants of the ionic and/or nonionic type (wetting agents, dispersants), for example polyoxyethylated alkylphenols, polyoxyethylated fatty alcohols, polyoxyethylated fatty amines, fatty alcohol polyglycol ether sulfates, alkanesulfonates, alkylbenzenesulfonates, sodium lignosulfonate, sodium 2,2'-dinaphthylmethane-6,6'-disulfonate, sodium dibutyl-naphthalenesulfonate or else sodium oleoylmethyltaurate.

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To produce the wettable powders, the active herbicidal ingredients are finely ground, for example in customary apparatuses such as hammer mills, blower mills and air-jet mills, and simultaneously or subsequently mixed with the formulation auxiliaries.

35

Emulsifiable concentrates are produced by dissolving the active ingredient in an organic solvent, for example butanol, cyclohexanone, dimethylformamide, xylene, or else relatively

high-boiling aromatics or hydrocarbons or mixtures of the organic solvents, with addition of one or more ionic and/or nonionic surfactants (emulsifiers). Examples of emulsifiers which may be used are: calcium alkylarylsulfonate salts, such as calcium dodecylbenzenesulfonate, or nonionic emulsifiers such as fatty acid polyglycol esters, alkylaryl polyglycol ethers, fatty alcohol polyglycol ethers, propylene oxide-ethylene oxide condensation products, alkyl polyethers, sorbitan esters, for example sorbitan fatty acid esters, or for example polyoxyethylene sorbitan fatty acid esters.

Dusting products are obtained by grinding the active ingredient with finely distributed solids, for example talc, natural clays, such as kaolin, bentonite and pyrophyllite, or diatomaceous earth.

Suspension concentrates may be water- or oil-based. They may be produced, for example, by wet-grinding by means of commercial bead mills and optional addition of surfactants as already listed above, for example, for the other formulation types.

Emulsions, for example oil-in-water emulsions (EW), can be produced, for example, by means of stirrers, colloid mills and/or static mixers using aqueous organic solvents and optionally surfactants as already listed above, for example, for the other formulation types.

Granules can be produced either by spraying the active ingredient onto granular inert material capable of adsorption or by applying active ingredient concentrates to the surface of carrier substances, such as sand, kaolinites or granular inert material, by means of adhesives, for example polyvinyl alcohol, sodium polyacrylate or else mineral oils. Suitable active ingredients can also be granulated in the manner customary for the production of fertilizer granules - if desired as a mixture with fertilizers.

Water-dispersible granules are produced generally by processes such as spray-drying, fluidized bed granulation, pan granulation, mixing with high-speed mixers and extrusion without solid inert material.

5

The agrochemical preparations generally contain 0.1 to 99 per cent by weight, especially 0.2% to 95% by weight, of active ingredients of types (A) and/or (B), the following concentrations being customary, depending on the type of formulation:

10

In wettable powders, the active ingredient concentration is, for example, about 10% to 95% by weight, the remainder to 100% by weight consisting of customary formulation constituents. In the case of emulsifiable concentrates, the active ingredient concentration may be about 1% to 90% by weight, preferably 5 to 80 per cent by weight.

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Formulations in the form of dusts usually contain 5% to 20% by weight of active ingredient; sprayable solutions contain about 0.05 to 80, preferably 2 to 50, per cent by weight (% by weight) of active ingredient.

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In the case of granules such as dispersible granules, the active ingredient content depends partially on whether the active compound is in liquid or solid form and on which granulation auxiliaries and fillers are used. In general, the content in the water-dispersible granules is between 1% and 95% by weight, preferably between 10% and 80% by weight.

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In addition, the active ingredient formulations mentioned optionally comprise the respectively customary adhesives, wetting agents, dispersants, emulsifiers, penetrants, preservatives, antifreeze agents and solvents, fillers, colorants and carriers, antifoams, evaporation inhibitors and pH- or viscosity-modifying agents.

35

For application, the formulations in commercial form are, if appropriate, diluted in a customary manner, for example in the case of wettable powders, emulsifiable concentrates, dispersions and water-dispersible granules with water. Dust-type preparations, granules for soil application or broadcasting and sprayable solutions are not normally diluted further with other inert substances prior to application.

The active ingredients can be deployed onto the plants, plant parts, plant seeds or the area under cultivation (soil), preferably on the green plants and plant parts, and optionally additionally onto the soil.

One possible use is the joint application of the active ingredients in the form of tankmixes, where the optimally formulated concentrated formulations of the individual active ingredients together are mixed in a tank with water, and the spray liquor obtained is deployed.

A joint herbicidal formulation of the inventive combination of active ingredients (A) and (B) has the advantage that it can be applied more easily since the quantities of the components are already set at the correct ratio to one another. Moreover, the auxiliaries in the formulation can be adjusted optimally to one another, whereas a tank mix of different formulations may result in unwanted combinations of auxiliaries.

A. General formulation examples

a) A dusting product is obtained by mixing 10 parts by weight of an active ingredient (A) or (B) or an active ingredient mixture (A) + (B) (and optionally further active ingredient components) and/or salts thereof and 90 parts by weight of talc as inert substance, and comminuting in a beater mill.

b) A wettable powder which is readily dispersible in water is obtained by mixing 25 parts by weight of an active ingredient/active ingredient mixture, 64 parts by weight of

kaolin-containing quartz as inert substance, 10 parts by weight of potassium lignosulfonate and 1 part by weight of sodium oleoylmethyltaurate as wetting agent and dispersant, and grinding the mixture in a pinned-disk mill.

5

c) A dispersion concentrate which is readily dispersible in water is obtained by mixing 20 parts by weight of an active ingredient/active ingredient mixture with 6 parts by weight of alkylphenol polyglycol ether (Triton® X 207), 3 parts by weight of isotridecanol polyglycol ether (8 EO) and 71 parts by weight of paraffinic mineral oil (boiling range for example approximately 255 to 277°C) and grinding the mixture in a friction ball mill to a fineness of below 5 microns.

10

d) An emulsifiable concentrate is obtained from 15 parts by weight of an active ingredient/active ingredient mixture, 75 parts by weight of cyclohexanone as solvent and 10 parts by weight of oxyethylated nonylphenol as emulsifier.

15

e) Water-dispersible granules are obtained by mixing 75 parts by weight of an active ingredient/active ingredient mixture, 10 parts by weight of calcium lignosulfonate, 5 parts by weight of sodium lauryl sulfate, 3 parts by weight of polyvinyl alcohol and 7 parts by weight of kaolin, grinding the mixture in a pinned-disk mill, and granulating the powder in a fluidized bed by spray application of water as a granulating liquid.

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f) Water-dispersible granules are also obtained by homogenizing and precomminuting, in a colloid mill, 25 parts by weight of an active ingredient/active ingredient mixture, 5 parts by weight of sodium 2,2'-dinaphthylmethane-6,6'-disulfonate, 2 parts by weight of sodium oleoylmethyltaurate, 1 part by weight of polyvinyl alcohol,

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17 parts by weight of calcium carbonate and
50 parts by weight of water,
then grinding the mixture in a bead mill and atomizing and drying
the resulting suspension in a spray tower by means of a one-
5 phase nozzle.

B. Biological examples

On employment of the combinations of the invention, herbicidal
10 effects on a harmful plant species that exceed the formal sum
total of the effects of the herbicides present when applied
alone are frequently observed. Alternatively, in some cases, it
is possible to observe that a smaller application rate for the
herbicide combination is required in order to achieve the same
15 effect for a harmful plant species compared to the individual
preparations. Such increases in action or increases in
effectiveness or reductions in application rate are a strong
indication of a synergistic effect.

20 When the observed efficacies already exceed the formal sum total
of the values of the tests with individual applications, they
also exceed the expected value according to Colby, which is
calculated using the formula below and is likewise regarded as
an indication of synergism (cf. S. R. Colby; in Weeds 15 (1967)
25 pp. 20 to 22):

$$E^C = A+B - (A \cdot B/100)$$

where:

A = efficacy of the active ingredient (A) in % at an
application rate of a g a.i./ha;

30 B = efficacy of the active ingredient (B) in % at an
application rate of b g a.i./ha;

E^C = expected value of the effect of the combination (A)+(B)
in % at the combined application rate a+b g a.i./ha.

35 The observed values (E^A) from the experiments, given suitable
low dosages, show an effect of the combinations exceeding the
expected values according to Colby (Δ).

1. Post-emergence action against weeds

Seeds or rhizome pieces of mono- and dicotyledonous weeds are placed in sandy loam in pots, covered with soil and grown in a greenhouse under good growth conditions (temperature, air humidity, water supply). Three weeks after sowing, the test plants are treated at the three-leaf stage with the compositions of the invention. The compositions of the invention, formulated as spray powders or as emulsion concentrates, are sprayed onto the green plant parts in various dosages with an application rate equivalent to 300 to 800 l/ha of water. After the test plants have been left to stand in the greenhouse under optimal growth conditions for about 3 to 4 weeks, the action of the preparations is scored visually in comparison to untreated controls. The compositions of the invention also have good post-emergence herbicidal activity against a broad spectrum of economically important weed grasses and broadleaved weeds.

Effects of the combinations of the invention that exceed the formal sum total of the effects in the case of individual application of the herbicides are frequently observed here. The observed values from the experiments, given suitable low dosages, show an effect of the combinations exceeding the expected values according to Colby.

2. Herbicidal pre-emergence and post-emergence action (field trials)

The experiments were conducted on outdoor plots in accordance with the greenhouse experiments from section 1. The rating was analogous to the experiment in section 1.

3. Herbicidal action and crop plant compatibility (field trials)

Crop plants were grown in outdoor plots under natural outdoor conditions, by laying out seeds or rhizome pieces of typical harmful plants or utilizing natural weed flora. The treatment

with the compositions of the invention followed the emergence of the harmful plants and of the crop plants, generally at the 2- to 4-leaf stage; in some cases (as specified), individual active ingredients or active ingredient combinations were applied pre-emergence or as a sequential treatment partly pre-emergence and/or post-emergence.

In the case of plantation crops, in general, only the soil between the individual crop plants was treated with the active ingredients.

After application, for example 2, 4, 6 and 8 weeks after application, the effect of the preparations was rated visually by comparison with untreated controls. The compositions of the invention also have synergistic herbicidal activity in field trials against a broad spectrum of economically important weed grasses and broadleaved weeds. The comparison showed that the combinations of the invention usually have greater, and in some cases considerably greater, herbicidal action than the sum total of the effects of the individual herbicides, and therefore suggests synergism. The effects over significant parts of the rating period were also above the expected values according to Colby, and therefore likewise suggest synergism. The crop plants, by contrast, were damaged only insignificantly, if at all, as a result of the treatments with the herbicidal products.

4. Specific trial examples

The following abbreviations are used in the description and the tables that follow:

g a.i./ha = grams of active substance (active ingredient) (= 100% active ingredient) per hectare;

The sum total of the effects of the individual applications is reported under E^A;
expected values according to Colby are each reported under E^C.

The biological results of the compositions according to the invention are summarized in Tables 3.1-3.2. The rating period is reported in days after application (DAT).

5 Table 3.1: Synergistic effect (Δ) for herbicidal binary compositions comprising herbicides from group B2, applied by the post-emergence method

Active ingredient(s) (Z5)	Application rate [g a.i./ha]	Herbicidal action 21 DAT [%] against <i>Setaria viridis</i>
(B2.18) Diflufenican	90	20
	30	10
A1	5	90
	1.7	85
A1 + (B2.18) Diflufenican	5 + 90	$E^A = 97$ ($E^C = 92$) Δ 5
	1.7 + 90	$E^A = 98$ ($E^C = 88$) Δ 10
	5 + 30	$E^A = 97$ ($E^C = 91$) Δ 6
	1.7 + 30	$E^A = 95$ ($E^C = 86.5$) Δ 8

Active ingredient(s) (Z5)	Application rate [g a.i./ha]	Herbicidal action 21 DAT [%] against <i>Abutilon theophrasti</i>
(B2.18) Diflufenican	270	30
	90	20
	30	20
A1	5	60
A1 + (B2.18) Diflufenican	5 + 270	$E^A = 85$ ($E^C = 72$) Δ 13
	5 + 90	$E^A = 85$ ($E^C = 68$) Δ 17
	5 + 30	$E^A = 85$ ($E^C = 68$) Δ 17

Active ingredient(s) (Z5)	Application rate [g a.i./ha]	Herbicidal action 21 DAT [%] against <i>Kochia Scoparia</i>
(B2.18) Diflufenican	270 90 30	25 20 10
A1	45 15 5	85 80 75
A1 + (B2.18) Diflufenican	45 + 270 15 + 270 5 + 270 15 + 90 5 + 90 45 + 30 15 + 30 5 + 30	$E^A = 95$ ($E^C = 88$) Δ 6 $E^A = 95$ ($E^C = 85$) Δ 10 $E^A = 93$ ($E^C = 81$) Δ 11 $E^A = 93$ ($E^C = 84$) Δ 9 $E^A = 90$ ($E^C = 80$) Δ 10 $E^A = 93$ ($E^C = 86$) Δ 6 $E^A = 90$ ($E^C = 82$) Δ 8 $E^A = 85$ ($E^C = 77$) Δ 7

Active ingredient(s) (Z5)	Application rate [g a.i./ha]	Herbicidal action 21 DAT [%] against <i>Ipomoea purpurea</i>
(B2.18) Diflufenican	270 30	60 30
A1	15 5	80 80
A1 + (B2.18) Diflufenican	15 + 270 15 + 30 5 + 30	$E^A = 99$ ($E^C = 92$) Δ 7 $E^A = 97$ ($E^C = 86$) Δ 11 $E^A = 93$ ($E^C = 86$) Δ 7

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Alopecurus myosuroides</i>
A1	16 4	85 80
(B2.18) Diflufenican	90 30	20 20
A1 + (B2.18) Diflufenican	16 + 90 4 + 90 4 + 30	$E^A = 93$ ($E^C = 88$) $\Delta = 5$ $E^A = 90$ ($E^C = 84$) $\Delta = 6$ $E^A = 93$ ($E^C = 84$) $\Delta = 9$

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Alopecurus myosuroides</i>
A1	4	85
(B2.18) Diflufenican	270	20
A1 + (B2.18) Diflufenican	4 + 270	$E^A = 95$ ($E^C = 88$) $\Delta = 7$

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Lolium rigidum</i>
A1	4	70
(B2.18) Diflufenican	270 90	20 20
A1 + (B2.18) Diflufenican	4 + 270 4 + 90	$E^A = 85$ ($E^C = 76$) $\Delta = 9$ $E^A = 90$ ($E^C = 76$) $\Delta = 14$

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Lolium rigidum</i>
A1	4	75
(B2.18) Diflufenican	270	30
A1 + (B2.18) Diflufenican	4 + 270	$E^A = 93$ ($E^C = 83$) $\Delta = 10$

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Matricaria inodora</i>
A1	4	70
(B2.18) Diflufenican	270	30
A1 + (B2.18) Diflufenican	4 + 270	$E^A = 90$ ($E^C = 79$) $\Delta = 11$

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Matricaria inodora</i>
A1	16	85
(B2.18) Diflufenican	270	20
A1 + (B2.18) Diflufenican	16 + 270	$E^A = 97$ ($E^C = 88$) $\Delta = 9$

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Phalaris minor</i>
A1	4	75
	1	30

(B2.18) Diflufenican	30 270	20 30
A1 + (B2.18) Diflufenican	4 + 30 1 + 270	$E^A = 85$ ($E^C = 80$) $\Delta = 5$ $E^A = 75$ ($E^C = 51$) $\Delta = 24$

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Phalaris minor</i>
A1	16 4	85 70
(B2.18) Diflufenican	270 90 30	30 10 10
A1 + (B2.18) Diflufenican	16 + 270 16 + 90 16 + 30 4 + 270 4 + 90 4 + 30	$E^A = 95$ ($E^C = 90$) $\Delta = 5$ $E^A = 95$ ($E^C = 87$) $\Delta = 8$ $E^A = 95$ ($E^C = 87$) $\Delta = 8$ $E^A = 95$ ($E^C = 79$) $\Delta = 16$ $E^A = 93$ ($E^C = 73$) $\Delta = 20$ $E^A = 93$ ($E^C = 73$) $\Delta = 20$

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Poa annua L.</i>
A1	16 4	80 80
(B2.18) Diflufenican	90	20
A1 + (B2.18) Diflufenican	16 + 90 4 + 90	$E^A = 90$ ($E^C = 84$) $\Delta = 6$ $E^A = 90$ ($E^C = 84$) $\Delta = 6$

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Poa annua L.</i>
A1	4 1	85 30
(B2.18) Diflufenican	270 90 30	30 20 10
A1 + (B2.18) Diflufenican	4 + 270 4 + 90 4 + 30 1 + 270 1 + 90	$E^A = 97$ ($E^C = 90$) $\Delta = 7$ $E^A = 97$ ($E^C = 88$) $\Delta = 9$ $E^A = 97$ ($E^C = 87$) $\Delta = 10$ $E^A = 60$ ($E^C = 51$) $\Delta = 9$ $E^A = 50$ ($E^C = 44$) $\Delta = 6$

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Veronica hederifolia</i>
A1	1	30
(B2.18) Diflufenican	270	30
A1 + (B2.18) Diflufenican	1 + 270	$E^A = 60$ ($E^C = 51$) $\Delta = 9$

Active ingredient(s) (Z5)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Veronica hederifolia</i>
A1	4	40
(B2.18) Diflufenican	270 90 30	30 20 20
A1 + (B2.18) Diflufenican	4 + 270 4 + 90 4 + 30	$E^A = 85$ ($E^C = 58$) $\Delta = 27$ $E^A = 60$ ($E^C = 52$) $\Delta = 8$ $E^A = 70$ ($E^C = 52$) $\Delta = 18$

Table 3.2: Synergistic effect (Δ) for herbicidal binary compositions comprising herbicides from group B7, applied by the post-emergence method

Active ingredient(s) (Z25)	Application rate [g a.i./ha]	Herbicidal action 21 DAT [%] against <i>Kochia Scoparia</i>
(B7.4) Glufosinate [CAS 77182-82-2]	150 50	50 10
A1	15 5	80 75
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	5 + 150 15 + 50 5 + 50	$E^A = 93$ ($E^C = 87$) Δ 5 $E^A = 90$ ($E^C = 82$) Δ 8 $E^A = 90$ ($E^C = 77$) Δ 12

5

Active ingredient(s) (Z25)	Application rate [g a.i./ha]	Herbicidal action 21 DAT [%] against <i>Abutilon theophrasti</i>
(B7.4) Glufosinate [CAS 77182-82-2]	50	50
A1	5	60
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	5 + 50	$E^A = 90$ ($E^C = 80$) Δ 10

Active ingredient(s) (Z25)	Application rate [g a.i./ha]	Herbicidal action 21 DAT [%] against <i>Amaranthus palmeri</i>
(B7.4) Glufosinate [CAS 77182-82-2]	150 50	90 35
A1	15 5	40 30
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	15 + 150 5 + 150 5 + 50	$E^A = 100$ ($E^C = 94$) Δ 6 $E^A = 100$ ($E^C = 93$) Δ 7 $E^A = 60$ ($E^C = 54$) Δ 5

Active ingredient(s) (Z25)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Centaurea cyanus</i>
A1	1	10
(B7.4) Glufosinate [CAS 77182-82-2]	540 180	85 60
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	1 + 540 1 + 180	$E^A = 95$ ($E^C = 87$) $\Delta = 8$ $E^A = 70$ ($E^C = 64$) $\Delta = 6$

Active ingredient(s) (Z25)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Centaurea cyanus</i>
A1	1	10
(B7.4) Glufosinate [CAS 77182-82-2]	540 180	70 30
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	1 + 540 1 + 180	$E^A = 95$ ($E^C = 73$) $\Delta = 22$ $E^A = 50$ ($E^C = 37$) $\Delta = 13$

Active ingredient(s) (Z25)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Lolium rigidum</i>
A1	16	80
(B7.4) Glufosinate [CAS 77182-82-2]	180	40
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	16 + 180	$E^A = 93$ ($E^C = 88$) $\Delta = 5$

Active ingredient(s) (Z25)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Lolium rigidum</i>
A1	4 1	75 30
(B7.4) Glufosinate [CAS 77182-82-2]	540	40
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	4 + 540 1 + 540	$E^A = 97$ ($E^C = 85$) $\Delta = 12$ $E^A = 70$ ($E^C = 58$) $\Delta = 12$

Active ingredient(s) (Z25)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Lolium rigidum</i> (resistant biotype)
A1	1	20
(B7.4) Glufosinate [CAS 77182-82-2]	540	50
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	1 + 540	$E^A = 80$ ($E^C = 60$) $\Delta = 20$

Active ingredient(s) (Z25)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Lolium rigidum</i> (resistant biotype)
A1	4 1	40 20
(B7.4) Glufosinate [CAS 77182-82-2]	540	30
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	4 + 540 1 + 540	$E^A = 70$ ($E^C = 58$) $\Delta = 12$ $E^A = 50$ ($E^C = 44$) $\Delta = 6$

Active ingredient(s) (Z25)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Matricaria inodora</i>
A1	16 1	85 50
(B7.4) Glufosinate [CAS 77182-82-2]	180	60
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	16 + 180 1 + 180	$E^A = 100$ ($E^C = 94$) $\Delta = 6$ $E^A = 99$ ($E^C = 80$) $\Delta = 19$

Active ingredient(s) (Z25)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Phalaris minor</i>
A1	4 1	75 30
(B7.4) Glufosinate [CAS 77182-82-2]	60 540	20 60
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	4 + 60 1 + 540	$E^A = 90$ ($E^C = 80$) $\Delta = 10$ $E^A = 80$ ($E^C = 72$) $\Delta = 8$

Active ingredient(s) (Z25)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Phalaris minor</i>
A1	16 4	85 70
(B7.4) Glufosinate [CAS 77182-82-2]	540 180 60	40 30 10

A1	16 + 540	$E^A = 97$ ($E^C = 91$) $\Delta = 6$
+	16 + 180	$E^A = 95$ ($E^C = 90$) $\Delta = 5$
(B7.4) Glufosinate	16 + 60	$E^A = 95$ ($E^C = 87$) $\Delta = 8$
[CAS 77182-82-2]	4 + 60	$E^A = 80$ ($E^C = 73$) $\Delta = 7$

Active ingredient(s) (Z25)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Poa annua</i> L.
A1	4	85
(B7.4) Glufosinate [CAS 77182-82-2]	180	20
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	4 + 180	$E^A = 95$ ($E^C = 88$) $\Delta = 7$

Active ingredient(s) (Z25)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Veronica hederifolia</i>
A1	16	70
(B7.4) Glufosinate [CAS 77182-82-2]	60	50
A1 + (B7.4) Glufosinate [CAS 77182-82-2]	16 + 60	$E^A = 97$ ($E^C = 85$) $\Delta = 12$

Active ingredient(s) (Z26)	Application rate [g a.i./ha]	Herbicidal action 45 DAT [%] against <i>Amaranthus tuberculatus</i>
(B7.5) Glyphosate [CAS 38641-94-0]	720	15
A1	100	57
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	100 + 720	$E^A = 73$ ($E^C = 63$) $\Delta 10$

Active ingredient(s) (Z26)	Application rate [g a.i./ha]	Herbicidal action 45 DAT [%] against <i>Ipomoea ssp</i>
(B7.5) Glyphosate [CAS 38641-94-0]	720	0
A1	100	57
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	100 + 720	$E^A = 70$ ($E^C = 57$) $\Delta 13$

Active ingredient(s) (Z26)	Application rate [g a.i./ha]	Herbicidal action 16 DAT [%] against <i>Richardia scabra</i>
(B7.5) Glyphosate [CAS 38641-94-0]	720	62
A1	100	48
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	100 + 720	$E^A = 92$ (E^C = 80) Δ 12

Active ingredient(s) (Z26)	Application rate [g a.i./ha]	Herbicidal action 42 DAT [%] against <i>Geranium dissectum</i>
(B7.5) Glyphosate [CAS 38641-94-0]	720	50
A1	100	17
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	100 + 720	$E^A = 100$ ($E^C = 59$) Δ 41.5

Active ingredient(s) (Z26)	Application rate [g a.i./ha]	Herbicidal action 45 DAT [%] against <i>Lysimachia</i> <i>nummularia</i>
(B7.5) Glyphosate [CAS 38641-94-0]	720	7
A1	100	25
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	100 + 720	$E^A = 60$ (E^C $= 30$) Δ 30

Active ingredient(s) (Z26)	Application rate [g a.i./ha]	Herbicidal action 42 DAT [%] against <i>Malva</i> <i>pusilla</i>
(B7.5) Glyphosate [CAS 38641-94-0]	720	0
A1	100	0
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	100 + 720	$E^A = 100$ ($E^C = 0$) Δ 100

Active ingredient(s) (Z26)	Application rate [g a.i./ha]	Herbicidal action 21 DAT [%] against <i>Amaranthus palmeri</i>
(B7.5) Glyphosate [CAS 38641-94-0]	50	60
A1	5	30
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	5 + 50	$E^A = 85$ ($E^C = 72$) Δ 13

Active ingredient(s) (Z26)	Application rate [g a.i./ha]	Herbicidal action 21 DAT [%] against <i>Kochia Scoparia</i>
(B7.5) Glyphosate [CAS 38641-94-0]	150	20
A1	15	80
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	15 + 150	$E^A = 90$ ($E^C = 84$) Δ 6

Active ingredient(s) (Z26)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Bromus sterilis</i>
A1	1	30
(B7.5) Glyphosate [CAS 38641-94-0]	450 150	90 80
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	1 + 450 1 + 150	$E^A = 98$ ($E^C = 93$) $\Delta = 5$ $E^A = 93$ ($E^C = 86$) $\Delta = 7$

Active ingredient(s) (Z26)	Application rate [g a.i. / ha]	Herbicidal action 14 DAT [%] against <i>Centaurea cyanus</i>
A1	16 4 1	40 30 10
(B7.5) Glyphosate [CAS 38641-94-0]	450 150	60 50
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	16 + 450 16 + 150 4 + 450 4 + 150 1 + 450 1 + 150	$E^A = 90$ ($E^C = 76$) $\Delta = 14$ $E^A = 75$ ($E^C = 70$) $\Delta = 5$ $E^A = 85$ ($E^C = 72$) $\Delta = 13$ $E^A = 80$ ($E^C = 65$) $\Delta = 15$ $E^A = 80$ ($E^C = 64$) $\Delta = 16$ $E^A = 75$ ($E^C = 55$) $\Delta = 20$

Active ingredient(s) (Z26)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Centaurea cyanus</i>
A1	16 4 1	50 30 10
(B7.5) Glyphosate [CAS 38641-94-0]	450 150 50	60 40 10
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	16 + 450 4 + 150 1 + 450 1 + 150 1 + 50	$E^A = 95$ ($E^C = 80$) $\Delta = 15$ $E^A = 80$ ($E^C = 58$) $\Delta = 22$ $E^A = 85$ ($E^C = 64$) $\Delta = 21$ $E^A = 70$ ($E^C = 46$) $\Delta = 24$ $E^A = 40$ ($E^C = 19$) $\Delta = 21$

Active ingredient(s) (Z26)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Lolium rigidum</i>
A1	1	30

(B7.5) Glyphosate [CAS 38641-94-0]	150	30
A1+(B7.5) Glyphosate [CAS 38641-94-0]	1 + 150	$E^A = 60$ ($E^C = 51$) $\Delta = 9$

Active ingredient(s) (Z26)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Lolium rigidum</i> (resistant biotype)
A1	4	40
(B7.5) Glyphosate [CAS 38641-94-0]	450	70
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	4 + 450	$E^A = 95$ ($E^C = 82$) $\Delta = 13$

Active ingredient(s) (Z26)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Matricaria inodora</i>
A1	1	50
(B7.5) Glyphosate [CAS 38641-94-0]	150	70
A1 + (B7.5) Glyphosate [CAS 38641-94-0]	1 + 150	$E^A = 90$ ($E^C = 85$) $\Delta = 5$

Active ingredient(s) (Z26)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Phalaris minor</i>
A1	16	85

(B7.5) Glyphosate [CAS 38641-94-0]	50	30
A1+(B7.5) Glyphosate [CAS 38641-94-0]	16 + 50	$E^A = 95$ ($E^C = 90$) $\Delta = 5$

Active ingredient(s) (Z26)	Application rate [g a.i. / ha]	Herbicidal action 28 DAT [%] against <i>Poa annua</i> L.
A1	1	30
(B7.5) Glyphosate [CAS 38641-94-0]	450	85
A1+Glyphosate [CAS 38641-94-0]	1 + 450	$E^A = 98$ ($E^C = 90$) $\Delta = 8$

Further biological results of the compositions according to the invention are summarized in Tables 3.3-3.4. The rating period is reported in days after application (DAT).

Table 3.3: Synergistic effect (Δ) for herbicidal binary compositions comprising herbicide A1, applied by the post-emergence method

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against <i>Centaurea cyanus</i>
A1	4 1	50 40
(B3.1) Bromoxynil	50 450	30 70
A1 + (B3.1) Bromoxynil	4 + 50 1 + 450 1 + 50	$E^A = 80$ ($E^C = 65$) $\Delta = 15$ $E^A = 98$ ($E^C = 82$) $\Delta = 16$ $E^A = 65$ ($E^C = 58$) $\Delta = 7$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Lolium rigidum
A1	4	50
(B3.1) Bromoxynil	450 150	20 15
A1 + (B3.1) Bromoxynil	4 + 450 4 + 150	$E^A = 65$ ($E^C = 60$) $\Delta = 5$ $E^A = 85$ ($E^C = 58$) $\Delta = 27$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Lolium rigidum (resistant biotype)
A1	1	5
(B3.1) Bromoxynil	150 50	0 0
A1 + (B3.1) Bromoxynil	1 + 150 1 + 50	$E^A = 10$ ($E^C = 5$) $\Delta = 5$ $E^A = 10$ ($E^C = 5$) $\Delta = 5$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Lolium rigidum (resistant biotype)
A1	16	80
(B3.1) Bromoxynil	450 50	25 0
A1 + (B3.1) Bromoxynil	16 + 450 16 + 50	$E^A = 93$ ($E^C = 85$) $\Delta = 8$ $E^A = 85$ ($E^C = 80$) $\Delta = 5$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Poa annua L.
A1	16 1	75 20
(B3.1) Bromoxynil	450 150 50	25 0 0
A1 + (B3.1) Bromoxynil	16 + 450 16 + 150 16 + 50 1 + 150	$E^A = 97$ ($E^C = 81$) $\Delta = 16$ $E^A = 85$ ($E^C = 75$) $\Delta = 10$ $E^A = 97$ ($E^C = 75$) $\Delta = 22$ $E^A = 35$ ($E^C = 20$) $\Delta = 15$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Veronica hederifolia
A1	1	80
(B3.1) Bromoxynil	150	20
A1 + (B3.1) Bromoxynil	1 + 150	$E^A = 93$ ($E^C = 84$) $\Delta = 9$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Viola tricolor
A1	16	75
(B3.1) Bromoxynil	450	40
A1 + (B3.1) Bromoxynil	16 + 450	$E^A = 90$ ($E^C = 85$) $\Delta = 5$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Bromus sterilis
A1	4	70
(B2.28) Flufenacet	100	40
A1 + (B2.28) Flufenacet	4 + 100	$E^A = 90$ ($E^C = 82$) $\Delta = 8$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Lolium rigidum (resistant biotype)
A1	4	50
(B2.28) Flufenacet	100 33	65 15
A1 + (B2.28) Flufenacet	4 + 100 4 + 33	$E^A = 93$ ($E^C = 83$) $\Delta = 10$ $E^A = 95$ ($E^C = 58$) $\Delta = 37$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Matricaria inodora
A1	16 1	80 30
(B2.28) Flufenacet	300 100 33	40 20 15
A1 + (B2.28) Flufenacet	16 + 300 16 + 100 16 + 33 1 + 300 1 + 100 1 + 33	$E^A = 95$ ($E^C = 88$) $\Delta = 7$ $E^A = 95$ ($E^C = 84$) $\Delta = 11$ $E^A = 95$ ($E^C = 83$) $\Delta = 12$ $E^A = 65$ ($E^C = 58$) $\Delta = 7$ $E^A = 60$ ($E^C = 44$) $\Delta = 16$ $E^A = 75$ ($E^C = 41$) $\Delta = 34$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Poa annua L.
A1	16	75
(B2.28) Flufenacet	33	20
A1 + (B2.28) Flufenacet	16 + 33	$E^A = 95$ ($E^C = 80$) $\Delta = 15$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Veronica hederifolia
A1	1	80
(B2.28) Flufenacet	100	50
A1 + (B2.28) Flufenacet	1 + 100	$E^A = 95$ ($E^C = 90$) $\Delta = 5$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Viola tricolor
A1	16	75
	1	50
(B2.28) Flufenacet	300	50
	100	20
	33	15
A1 + (B2.28) Flufenacet	16 + 300	$E^A = 95$ ($E^C = 88$) $\Delta = 7$
	16 + 100	$E^A = 85$ ($E^C = 80$) $\Delta = 5$
	16 + 33	$E^A = 97$ ($E^C = 79$) $\Delta = 18$
	1 + 100	$E^A = 80$ ($E^C = 60$) $\Delta = 20$
	1 + 33	$E^A = 65$ ($E^C = 58$) $\Delta = 7$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Matricaria inodora
A1	1	30
(B2.31) Foramsulfuron	9	65
A1 + (B2.31) Foramsulfuron	1 + 9	$E^A = 85$ ($E^C = 76$) $\Delta = 9$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Phalaris minor
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A1	16 4 1	80 80 20
(B2.31) Foramsulfuron	1 9	25 85
A1 + (B2.31) Foramsulfuron	16 + 1 4 + 1 1 + 9	$E^A = 95$ ($E^C = 85$) $\Delta = 10$ $E^A = 90$ ($E^C = 85$) $\Delta = 5$ $E^A = 95$ ($E^C = 88$) $\Delta = 7$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Lolium rigidum
A1	4	50
(B5.31) Halauxifen	9 3 1	25 0 0
A1 + (B5.31) Halauxifen	4 + 9 4 + 3 4 + 1	$E^A = 70$ ($E^C = 63$) $\Delta = 7$ $E^A = 80$ ($E^C = 50$) $\Delta = 30$ $E^A = 65$ ($E^C = 50$) $\Delta = 15$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Lolium rigidum (resistant biotype)
A1	16 1	30 5
(B5.31) Halauxifen	1	0
A1 + (B5.31) Halauxifen	16 + 1 1 + 1	$E^A = 35$ ($E^C = 30$) $\Delta = 5$ $E^A = 15$ ($E^C = 5$) $\Delta = 10$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against <i>Matricaria inodora</i>
A1	1	30
(B5.31) Halauxifen	3	70
A1 + (B5.31) Halauxifen	1 + 3	$E^A = 90$ ($E^C = 79$) $\Delta = 11$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against <i>Phalaris minor</i>
A1	16	80
(B5.31) Halauxifen	9 3 1	15 10 0
A1 + (B5.31) Halauxifen	16 + 9 16 + 3 16 + 1	$E^A = 95$ ($E^C = 83$) $\Delta = 12$ $E^A = 95$ ($E^C = 82$) $\Delta = 13$ $E^A = 95$ ($E^C = 80$) $\Delta = 15$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against <i>Poa annua</i> L.
A1	16 1	75 20
(B5.31) Halauxifen	9 3 1	15 10 0
A1 + (B5.31) Halauxifen	16 + 9 16 + 3 16 + 1 1 + 1	$E^A = 95$ ($E^C = 79$) $\Delta = 16$ $E^A = 90$ ($E^C = 78$) $\Delta = 12$ $E^A = 90$ ($E^C = 75$) $\Delta = 15$ $E^A = 35$ ($v = 20$) $\Delta = 15$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Bromus sterilis
A1	4	70
(B11.6) Indaziflam	12	25
A1 + (B11.6) Indaziflam	4 + 12	$E^A = 90$ ($E^C = 78$) $\Delta = 12$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Lamium purpureum L.
A1	1	80
(B11.6) Indaziflam	4	35
A1 + (B11.6) Indaziflam	1 + 4	$E^A = 97$ ($E^C = 87$) $\Delta = 10$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Lolium rigidum
A1	4	50
(B11.6) Indaziflam	12 4	20 30
A1 + (B11.6) Indaziflam	4 + 12	$E^A = 80$ ($E^C = 60$) $\Delta = 20$
	4 + 4	$E^A = 95$ ($E^C = 65$) $\Delta = 30$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Lolium rigidum (resistant biotype)
A1	16	30
	4	20
	1	5
(B11.6) Indaziflam	36	35
	12	30

A1 + (B11.6) Indaziflam	16 + 36	$E^A = 65$ ($E^C = 55$) $\Delta = 10$
	4 + 12	$E^A = 60$ ($E^C = 44$) $\Delta = 16$
	1 + 36	$E^A = 70$ ($E^C = 38$) $\Delta = 32$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against <i>Matricaria inodora</i>
A1	16 1	80 30
(B11.6) Indaziflam	4	65
A1 + (B11.6) Indaziflam	16 + 4	$E^A = 98$ ($E^C = 93$) $\Delta = 5$
	1 + 4	$E^A = 95$ ($E^C = 76$) $\Delta = 19$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against <i>Phalaris minor</i>
A1	16	80
	4	80
(B11.6) Indaziflam	36	60
	4	0
A1 + (B11.6) Indaziflam	16 + 36	$E^A = 97$ ($E^C = 92$) $\Delta = 5$
	16 + 4	$E^A = 95$ ($E^C = 80$) $\Delta = 15$
	4 + 36	$E^A = 100$ ($E^C = 92$) $\Delta = 8$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against <i>Poa annua</i> L.
A1	16	75
	1	20
(B11.6) Indaziflam	4	20

A1 + (B11.6) Indaziflam	16 + 4 1 + 4	$E^A = 85$ ($E^C = 80$) $\Delta = 5$ $E^A = 50$ ($E^C = 36$) $\Delta = 14$
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Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Viola tricolor
A1	1	50
(B2.37) Mesosulfuron	15	80
A1 + (B2.37) Mesosulfuron	1 + 15	$E^A = 97$ ($E^C = 90$) $\Delta = 7$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Alopecurus myosuroides
A1	1	15
(B2.58) Propyzamide	100	0
A1 + (B2.58) Propyzamide	1 + 100	$E^A = 20$ ($E^C = 15$) $\Delta = 5$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Bromus sterilis
A1	4 1	60 25
(B2.58) Propyzamide	900 300	30 15
A1 + (B2.58) Propyzamide	4 + 900 4 + 300 1 + 900	$E^A = 97$ ($E^C = 72$) $\Delta = 25$ $E^A = 85$ ($E^C = 66$) $\Delta = 19$ $E^A = 70$ ($E^C = 48$) $\Delta = 22$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Centaurea cyanus
A1	1	0

(B2.58) Propyzamide	900 100	15 10
A1 + (B2.58) Propyzamide	1 + 900 1 + 100	$E^A = 30$ ($E^C = 15$) $\Delta = 15$ $E^A = 15$ ($E^C = 10$) $\Delta = 5$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Galium aparine
A1	16 1	80 20
(B2.58) Propyzamide	300 900 100	20 20 10
A1 + (B2.58) Propyzamide	16 + 300 1 + 900 1 + 300 1 + 100	$E^A = 93$ ($E^C = 84$) $\Delta = 9$ $E^A = 93$ ($E^C = 36$) $\Delta = 57$ $E^A = 80$ ($E^C = 36$) $\Delta = 44$ $E^A = 70$ ($E^C = 28$) $\Delta = 42$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Matricaria inodora
A1	16 4	65 40
(B2.58) Propyzamide	900 300 100	15 0 0

A1 + (B2.58) Propyzamide		$E^A = 80$ ($E^C = 70$) $\Delta = 10$
	16 + 900	$E^A = 98$ ($E^C = 65$) $\Delta = 33$
	16 + 300	$E^A = 80$ ($E^C = 65$) $\Delta = 15$
	16 + 100	$E^A = 80$ ($E^C = 49$) $\Delta = 31$
	4 + 900	$E^A = 85$ ($E^C = 40$) $\Delta = 45$
	4 + 300	$E^A = 60$ ($E^C = 40$) $\Delta = 20$
	4 + 100	

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Phalaris minor
A1	4 1	65 25
(B2.58) Propyzamide	300 900	20 30
A1 + (B2.58) Propyzamide	4 + 300 1 + 900	$E^A = 95$ ($E^C = 72$) $\Delta = 23$ $E^A = 65$ ($E^C = 48$) $\Delta = 17$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Poa annua L.
A1	4 1	70 30
(B2.58) Propyzamide	300 100	50 15
A1 + (B2.58) Propyzamide	4 + 300 4 + 100 1 + 100	$E^A = 98$ ($E^C = 85$) $\Delta = 13$ $E^A = 98$ ($E^C = 75$) $\Delta = 23$ $E^A = 65$ ($E^C = 41$) $\Delta = 24$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Veronica hederifolia
A1	16 4 1	90 85 15
(B2.58) Propyzamide	100 900 300	0 40 80
A1 + (B2.58) Propyzamide	16 + 100 4 + 100 1 + 900 1 + 300 1 + 100	$E^A = 95$ ($E^C = 90$) $\Delta = 5$ $E^A = 90$ ($E^C = 85$) $\Delta = 5$ $E^A = 90$ ($E^C = 49$) $\Delta = 41$ $E^A = 90$ ($E^C = 83$) $\Delta = 7$ $E^A = 30$ ($E^C = 15$) $\Delta = 15$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Viola tricolor
A1	16 4 1	70 50 15
(B2.58)	900 300	0 20
A1 + (B2.58) Propyzamide	16 + 900 16 + 300 4 + 900 1 + 900	$E^A = 95$ ($E^C = 70$) $\Delta = 25$ $E^A = 95$ ($E^C = 76$) $\Delta = 19$ $E^A = 95$ ($E^C = 50$) $\Delta = 45$ $E^A = 95$ ($E^C = 15$) $\Delta = 80$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Bromus sterilis
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A1	4 1	60 25
(B4.22) Pyrasulfotole	45 15	20 10
A1 + (B4.22) Pyrasulfotole	4 + 45 4 + 15 1 + 45 1 + 15	$E^A = 90$ ($E^C = 68$) $\Delta = 22$ $E^A = 80$ ($E^C = 64$) $\Delta = 16$ $E^A = 55$ ($E^C = 40$) $\Delta = 15$ $E^A = 50$ ($E^C = 33$) $\Delta = 17$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Centaurea cyanus
A1	4 1	15 0
(B4.22) Pyrasulfotole	5 45 15	0 15 10
A1 + (B4.22) Pyrasulfotole	4 + 5 1 + 45 1 + 15 1 + 5	$E^A = 25$ ($E^C = 15$) $\Delta = 10$ $E^A = 30$ ($E^C = 15$) $\Delta = 15$ $E^A = 15$ ($E^C = 10$) $\Delta = 5$ $E^A = 25$ ($E^C = 0$) $\Delta = 25$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Galium aparine
A1	1	20
(B4.22) Pyrasulfotole	45 15 5	60 0 0

A1 + (B4.22) Pyrasulfotole	1 + 45	$E^A = 95$ ($E^C = 68$) $\Delta = 27$
	1 + 15	$E^A = 40$ ($E^C = 20$) $\Delta = 20$
	1 + 5	$E^A = 35$ ($E^C = 20$) $\Delta = 15$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Lolium rigidum (resistant biotype)
A1	16	40
(B4.22) Pyrasulfotole	15	0
	5	0
A1 + (B4.22) Pyrasulfotole	16 + 15	$E^A = 50$ ($E^C = 40$) $\Delta = 10$
	16 + 5	$E^A = 60$ ($E^C = 40$) $\Delta = 20$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Matricaria inodora
A1	16	65
	4	40
(B4.22) Pyrasulfotole	45	15
	15	0
	5	0

A1 + (B4.22) Pyrasulfotole		$E^A = 98$ ($E^C = 70$) $\Delta = 28$
	16 + 45	$E^A = 80$ ($E^C = 65$) $\Delta = 15$
	16 + 15	$E^A = 80$ ($E^C = 65$) $\Delta = 15$
	16 + 5	$E^A = 80$ ($E^C = 49$) $\Delta = 31$
	4 + 45	$E^A = 70$ ($E^C = 40$) $\Delta = 30$
	4 + 15	$E^A = 50$ ($E^C = 40$) $\Delta = 10$
	4 + 5	

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Phalaris minor
A1	4 1	65 25
(B4.22) Pyrasulfotole	5	0
A1 + (B4.22) Pyrasulfotole	4 + 5 1 + 5	$E^A = 70$ ($E^C = 65$) $\Delta = 5$ $E^A = 30$ ($E^C = 25$) $\Delta = 5$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Poa annua L.
A1	4	70
(B4.22) Pyrasulfotole	15 5	0 0
A1 + (B4.22) Pyrasulfotole	4 + 15 4 + 5	$E^A = 80$ ($E^C = 70$) $\Delta = 10$ $E^A = 97$ ($E^C = 70$) $\Delta = 27$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Veronica hederifolia
A1	1	15
(B4.22) Pyrasulfotole	45 5	65 10

A1 + (B4.22) Pyrasulfotole	1 + 45 1 + 5	$E^A = 97$ ($E^C = 70$) $\Delta = 27$ $E^A = 70$ ($E^C = 24$) $\Delta = 46$
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Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Alopecurus myosuroides
A1	1	15
(B2.68) Thien carbazon [CAS 317815-83-1]	1.5	40
A1 + (B2.68) Thien carbazon [CAS 317815-83-1]	1 + 1.5	$E^A = 65$ ($E^C = 49$) $\Delta = 16$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Bromus sterilis
A1	4 1	60 25
(B2.68) Thien carbazon [CAS 317815-83-1]	1.5 0.5	25 20
A1 + (B2.68) Thien carbazon [CAS 317815-83-1]	4 + 1.5 4 + 0.5 1 + 0.5	$E^A = 90$ ($E^C = 70$) $\Delta = 20$ $E^A = 90$ ($E^C = 68$) $\Delta = 22$ $E^A = 70$ ($E^C = 40$) $\Delta = 30$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Centaurea cyanus
A1	4 1	15 0
(B2.68) Thien carbazon [CAS 317815-83-1]	0.5 1.5 0.17	10 20 15

A1 + (B2.68) Thiencarbazono [CAS 317815-83-1]	4 + 0.5	$E^A = 30$ ($E^C = 24$) $\Delta = 6$
	1 + 1.5	$E^A = 35$ ($E^C = 20$) $\Delta = 15$
	1 + 0.5	$E^A = 25$ ($E^C = 10$) $\Delta = 15$
	1 + 0.17	$E^A = 20$ ($E^C = 15$) $\Delta = 5$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Galium aparine
A1	1	20
(B2.68) Thiencarbazono [CAS 317815-83-1]	1.5	35
	0.5	0
	0.17	30
A1 + (B2.68) Thiencarbazono [CAS 317815-83-1]	1 + 1.5	$E^A = 75$ ($E^C = 48$) $\Delta = 27$
	1 + 0.5	$E^A = 25$ ($E^C = 20$) $\Delta = 5$
	1 + 0.17	$E^A = 50$ ($E^C = 44$) $\Delta = 6$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Lolium rigidum (resistant biotype)
A1	16	40
(B2.68) Thiencarbazono [CAS 317815-83-1]	0.17	10
A1 + (B2.68) Thiencarbazono [CAS 317815-83-1]	16 + 0.17	$E^A = 65$ ($E^C = 46$) $\Delta = 19$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Matricaria inodora
A1	4	40
(B2.68) Thiencarbazono [CAS 317815-83-1]	0.5	30

A1 + (B2.68) Thiencarbazon [CAS 317815-83-1]	4 + 0.5	$E^A = 80$ ($E^C = 58$) $\Delta = 22$
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Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Phalaris minor
A1	4	65
(B2.68) Thiencarbazon [CAS 317815-83-1]	0.5	25
A1 + (B2.68) Thiencarbazon [CAS 317815-83-1]	4 + 0.5	$E^A = 97$ ($E^C = 74$) $\Delta = 23$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Poa annua L.
A1	4	70
(B2.68) Thiencarbazon [CAS 317815-83-1]	0.5	25
A1 + (B2.68) Thiencarbazon [CAS 317815-83-1]	4 + 0.5	$E^A = 98$ ($E^C = 78$) $\Delta = 20$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Veronica hederifolia
A1	1	15
(B2.68) Thiencarbazon [CAS 317815-83-1]	0.5	40
A1 + (B2.68) Thiencarbazon [CAS 317815-83-1]	1 + 0.5	$E^A = 65$ ($E^C = 49$) $\Delta = 16$

Active ingredient	Application rate g a.i. / ha	Herbicidal action 28 DAT against Viola tricolor
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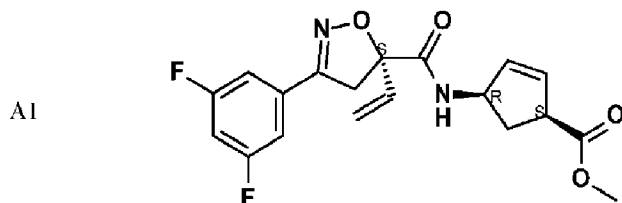
A1	4 1	50 15
(B2.68) Thiencarbazon [CAS 317815-83-1]	1.5	20
A1 + (B2.68) Thiencarbazon [CAS 317815-83-1]	4 + 1.5 1 + 1.5	$E^A = 95$ ($E^C = 60$) $\Delta = 35$ $E^A = 80$ ($E^C = 32$) $\Delta = 48$

Patentkrav

1. Herbicid sammensætning indeholdende herbicidt virksomme forbindelser (A) og (B), hvor

5 (A) står for

A1 eller et agrokemisk kompatibelt salt af denne forbindelse, hvor forbindelsen A1 er defineret som følger:



og

10 (B) står for

en eller flere komponenter (B) udvalgt fra

(B2.18) diflufenican,

(B2.28) flufenacet,

(B2.31) foramsulfuron,

15 (B2.37) mesosulfuron,

(B2.58) propyzamide,

(B2.68) thiencarbazon,

(B3.1) bromoxynil,

(B4.22) pyrasulfotole,

20 (B5.31) halauxifen,

(B7.4) glufosinate,

(B7.5) glyphosate,

(B11.6) indaziflam.

25 2. Herbicid sammensætning ifølge krav 1, hvor komponenterne af virksomt stof (A) og (B) er indeholdt i et vægtforhold på 1:100000 til 2000:1.

3. Herbicid sammensætning ifølge krav 1, hvor komponenterne af
30 virksomt stof (A) og (B) er indeholdt i et vægtforhold på 1:15000 til 500:1.

4. Herbicid sammensætning ifølge et af kravene 1 til 3, hvor der er indeholdt en eller flere yderligere komponenter fra

gruppen indeholdende anden art af virksomme stoffer i
plantebeskyttelsesmidler.

5. Herbicidt middel indeholdende en herbicid sammensætning
5 ifølge et af kravene 1 til 4 og en eller flere i
plantebeskyttelsen sædvanlige tilsætningsstoffer.

6. Fremgangsmåde til bekæmpelse af skadeplanter eller til
vækstregulering af planter, hvor komponenterne af virksomt stof
10 i den herbicide sammensætning ifølge et af kravene 1 til 4 eller
det herbicide middel ifølge krav 5 appliceres på planterne,
plantedele, plantefrø eller dyrkningsarealet.

7. Fremgangsmåde ifølge krav 6, hvor komponenterne af virksomt
15 stof i den herbicide sammensætning eller det herbicide middel
ifølge et af kravene 1 til 5 appliceres i fællesskab eller
separat før emergens, efter emergens eller før og efter emergens
på planterne, plantedele, plantefrø eller dyrkningsarealet.

20 8. Fremgangsmåde ifølge krav 6 eller 7, hvor den herbicide
komponent (A) appliceres i en anvendelsesmængde på 0,01 til 1000
g a.i./ha.

9. Fremgangsmåde ifølge krav 6 eller 7, hvor den herbicide
25 komponent (B) appliceres i en anvendelsesmængde på 0,01 til 4000
g a.i./ha, undtagen pelargonsyre, som appliceres i en
anvendelsesmængde på 1 til 100.000 g a.i./ha.

10. Fremgangsmåde ifølge et af kravene 6 til 9 til bekæmpelse
30 af skadeplanter ved behandling før udsæd af kulturplanterne og
i plantagekulturer samt uopdyrket land.

11. Fremgangsmåde ifølge et af kravene 6 til 10, hvor den
herbicide sammensætnings virksomme stoffer appliceres i form af
35 et herbicidt middel ifølge krav 12, som indeholder et eller
flere i plantebeskyttelsen sædvanlige tilsætningsstoffer, i
givet fald efter fortyndelse med vand.

12. Anvendelse af den herbicide sammensætning ifølge et af kravene 1 til 4 eller det herbicide middel ifølge krav 5 til bekæmpelse af skadeplanter eller til vækstregulering af planter.