(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
24 April 2014 (24.04.2014)

(10) International Publication Number
WO 2014/060518 A1

(51) International Patent Classification:
A01N 43/56 (2006.01)

(21) International Application Number:
PCT/EP2013/071732

(22) International Filing Date:
17 October 2013 (17.10.2013)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
12356024.5 19 October 2012 (19.10.2012) EP
61/730,269 27 November 2012 (27.11.2012) US

(71) Applicant: BAYER CROPSCIENCE AG [DE/DE]; Alfred-Nobel-Strasse 50, 40789 Monheim (DE).

(72) Inventors: CRISTAU, Pierre; 4 rue Marietton, F-69009 Lyon (FR). **DAHMEN, Peter;** Altebruckerstrasse 63, 41470 Neuss (DE). **KRIEG, Ulrich;** Am Plattenbusch 82, 51381 Leverkusen (DE). **LAPPARTIENT, Anne;** 19A rue Philippe Gonnard, F-69001 Lyon (FR). **TOQUIN, Valerie;** 30 rue de la Republique, F-69270 Saint-Romain-au-Mont-d'Or (FR). **VILLALBA, Francois;** 34 avenue Gabriel Peri, F-69250 Albigny-sur-Saone (FR). **WETCHOLOWSKY, Ingo;** Gartenstrasse 7b, 40764 Langenfeld (DE).

(74) Agent: GUITTON, Carole; BAYER S.A.S., Patents & Licensing, 14 impasse Pierre Baizet, CS 99163, F-69263 Lyon cedex 09 (FR).

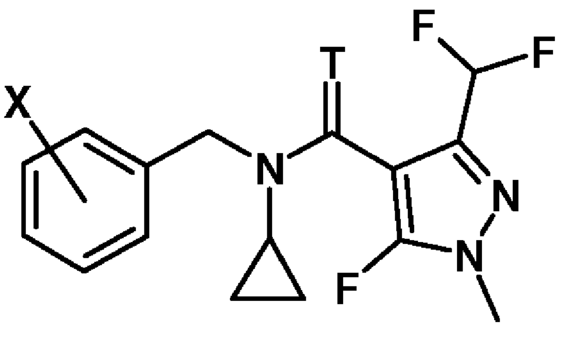
(81) Designated States *(unless otherwise indicated, for every kind of national protection available):* AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available):* ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(H))*

Published:
— *with international search report (Art. 21(3))*

(54) Title: METHOD OF PLANT GROWTH PROMOTION USING CARBOXAMIDE DERIVATIVES



(I)

(57) Abstract: The present invention relates to a new method of plant treatment that is able to induce positive growth regulating responses by applying a non-phytotoxic, effective plant growth promoting amount of a compound having the formula (I).

WO 2014/060518 A1

Method of plant growth promotion using carboxamide derivatives

The present invention relates to a new method of plant treatment that is able to induce positive growth regulating responses.

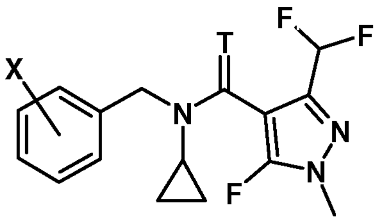
The terms "method for regulating plant growth" or the terms "growth regulation process" or the use of the words "growth regulation" or other terms using the word "regulate" as used in the instant specification refers to a variety of plant responses which attempt to improve some characteristics of the plant. The effect is distinguished from a pesticidal action, the intention of which is to destroy or stunt a growth of a plant or a living being. For this reason the compounds used in the practice of this invention are used in amounts which are non-phytotoxic with respect to the plant being treated.

More precisely, the present invention relates to the use of certain N-cyclopropyl-N-[substituted-benzyl]-3-(difluoromethyl)-5-fluoro- 1-methyl-1H-pyrazole-4-carboxamide or thiocarboxamide derivatives in order to induce growth-regulating responses.

N-cyclopropyl-N-[substimted-benzyl]-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide or thiocarboxamide derivatives, their preparation from commercially available materials and their use as fungicides are disclosed in WO2007/087906, WO2009/0 16220, WO20 10/1 30767 and EP2251331. It is also known that these compounds can be used as fungicides and mixed with other fungicides or insecticides (cf. patent applications PCT/EP20 12/00 1676 and PCT/EP2012/001674).

It is an object of the present invention to provide a method of plant growth in order to obtain better plants, higher crop yield, better crop quality and better conditions of agricultural practices.

We have found that this object is achieved by a method for treating plants in need of growth promotion, comprising applying to said plants, to the seeds from which they grow or to the locus in which they grow, a non-phytotoxic, effective plant growth promoting amount of a compound having the formula I



(I)

wherein T represents an oxygen or a sulfur atom and X is selected from the list of 2-isopropyl, 2-cyclopropyl, 2-tert-butyl, 5-chloro-2-ethyl, 5-chloro-2-isopropyl, 2-ethyl-5-fluoro, 5-fluoro-

2-isopropyl, 2-cyclopropyl-5-fluoro, 2-cyclopentyl-5-fluoro, 2-fluoro-6-isopropyl, 2-ethyl-5-methyl, 2-isopropyl-5-methyl, 2-cyclopropyl-5-methyl, 2-tert-butyl-5-methyl, 5-chloro-2-(trifluoromethyl), 5-methyl-2-(trifluoromethyl), 2-chloro-6-(trifluoromethyl), 3-chloro-2-fluoro-6-(trifluoromethyl) and 2-ethyl-4,5-dimethyl, or an agrochemically acceptable salt thereof.

Preference is given to compound of the formula (I) selected from the group consisting of :
N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l -methyl- lH-pyrazole-4-carboxamide (compound A 1),
N-cyclopropyl-N-(2-cyclopropylbenzyl)-3-(difluoromethyl)-5-fluoro-l -methyl- lH-pyrazole-4-carboxamide (compound A2),
N-(2-tert-butylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl- lH-pyrazole-4-carboxamide (compound A3),
N-(5-chloro-2-ethylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl- IH-pyrazole-4-carboxamide (compound A4),
N-(5-chloro-2-isopropylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl- 1H-pyrazole-4-carboxamide (compound A5),
N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-fluorobenzyl)-5-fluoro- 1-methyl- lH-pyrazole-4-carboxamide (compound A6),
N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(5-fluoro-2-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound A7),
N-cyclopropyl-N-(2-cyclopropyl-5-fluorobenzyl)-3-(difluoromethyl)-5-fluoro-l -methyl- 1H-pyrazole-4-carboxamide (compound A8),
N-(2-cyclopentyl-5-fluorobenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro- 1-methyl- 1H-pyrazole-4-carboxamide (compound A9),
N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-fluoro-6-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound A10),
N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-methylbenzyl)-5-fluoro-l -methyl- IH-pyrazole-4-carboxamide (compound A1 l),
N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropyl-5-methylbenzyl)-l -methyl- 1H-pyrazole-4-carboxamide (compound A 12),
N-cyclopropyl-N-(2-cyclopropyl-5-methylbenzyl)-3-(difluoromethyl)-5-fluoro-l -methyl- 1H-pyrazole-4-carboxamide (compound A13),
N-(2-tert-butyl-5-methylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl- 1H-pyrazole-4-carboxamide (compound A 14),
N-[5-chloro-2-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl-lH-pyrazole-4-carboxamide (compound A15),

N-cyclopropyl-3-(difmoromethyl)-5-fluoro-1-methyl-N-[5-methyl-2-(trifluorometnyl)benzylj-lH-pyrazole-4-carboxamide (compound A16),
N-[2-chloro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A17),
N-[3-chloro-2-fluoro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-lH-pyrazole-4-carboxamide (compound A 18).
N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-4,5-dimethylbenzyl)-5-fluoro-l-methyl-1H-pyrazole-4-carboxamide (compound A 19),
and N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-1-methyl-1H-pyrazole-4-carbothio-amide (compound A20).

Plant growth regulators may exert various effects on plants. The effect of the substances depends essentially on the time of application in relation to the developmental stage of the plant, and also on the amounts of active ingredient applied to the plants or their environment and on the type of application. In each case, growth regulators should have a particular desired effect on the crop plants.

Plant growth-regulating compounds can be used, for example, to inhibit the vegetative growth of the plants. Such inhibition of growth is of economic interest, for example, in the case of grasses, since it is thus possible to reduce the frequency of grass cutting in ornamental gardens, parks and sport facilities, on roadsides, at airports or in fruit crops. Also of significance is the inhibition of the growth of herbaceous and woody plants on roadsides and in the vicinity of pipelines or overhead cables, or quite generally in areas where vigorous plant growth is unwanted.

Also important is the use of growth regulators for inhibition of the longitudinal growth of cereal. This reduces or completely eliminates the risk of lodging of the plants prior to harvest. In addition, growth regulators in the case of cereals can strengthen the culm, which also counteracts lodging. The employment of growth regulators for shortening and strengthening culms allows the deployment of higher fertilizer volumes to increase the yield, without any risk of lodging of the cereal crop.

In many crop plants, inhibition of vegetative growth allows denser planting, and it is thus possible to achieve higher yields based on the soil surface. Another advantage of the smaller plants obtained in this way is that the crop is easier to cultivate and harvest.

Inhibition of the vegetative plant growth may also lead to enhanced yields because the nutrients and assimilates are of more benefit to flower and fruit formation than to the vegetative parts of the plants.

Frequently, growth regulators can also be used to promote vegetative growth. This is of great benefit when harvesting the vegetative plant parts. However, promoting vegetative growth may also promote generative growth in that more assimilates are formed, resulting in more or larger fruits.

In some cases, yield increases may be achieved by manipulating the metabolism of the plant, without any detectable changes in vegetative growth. In addition, growth regulators can be used to alter the composition of the plants, which in turn may result in an improvement in quality of the harvested products. For example, it is possible to increase the sugar content in sugar beet, sugar cane, pineapples and in citrus fruit, or to increase the protein content in soya or cereals. It is also possible, for example, to use growth regulators to inhibit the degradation of desirable ingredients, for example sugar in sugar beet or sugar cane, before or after harvest. It is also possible to positively influence the production or the elimination of secondary plant ingredients. One example is the stimulation of the flow of latex in rubber trees.

Under the influence of growth regulators, parthenocarpic fruits may be formed. In addition, it is possible to influence the sex of the flowers. It is also possible to produce sterile pollen, which is of great importance in the breeding and production of hybrid seed.

Use of growth regulators can control the branching of the plants. On the one hand, by breaking apical dominance, it is possible to promote the development of side shoots, which may be highly desirable particularly in the cultivation of ornamental plants, also in combination with an inhibition of growth. On the other hand, however, it is also possible to inhibit the growth of the side shoots. This effect is of particular interest, for example, in the cultivation of tobacco or in the cultivation of tomatoes.

Under the influence of growth regulators, the amount of leaves on the plants can be controlled such that defoliation of the plants is achieved at a desired time. Such defoliation plays a major role in the mechanical harvesting of cotton, but is also of interest for facilitating harvesting in other crops, for example in viticulture. Defoliation of the plants can also be undertaken to lower the transpiration of the plants before they are transplanted.

Growth regulators can likewise be used to regulate fruit dehiscence. On the one hand, it is possible to prevent premature fruit dehiscence. On the other hand, it is also possible to promote fruit dehiscence or even flower abortion to achieve a desired mass ("thinning"), in order to eliminate alternation. Alternation is understood to mean the characteristic of some fruit species, for endogenous reasons, to deliver very different yields from year to year. Finally, it is possible to use growth regulators at the time of harvest to reduce the forces required to detach the fruits, in order to allow mechanical harvesting or to facilitate manual harvesting.

Growth regulators can also be used to achieve faster or else delayed ripening of the harvested material before or after harvest. This is particularly advantageous as it allows optimal adjustment to the requirements of the market. Moreover, growth regulators in some cases can improve the fruit color. In addition, growth regulators can also be used to concentrate maturation within a certain period of time. This establishes the prerequisites for complete mechanical or manual harvesting in a single operation, for example in the case of tobacco, tomatoes or coffee.

By using growth regulators, it is additionally possible to influence the resting of seed or buds of the plants, such that plants such as pineapple or ornamental plants in nurseries, for example, germinate, sprout or flower at a time when they are normally not inclined to do so. In areas where there is a risk of frost, it may be desirable to delay budding or germination of seeds with the aid of growth regulators, in order to avoid damage resulting from late frosts.

Finally, growth regulators can induce resistance of the plants to frost, drought or high salinity of the soil. This allows the cultivation of plants in regions which are normally unsuitable for this purpose.

The compounds used in the method of the present invention have been found to display a wide variety of plant growth regulating properties, depending upon the concentration used, the formulation employed and the type of plant species treated. Said plant growth responses include the following : a) greener leaf color, b) bigger vegetable size, c) higher sugar concentration of fruits, d) more developed root system, e) higher crop firmness longer storability,fimproved appearance, h) better fruit finish, i) earlier fruit maturation, j) increase in plant height, k) bigger leaf blade, i) less dead basal leaves, m) bigger fruit size, n) earlier flowering, o) increased shoot growth, p) improved plant vigour, q) early germination, r) yield improvement.

In a preferred embodiment of the present invention the plant growth promoting amount of compound (Al), (A2), (A3), (A4), (A5), (A6), (A7), (A8), (A9), (A10), (Al l), (A12), (A13), (A 14), (A 15), (A 16) (A 17), (A 18), (A 19) or (A20) as above defined is sufficient to provide at least one plant growth promoting effect selected from the group consisting of: a) greener leaf color, b) bigger vegetable size, c) higher sugar concentration of fruits, d) more developed root system, e) higher crop firmness longer storability, g) improved appearance, h) better fruit finish, i) earlier fruit maturation, j) increase in plant height, k) bigger leaf blade, i) less dead basal leaves, m) bigger fruit size, n) earlier flowering, o) increased shoot growth, p) improved plant vigour, q) early germination, r) yield improvement.

It is intended that as used in the instant specification the term "method for regulating plant growth" means the achievement of any of the aforementioned 17 categories of response as well as any other modification of plant, seed, fruit, vegetable, whether the fruit or vegetable is un-harvested or has been harvested, so long as the net result is to increase growth and quality or benefit any property of the plant, seed, fruit or vegetable as distinguished from any pesticidal action. The term "fruit" as used in the instant specification is to be understood as meaning anything of economic value that is produced by the plant.

Certain preliminary details connected with the foregoing 17 categories should make for a better appreciation of the invention.

The application rates of the compounds of formula (I) used in the method of the present invention are generally from 0.005 to 0.5 kg/ha, preferably 0.01 to 0.2 kg/ha, in particular 0.2 to 0.1 kg/ha.

For seed treatment, the application rates are generally from 0.001 to 250 g/kg of seeds, preferably 0.01 to 100 g/kg, in particular 0.01 to 50 g/kg.

The compounds of formula (I) used in the method of the present invention can be formulated for example in the form of ready-to-spray solutions, powders and suspensions or in the form of highly concentrated aqueous, oily or other suspensions, dispersions, emulsions, oil dispersions, pastes, dusts, materials for broadcasting or granules, and applied by spraying, atomizing, dusting, broadcasting or watering. The use form depends on the intended purpose; in any case, it should ensure as fine and uniform as possible a distribution of the mixture according to the invention.

The formulations are prepared in a known manner, e. g. by extending the active ingredient with solvents and/or carriers, if desired using emulsifiers and dispersants, it being possible also to use other organic solvents as auxiliary solvents if water is used as the diluent. Suitable auxiliaries for this purpose are essentially: solvents such as aromatics (e. g. xylene), chlorinated aromatics (e. g. chlorobenzenes), paraffins (e. g. mineral oil fractions), alcohols (e. g. methanol, butanol), ketones (e. g. cyclohexanone), amines (e. g. ethanolamine, dimethylformamide) and water; carriers such as ground natural minerals (e. g. kaolins, clays, talc, chalk) and ground synthetic minerals (e. g. finely divided silica, silicates); emulsifiers such as nonionic and anionic emulsifiers (e. g. polyoxyethylene fatty alcohol ethers, alkylsulfonates and arylsulfonates) and dispersants such as lignosulfite waste liquors and methylcellulose.

Suitable surfactants are the alkali metal salts, alkaline earth metal salts and ammonium salts of aromatic sulfonic acids, e. g. ligno-, phenol-, naphthalene-and dibutyinaphthalenesulfonic acid, and of fatty acids, alkyl-and alkylarylsulfonates, alkyl, lauryl ether and fatty alcohol sulfates, and salts of sulfate hexa-, hepta-and octadecanols, or of fatty alcohol glycol ethers, condensates of sulfonate naphthalene and its derivatives with formaldehyde, condensates of naphthalene or of the naphthalenesulfonic acids with phenol and formaldehyde, polyoxyethylene octylphenol ether, ethoxylated isooctyl-, octyl-or nonylphenol, alkylphenol polyglycol ethers, tributylphenyl polyglycol ethers, alkylaryl polyether alcohols, isotridecyl alcohol, fatty alcohol/ethylene oxide condensates, ethoxylated castor oil, polyoxyethylene alkyl ethers or polyoxypropylene alkyl ethers, lauryl alcohol polyglycol ether acetate, sorbitol esters, lignosulfite waste liquors or methylcellulose.

Powders, materials for broadcasting and dusts can be prepared by mixing or jointly grinding the compounds of formula (I) I with a solid carrier.

Granules (e. g. coated granules, impregnated granules or homogeneous granules) are usually prepared by binding the active ingredient, or active ingredients, to a solid carrier.

Fillers or solid carriers are, for example, mineral earths, such as silicas, silica gels, silicates, talc, kaolin, limestone, lime, chalk, bole, loess, clay, dolomite, diatomaceous earth, calcium sulfate, magnesium sulfate, magnesium oxide, ground synthetic materials and fertilizers, such as ammonium sulfate, ammonium phosphate, ammonium nitrate, ureas, and products of vegetable origin, such as cereal meal, tree bark meal, wood meal and nutshell meal, cellulose powders or other solid carriers.

The formulations generally comprise from 0.1 to 95% by weight, preferably 0.5 to 90% by weight, of the compound. The active ingredients are employed in a purity of from 90% to 100%, preferably 95% to 100% (according to NMR spectrum or HPLC).

The compounds according to the invention may also be present in combination with other active compounds, for example with herbicides, insecticides, growth regulators, fungicides or else with fertilizers. In many cases, a mixture of the compounds of formula (I), or of the compositions comprising them, in the use form as growth promoters with other active compounds results in a broader spectrum of activity.

The following list of fungicides in combination with which the compounds according to the invention can be used is intended to illustrate the possible combinations, but not to impose any limitation:

The active ingredients specified herein by their "common name" are known and described, for example, in the Pesticide Manual or can be searched in the internet (e.g. **http://www.alanwood.net/pesticides**).

Where a compound (A) or a compound (B) can be present in tautomeric form, such a compound is understood hereinabove and herein below also to include, where applicable, corresponding tautomeric forms, even when these are not specifically mentioned in each case.

1) Inhibitors of the ergosterol biosynthesis, for example (1.1) aldimorph, (1.2) azaconazole, (1.3) bitertanol, (1.4) bromuconazole, (1.5) cyproconazole, (1.6) diclobutrazole, (1.7) difenoconazole, (1.8) diniconazole, (1.9) diniconazole-M, (1.10) dodemorph, (1.1 1) dodemorph acetate, (1.12) epoxiconazole, (1.13) etaconazole, (1.14) fenarimol, (1.15) fenbuconazole, (1.16) fenhexamid, (1.17) fenpropidin, (1.18) fenpropimorph, (1.19) fluquinconazole, (1.20) flurprimidol, (1.21) flusilazole, (1.22) flutriafol, (1.23) furconazole, (1.24) furconazole-cis, (1.25) hexaconazole, (1.26) imazalil, (1.27) imazalil sulfate, (1.28) imibenconazole, (1.29) ipconazole, (1.30) metconazole, (1.31) myclobutanil, (1.32) naftifine, (1.33) nuarimol, (1.34) oxpoconazole, (1.35) paclobutrazol, (1.36) pefurazoate, (1.37) penconazole, (1.38) piperalin,

(1.39) prochloraz, (1.40) propiconazole, (1.41) prothioconazole, (1.42) pyributicarb, (1.43) pyrifenox, (1.44) quinconazole, (1.45) simeconazole, (1.46) spiroxamine, (1.47) tebuconazole, (1.48) terbinafine, (1.49) tetraconazole, (1.50) triadimefon, (1.51) triadimenol, (1.52) tridemorph, (1.53) triflumizole, (1.54) triforine, (1.55) triticonazole, (1.56) uniconazole, (1.57) uniconazole-p, (1.58) viniconazole, (1.59) voriconazole, (1.60) 1-(4-chlorophenyl)-2-(lH- 1,2,4-triazol- 1-yl)cycloheptanol, (1.61) methyl l-(2,2-dimethyl-2,3-dihydro-lH-inden-l-yl)-lH-imidazole-5-carboxylate, (1-62) N'- {5-(difluoromethyl)-2-methyl-4-[3-(trimethylsilyl)propoxy]phenyl} -N-ethyl-N-methylimidoformamide, (1.63) N-ethyl-N-methyl-N'- {2-methyl-5-(trifluoromethyl)-4-[3-(trimethylsilyl)propoxy]phenyl}imidoformamide, (1.64) 0-[l-(4-methoxyphenoxy)-3,3-dimethylbutan-2-yl] lH-imidazole-l-carbothioate, (1.65) Pyrisoxazole.

2) Inhibitors of the respiratory chain at complex I or II, for example (2.1) bixafen, (2.2) boscalid, (2.3) carboxin, (2.4) diflumetorim, (2.5) fenfuram, (2.6) fluopyram, (2.7) flutolanil, (2.8) fluxapyroxad, (2.9) furametpyr, (2.10) furmecyclox, (2.1 1) isopyrazam (mixture of syn-epimeric racemate 1RS,4SR,9RS and anti-epimeric racemate 1RS,4SR,9SR), (2.12) isopyrazam (anti-epimeric racemate 1RS,4SR,9SR), (2.13) isopyrazam (anti-epimeric enantiomer 1R,4S,9S), (2.14) isopyrazam (anti-epimeric enantiomer 1S,4R,9R), (2.15) isopyrazam (syn epimeric racemate 1RS,4SR,9RS), (2.16) isopyrazam (syn-epimeric enantiomer 1R,4S,9R), (2.17) isopyrazam (syn-epimeric enantiomer 1S,4R,9S), (2.18) mepronil, (2.19) oxycarboxin, (2.20) penflufen, (2.21) penthiopyrad, (2.22) sedaxane, (2.23) thifluzamide, (2.24) 1-methyl-N-[2-(l,l,2,2-tetrafluoroethoxy)phenyl]-3-(trifluoromethyl)-lH-pyrazole-4-carboxamide, (2.25) 3-(difluoromethyl)- 1-methyl-N- [2-(1, 1,2,2-tetrafluoroethoxy)phenyl] - 1H-pyrazole-4-carboxamide, (2.26) 3-(difluoromethyl)-N-[4-fluoro-2-(l ,1,2,3,3,3-hexafluoropropoxy)phenyl]- 1-methyl- lH-pyrazole-4-carboxamide, (2.27) N-[l-(2,4-dichlorophenyl)-l-methoxypropan-2-yl]-3-(difluoromethyl)-l -methyl- lH-pyrazole-4-carboxamide, (2.28) 5,8-difluoro-N-[2-(2-fluoro-4-{[4-(trifluoromethyl)pyridin-2-yl]oxy}phenyl)ethyl]quinazolin-4-amine, (2.29) benzovindiflupyr, (2.30) N-[(l S,4R)-9-(dichloromethylene)- 1,2,3,4-tetrahydro- 1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-l-methyl-lH-pyrazole-4-carboxamide, (2.3 1) N-[(lR,4S)-9-(dichloromethylene)- 1,2,3,4-tetrahydro- 1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)- 1-methyl- lH-pyrazole-4-carboxamide, (2.32) 3-(difluoromethyl)- 1-methyl-N-il, l,3-trimethyl-2,3-dihydro-lH-inden-4-yl)-lH-pyrazole-4-carboxamide, (2.33) 1,3,5-trimethyl-N-(1, 1,3-trimethyl-2,3-dihydro- 1H-inden-4-yl)- 1H-pyrazole-4-carboxamide, (2.34) 1-methyl-3-(trifluoromethyl)-N-(l ,1,3-trimethyl-2,3-dihydro- lH-inden-4-yl)- lH-pyrazole-4-carboxamide, (2.35) l-methyl-3-(trifluoromethyl)-N-[(3R)-l,l,3-trimethyl-2,3-dihydro-lH-inden-4-yl]- lH-pyrazole-4-carboxamide, (2.36) 1-methyl-3-(trifluoromethyl)-N-[(3S)- 1,1,3-trimethyl-2,3-dihydro-lH-inden-4-yl]-lH-pyrazole-4-carboxamide, (2.37) 3-(difluoromethyl)-l-methyl-N-[(3S)-l,l,3-trimethyl-2,3-dihydro-lH-inden-4-yl]-lH-pyrazole-4-carboxamide, (2.38)

3-(diiluoromethyl)- 1-methyl-N-[(3R)-1,1,3-tnmethyl-2,3-dihydro- lH-mden-4-ylJ- lH-pyrazole-4-carboxamide, (2.39) l,3,5-trimethyl-N-[(3R)-l,l,3-trimethyl-2,3-dihydro-lH-inden-4-yl]-lH-pyrazole-4-carboxamide, (2.40) l,3,5-trimethyl-N-[(3S)-l,l,3-trimethyl-2,3-dihydro-lH-inden-4-yl]-lH-pyrazole-4-carboxamide, (2.41) benodanil, (2.42) 2-chloro-N-(l,l,3-trimethyl-2,3-dihydro-lH-inden-4-yl)pyridine-3-carboxamide, (2.43) Isofetamid.

3) Inhibitors of the respiratory chain at complex III, for example (3.1) ametoctradin, (3.2) amisulbrom, (3.3) azoxystrobin, (3.4) cyazofamid, (3.5) coumethoxystrobin, (3.6) coumoxystrobin, (3.7) dimoxystrobin, (3.8) enoxastrobin, (3.9) famoxadone, (3.10) fenamidone, (3.1 1) flufenoxystrobin, (3.12) fluoxastrobin, (3.13) kresoxim-methyl, (3.14) metominostrobin, (3.15) orysastrobin, (3.16) picoxystrobin, (3.17) pyraclostrobin, (3.18) pyrametostrobin, (3.19) pyraoxystrobin, (3.20) pyribencarb, (3.21) triclopyricarb, (3.22) trifloxystrobin, (3.23) (2E)-2-(2-{[6-(3-chloro-2-methylphenoxy)-5-fluoropyrimidin-4-yl]oxy}phenyl)-2-(methoxyimino)-N-methylacetamide, (3.24) (2E)-2-(methoxyimino)-N-methyl-2-(2-{[({(lE)-l-[3-(trifluoromethyl)phenyl]ethylidene}amino)oxy]methyl}phenyl)acetamide, (3.25) (2E)-2-(methoxyimino)-N-methyl-2- {2-[(E)-({1-[3-(trifluoromethyl)phenyl]ethoxy }imino)methyl]phenyl} acetamide, (3.26) (2E)-2- {2-[({[(1E)-1-(3- {[(E)-1-fluoro-2-phenylvinyl]oxy}phenyl)ethylidene]amino} oxy)methyl]phenyl} -2-(methoxyimino)-N-methylacetamide, (3.27) Fenaminostrobin, (3.28) 5-methoxy-2-methyl-4-(2-{[({(lE)-l-[3-(trifluoromethyl)phenyl]ethylidene}amino)oxy]methyl}phenyl)-2,4-dihydro-3H-1.2.4-triazol-3-one, (3.29) methyl (2E)-2-{2-[({cyclopropyl[(4-methoxyphenyl)imino]methyl}sulfanyl)methyl]phenyl}-3-methoxyacrylate, (3.30) N-(3-ethyl-3.5.5-trimethylcyclohexyl)-3-formamido-2-hydroxybenzamide, (3.31) 2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide, (3.32) 2-{2-[(2,5-dimethylphenoxy)methyl]phenyl}-2-methoxy-N-methylacetamide; (3.33) (2E,3Z)-5-{[l-(4-chlorophenyl)-lH-pyrazol-3-yl]oxy}-2-(methoxyimino)-N,3-dimethylpent-3-enamide.

4) Inhibitors of the mitosis and cell division, for example (4.1) benomyl, (4.2) carbendazim, (4.3) chlorfenazole, (4.4) diethofencarb, (4.5) ethaboxam, (4.6) fluopicolide, (4.7) fuberidazole, (4.8) pencycuron, (4.9) thiabendazole, (4.10) thiophanate-methyl, (4.11) thiophanate, (4.12) zoxamide, (4.13) 5-chloro-7-(4-methylpiperidin-l-yl)-6-(2,4,6-trifluorophenyl)[l,2,4]triazolo[l,5-a]pyrimidine, (4.14) 3-chloro-5-(6-chloropyridin-3-yl)-6-methyl-4-(2,4,6-trifluorophenyl)pyridazine.

5) Compounds capable to have a multisite action, for example (5.1) bordeaux mixture, (5.2) captafol, (5.3) captan, (5.4) chlorothalonil, (5.5) copper hydroxide, (5.6) copper naphthenate, (5.7) copper oxide, (5.8) copper oxychloride, (5.9) copper(2+) sulfate, (5.10) dichlofluanid, (5.11) dithianon, (5.12) dodine, (5.13) dodine free base, (5.14) ferbam, (5.15) fluorofolpet, (5.16) folpet, (5.17) guazatine, (5.18) guazatine acetate, (5.19) iminoctadine, (5.20) iminoctadine albesilate, (5.21) iminoctadine triacetate, (5.22) mancopper, (5.23) mancozeb, (5.24) maneb, (5.25) metiram, (5.26) metiram zinc, (5.27) oxine-copper, (5.28) propamidine, (5.29) propineb, (5.30) sulfur and sulfur preparations including calcium polysulfide, (5.31) thiram, (5.32) tolylfluanid, (5.33) zineb, (5.34) ziram, (5.35) anilazine.

6) Compounds capable to induce a host defence, for example (6.1) acibenzolar-S-methyl, (6.2) isotianil, (6.3) probenazole, (6.4) tiadinil, (6.5) laminarin.

7) Inhibitors of the amino acid and/or protein biosynthesis, for example (7.1) andoprim, (7.2) blasticidin-S, (7.3) cyprodinil, (7.4) kasugamycin, (7.5) kasugamycin hydrochloride hydrate, (7.6) mepanipyrim, (7.7) pyrimethanil, (7.8) 3-(5-fluoro-3,3,4,4-tetramethyl-3,4-dihydroisoquinolin- 1-yl)quinoline, (7.9) oxytetracycline, (7.10) streptomycin.

8) Inhibitors of the ATP production, for example (8.1) fentin acetate, (8.2) fentin chloride, (8.3) fentin hydroxide, (8.4) silthiofam.

9) Inhibitors of the cell wall synthesis, for example (9.1) benthiavalicarb, (9.2) dimethomorph, (9.3) flumorph, (9.4) iprovalicarb, (9.5) mandipropamid, (9.6) polyoxins, (9.7) polyoxorim, (9.8) validamycin A, (9.9) valifenalate, (9.10) polyoxin B.

10) Inhibitors of the lipid and membrane synthesis, for example (10.1) biphenyl, (10.2) chloroneb, (10.3) dicloran, (10.4) edifenphos, (10.5) etridiazole, (10.6) iodocarb, (10.7) iprobenfos, (10.8) isoprothiolane, (10.9) propamocarb, (10.10) propamocarb hydrochloride,

(10.11) prothiocarb, (10.12) pyrazophos, (10.13) quintozene, (10.14) tecnazene, (10.15) tolclofos-methyl.

11) Inhibitors of the melanin biosynthesis, for example (11.1) carpropamid, (11.2) diclocymet, (11.3) fenoxanil, (11.4) phthalide, (11.5) pyroquilon, (11.6) tricyclazole, (11.7) 2,2,2-trifluoroethyl {3-methyl-l-[(4-methylbenzoyl)amino]butan-2-yl}carbamate.

12) Inhibitors of the nucleic acid synthesis, for example (12.1) benalaxyl, (12.2) benalaxyl-M (kiralaxyl), (12.3) bupirimate, (12.4) clozylacon, (12.5) dimethirimol, (12.6) ethirimol, (12.7) furalaxyl, (12.8) hymexazol, (12.9) metalaxyl, (12.10) metalaxyl-M (mefenoxam), (12.11) ofurace, (12.12) oxadixyl, (12.13) oxolinic acid, (12.14) octhilinone.

13) Inhibitors of the signal transduction, for example (13.1) chlozolinate, (13.2) fenpiclonil, (13.3) fludioxonil, (13.4) iprodione, (13.5) procymidone, (13.6) quinoxyfen, (13.7) vinclozolin, (13.8) proquinazid.

14) Compounds capable to act as an uncoupler, for example (14.1) binapacryl, (14.2) dinocap, (14.3) ferimzone, (14.4) fluazinam, (14.5) meptyldinocap.

15) Further compounds, for example (15.1) benthiazole, (15.2) bethoxazin, (15.3) capsimycin, (15.4) carvone, (15.5) chinomethionat, (15.6) pyriofenone (chlazafenone), (15.7) cufraneb, (15.8) cyflufenamid, (15.9) cymoxanil, (15.10) cyprosulfamide, (15.11) dazomet, (15.12) debacarb, (15.13) dichlorophen, (15.14) diclomezine, (15.15) difenzoquat, (15.16) difenzoquat metilsulfate, (15.17) diphenylamine, (15.18) ecomate, (15.19) fenpyrazamine, (15.20) flumetover, (15.21) fluoroimide, (15.22) flusulfamide, (15.23) flutianil, (15.24) fosetyl-aluminium, (15.25) fosetyl-calcium, (15.26) fosetyl-sodium, (15.27) hexachlorobenzene, (15.28) irumamycin, (15.29) methasulfocarb, (15.30) methyl isothiocyanate, (15.31) metrafenone, (15.32) mildiomycin, (15.33) natamycin, (15.34) nickel dimethyldithiocarbamate, (15.35) nitrothal-isopropyl, (15.37) oxamocarb, (15.38) oxyfenthiin, (15.39) pentachlorophenol and salts, (15.40) phenothrin, (15.41) phosphorous acid and its salts, (15.42) propamocarb-fosetylate, (15.43) propanosine-sodium, (15.44) pyrimorph, (15.45) (2E)-3-(4-tert-butylphenyl)-3-(2-chloropyridin-4-yl)- 1-(morpholin-4-yl)prop-2-en- 1-one, (15.46) (2Z)-3-(4-tert-butylphenyl)-3-(2-chloropyridin-4-yl)- 1-(morpholin-4-yl)prop-2-en- 1-one, (15.47) pyrrolnitrine, (15.48) tebufloquin, (15.49) tecloftalam, (15.50) tolnifanide, (15.51) triazoxide, (15.52) trichlamide, (15.53) zarilamid, (15.54) (3S,6S,7R,8R)-8-benzyl-3-[({3-[(isobutyryloxy)methoxy]-4-methoxypyridin-2-yl}carbonyl)amino]-6-methyl-4,9-dioxo-l,5-dioxonan-7-yl 2-methylpropanoate, (15.55) l-(4-{4-[(5R)-5-(2,6-difluorophenyl)-4,5-dihydro-l,2-oxazol-3-yl]- 1,3-thiazol-2-yl}piperidin- 1-yl)-2-[5-methyl-3-(trifluoromethyl)- lH-pyrazol- 1-

yljetnanone, (15.56) 1-(4-{4-[(5S)-5-(2,6-difluorophenyl)-4,5-dihydro-l,2-oxazol-J-ylJ-l,3-thiazol-2-yl}piperidin- 1-yl)-2-[5-methyl-3-(trifluoromethyl)- lH-pyrazol- 1-yl]ethanone, (15.57) 1-(4-{4-[5-(2,6-difluorophenyl)-4,5-dihydro-l,2-oxazol-3-yl]-l,3-thiazol-2-yl}piperidin-l-yl)-2-[5-methyl-3-(trifluoromethyl)- 1H-pyrazol- 1-yl]ethanone, (15.58) 1-(4-methoxyphenoxy)-3,3-dimethylbutan-2-yl lH-imidazole-l-carboxylate, (15.59) 2,3,5,6-tetrachloro-4-(methylsulfonyl)pyridine, (15.60) 2,3-dibutyl-6-chlorothieno[2,3-d]pyrimidin-4(3H)-one, (15.61) 2,6-dimethyl-lH,5H-[l,4]dithiino^ 2,3-c:5,6-c']dipyrrole-1,3,5,7(2H,6H)-tetrone, (15.62) 2-[5-methyl-3-(trifluoromethyl)- 1H-pyrazol- 1-yl]-1-(4- {4-[(5R)-5-phenyl-4,5-dihydro- 1,2-oxazol-3-yl]- 1,3-thiazol-2-yl}piperidin- 1-yl)ethanone, (15.63) 2-[5-methyl-3-(trifluoromethyl)-lH-pyrazol-l-yl]-l-(4-{4-[(5S)-5-phenyl-4,5-dihydro-l,2-oxazol-3-yl]-l,3-thiazol-2-yljpiperidin- 1-yl)ethanone, (15.64) 2-[5-methyl-3-(trifluoromethyl)- lH-pyrazol- 1-yl]-1-{4-[4-(5-phenyl-4,5-dihydro- 1,2-oxazol-3-yl)- 1,3-thiazol-2-yl]piperidin- 1-yl} ethanone, (15.65) 2-butoxy-6-iodo-3-propyl-4H-chromen-4-one, (15.66) 2-chloro-5-[2-chloro-l-(2,6-difluoro-4-methoxyphenyl)-4-methyl-lH-imidazol-5-yl]pyridine, (15.67) 2-phenylphenol and salts, (15.68) 3-(4,4,5-trifluoro-3,3-dimethyl-3,4-dihydroisoquinolin-l-yl)quinoline, (15.69) 3,4,5-trichloropyridine-2,6-dicarbonitrile, (15.70) 3-chloro-5-(4-chlorophenyl)-4-(2,6-difluorophenyl)-6-methylpyridazine, (15.71) 4-(4-chlorophenyl)-5-(2,6-difluorophenyl)-3,6-dimethylpyridazine, (15.72) 5-amino-l,3,4-thiadiazole-2-thiol, (15.73) 5-chloro-N'-phenyl-N'-(prop-2-yn- 1-yl)thiophene-2-sulfonohydrazide, (15.74) 5-fluoro-2-[(4-fluorobenzyl)oxy]pyrimidin-4-amine, (15.75) 5-fluoro-2-[(4-methylbenzyl)oxy]pyrimidin-4-amine, (15.76) 5-methyl-6-octyl[l,2,4]triazolo[l,5-a]pyrimidin-7-amine, (15.77) ethyl (2Z)-3-amino-2-cyano-3-phenylacrylate, (15.78) N'-(4-{[3-(4-chlorobenzyl)-l,2,4-thiadiazol-5-yl]oxy}-2,5-dimethylphenyl)-N-ethyl-N-methylimidoformamide, (15.79) N-(4-chlorobenzyl)-3-[3-methoxy-4-(prop-2-yn- 1-yloxy)phenyl]propanamide, (15.80) N-[(4-chlorophenyl)(cyano)methyl]-3 -[3-methoxy-4-(prop-2-yn- 1-yloxy)phenyl]propanamide, (15.81) N-[(5-bromo-3-chloropyridin-2-yl)methyl] -2,4-dichloronicotinamide, (15.82) N-[1-(5-bromo-3-chloropyridin-2-yl)ethyl]-2,4-dichloronicotinamide, (15.83) N-[l-(5-bromo-3-chloropyridin-2-yl)ethyl]-2-fluoro-4-iodonicotinamide, (15.84) N-{(E)-[(cyclopropylmethoxy)imino][6-(difluoromethoxy)-2,3-difluorophenyl]methyl}-2-phenylacetamide, (15.85) N-{(Z)-[(cyclopropylmethoxy)imino] [6-(difluoromethoxy)-2,3-difluorophenyl]methyl} -2-phenylacetamide, (15.86) N'- {4-[(3-tert-butyl-4-cyano-l,2-thiazol-5-yl)oxy]-2-chloro-5-methylphenyl}-N-ethyl-N-methylimidoformamide, (15.87) N-methyl-2-(l-{[5-methyl-3-(trifluoromethyl)- 1H-pyrazol- 1-yl]acetyl}piperidin-4-yl)-N-(l ,2,3,4-tetrahydronaphthalen- 1-yl)-l,3-thiazole-4-carboxamide, (15.88) N-methyl-2-(l-{[5-methyl-3-(trifluoromethyl)-lH-pyrazol-1-yl]acetyl}piperidin-4-yl)-N-[(lR)- 1,2,3,4-tetrahydronaphthalen- 1-yl]-1,3-thiazole-4-carboxamide, (15.89) N-methyl-2-(l -{[5-methyl-3-(trifluoromethyl)- lH-pyrazol- 1-yl]acetyl}piperidin-4-yl)-N-[(l S)-1,2,3,4-tetrahydronaphthalen- 1-yl]-1,3-thiazole-4-carboxamide, (15.90) pentyl {6-[({[(l-methyl-lH-tetrazol-5-

yl)(phenyl)methylene]amino}oxy)methyl]pyridin-2-yl} carbamate, (15.91) phenazine-1-carboxylic acid, (15.92) quinolin-8-ol, (15.93) quinolin-8-ol sulfate (2:1), (15.94) tert-butyl {6-[({[(1-methyl-lH-tetrazol-5-yl)(phenyl)methylene]amino}oxy)methyl]pyridin-2-yl}carbamate, (15.95) l-methyl-3-(trifluoromethyl)-N-[2'-(trifluoromethyl)biphenyl-2-yl]-lH-pyrazole-4-carboxamide, (15.96) N-(4'-chlorobiphenyl-2-yl)-3-(difluoromethyl)-l-methyl-lH-pyrazole-4-carboxamide, (15.97) N-(2',4'-dichlorobiphenyl-2-yl)-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide, (15.98) 3-(difluoromethyl)-1-methyl-N-[4'-(trifluoromethyl)biphenyl-2-yl]-lH-pyrazole-4-carboxamide, (15.99) N-(2',5'-difluorobiphenyl-2-yl)-l-methyl-3-(trifluoromethyl)-lH-pyrazole-4-carboxamide, (15.100) 3-(difluoromethyl)-1-methyl-N-[4'-(prop-l-yn-l-yl)biphenyl-2-yl]-lH-pyrazole-4-carboxamide, (15.101) 5-fluoro-l,3-dimethyl-N-[4'-(prop-1-yn-1-yl)biphenyl-2-yl]-lH-pyrazole-4-carboxamide, (15.102) 2-chloro-N-[4'-(prop-1-yn-1-yl)biphenyl-2-yl]nicotinamide, (15.103) 3-(difluoromethyl)-N-[4'-(3,3-dimethylbut-1-yn-l-yl)biphenyl-2-yl]-l-methyl-lH-pyrazole-4-carboxamide, (15.104) N-[4'-(3,3-dimethylbut-l-yn-l-yl)biphenyl-2-yl]-5-fluoro-l,3-dimethyl-lH-pyrazole-4-carboxamide, (15.105) 3-(difluoromethyl)-N-(4'-ethynylbiphenyl-2-yl)-l-methyl-lH-pyrazole-4-carboxamide, (15.106) N-(4'-ethynylbiphenyl-2-yl)-5-fluoro-1,3-dimethyl-lH-pyrazole-4-carboxamide, (15.107) 2-chloro-N-(4'-ethynylbiphenyl-2-yl)nicotinamide, (15.108) 2-chloro-N-[4'-(3,3-dimethylbut-l-yn-1-yl)biphenyl-2-yl]nicotinamide, (15.109) 4-(difluoromethyl)-2-methyl-N-[4'-(trifluoromethyl)biphenyl-2-yl]-l,3-thiazole-5-carboxamide, (15.110) 5-fluoro-N-[4'-(3-hydroxy-3-methylbut-1-yn-1-yl)biphenyl-2-yl]-1,3-dimethyl-lH-pyrazole-4-carboxamide, (15.111) 2-chloro-N-[4'-(3-hydroxy-3-methylbut-l-yn-l-yl)biphenyl-2-yl]nicotinamide, (15.112) 3-(difluoromethyl)-N-[4'-(3-methoxy-3-methylbut-1-yn-1-yl)biphenyl-2-yl]-1-methyl-lH-pyrazole-4-carboxamide, (15.113) 5-fluoro-N-[4'-(3-methoxy-3-methylbut-l-yn-l-yl)biphenyl-2-yl]-l,3-dimethyl-lH-pyrazole-4-carboxamide, (15.114) 2-chloro-N-[4'-(3-methoxy-3-methylbut-l-yn-l-yl)biphenyl-2-yl]nicotinamide, (15.115) (5-bromo-2-methoxy-4-methylpyridin-3-yl)(2,3,4-trimethoxy-6-methylphenyl)methanone, (15.116) N-[2-(4-{[3-(4-chlorophenyl)prop-2-yn-l-yl]oxy}-3-methoxyphenyl)ethyl]-N2-(methylsulfonyl)valinamide, (15.117) 4-oxo-4-[(2-phenylethyl)amino]butanoic acid, (15.118) but-3-yn-l-yl {6-[({[(Z)-(l-methyl-1H-tetrazol-5-yl)(phenyl)methylene]amino}oxy)methyl]pyridin-2-yl} carbamate, (15.119) 4-amino-5-fluoropyrimidin-2-ol (tautomeric form: 4-amino-5-fluoropyrimidin-2(lH)-one), (15.120) propyl 3,4,5-trihydroxybenzoate, (15.121) l,3-dimethyl-N-(l,l,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-carboxamide, (15.122) 1,3-dimethyl-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-lH-inden-4-yl]-lH-pyrazole-4-carboxamide, (15.123) 1,3-dimethyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-lH-inden-4-yl]-lH-pyrazole-4-carboxamide, (15.124) [3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-l,2-oxazol-4-yl](pyridin-3-yl)methanol, (15.125) (S)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-l,2-oxazol-4-yl](pyridin-3-yl)methanol, (15.126) (R)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-l,2-oxazol-4-yl](pyridin-3-yl)methanol, (15.127) 2-{[3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-

yl]methyl}-2,4-dihydro-3H-l,2,4-triazole-3-thione, (15.128) l-{[3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-lH-l,2,4-triazol-5-yl thiocyanate, (15.129) 5-(allylsulfanyl)- 1-{[3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl} -1H-1,2,4-triazole, (15.130) 2-[l-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-l,2,4-triazole-3-thione, (15.131) 2-{[rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl} -2,4-dihydro-3H- l,2,4-triazole-3-thione, (15.1 32) 2-{[rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-2,4-dihydro-3H-l,2,4-triazole-3-thione, (15.133) l-{[rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-lH-l,2,4-triazol-5-yl thiocyanate, (15.134) l-{[rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl} -1H-1,2,4-triazol-5-yl thiocyanate, (15.135) 5-(allylsulfanyl)-l-{[rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-lH-l,2,4-triazole, (15. 136) 5-(allylsulfanyl)-l-{[rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl]methyl}-lH-l,2,4-triazole, (15.137) 2-[(2S,4S,5S)-l-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-l,2,4-triazole-3-thione, (15.138) 2-[(2R,4S,5S)-l-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H- 1,2,4-triazole-3-thione, (15.139) 2-[(2R,4R,5R)- 1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-l,2,4-triazole-3-thione, (15.140) 2-[(2S,4R,5R)-l-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H- 1,2,4-triazole-3 -thione, (15.141) 2-[(2S,4S,5R)- 1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-l,2,4-triazole-3-thione, (15.142) 2-[(2R,4S,5R)-l-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-l,2,4-triazole-3 -thione, (15.143) 2-[(2R,4R,5S)-l-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-l,2,4-triazole-3-thione, (15. 144) 2-[(2S,4R,5S)-l-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-l,2,4-triazole-3-thione, (15.145) 2-fluoro-6-(trifluoromethyl)-N-(l ,1,3-trimethyl-2,3-dihydro- lH-inden-4-yl)benzamide, (15.146) 2-(6-benzylpyridin-2-yl)quinazoline, (15.147) 2-[6-(3-fluoro-4-methoxyphenyl)-5-methylpyridin-2-yl]quinazoline, (15. 148) 3-(4,4-difluoro-3,3-dimethyl-3,4-dihydroisoquinolin-l-yl)quinoline, (15.149) Abscisic acid, (15.150) 3-(difluoromethyl)-N-methoxy-l-methyl-N-[l-(2,4,6-trichlorophenyl)propan-2-yl]-lH-pyrazole-4-carboxamide, (15.151) N'-[5-bromo-6-(2,3-dihydro-lH-inden-2-yloxy)-2-methylpyridin-3-yl]-N-ethyl-N-methylimidoformamide, (15.152) N'-{5-bromo-6-[l-(3,5-difluorophenyl)ethoxy]-2-methylpyridin-3-yl}-N-ethyl-N-methylimidoformamide, (15.153) N'-{5-bromo-6-[(lR)-l-(3,5-difluorophenyl)ethoxy]-2-methylpyridin-3-yl} -N-ethyl-N-methylimidoformamide, (15.154) N'- {5-bromo-6-[(l S)-1-(3,5-difluorophenyl)ethoxy]-2-methylpyridin-3-yl}-N-ethyl-N-methylimidoformamide, (15. 155) N'-{5-bromo-6-[(cis-4-isopropylcyclohexyl)oxy]-2-methylpyridin-3-yl} -N-ethyl-N-methylimidoformamide, (15.1 56) N'- {5-bromo-6-[(trans-4-isopropylcyclohexyl)oxy]-2-methylpyridin-3-yl} -N-ethyl-N-methylimidoformamide, (15.1 57) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)- 1-methyl- 1H-pyrazole-4-carboxamide, (15.158) N-cyclopropyl-N-(2-cyclopropylbenzyl)-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide, (15.159) N-(2-tert-butylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro- 1-methyl- lH-pyrazole-4-carboxamide, (15.1 60) N-(5-chloro-2-ethylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide, (15.161) N-(5-chloro-2-isopropylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl- lH-pyrazole-4-carboxamide, (15.1 62) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-fluorobenzyl)-5-fluoro- 1-methyl- lH-pyrazole-4-carboxamide, (15.163) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(5-fluoro-2-isopropylbenzyl)- 1-methyl- lH-pyrazole-4-carboxamide, (15.1 64) N-cyclopropyl-N-(2-cyclopropyl-5-fluorobenzyl)-3-(difluoromethyl)-5-fluoro-l -methyl- lH-pyrazole-4-carboxamide, (15.165) N-(2-cyclopentyl-5-fluorobenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1 -methyl- lH-pyrazole-4-carboxamide, (15. 166) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-fluoro-6-isopropylbenzyl)- 1-methyl- 1H-pyrazole-4-carboxamide, (15.1 67) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-methylbenzyl)-5-fluoro-l -methyl- lH-pyrazole-4-carboxamide, (15. 168) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropyl-5-methylbenzyl)- 1-methyl- lH-pyrazole-4-carboxamide, (15.169) N-cyclopropyl-N-(2-cyclopropyl-5-methylbenzyl)-3-(difluoromethyl)-5-fluoro-l -methyl- lH-pyrazole-4-carboxamide, (15. 170) N-(2-tert-butyl-5-methylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro- 1-methyl- lH-pyrazole-4-carboxamide, (15.171) N-[5-chloro-2-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro- 1-methyl- 1H-pyrazole-4-carboxamide, (15.1 72) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-N-[5-methyl-2-(trifluoromethyl)benzyl]-lH-pyrazole-4-carboxamide, (15. 173) N-[2-chloro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl- lH-pyrazole-4-carboxamide, (15. 174) N-[3-chloro-2-fluoro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl- 1H-pyrazole-4-carboxamide, (15.1 75) N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-4,5-dimethylbenzyl)-5-fluoro-l -methyl- lH-pyrazole-4-carboxamide, (15.176) N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)- 1-methyl- lH-pyrazole-4-carbothioamide, (15.177) 3-(difluoromethyl)-N-(7-fluoro- 1, 1,3-trimethyl-2,3-dihydro- lH-inden-4-yl)- 1-methyl-lH-pyrazole-4-carboxamide, (15.178) 3-(difluoromethyl)-N-[(3R)-7-fluoro-l,l,3-trimethyl-2,3-dihydro-lH-inden-4-yl]-l -methyl- lH-pyrazole-4-carboxamide, (15.179) 3-(difluoromethyl)-N-[(3S)-7-fluoro-l,l,3-trimethyl-2,3-dihydro-lH-inden-4-yl]-l-methyl-lH-pyrazole-4-carboxamide, (15.1 80) N'-(2,5-dimethyl-4-phenoxyphenyl)-N-ethyl-N-methylimidoformamide, (15.181) N'-{4-[(4,5-dichloro-l,3-thiazol-2-yl)oxy]-2,5-dimethylphenyl}-N-ethyl-N-methylimidoformamide, (15.1 82) N-(4-chloro-2,6-difluorophenyl)-4-(2-chloro-4-fluorophenyl)-l,3-dimethyl-lH-pyrazol-5-amine; (15.183) 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]-l-(lH-l,2,4-triazol-l-yl)propan-2-ol, (15.184) 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]- 1-(1H- 1,2,4-triazol- 1-yl)butan-2-ol, (15.185) 2-[4-(4-chlorophenoxy)-2-(trifluoromethyl)phenyl]- 1-(1H- 1,2,4-triazol- 1-yl)pentan-2-ol, (15.1 86) 2-[2-chloro-4-(4-chlorophenoxy)phenyl] -1-(1H- 1,2,4-triazol- 1-yl)butan-2-ol, (15.187) 2-[2-

chloro-4-(2,4-dichlorophenoxy)phenyl]-1-(1H-1,2,4-triazol-1-yl)propan-2-ol, (15.188) 9-fluoro-2,2-dimethyl-5-(quinolin-3-yl)-2,3-dihydro-l,4-benzoxazepine, (15.189) 2-{2-fluoro-6-[(8-fluoro-2-methylquinolin-3-yl)oxy]phenyl}propan-2-ol, (15.190) 2-{2-[(7,8-difluoro-2-methylquinolin-3-yl)oxy]-6-fluorophenyl}propan-2-ol.

All named mixing partners of the classes (1) to (15) can, if their functional groups enable this, optionally form salts with suitable bases or acids.

The precise amount of compound according to the invention may depend upon the particular plant species being treated. This may be determined by the man skilled in the art with a few experiments and may vary in plant responses depending upon the total amount of compound used, as well as the particular plant species, which is being treated. Of course, the amount of compound should be non-phytotoxic with respect of the plant being treated.

Although a particularly suitable method of application of the compounds used in the process of this invention is directly to the foliage, fruits and stems of plants, such compounds may be also applied to the soil in which the plants are growing. They will then be root-absorbed to a sufficient extent so as to result in plant responses in accordance with the teachings of this invention. The compounds of the invention may also be provided to the treated crop by seed-treatment.

The compounds of the invention are able to regulate plant growth both for monocotyledonous or dicotyledonous plants.
Among the plants that can be protected by the method according to the invention, mention can be made of cotton; flax; vine; fruit or vegetable crops such as *Rosaceae sp.* (for instance pip fruit such as apples and pears, but also stone fruit such as apricots, almonds and peaches), *Ribesioidae sp., Juglandaceae sp., Betulaceae sp., Anacardiaceae sp., Fagaceae sp., Moraceae sp., Oleaceae sp., Actinidaceae sp., Lauraceae sp., Musaceae sp.* (for instance banana trees and plantins), *Rubiaceae sp., Theaceae sp., Sterculiceae sp., Rutaceae sp.* (for instance lemons oranges and grapefruit); *Solanaceae sp.* (for instance tomatoes), *Liliaceae sp., Asteraceae sp.* (for instance lettuces), *Umbelliferae sp., Cruciferae sp., Chenopodiaceae sp., Cucurbitaceae sp., Papilionaceae sp.* (for instance peas), *Rosaceae sp.* (for instance strawberries); major crops such as *Graminae sp.* (for instance maize, lawn or cereals such as wheat, rice, barley and triticale), *Asteraceae sp.* (for instance sunflower), *Cruciferae sp.* (for instance colza), *Fabacae sp.* (for instance peanuts), *Papilionaceae sp.* (for instance soybean), *Solanaceae sp.* (for instance potatoes), *Chenopodiaceae sp.* (for instance beetroots); horticultural crops such as *Rosaceae sp.* (for examples rose) and forest crops; oil-rich plants such as *Brassicaceae sp.* (for instance oilseed rape), *Asteraceae sp.* (for instance sunflower); grasses such as turf, as well as

genetically modified homologues of these crops.

The compounds of the invention are particularly suitable for regulating plant growth of cotton, vine, cereals (such as wheat, rice, barley, triticale), corn, soybean, oilseed rape, sunflower, turf, horticultural crops, shrubs, fruit-trees and fruit-plants (such as apple-tree, peer-tree, citrus, banana, coffea, strawberry plant, raspberry plant), vegetables, particularly cereals, corn, oilseed rape, shrubs, fruit-trees and fruit-plants, vegetables and vines.

According to the invention all plants and plant parts can be treated. By plants is meant all plants and plant populations such as desirable and undesirable wild plants, cultivars and plant varieties (whether or not protectable by plant variety or plant breeder's rights). Cultivars and plant varieties can be plants obtained by conventional propagation and breeding methods which can be assisted or supplemented by one or more biotechnological methods such as by use of double haploids, protoplast fusion, random and directed mutagenesis, molecular or genetic markers or by bioengineering and genetic engineering methods. By plant parts is meant all above ground and below ground parts and organs of plants such as shoot, leaf, blossom and root, whereby for example leaves, needles, stems, branches, blossoms, fruiting bodies, fruits and seed as well as roots, corms and rhizomes are listed. Crops and vegetative and generative propagating material, for example cuttings, corms, rhizomes, runners and seeds also belong to plant parts.

Among the plants that can be protected by the method according to the invention, mention may be made of major field crops like corn, soybean, cotton, *Brassica* oilseeds such as *Brassica napus* (e.g. canola), *Brassica rapa*, *B. juncea* (e.g. mustard) and *Brassica carinata*, rice, wheat, sugarbeet, sugarcane, oats, rye, barley, millet, triticale, flax, vine and various fruits and vegetables of various botanical taxa such as *Rosaceae sp.* (for instance pip fruit such as apples and pears, but also stone fruit such as apricots, cherries, almonds and peaches, berry fruits such as strawberries), *Ribesioidae sp.*, *Juglandaceae sp.*, *Betulaceae sp.*, *Anacardiaceae sp.*, *Fagaceae sp.*, *Moraceae sp.*, *Oleaceae sp.*, *Actinidaceae sp.*, *Lauraceae sp.*, *Musaceae sp.* (for instance banana trees and plantings), *Rubiaceae sp.* (for instance coffee), *Theaceae sp.*, *Sterculiceae sp.*, *Rutaceae sp.* (for instance lemons, oranges and grapefruit) ; *Solanaceae sp.* (for instance tomatoes, potatoes, peppers, eggplant), *Liliaceae sp.*, Compositiae *sp.* (for instance lettuce, artichoke and chicory - including root chicory, endive or common chicory), *Umbelliferae sp.* (for instance carrot, parsley, celery and celeriac), *Cucurbitaceae sp.* (for instance cucumber - including pickling cucumber, squash, watermelon, gourds and melons), *Alliaceae* sp. (for instance onions and leek), Cruciferae *sp.* (for instance white cabbage, red cabbage, broccoli, cauliflower, brussel sprouts, pak choi, kohlrabi, radish, horseradish, cress, Chinese cabbage), Leguminosae *sp.* (for instance peanuts, peas and beans beans - such as climbing beans and broad beans), *Chenopodiaceae sp.* (for instance mangold, spinach beet, spinach, beetroots), *Malvaceae* (for instance okra), *Asparagaceae* (for instance asparagus); horticultural and forest crops; ornamental plants; as well as genetically modified homologues of these crops.

The method of treatment according to the invention can be used in the treatment of genetically modified organisms (GMOs), e.g. plants or seeds. Genetically modified plants (or transgenic plants) are plants of which a heterologous gene has been stably integrated into genome. The expression "heterologous gene" essentially means a gene which is provided or assembled outside the plant and when introduced in the nuclear, chloroplastic or mitochondrial genome gives the transformed plant new or improved agronomic or other properties by expressing a protein or polypeptide of interest or by downregulating or silencing other gene(s) which are present in the plant (using for example, antisense technology, cosuppression technology, RNA interference - RNAi - technology or microRNA - miRNA - technology). A heterologous gene that is located in the genome is also called a transgene. A transgene that is defined by its particular location in the plant genome is called a transformation or transgenic event.

Depending on the plant species or plant cultivars, their location and growth conditions (soils, climate, vegetation period, diet), the treatment according to the invention may also result in superadditive ("synergistic") effects. Thus, for example, reduced application rates and/or a widening of the activity spectrum and/or an increase in the activity of the active compounds and compositions which can be used according to the invention, better plant growth, increased tolerance to high or low temperatures, increased tolerance to drought or to water or soil salt content, increased flowering performance, easier harvesting, accelerated maturation, higher harvest yields, bigger fruits, larger plant height, greener leaf color, earlier flowering, higher quality and/or a higher nutritional value of the harvested products, higher sugar concentration within the fruits, better storage stability and/or processability of the harvested products are possible, which exceed the effects which were actually to be expected.

At certain application rates, the active compound combinations according to the invention may also have a strengthening effect in plants. Accordingly, they are also suitable for mobilizing the defense system of the plant against attack by unwanted microorganisms. This may, if appropriate, be one of the reasons of the enhanced activity of the combinations according to the invention, for example against fungi. Plant-strengthening (resistance-inducing) substances are to be understood as meaning, in the present context, those substances or combinations of substances which are capable of stimulating the defense system of plants in such a way that, when subsequently inoculated with unwanted microorganisms, the treated plants display a substantial degree of resistance to these microorganisms. In the present case, unwanted microorganisms are to be understood as meaning phytopathogenic fungi, bacteria and viruses. Thus, the substances according to the invention can be employed for protecting plants against attack by the abovementioned pathogens within a certain period of time after the treatment. The period of time within which protection is effected generally extends from 1 to 10 days, preferably 1 to 7 days, after the treatment of the plants with the active compounds.

Plants and plant cultivars which are preferably to be treated according to the invention include all plants which have genetic material which impart particularly advantageous, useful traits to these plants (whether obtained by breeding and/or biotechnological means).

Plants and plant cultivars which are also preferably to be treated according to the invention are resistant against one or more biotic stresses, i.e. said plants show a better defense against animal and microbial pests, such as against nematodes, insects, mites, phytopathogenic fungi, bacteria, viruses and/or viroids.

Examples of nematode resistant plants are described in e.g. US Patent Application Nos 11/765,491, 11/765,494, 10/926,819, 10/782,020, 12/032,479, 10/783,417, 10/782,096, 11/657,964, 12/192,904, 11/396,808, 12/166,253, 12/166,239, 12/166,124, 12/166,209, 11/762,886, 12/364,335, 11/763,947, 12/252,453, 12/209,354, 12/491,396, 12/497,221, 12/644,632, 12/646,004, 12/701,058, 12/718,059, 12/721,595, 12/638,591 and in WOl 1/002992, WOl 1/014749, WOl 1/103247, WOl 1/103248.

Plants and plant cultivars which may also be treated according to the invention are those plants which are resistant to one or more abiotic stresses. Abiotic stress conditions may include, for example, drought, cold temperature exposure, heat exposure, osmotic stress, flooding, increased soil salinity, increased mineral exposure, ozone exposure, high light exposure, limited availability of nitrogen nutrients, limited availability of phosphorus nutrients, shade avoidance.

Plants and plant cultivars which may also be treated according to the invention, are those plants characterized by enhanced yield characteristics. Increased yield in said plants can be the result of, for example, improved plant physiology, growth and development, such as water use efficiency, water retention efficiency, improved nitrogen use, enhanced carbon assimilation, improved photosynthesis, increased germination efficiency and accelerated maturation. Yield can furthermore be affected by improved plant architecture (under stress and non-stress conditions), including but not limited to, early flowering, flowering control for hybrid seed production, seedling vigor, plant size, internode number and distance, root growth, seed size, fruit size, pod size, pod or ear number, seed number per pod or ear, seed mass, enhanced seed filling, reduced seed dispersal, reduced pod dehiscence and lodging resistance. Further yield traits include seed composition, such as carbohydrate content, protein content, oil content and composition, nutritional value, reduction in anti-nutritional compounds, improved processability and better storage stability.

Plants that may be treated according to the invention are hybrid plants that already express the characteristic of heterosis or hybrid vigor which results in generally higher yield, vigor, health and resistance towards biotic and abiotic stresses). Such plants are typically made by crossing an inbred male-sterile parent line (the female parent) with another inbred male-fertile parent line (the male parent). Hybrid seed is typically harvested from the male sterile plants and sold to growers. Male sterile plants can sometimes (e.g. in corn) be produced by detasseling, i.e. the mechanical removal of the male reproductive organs (or males flowers) but, more typically, male sterility is the result of genetic determinants in the plant genome. In that case, and especially when seed is the desired product to be harvested from the hybrid plants it is typically useful to ensure that male fertility in the hybrid plants is fully restored. This can be accomplished by ensuring that the male parents have appropriate fertility restorer genes which are capable of restoring the male fertility in hybrid plants that contain the genetic determinants responsible for male-sterility. Genetic determinants for male sterility may be located in the cytoplasm. Examples of cytoplasmic male sterility (CMS) were for instance described in Brassica species (W0 92/05251, WO 95/09910, WO 98/27806, WO 05/002324, WO 06/021972 and US 6,229,072). However, genetic determinants for male sterility can also be located in the nuclear genome. Male sterile plants can also be obtained by plant biotechnology methods such as genetic engineering. A particularly useful means of obtaining male-sterile plants is described in WO 89/10396 in which, for example, a ribonuclease such as barnase is selectively expressed in the tapetum cells in the stamens. Fertility can then be restored by expression in the tapetum cells of a ribonuclease inhibitor such as barstar (e.g. WO 91/02069).

Plants or plant cultivars (obtained by plant biotechnology methods such as genetic engineering) which may be treated according to the invention are herbicide-tolerant plants, i.e. plants made tolerant to one or more given herbicides. Such plants can be obtained either by genetic transformation, or by selection of plants containing a mutation imparting such herbicide tolerance.

Herbicide-resistant plants are for example glyphosate-tolerant plants, i.e. plants made tolerant to the herbicide glyphosate or salts thereof. Plants can be made tolerant to glyphosate through different means. For example, glyphosate-tolerant plants can be obtained by transforming the plant with a gene encoding the enzyme 5-enolpymvylshikimate-3 -phosphate synthase (EPSPS). Examples of such EPSPS genes are the AroA gene (mutant CT7) of the bacterium Salmonella typhimurium (Comai et al, 1983, Science 221, 370-371), the CP4 gene of the bacterium Agrobacterium sp. (Barry et al, 1992, Curr. Topics Plant Physiol. 7, 139-145), the genes encoding a Petunia EPSPS (Shah et al, 1986, Science 233, 478-481), a Tomato EPSPS (Gasser et al, 1988, J. Biol. Chem. 263, 4280-4289), or an Eleusine EPSPS (WO 01/66704). It can also be a mutated EPSPS as described in for example EP 0837944, WO 00/66746, WO 00/66747, WO02/26995, WOl 1/000498. Glyphosate-tolerant plants can also be obtained by expressing a gene that encodes a glyphosate oxido-reductase enzyme as described in U.S. Patent Nos. 5,776,760 and 5,463,175. Glyphosate-tolerant plants can also be obtained by expressing a gene that encodes a glyphosate acetyl transferase enzyme as described in for example WO 02/36782, WO 03/092360, WO 05/012515 and WO 07/024782. Glyphosate-tolerant plants can also be obtained by selecting plants containing naturally-occurring mutations of the above-mentioned genes, as described in for example WO 01/024615 or WO 03/013226. Plants expressing EPSPS genes that confer glyphosate tolerance are described in e.g. US Patent Application Nos 11/517,991, 10/739,610, 12/139,408, 12/352,532, 11/312,866, 11/315,678, 12/421,292, 11/400,598, 11/651,752, 11/681,285, 11/605,824, 12/468,205, 11/760,570, 11/762,526, 11/769,327, 11/769,255, 11/943801 or 12/362,774. Plants comprising other genes that confer glyphosate tolerance, such as decarboxylase genes, are described in e.g. US patent applications 11/588,811, 11/185,342, 12/364,724, 11/185,560 or 12/423,926.

Other herbicide resistant plants are for example plants that are made tolerant to herbicides inhibiting the enzyme glutamine synthase, such as bialaphos, phosphinothricin or glufosinate. Such plants can be obtained by expressing an enzyme detoxifying the herbicide or a mutant glutamine synthase enzyme that is resistant to inhibition, e.g. described in US Patent Application No 11/760,602. One such efficient detoxifying enzyme is an enzyme encoding a phosphinothricin acetyltransferase (such as the bar or pat protein from Streptomyces species). Plants expressing an exogenous phosphinothricin acetyltransferase are for example described in U.S. Patent Nos. 5,561,236; 5,648,477; 5,646,024; 5,273,894; 5,637,489; 5,276,268; 5,739,082; 5,908,810 and 7,112,665.

Further herbicide-tolerant plants are also plants that are made tolerant to the herbicides inhibiting the enzyme hydroxyphenylpyruvatedioxygenase (HPPD). HPPD is an enzyme that catalyze the reaction in which para-hydroxyphenylpyruvate (HPP) is transformed into homogentisate. Plants tolerant to HPPD-inhibitors can be transformed with a gene encoding a naturally-occurring resistant HPPD enzyme, or a gene encoding a mutated or chimeric HPPD enzyme as described in WO 96/38567, WO 99/24585, WO 99/24586, WO 2009/144079, WO 2002/046387, or US 6,768,044, WOl 1/076877, WOl 1/076882, WOl 1/076885, WOl 1/076889, WOl 1/076892. Tolerance to HPPD-inhibitors can also be obtained by transforming plants with genes encoding certain enzymes enabling the formation of homogentisate despite the inhibition of the native HPPD enzyme by the HPPD-inhibitor. Such plants and genes are described in WO 99/34008 and WO 02/36787. Tolerance of plants to HPPD inhibitors can also be improved by transforming plants with a gene encoding an enzyme having prephenate deshydrogenase (PDH) activity in addition to a gene encoding an HPPD-tolerant enzyme, as described in WO 2004/024928. Further, plants can be made more tolerant to HPPD-inhibitor herbicides by adding into their genome a gene encoding an enzyme capable of metabolizing or degrading HPPD inhibitors, such as the CYP450 enzymes shown in WO 2007/103567 and WO 2008/150473.

Still further herbicide resistant plants are plants that are made tolerant to acetolactate synthase (ALS) inhibitors. Known ALS-inhibitors include, for example, sulfonylurea, imidazolmone, triazolopyrimidmes, pryimidmyoxy(tnio)benzoates, and/or sulfonylaminocarbonyltriazolinone herbicides. Different mutations in the ALS enzyme (also known as acetohydroxyacid synthase, AHAS) are known to confer tolerance to different herbicides and groups of herbicides, as described for example in Tranel and Wright (2002, Weed Science 50:700-712), but also, in U.S. Patent No. 5,605,011, 5,378,824, 5,141,870, and 5,013,659. The production of sulfonylurea-tolerant plants and imidazolinone-tolerant plants is described in U.S. Patent Nos. 5,605,011; 5,013,659; 5,141,870; 5,767,361; 5,731,180; 5,304,732; 4,761,373; 5,331,107; 5,928,937; and 5,378,824; and international publication WO 96/33270. Other imidazolinone-tolerant plants are also described in for example WO 2004/040012, WO 2004/106529, WO 2005/020673, WO 2005/093093, WO 2006/007373, WO 2006/015376, WO 2006/024351, and WO 2006/060634. Further sulfonylurea- and imidazolinone-tolerant plants are also described in for example WO 07/024782, WOl 1/076345, WO2012058223 and US Patent Application No 61/288958.

Other plants tolerant to imidazolinone and/or sulfonylurea can be obtained by induced mutagenesis, selection in cell cultures in the presence of the herbicide or mutation breeding as described for example for soybeans in U.S. Patent 5,084,082, for rice in WO 97/41218, for sugar beet in U.S. Patent 5,773,702 and WO 99/057965, for lettuce in U.S. Patent 5,198,599, or for sunflower in WO 01/065922.

Plants or plant cultivars (obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are insect-resistant transgenic plants, i.e. plants made resistant to attack by certain target insects. Such plants can be obtained by genetic transformation, or by selection of plants containing a mutation imparting such insect resistance.

An "insect-resistant transgenic plant", as used herein, includes any plant containing at least one transgene comprising a coding sequence encoding:

1) an insecticidal crystal protein from Bacillus thuringiensis or an insecticidal portion thereof, such as the insecticidal crystal proteins listed by Crickmore et al. (1998, Microbiology and Molecular Biology Reviews, 62: 807-813), updated by Crickmore et al. (2005) at the Bacillus thuringiensis toxin nomenclature, online at: http://www.lifesci.sussex.ac.uk/Home/Neil_Crickmore/Bt/), or insecticidal portions thereof, e.g., proteins of the Cry protein classes CrylAb, CrylAc,

Cry1B, CrylC, CrylD, CrylF, Cry2Ab, Cry3Aa, or Cry3Bb or insecticidal portions thereof (e.g. EP 1999141 and WO 2007/107302), or such proteins encoded by synthetic genes as e.g. described in and US Patent Application No 12/249,016 ; or

2) a crystal protein from Bacillus thuringiensis or a portion thereof which is insecticidal in the presence of a second other crystal protein from Bacillus thuringiensis or a portion thereof, such as the binary toxin made up of the Cry34 and Cry35 crystal proteins (Moellenbeck et al. 2001, Nat. Biotechnol. 19: 668-72; Schnepf et al. 2006, Applied Environm. Microbiol. 71, 1765-1774) or the binary toxin made up of the CrylA or CrylF proteins and the Cry2Aa or Cry2Ab or Cry2Ae proteins (US Patent Appl. No. 12/214,022 and EP 08010791.5); or

3) a hybrid insecticidal protein comprising parts of different insecticidal crystal proteins from Bacillus thuringiensis, such as a hybrid of the proteins of 1) above or a hybrid of the proteins of 2) above, e.g., the CrylA.105 protein produced by corn event MON89034 (WO 2007/027777); or

4) a protein of any one of 1) to 3) above wherein some, particularly 1 to 10, amino acids have been replaced by another amino acid to obtain a higher insecticidal activity to a target insect species, and/or to expand the range of target insect species affected, and/or because of changes introduced into the encoding DNA during cloning or transformation, such as the Cry3Bbl protein in corn events MON863 or MON88017, or the Cry3A protein in corn event MIR604; or

5) an insecticidal secreted protein from Bacillus thuringiensis or Bacillus cereus, or an insecticidal portion thereof, such as the vegetative insecticidal (VIP) proteins listed at: http://www.lifesci.sussex.ac.uk/home/Neil_Crickmore/Bt/vip.html, e.g., proteins from the VIP3Aa protein class; or

6) a secreted protein from Bacillus thuringiensis or Bacillus cereus which is insecticidal in the presence of a second secreted protein from Bacillus thuringiensis or B. cereus, such as the binary toxin made up of the VIP1A and VIP2A proteins (WO 94/21795); or

7) a hybrid msecticidal protein comprising parts from different secreted proteins from Bacillus thuringiensis or Bacillus cereus, such as a hybrid of the proteins in 1) above or a hybrid of the proteins in 2) above; or

8) a protein of any one of 5) to 7) above wherein some, particularly 1 to 10, amino acids have been replaced by another amino acid to obtain a higher insecticidal activity to a target insect species, and/or to expand the range of target insect species affected, and/or because of changes introduced into the encoding DNA during cloning or transformation (while still encoding an insecticidal protein), such as the VIP3Aa protein in cotton event COT102; or

9) a secreted protein from Bacillus thuringiensis or Bacillus cereus which is insecticidal in the presence of a crystal protein from Bacillus thuringiensis, such as the binary toxin made up of VIP3 and CrylA or CrylF (US Patent Appl. No. 61/126083 and 61/195019), or the binary toxin made up of the VIP3 protein and the Cry2Aa or Cry2Ab or Cry2Ae proteins (US Patent Appl. No. 12/214,022 and EP 08010791.5).

10) a protein of 9) above wherein some, particularly 1 to 10, amino acids have been replaced by another amino acid to obtain a higher insecticidal activity to a target insect species, and/or to expand the range of target insect species affected, and/or because of changes introduced into the encoding DNA during cloning or transformation (while still encoding an insecticidal protein)

Of course, an insect-resistant transgenic plant, as used herein, also includes any plant comprising a combination of genes encoding the proteins of any one of the above classes 1 to 10. In one embodiment, an insect-resistant plant contains more than one transgene encoding a protein of any one of the above classes 1 to 10, to expand the range of target insect species affected when using different proteins directed at different target insect species, or to delay insect resistance development to the plants by using different proteins insecticidal to the same target insect species but having a different mode of action, such as binding to different receptor binding sites in the insect.

An "insect-resistant transgenic plant", as used herein, further includes any plant containing at least one transgene comprising a sequence producing upon expression a double-stranded RNA which upon ingestion by a plant insect pest inhibits the growth of this insect pest, as described e.g. in WO 2007/080126, WO 2006/129204, WO 2007/074405, WO 2007/080127 and WO 2007/035650.

Plants or plant cultivars (obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are tolerant to abiotic stresses. Such plants can be obtained by genetic transformation, or by selection of plants containing a mutation imparting such stress resistance. Particularly useful stress tolerance plants include:

1) plants which contain a transgene capable of reducing the expression and/or the activity of poly(ADP-ribose) polymerase (PARP) gene in the plant cells or plants as described in WO 00/04173, WO/2006/045633, EP 04077984.5, or EP 06009836.5.

2) plants which contain a stress tolerance enhancing transgene capable of reducing the expression and/or the activity of the PARG encoding genes of the plants or plants cells, as described e.g. in WO 2004/090140.

3) plants which contain a stress tolerance enhancing transgene coding for a plant-functional enzyme of the nicotineamide adenine dinucleotide salvage synthesis pathway including nicotinamidase, nicotinate phosphoribosyltransferase, nicotinic acid mononucleotide adenyl transferase, nicotinamide adenine dinucleotide synthetase or nicotine amide phosphorybosyltransferase as described e.g. in EP 04077624.7, WO 2006/133827, PCT/EP07/002433, EP 1999263, or WO 2007/107326.

Plants or plant cultivars (obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention show altered quantity, quality and/or storage-stability of the harvested product and/or altered properties of specific ingredients of the harvested product such as :

1) transgenic plants which synthesize a modified starch, which in its physical-chemical characteristics, in particular the amylose content or the amylose/amylopectin ratio, the degree of branching, the average chain length, the side chain distribution, the viscosity behaviour, the gelling strength, the starch grain size and/or the starch grain morphology, is changed in comparison with the synthesised starch in wild type plant cells or plants, so that this is better suited for special applications. Said transgenic plants synthesizing a modified starch are disclosed, for example, in EP 0571427, WO 95/04826, EP 0719338,

WO 96/15248, WO 96/19581, WO 96/27674, WO 97/1 1188, WO 97/26362, WO 97/32985, WO 97/42328, WO 97/44472, WO 97/45545, WO 98/27212, WO 98/40503, W099/58688, WO 99/58690, WO 99/58654, WO 00/08184, WO 00/08185, WO 00/08175, WO 00/28052, WO 00/77229, WO 01/12782, WO 01/12826, WO 02/101059, WO 03/071860, WO 2004/056999, WO 2005/030942, WO 2005/030941, WO 2005/095632, WO 2005/095617, WO 2005/095619, WO 2005/095618, WO 2005/123927, WO 2006/018319, WO 2006/103107, WO 2006/108702, WO 2007/009823, WO 00/22140, WO 2006/063862, WO 2006/072603, WO 02/034923, EP 06090134.5, EP 06090228.5, EP 06090227.7, EP 07090007.1, EP 07090009.7, WO 01/14569, WO 02/79410, WO 03/33540, WO 2004/078983, WO 01/19975, WO 95/26407, WO 96/34968, WO 98/20145, WO 99/12950, WO 99/66050, WO 99/53072, US 6,734,341, WO 00/1 1192, WO 98/22604, WO 98/32326, WO 01/98509, WO 01/98509, WO 2005/002359, US 5,824,790, US 6,013,861, WO 94/04693, WO 94/09144, WO 94/1 1520, WO 95/35026, WO 97/20936, WO 10/012796, WO 10/003701

2) transgenic plants which synthesize non starch carbohydrate polymers or which synthesize non starch carbohydrate polymers with altered properties in comparison to wild type plants without genetic modification. Examples are plants producing polyfructose, especially of the inulin and levan-type, as disclosed in EP 0663956, WO 96/01904, WO 96/21023, WO 98/39460, and WO 99/24593, plants producing alpha-1,4-glucans as disclosed in WO 95/31553, US 2002031826, US 6,284,479, US 5,712,107, WO 97/47806, WO 97/47807, WO 97/47808 and WO 00/14249, plants producing alpha-1,6 branched alpha-1,4-glucans, as disclosed in WO 00/73422, plants producing alternan, as disclosed in e.g. WO 00/47727, WO 00/73422, EP 06077301.7, US 5,908,975 and EP 0728213,

3) transgenic plants which produce hyaluronan, as for example disclosed in WO 2006/032538, WO 2007/039314, WO 2007/039315, WO 2007/039316, JP 2006304779, and WO 2005/012529.

4) transgenic plants or hybrid plants, such as onions with characteristics such as 'high soluble solids content', 'low pungency' (LP) and/or 'long storage' (LS), as described in US Patent Appl. No. 12/020,360 and 61/054,026.

5) Transgenic plants displaying an increase yield as for example disclosed in WOl 1/095528

Plants or plant cultivars (that can be obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are plants, such as cotton plants, with altered fiber characteristics. Such plants can be obtained by genetic transformation, or by selection of plants contain a mutation imparting such altered fiber characteristics and include:

a) Plants, such as cotton plants, containing an altered form of cellulose synthase genes as described in WO 98/00549
b) Plants, such as cotton plants, containing an altered form of rsw2 or rsw3 homologous nucleic acids as described in WO 2004/053219
c) Plants, such as cotton plants, with increased expression of sucrose phosphate synthase as described in WO 01/17333
d) Plants, such as cotton plants, with increased expression of sucrose synthase as described in WO 02/45485
e) Plants, such as cotton plants, wherein the timing of the plasmodesmatal gating at the basis of the fiber cell is altered, e.g. through downregulation of fiber-selective P-l,3-glucanase as described in WO 2005/017157, or as described in EP 08075514.3 or US Patent Appl. No. 61/128,938
f) Plants, such as cotton plants, having fibers with altered reactivity, e.g. through the expression of N-acetylglucosaminetransferase gene including nodC and chitin synthase genes as described in WO 2006/136351 WOl 1/089021, WO2012074868

Plants or plant cultivars (that can be obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are plants, such as oilseed rape or related Brassica plants, with altered oil profile characteristics. Such plants can be obtained by genetic transformation, or by selection of plants contain a mutation imparting such altered oil profile characteristics and include:

a) Plants, such as oilseed rape plants, producing oil having a high oleic acid content as described e.g. in US 5,969,169, US 5,840,946 or US 6,323,392 or US 6,063,947
b) Plants such as oilseed rape plants, producing oil having a low linolenic acid

content as described in US 6,270,828, US 6,169,190, US 5,965,755, or WO11/060946.

c) Plant such as oilseed rape plants, producing oil having a low level of saturated fatty acids as described e.g. in US Patent No. 5,434,283 or US Patent Application No 12/668303

d) Plants such as oilseed rape plants, producing oil having an aleter glucosinolate content as described in WO2012075426.

Plants or plant cultivars (that can be obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are plants, such as oilseed rape or related Brassica plants, with altered seed shattering characteristics. Such plants can be obtained by genetic transformation, or by selection of plants contain a mutation imparting such altered seed shattering characteristics and include plants such as oilseed rape plants with delayed or reduced seed shattering as described in US Patent Appl. No. 61/135,230, WO09/068313, WO10/006732 and WO2012090499.

Plants or plant cultivars (that can be obtained by plant biotechnology methods such as genetic engineering) which may also be treated according to the invention are plants, such as Tobacco plants, with altered post-translational protein modification patterns, for example as described in WO 10/121818 and WO 10/145846

Particularly useful transgenic plants which may be treated according to the invention are plants containing transformation events, or combination of transformation events, that are the subject of petitions for non-regulated status, in the United States of America, to the Animal and Plant Health Inspection Service (APHIS) of the United States Department of Agriculture (USDA) whether such petitions are granted or are still pending. At any time this information is readily available from APHIS (4700 River Road
Riverdale, MD 20737, USA), for instance on its internet site (URL http://www.aphis.usda.gov/brs/not_reg.html). On the filing date of this application the petitions for nonregulated status that were pending with APHIS or granted by APHIS were those which contains the following information:

- Petition : the identification number of the petition. Technical descriptions of the transformation events can be found in the individual petition documents which are obtainable from APHIS, for example on the APHIS website, by reference to this petition number. These descriptions are herein incorporated by reference.
- Extension of Petition : reference to a previous petition for which an extension is requested.
- Institution : the name of the entity submitting the petition.
- Regulated article : the plant species concerned.
- Transgenic phenotype : the trait conferred to the plants by the transformation event.
- Transformation event or line : the name of the event or events (sometimes also designated as lines or lines) for which nonregulated status is requested.
- APHIS documents : various documents published by APHIS in relation to the Petition and which can be requested with APHIS.

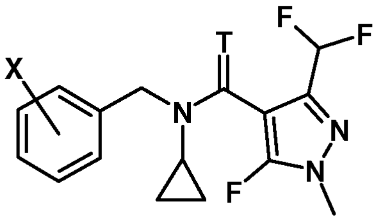
Additional particularly useful plants containing single transformation events or combinations of transformation events are listed for example in the databases from various national or regional regulatory agencies (see for example http://gmoinfo.jrc.it/gmp_browse.aspx and http://www.agbios.com/dbase.php).

Particularly useful transgenic plants which may be treated according to the invention are plants containing transformation events, or a combination of transformation events, and that are listed for example in the databases for various national or regional regulatory agencies including Event 1143-14A (cotton, insect control, not deposited, described in WO2006/128569); Event 1143-5 IB (cotton, insect control, not deposited, described in WO2006/128570); Event 1445 (cotton, herbicide tolerance, not deposited, described in US2002120964 or WO2002/034946); Event 17053 (rice, herbicide tolerance, deposited as PTA-9843, described in WO20 10/1 17737); Event 17314 (rice, herbicide tolerance, deposited as PTA-9844, described in WO20 10/1 17735); Event 281-24-236 (cotton, insect control - herbicide tolerance, deposited as PTA-6233, described in WO2005/1 03266 or US20052 16969); Event 3006-210-23 (cotton, insect control - herbicide tolerance, deposited as PTA-6233, described in US2007143876 or WO2005/1 03266); Event 3272 (corn, quality trait, deposited as PTA-9972, described in

WO2006098952 or US2006230473); Event 40416 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-1 1508, described in WO201 1/075593); Event 43A47 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-1 1509, described in WO201 1/075595); Event 5307 (corn, insect control, deposited as ATCC PTA-9561, described in WO20 10/0778 16); Event ASR-368 (bent grass, herbicide tolerance, deposited as ATCC PTA-4816, described in US2006 162007 or WO2004053062); Event B16 (corn, herbicide tolerance, not deposited, described in US2003 126634); Event BPS-CV127-9 (soybean, herbicide tolerance, deposited as NCIMB No. 41603, described in WO20 10/080829); Event CE43-67B (cotton, insect control, deposited as DSM ACC2724, described in US20092 17423 or WO2006/128573); Event CE44-69D (cotton, insect control, not deposited, described in US20 100024077); Event CE44-69D (cotton, insect control, not deposited, described in WO2006/128571); Event CE46-02A (cotton, insect control, not deposited, described in WO2006/128572); Event COT102 (cotton, insect control, not deposited, described in US2006130175 or WO2004039986); Event COT202 (cotton, insect control, not deposited, described in US2007067868 or WO2005054479); Event COT203 (cotton, insect control, not deposited, described in WO2005/054480); Event DAS40278 (corn, herbicide tolerance, deposited as ATCC PTA- 10244, described in WO20 11/022469); Event DAS-59122-7 (corn, insect control - herbicide tolerance, deposited as ATCC PTA 11384 , described in US2006070139); Event DAS-59132 (corn, insect control - herbicide tolerance, not deposited, described in WO2009/100188); Event DAS68416 (soybean, herbicide tolerance, deposited as ATCC PTA- 10442, described in WO201 1/066384 or WO20 11/066360); Event DP-098140-6 (corn, herbicide tolerance, deposited as ATCC PTA-8296, described in US2009137395 or WO2008/1 12019); Event DP-305423-1 (soybean, quality trait, not deposited, described in US20083 12082 or WO2008/054747); Event DP-32138-1 (corn, hybridization system, deposited as ATCC PTA-9158, described in US20090210970 or WO2009/1 03049); Event DP-356043-5 (soybean, herbicide tolerance, deposited as ATCC PTA-8287, described in US20 100 184079 or WO2008/002872); Event EE-1 (brinjal, insect control, not deposited, described in WO2007/091277); Event FI1 17 (com, herbicide tolerance, deposited as ATCC 209031, described in US2006059581 or WO 1998/044 140); Event GA21 (com, herbicide tolerance, deposited as ATCC 209033, described in US2005086719 or WO 1998/044 140); Event GG25 (com, herbicide tolerance, deposited as ATCC 209032, described in US2005188434 or WO 1998/044 140); Event GHB1 19 (cotton, insect control - herbicide tolerance, deposited as ATCC PTA-8398, described in WO2008/151780); Event GHB614 (cotton, herbicide tolerance, deposited as ATCC PTA-6878, described in US2010050282 or WO2007/017186); Event GJ1 1 (corn, herbicide tolerance, deposited as ATCC 209030, described in US2005 188434 or WO 1998/044 140); Event GM RZ13 (sugar beet, virus resistance , deposited as NCIMB-41601, described in WO20 10/0762 12); Event H7-1 (sugar beet, herbicide tolerance, deposited as NCIMB 4 1158 or NCIMB 4 1159, described in US2004172669 or WO2004/074492); Event JOPLIN1 (wheat, disease tolerance, not deposited, described in US2008064032); Event LL27 (soybean, herbicide tolerance, deposited as NCIMB41658, described in WO2006/108674 or US2008320616); Event LL55 (soybean, herbicide tolerance, deposited as NCIMB 41660, described in WO2006/108675 or US2008196127); Event LLcotton25 (cotton, herbicide tolerance, deposited as ATCC PTA-3343, described in WO2003013224 or US2003097687); Event LLRICE06 (rice, herbicide tolerance, deposited as ATCC-23352, described in US6468747 or WO2000/026345); Event LLRICE601 (rice, herbicide tolerance, deposited as ATCC PTA-2600, described in US20082289060 or WO2000/026356); Event LY038 (corn, quality trait, deposited as ATCC PTA-5623, described in US2007028322 or WO2005061720); Event MIR162 (corn, insect control, deposited as PTA-8166, described in US2009300784 or WO2007/142840); Event MIR604 (corn, insect control, not deposited, described in US2008167456 or WO2005 103301); Event MON15985 (cotton, insect control, deposited as ATCC PTA-2516, described in US2004-250317 or WO2002/100163); Event MON810 (corn, insect control, not deposited, described in US2002102582); Event MON863 (corn, insect control, deposited as ATCC PTA-2605, described in WO2004/01 1601 or US2006095986); Event MON87427 (corn, pollination control, deposited as ATCC PTA-7899, described in WO20 11/062904); Event MON87460 (corn, stress tolerance, deposited as ATCC PTA-8910, described in WO2009/1 11263 or US201 10138504); Event MON87701 (soybean, insect control, deposited as ATCC PTA-8194, described in US2009 130071 or WO2009/064652); Event MON87705 (soybean, quality trait - herbicide tolerance, deposited as ATCC PTA-9241, described in US20 100080887 or WO20 10/0370 16); Event MON87708 (soybean, herbicide tolerance, deposited as ATCC PTA9670, described in WO20 11/034704); Event MON87754 (soybean, quality trait, deposited as ATCC PTA-9385, described in WO20 10/024976); Event MON87769 (soybean, quality trait, deposited as ATCC PTA-891 1, described in US201 10067141 or

WO2009/102873); Event MON88017 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-5582, described in US2008028482 or WO2005/059103); Event MON88913 (cotton, herbicide tolerance, deposited as ATCC PTA-4854, described in WO2004/072235 or US2006059590); Event MON89034 (corn, insect control, deposited as ATCC PTA-7455, described in WO2007/140256 or US2008260932); Event MON89788 (soybean, herbicide tolerance, deposited as ATCC PTA-6708, described in US2006282915 or WO2006/1 30436); Event MSl l (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-850 or PTA-2485, described in WO200 1/03 1042); Event MS8, (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-730, described in WO2001/041558 or US2003 188347); Event NK603 (corn, herbicide tolerance, deposited as ATCC PTA-2478, described in US2007-292854); Event PE-7 (rice, insect control, not deposited, described in WO2008/1 14282); Event RF3, (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-730, described in WO2001/041558 or US2003 188347); Event RT73 (oilseed rape, herbicide tolerance, not deposited, described in WO2002/036831 or US2008070260); Event T227-1 (sugar beet, herbicide tolerance, not deposited, described in WO2002/44407 or US2009265817); Event T25 (corn, herbicide tolerance, not deposited, described in US200 1029014 or WO200 1/05 1654); Event T304-40 (cotton, insect control - herbicide tolerance, deposited as ATCC PTA-8171, described in US2010077501 or WO2008/122406); Event T342-142 (cotton, insect control, not deposited, described in WO2006/128568); Event TCI 507 (corn, insect control - herbicide tolerance, not deposited, described in US2005039226 or WO2004/099447); Event VIP 1034 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-3925., described in WO2003/052073), Event 32316 (corn,insect control-herbicide tolerance,deposited as PTA-1 1507, described in WO201 1/153 186A1), Event 4 114 (corn, insect control-herbicide tolerance,deposited as PTA-1 1506, described in WO201 1/084621), event EE-GM3 / FG72 (soybean, herbicide tolerance, ATCC Accession N° PTA-1 1041, WO20 11/06341 3A2), event DAS-68416-4 (soybean, herbicide tolerance, ATCC Accession N° PTA- 10442, WO201 1/066360A1), event DAS-68416-4 (soybean, herbicide tolerance, ATCC Accession N° PTA-10442, WO201 1/066384A1), event DP-040416-8 (corn, insect control, ATCC Accession N° PTA-1 1508, WO201 1/075593A1), event DP-043A47-3 (corn, insect control, ATCC Accession N° PTA-1 1509, WO201 1/075595A1), event DP-0041 14-3 (corn, insect control, ATCC Accession N° PTA-1 1506, WO201 1/084621Al), event DP-032316-8 (corn, insect control, ATCC Accession N° PTA-1 1507, WO201 1/084632A1), event MON-88302-9 (oilseed rape, herbicide tolerance, ATCC Accession N° PTA-10955, WO201 1/153186A1), event DAS-21606-3 (soybean, herbicide tolerance, ATCC Accession No. PTA-1 1028, WO2012/033794A2), event MON-87712-4 (soybean, quality trait, ATCC Accession N°. PTA- 10296, WO2012/051 199A2), event DAS-44406-6 (soybean, stacked herbicide tolerance, ATCC Accession N°. PTA-1 1336, WO2012/075426A1), event DAS-14536-7 (soybean, stacked herbicide tolerance, ATCC Accession N°. PTA-1 1335, WO2012/075429A1), event SYN-000H2-5 (soybean, herbicide tolerance, ATCC Accession N°. PTA-1 1226, WO201 2/082548 A2), event DP-061061-7 (oilseed rape, herbicide tolerance, no deposit N° available, WO2012071039A1), event DP-073496-4 (oilseed rape, herbicide tolerance, no deposit N° available, US2012131692), event 8264.44.06.1 (soybean, stacked herbicide tolerance, Accession N° PTA-1 1336, WO2012075426A2), event 8291.45.36.2 (soybean, stacked herbicide tolerance, Accession N°. PTA-1 1335, WO2012075429A2).

The present invention further relates to the use of a compound of formula (I)



(I)

wherein T represents an oxygen or a sulfur atom and X is selected from the list of 2-isopropyl, 2-cyclopropyl, 2-tert-butyl, 5-chloro-2-ethyl, 5-chloro-2-isopropyl, 2-ethyl-5-fluoro, 5-fluoro-2-isopropyl, 2-cyclopropyl-5-fluoro, 2-cyclopentyl-5-fluoro, 2-fluoro-6-isopropyl, 2-ethyl-5-methyl, 2-isopropyl-5-methyl, 2-cyclopropyl-5-methyl, 2-tert-butyl-5-methyl, 5-chloro-2-(trifluoromethyl), 5-methyl-2-(trifluoromethyl), 2-chloro-6-(trifluoromethyl), 3-chloro-2-fluoro-6-(trifluoromethyl) and 2-ethyl-4,5-dimethyl, or an agrochemically acceptable salt thereof, for treating plants in need of growth promotion.

Preference is given to the use for treating plants in need of growth promotion with a compound of formula (I) selected from the group consisting of :

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l-methyl- lH-pyrazole-4-carboxamide (compound A 1),

N-cyclopropyl-N-(2-cyclopropylbenzyl)-3-(difluoromethyl)-5-fluoro-l-methyl- lH-pyrazole-4-carboxamide (compound A2), N-(2-tert-butylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-1H-pyrazole-4-carboxamide (compound A3),

N-(5-chloro-2-ethylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl- IH-pyrazole-4-carboxamide (compound A4),

N-(5-chloro-2-isopropylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl- 1H-pyrazole-4-carboxamide (compound A5),

N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-fluorobenzyl)-5-fluoro- 1-methyl- lH-pyrazole-4-carboxamide (compound A6),

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(5-fluoro-2-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound A7),

N-cyclopropyl-N-(2-cyclopropyl-5-fluorobenzyl)-3-(difluoromethyl)-5-fluoro-l -methyl- 1H-pyrazole-4-carboxamide (compound A8),

N-(2-cyclopentyl-5-fluorobenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro- 1-methyl- 1H-pyrazole-4-carboxamide (compound A9),

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-fluoro-6-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound A10),

N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-methylbenzyl)-5-fluoro-l -methyl- IH-pyrazole-4-carboxamide (compound A1 l),

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropyl-5-methylbenzyl)-l -methyl- 1H-pyrazole-4-carboxamide (compound A 12),

N-cyclopropyl-N-(2-cyclopropyl-5-methylbenzyl)-3-(difluoromethyl)-5-fluoro-l -methyl- 1H-pyrazole-4-carboxamide (compound A13),

N-(2-tert-butyl-5-methylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl- 1H-pyrazole-4-carboxamide (compound A 14),

N-[5-chloro-2-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro- 1-methyl-lH-pyrazole-4-carboxamide (compound A15),

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-N-[5-methyl-2-(trifluoromethyl)benzyl]-lH-pyrazole-4-carboxamide (compound A16),

N-[2-chloro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl-lH-pyrazole-4-carboxamide (compound A 17),

N-[3-chloro-2-fluoro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl- lH-pyrazole-4-carboxamide (compound A 18),

N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-4,5-dimethylbenzyl)-5-fluoro-l -methyl- 1H-pyrazole-4-carboxamide (compound A19),and

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l -methyl- lH-pyrazole-4-carbothio-amide (compound A20).

In a particular embodiment of the invention, the present invention relates to the use of a compound of formula (I) as herein defined in an amount sufficient to provide to a plant in need of growth promotion at least one plant growth promoting effect selected from the group consisting of: a) greener leaf color, b) bigger vegetable size, c) higher sugar concentration of fruits, d) more developed root system, e) higher crop firmness longer storability, g) improved appearance, h) better fruit finish, i) earlier fruit maturation, j) increase in plant height, k) bigger leaf blade, i) less dead basal leaves, m) bigger fruit size, n) earlier flowering, o) increased shoot growth, p) improved plant vigor, q) early germination, r) yield improvement.

In a particular embodiment, the compound of formula (I) as herein defined is applied to the plants in need of growth promotion or to the locus in which they grow at an application rate of from about 0.005 kg/ha to about 0.5 kg/ha of compound of formula (I), preferably 0.01 to 0.2 kg/ha, in particular 0.02 to 0.1 kg/ha.

In another particular embodiment, the compound of formula (I) as herein defined is applied as seed treatment at an application rate of from 0.001 to 250 g/kg of seeds, preferably 0.01 to 100 g/kg, in particular 0.01 to 50 g/kg.

In a particular embodiment, the plant in need of growth promotion is selected from the group consisting of cotton, vine, cereals (such as wheat, rice, barley, triticale), corn, soybean, oilseed rape, sunflower, turf, horticultural crops, shrubs, fruit-trees and fruit-plants (such as apple-tree, peer-tree, citrus, banana, coffea, strawberry plant, raspberry plant), vegetables, particularly cereals, corn, oilseed rape, shrubs, fruit-trees and fruit-plants, vegetables and vines.

N-cyclopropyl amides of formula (I) wherein T represents an oxygen atom, can be prepared by condensation of a substituted N-cyclopropyl benzylamine with 3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carbonyl chloride according to WO-2007/087906 (process PI) and WO-2010/130767 (process PI - step 10).

Substituted N-cyclopropyl benzylamines are known or can be prepared by known processes such as the reductive amination of a substituted aldehyde with cyclopropanamine *(J. Med. Chem.*, 2012, 55 (1), 169-196) or by nucleophilic substitution of a substituted benzyl alkyl (or aryl)sulfonate or a substituted benzyl halide with cyclopropanamine *(Bioorg. Med. Chem.,* 2006, 14, 8506-8518 and WO-2009/140769).

3-(difluoromethyl)-5-fluoro-l -methyl- lH-pyrazole-4-carbonyl chloride can be prepared according to WO-20 10/1 30767 (process PI - steps 9 or 11)

N-cyclopropyl thioamides of formula (I) wherein T represents a sulfur atom, can be prepared by thionation of a N-cyclopropyl amide of formula (I) wherein T represents a oxygen atom, according to WO-2009/0 16220 (process PI) and WO-20 10/1 30767 (process P3).

The following examples illustrate in a non limiting manner the preparation of the compounds of formula (I) according to the invention.

Preparation of N-cvclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l -methyl- 1H-pyrazole-4-carboxamide (compound Al)

Step A : preparation of N-(2-isopropylbenzyl)cyclopropanamine

To a solution of 55.5 g (971 mmol) of cyclopropanamine in 900 mL of methanol, are successively added 20 g of 3 A molecular sieves and 73 g (1.21 mol) of acetic acid. 72 g (486 mmol) of 2-isopropyl-benzaldehyde are then added dropwise and the reaction mixture is further heated at reflux for 4 hours.

The reaction mixture is then cooled to 0 °C and 45.8 g (729 mmol) of sodium cyanoborohydride are added by portion in 10 min and the reaction mixture is stirred again for 3 hours at reflux. The cooled reaction mixture is filtered over a cake of diatomaceous earth. The cake is washed abundantly by methanol and the methanolic extracts are concentrated under vacuum. Water is then added to the residue and the pH is adjusted to 12 with 400 mL of a 1 N aqueous solution of sodium hydroxide. The watery layer is extracted with ethyl acetate, washed by water (2 x 300 mL) and dried over magnesium sulfate to yield 81.6 g (88%) of N-(2-isopropylbenzyl)cyclopropanamine as a yellow oil used as such in the next step.

The hydrochloride salt can be prepared by dissolving N-(2-isopropylbenzyl)cyclopropanamine in diethyl-ether (1.4 mL / g) at 0 °C followed by addition of a 2 M solution of hydrochloric acid in diethylether (1.05 eq.). After a 2 hours stirring, N-(2-isopropylbenzyl)cyclopropanamine hydrochloride (1:1) is filtered off, washed by diethylether and dried under vacuum at 40 °C for 48 hours. Mp (melting point) = 149 °C

Step B : preparation of N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l-methyl- 1H-pyrazole-4-carboxamide

To 40.8 g (192 mmol) of N-(2-isopropylbenzyl)cyclopropanamine in 1 L of dry tetrahydrofurane are added at room temperature, 51 mL (366 mmol) of triethylamine. A solution of 39.4 g (174 mmol) of 3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carbonyl chloride in 800 mL of dry tetrahydrofurane is then added dropwise while maintaining the temperature below 34 °C. The reaction mixture is heated at reflux for 2 hours then left overnight at room temperature. Salts are filtered off and the filtrate is concentrated under vacuum to yield 78.7 g of a brown oil. Column chromatography on silica gel (750 g - gradient n-heptane/ethyl acetate) yields 53 g (71% yield) of N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide as a yellow oil that slowly crystallizes. Mp = 76-79 °C.

In the same way, compounds A2 to A19 can be prepared according to the preparation described for compound A 1.

Preparation of N-cvclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l -methyl- 1H-pyrazole-4-carbothioamide (compound A20)

A solution of 14.6 g (65 mmol) of phosphorus pentasulfide and 48 g (131 mmol) of N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l -methyl- lH-pyrazole-4-carboxamide in 500 ml of dioxane are heated at 100 °C for 2 hours. 50 ml of water are then added and the reaction mixture is further heated at 100 °C for another hour. The cooled reaction mixture is filtered over a basic alumina cartridge. The cartridge is washed by dichloromethane and the combined organic extracts are dried over magnesium sulfate and concentrated under vacuum to yield 55.3 g of an orange oil. The residue is titured with a few mL of diethyl-ether until crystallisation occurs. Crystals are filtered off and dried under vacuum at 40 °C for 15 hours to yield 46.8 g (88% yield) of N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)- 1-methyl- lH-pyrazole-4-carbothioamide. Mp = 64-70 °C.

Table 1 provides the logP and NMR data (¾) of compounds A1 to A20.

In table 1, the logP values were determined in accordance with EEC Directive 79/831 Annex V.A8 by HPLC (High Performance Liquid Chromatography) on a reversed-phase column (C 18), using the method described below :

Temperature: 40 °C ; Mobile phases : 0.1% aqueous formic acid and acetonitrile ; linear gradient from 10% acetonitrile to 90% acetonitrile.

Calibration was carried out using unbranched alkan-2-ones (comprising 3 to 16 carbon atoms) with known logP values (determination of the logP values by the retention times using linear interpolation between two successive alkanones). lambda-max-values were determined using UV-spectra from 200 nm to 400 nm and the peak values of the chromatographic signals.

Cmpd	logP	NMR
A1	3.35	^{1}H NMR (500 MHz, $CHCl_3$-d): δ ppm 0.64 (bs, 4H), 1.21 (d, J=6.60 Hz, 6H), 2.44 - 2.80 (m, 1H), 3.01 - 3.29 (m, 1H), 3.78 (s, 3H), 4.76 (bs, 2H), 6.89 (t, J=54.70 Hz, 1H), 7.12 - 7.33 (m, 4H).
A2	3.44	^{1}H NMR (500 MHz, $CHCl_3$-d): δ ppm 0.47 - 0.77 (m, 6H), 0.80 - 1.04 (m, 2H), 1.92 (bs, 1H), 2.66 (bs, 1H), 3.80 (s, 3H), 4.92 (bs, 2H), 6.90 (t, J=54.50 Hz, 1H), 7.01 - 7.25 (m, 4H).

Cmpd	logP	NMR
A3	4.06	^{1}H NMR (500 MHz, $CHCl_3$-d): δ ppm 0.61 (bs, 4H), 1.46 (s, 9H), 2.77 - 2.98 (m, 1H), 3.89 (s, 3H), 5.05 (bs, 2 H), 6.91 (t, J=54.70 Hz, 1H), 7.20 (bs, 3H), 7.35 - 7.48 (m, 1H).
A4	3.76	^{1}H NMR (300 MHz, $CHCl_3$-d): δ ppm 0.65 - 0.69 (m, 4H), 1.21 (t, 3H), 2.62 - 2.64 (m, 3H), 3.81 (s, 3H), 4.70 (s, 2H), 6.85 (t, J=54.6 Hz, 1H), 7.04 - 7.22 (m, 3H).
A5	4.09	^{1}H NMR (500 MHz, $CHCl_3$-d): δ ppm 0.63 - 0.73 (m, 4H), 1.22 (d, J=6.92 Hz, 6H), 2.59 - 2.87 (m, 1H), 2.98 - 3.30 (m, 1H), 3.82 (s, 3H), 4.74 (bs, 2H), 6.88 (t, J=54.40 Hz, 1H), 7.20 - 7.27 (m, 3H).
A6	3.41	^{1}H NMR (300 MHz, $CHCl_3$-d): δ ppm 0.65 - 0.66 (m, 4H), 1.21 (t, 3H), 2.62 (q, 2H), 2.64 (bs, 1H), 3.81 (s, 3H), 4.71 (s, 2H), 6.86 (t, J=54.6 Hz, 1H), 6.89 - 6.95 (m, 2H), 7.13 - 7.18 (m, 1H).
A7	3.70	^{1}H NMR (300 MHz, $CHCl_3$-d): δ ppm 0.65 - 0.69 (m, 4H), 1.22 (d, 6H), 2.69 (bs, 1H), 3.10 - 3.14 (m, 1H), 3.81 (s, 3H), 4.75 (s, 2H), 6.86 (t, J=54.6 Hz, 1H), 6.88 - 6.93 (m, 2H), 7.23 - 7.28 (m, 1H).
A8	3.46	^{1}H NMR (300 MHz, $CHCl_3$-d): δ ppm 0.60 - 0.66 (m, 6H), 0.89 - 0.95 (m, 2H), 1.82 - 1.84 (m, 1H), 2.73 (bs, 1H), 3.81 (s, 3H), 4.89 (s, 2H), 6.68 - 6.99 (m, 4H).
A9	4.21	^{1}H NMR (300 MHz, $CHCl_3$-d): δ ppm 0.64 - 0.68 (m, 4H), 1.56-1.62 (m, 2H), 1.62 - 1.70 (m, 2H), 1.76 - 1.83 (m, 2H), 1.96 - 2.05 (m, 2H), 2.71 (bs, 1H), 3.13 - 3.19 (m, 1H), 3.81 (s, 3H), 4.76 (s, 2H), 6.86 (t, J=54.0 Hz, 1H), 6.87 - 6.97 (m, 2H), 7.23 - 7.28 (m, 1H).
A10	3.65	^{1}H NMR (400 MHz, $CHCl_3$-d): δ ppm 0.65 (bs, 4H), 1.21 (d, J=6.75 Hz, 5H), 2.29 - 2.59 (m, 1H), 3.00 - 3.36 (m, 1H), 3.79 (s, 3H), 4.83 (s, 2H), 6.68 - 7.06 (m, 2H), 7.13 (d, J=7.78 Hz, 1H), 7.27 - 7.33 (m, 1H).
A11	3.70	^{1}H NMR (500 MHz, $CHCl_3$-d): δ ppm 0.65 (bs, 4H), 2.31 (s, 3H), 2.64 (m, 1H), 3.81 (s, 3H), 4.73 (bs, 2H), 6.89 (t, J=54.6 Hz, 1H), 7.01-7.14 (m, 3H).
A12	3.99	^{1}H NMR (500 MHz, $CHCl_3$-d): δ ppm 0.66 (bs, 4H), 1.22 (d, J=6.97 Hz, 6H), 2.31 (s, 3H), 2.54 - 2.75 (m, 1H), 2.99 - 3.25 (m, 1H), 3.81 (s, 3H), 4.75 (bs, 2H), 6.89 (t, J=53.90Hz, 1H), 7.01 - 7.23 (m, 3H).
A13	3.76	^{1}H NMR (500 MHz, $CHCl_3$-d): δ ppm 0.61 - 0.68 (m, 6H), 0.80 - 1.00 (m, 2H), 1.74 - 2.00 (m, 1H), 2.31 (s, 3H), 2.53 - 2.82 (m, 1H), 3.81 (s, 3H), 4.89 (bs, 2H), 6.83 (t, J=54.80 Hz, 1H), 6.91 - 7.06 (m, 3H).

Cmpd	logP	NMR
A14	4.36	^{1}H NMR (500 MHz, CHCl$_3$-d): δ ppm 0.62 (m, 4H), 1.44 (s, 9H), 2.28 (s, 3H), 2.74 - 3.02 (m, 1H), 3.83 (bs, 3H), 5.02 (bs, 2H), 6.85 (t, J=54.40 Hz, 1 H), 7.01 (bs, 1H), 7.21 - 7.29 (m, 2 H).
A15	3.80	^{1}H NMR (500 MHz, CHCl$_3$-d): δ ppm 0.50 - 0.67 (m, 4H), 2.81 (bs, 1H), 3.78 (s, 3H), 4.85 (bs, 2H), 6.78 (t, J=55.00 Hz, 1H), 7.20 - 7.29 (m, 2H), 7.54 (d, J=8.17 Hz, 1H).
A16	3.78	^{1}H NMR (500 MHz, CHCl$_3$-d): δ ppm 0.55 - 0.70 (m, 4H), 2.37 (s, 3H), 2.72 - 3.04 (m, 1H), 3.83 (bs, 3H), 4.91 (bs, 2H), 6.86 (t, J=54.50 Hz, 1H), 7.10 - 7.20 (m, 2H), 7.54 (d, J=7.89 Hz, 1H).
A17	3.46	^{1}H NMR (500 MHz, CHCl$_3$-d): δ ppm 0.47 - 0.64 (m, 4H), 2.29 - 2.55 (m, 1H), 3.80 (s, 3H), 5.05 (s, 2H), 6.95 (t, J=54.40 Hz, 1H), 7.40 (t, J=7.86 Hz, 1H), 7.60 - 7.70 (dd, 2H).
A18	3.62	^{1}H NMR (500 MHz, CHCl$_3$-d): δ ppm 0.50 - 0.74 (m, 4H), 2.45 - 2.71 (m, 1H), 3.81 (s, 3H), 4.99 (s, 2H), 6.91 (t, J=54.40 Hz, 1H), 7.45 - 7.57 (m, 2H).
A19	4.04	^{1}H NMR (500 MHz, CHCl$_3$-d): δ ppm 0.65 (bs, 4H), 1.20 (t, J=7.43 Hz, 3H), 2.22 (s, 3H), 2.24 (s, 3H), 2.58 - 2.64 (m, 2H), 3.80 (s, 3H), 4.70 (bs, 2H), 6.89 (t, J=54.70 Hz, 3H), 6.98 (bs, 2H).
A20	4.36	^{1}H NMR (500 MHz, CHCl$_3$-d): δ ppm 0.55 - 0.84 (m, 4H), 1.27 (d, J=6.97 Hz, 6H), 2.73 - 2.85 (m, 1H), 3.04 - 3.23 (m, 1H), 3.80 (s, 3H), 4.60 - 5.06 (m, 1H), 6.99 - 7.38 (m, 5H).

The following examples are illustrative of methods of plant growth regulation according to the invention, but should not be understood as limiting the said instant invention.

Example 1 : Effect on chlorophyll preservation in wheat and barley treated leaves

To confirm the greening effect of compounds of formula (I) according to the invention observed in field trials, a simple bioassay was set up using wheat and barley. Discs of 1 cm of diameter were cut within leaves collected from 4 weeks old plants and deep at room temperature in water for 1 hour to allow ethylene produced after wound injury to dissipate. Control samples were produced dipping leave discs for 15 min in a solution of 5%DMSO-10% acetone-0.005% tween80 (bioassay formulation), immediately frozen (control 0 day post treatment -apt) or deposited on Whatmann filter paper soaked by the bioassay formulation, in Petri dishes, and left at room temperature in the dark for 3 to 4 days (3 or 4 dpt) for wheat and barley leave discs, respectively. Leaves discs treated with test compound were processed in the same way. In this case, leave discs were deep for 15 minutes in test compound solution and left to incubate on filter paper soaked with the corresponding test solution. Compounds of formula (I) according to the invention were tested in EC100 formulation unless otherwise specified; Other SDHI fungicides (Fluxapyroxad, Isopyrazam and Hambra) were tested in their respective field formulations. At the end of the experiment, controls treated with the bioassay formulation alone were discolored as well as those treated by Fluxapyroxad and Isopyrazam whereas leave discs treated by compounds of formula (I) according to the invention remained significantly greener.

Leave discs were frozen in liquid nitrogen and ground prior to chlorophyll extraction with 1 mL of an acetone-water (80-20 vol/vol) solution and chlorophyll concentration evaluation at 663 nm. Percentages of chlorophyll content in 3 or 4 dpt controls and corresponding treated samples were reported to the chlorophyll content measured in Odpt controls.

Obtained results nicely demonstrated that compounds of formula (I) according to the invention lead to chlorophyll preservation in wheat (Table I) and barley (Table II) treated leave discs whereas chlorophyll content in leave disc treated by other SDHIs significantly decreased.

Table 1 : chlorophyll content (%) in wheat leave discs at 4 dpt vs control at 0 dpt

Compound	Chlorophyll content (%)
Control (4 dpt)	43
Compound A5	78
Compound A12	88
Compound A7 *	83
Compound A1	87
Fluxapyroxad	51
Hambra	64
Isopyrazam	49

* tested m EC50 formulation

Table 2 : chlorophyll content (%) in barley leaves at 3 dpt vs control at 0 dpt

Compound	Chlorophyll content (%)
Control (3 dpt)	15
Compound A5	55
Compound A12	72
Compound A7 *	77
Compound A10	60
Compound A14	77
Fluxapyroxad	28
Isopyrazam	32

Example 2 : Impact on the Development and Yield of Soybean in seed treatment

Seeds of the Brazilian soybean cultivar BRS 245 were treated with compound A5: N-(5-chloro-2-isopropylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l -methyl-lH-pyrazole-4-carboxamide. The product was applied as 050 SC with rates of 25 and 100 g a.i./dt.

The field trial was set up in an experimental station close to Paulinia, S.P., in Brazil, in February 2012.

The trial was randomized, had four replicates, plot size was 10 m^2. Fertilization, herbicide- and insecticide applications were carried out according to the local agricultural practice.

42 days after planting plant height, 49 days after planting the dry weight of both entire green plants and the roots were measured.

This trial was done under almost disease free conditions ("Asian Soybean Rust" Phakopsora pachyrhizi arrived about month after planting with a very low severity).

The impact of compound A5 on the development of the crop and on yield parameters can be seen in table 3.

Table 3:

	Rate g a.i. /dt	**Plant Height (cm) / %**	**Weight Dry Plant (g) / %**	**Weight Root (g) / %**	**Grain Yield (dt) / %**	**Weight of 1000 Grains (g) / %**
Untreated Control		33 cm = 100%	46 g = 100%	10 g = 100 %	28 dt= 100 %	125 g = 100 %
Compound A5	25	**105**	**107**	**117**	**112**	**103**
	100	**105**	**108**	**103**	**111**	**105**

With these results we can conclude that compound A5 applied as a seed treatment clearly stimulates the physiological development of soybean plants and boosts both grain yield and the grain weight under almost disease free conditions.

Example 3: Impact of foliar application on the Yield of Winter Wheat

The field trial in winter wheat was conducted in the experimental station "Laacherhof ' in Germany in spring/summer 2012.

Seeds of the winter wheat variety "Dekan" were planted on October 17, 201 1. Fertilization, herbicide- and plant growth regulator applications were carried out according to the local agricultural practice. Additionally, a cover spray with "Pronto Plus" was carried out at BBCH - growth stage 51 in order to keep brown rust *(Puccinia triticina)* out of the field trial (trial under pathogen-free conditions). The trial was conducted with 3 replicates and the replicates 2 and 3 were randomized. The plot size was 8,8 m^2.

Compounds A5 (N-(5-chloro-2-isopropylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide), A7 (N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(5-fluoro-2-isopropylbenzyl)- 1-methyl- lH-pyrazole-4-carboxamide), A12 (N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropyl-5-methylbenzyl)- 1-methyl- 1H-pyrazole-4-carboxamide) and A10 (N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-fluoro-6-isopropylbenzyl)-! -methyl- lH-pyrazole-4-carboxamide) were sprayed threefold at BBCH -

growth stages 31, 39 and 69 with an use rate of 50 g a.i./ha. All compounds were applied as lOOEC formulation adding an adjuvant.

The winter wheat was harvested on August 03, 2012. The impact of the compounds on the yield is shown in table 4.

Table 4: Impact of a different compounds on the yield in winter wheat

Treatment	Use Rate (g a.i./ha)	Grain Yield (dt/ha)	Grain Yield (% of Untreated Control)
Untreated Control	-	86.25	100
Compound A5	50	103.1	120
Compound A7	50	99.4	115
Compound A12	50	94.9	110
Compound A10	50	99.9	116

With these results we can conclude that the compounds clearly increased the grain yield in winter wheat under pathogen free conditions.

Example 4: Impact of foliar application on the Greening Effect in Wheat

The field trial in winter wheat was conducted in the experimental station "Laacherhof in Germany in spring/summer 2012.

Seeds of the winter wheat variety "Dekan" were planted on October 17, 2011. Fertilization, herbicide- and plant growth regulator applications were carried out according to the local agricultural practice. Additionally, a cover spray with "Pronto Plus" was carried out at BBCH - growth stage 51 in order to keep brown rust *(Puccinia triticina)* out of the field trial (trial under pathogen-free conditions). The trial was conducted with 3 replicates and the replicates 2 and 3 were randomized. The plot size was 8,8 m^2.

Compounds A5 (N-(5-chloro-2-isopropylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-lH-pyrazole-4-carboxamide), A7 (N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(5-fluoro-2-isopropylbenzyl)-1-methyl-lH-pyrazole-4-carboxamide), A12 (N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropyl-5-methylbenzyl)-1-methyl-1H-pyrazole-4-

carboxamide) and A10 (N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-fluoro-6-isopropylbenzyl)-l -methyl- lH-pyrazole-4-carboxamide) were sprayed threefold at BBCH - growth stages 31, 39 and 69 with an use rate of 50 g a.i./ha. All compounds were applied as lOOEC formulation adding an adjuvant.

The greening effect of the single treatments was evaluated on July 06, 2012. The impact of the compounds on the greening (measured as a percentage of the color green) is shown in table 5.

Table 5:

Treatment	Use Rate (g a.i./ha)	Greening Effect (%)
Untreated Control	-	21.7
Compound A5	50	26.7
Compound A7	50	36.7
Compound A12	50	53.3
Compound A10	50	50.0

With these results we can conclude that the tested compounds are able to offer a clear greening effect in winter wheat under pathogen free conditions.

Example 5: Impact of Foliar Applications on Green Leaves and Yield in Wheat

The field trial was conducted in the experimental station "Hofchen" in Germany in spring 2012. Winter wheat, variety "Dekan", was planted on October 2011. Fertilization, herbicide- and plant growth regulator applications were carried out according to the local agricultural practice.

The trial was conducted with 4 replicates. Plot size was 12 m^2 and there were four replicates.

Compound A5 was applied as a 100 EC formulation with rates of 37 and 75 g a.i. / ha twice in the growing season at BBCH - growth stages EC 33 and 55.

The effect on the green foliage was assessed on July 2012, 38 days after the second application, at growth stage EC 85, (see table 6).

The trial was harvested on August 2012. The impact of the compound on the yield is shown in table 6.

Table 6: Impact of foliar applications on the green foliage of winter wheat at EC 85 and on yield

Treatment	Use Rate (g a.i./ha)	Greening Effect (%)	Grain Yield (dt/ha)	Grain Yield (% of Untreated Control)
Untreated Control	-	0	85	100
Compound A5	37	54	109	128
Compound A5	75	86	115	136

With these results we can conclude that compound A5 applied as foliar sprays clearly has an effect on the maintainance of the green leaves shortly before harvest.

Additionally it boosts the grain yield.

Example 6: Impact of Foliar Applications on Yield in Wheat

The field trial FA12DSD559XJE1 was conducted in the experimental station "Langfoerden" in Germany in spring 2012.

Winter wheat, variety "Akteur", was planted on November 2011. Fertilization, herbicide- and plant growth regulator applications were carried out according to the local agricultural practice.

The trial was conducted with 4 replicates. Plot size was 16 m^2 and there were four replicates.

Compound A5 was applied as a 100 EC formulation with rates of 37 and 75 g a.i. / ha twice in the growing season at BBCH - growth stages EC 33 and 61.

In this trial there was no significant disease severity assessed. It can be considered as disease free.

The trial was harvested on August 2012. The impact of the compound on the yield is shown in table 7.

Table 7: Impact of foliar applications on yield in winter wheat.

Treatment	Use Rate (g a.i./ha)	Grain Yield (dt/ha)	Grain Yield (% of Untreated Control)
Untreated Control	-	62	100
Compound A5	37	72	117
Compound A5	75	76	124

With these results we can conclude that compound A5 applied as foliar sprays clearly has an effect on grain yield. It boosted the level of yield in a practically disease-free situation.

Example 7: Impact of Foliar Applications on Yield in Corn

The field trial FA12NARS4CUJXlwas conducted in the USA (IA, 50046 Cambridge) in spring 2012.

The crop was planted on April 2012. Fertilization and herbicide applications were carried out according to the local agricultural practice.

The trial was conducted with 4 replicates. Plot size was 80 m^2 and there were four replicates.

Compound A5 was applied as a 100 EC formulation with rates of 20 and 50 g a.i. / ha twice in the growing season at BBCH - growth stages EC 15 and 61.

In this trial there was no significant leaf disease severity assessed (*Kabatiella zeae* pest severity below 5%). It can be considered as almost disease free.

The trial was harvested on September 2012. The impact of the compound on the yield is shown in table 8.

Table 8: Impact of foliar applications on the green foliage of corn at EC 79 and on yield.

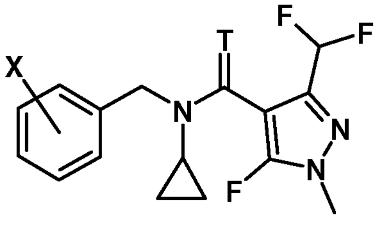
Treatment	Use Rate (g a.i./ha)	Greening Effect (%)	Grain Yield (t/ha)	Grain Yield (% of Untreated Control)
Untreated Control	-	43	39,5	100
Compound A5	20	59	48,5	123
Compound A5	50	63	51,8	131

With these results we can conclude that compound A5applied as foliar sprays clearly has an effect on the maintainance of the green leaves shortly before harvest.

Additionally it boosts the grain yield in a practically disease-free situation.

What is claimed is:

1. A method for treating plants in need of growth promotion, comprising applying to said plants, to the seeds from which they grow or to the locus in which they grow, a non-phytotoxic, effective plant growth promoting amount of a compound according to formula **I**



(I)

wherein T represents an oxygen or a sulfur atom and X is selected from the list of 2-isopropyl, 2-cyclopropyl, 2-tert-butyl, 5-chloro-2-ethyl, 5-chloro-2-isopropyl, 2-ethyl-5-fluoro, 5-fluoro-2-isopropyl, 2-cyclopropyl-5-fluoro, 2-cyclopentyl-5-fluoro, 2-fluoro-6-isopropyl, 2-ethyl-5-methyl, 2-isopropyl-5-methyl, 2-cyclopropyl-5-methyl, 2-tert-butyl-5-methyl, 5-chloro-2-(trifluoromethyl), 5-methyl-2-(trifluoromethyl), 2-chloro-6-(trifluoromethyl), 3-chloro-2-fluoro-6-(trifluoromethyl) and 2-ethyl-4,5-dimethyl, or an agrochemically acceptable salt thereof.

2. A method according to claim 1, wherein the compound of formula **(I)** is selected from the group consisting of :

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound Al),
N-cyclopropyl-N-(2-cyclopropylbenzyl)-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A2),
N-(2-tert-butylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A3),
N-(5-chloro-2-ethylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A4),
N-(5-chloro-2-isopropylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A5),
N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-fluorobenzyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A6),
N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(5-fluoro-2-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound A7),
N-cyclopropyl-N-(2-cyclopropyl-5-fluorobenzyl)-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A8),

N-(Z-cyclopentyl-5-fluorobenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-lH-pyrazole-4-carboxamide (compound A9),

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-fluoro-6-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound A10),

N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-methylbenzyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound All),

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropyl-5-methylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound A12),

N-cyclopropyl-N-(2-cyclopropyl-5-methylbenzyl)-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A13),

N-(2-tert-butyl-5-methylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A14),

N-[5-chloro-2-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A15),

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-N-[5-methyl-2-(trifluoromethyl)benzyl]-1H-pyrazole-4-carboxamide (compound A16),

N-[2-chloro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-lH-pyrazole-4-carboxamide (compound A17),

N-[3-chloro-2-fluoro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-lH-pyrazole-4-carboxamide (compound A18).

N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-4,5-dimethylbenzyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A19),and

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carbothio-amide (compound A20).

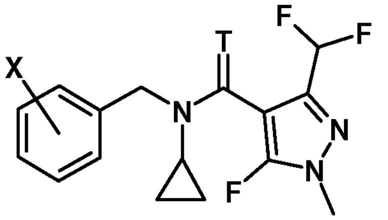
3. A method according to claim lor 2, wherein the compound of formula **(I)** applied is sufficient to provide at least one plant growth promoting effect selected from the group consisting of: a) greener leaf color, b) bigger vegetable size, c) higher sugar concentration of fruits, d) more developed root system, e) higher crop firmness longer storability, g) improved appearance, h) better fruit finish, i) earlier fruit maturation, j) increase in plant height, k) bigger leaf blade, i) less dead basal leaves, m) bigger fruit size, n) earlier flowering, o) increased shoot growth, p) improved plant vigour, q) early germination, r) yield improvement.

4. A method according to claim 1 or 2, wherein the compound of formula (I) is applied to said plants or the locus in which they grow at an application rate of from about 0.005 kg/ha to about 0.5 kg/ha of compound of formula **(I).**

5. A method according to claim 1 or 2, wherein the compound of formula **(I)** is applied as seed treatment at an application rate of from 0.001 to 250 g/kg of seeds.

6. A method according to claim 1 or 2, wherein the plants being selected from the group consisting of cotton, vine, maize, soybean, oilseed rape, sunflower, turf, horticultural crops, shrubs, fruit-trees, fruit-plants, vegetables.

7. Use of a compound of formula **(I)**



(I)

wherein T represents an oxygen or a sulfur atom and X is selected from the list of 2-isopropyl, 2-cyclopropyl, 2-tert-butyl, 5-chloro-2-ethyl, 5-chloro-2-isopropyl, 2-ethyl-5-fluoro, 5-fluoro-2-isopropyl, 2-cyclopropyl-5-fluoro, 2-cyclopentyl-5-fluoro, 2-fluoro-6-isopropyl, 2-ethyl-5-methyl, 2-isopropyl-5-methyl, 2-cyclopropyl-5-methyl, 2-tert-butyl-5-methyl, 5-chloro-2-(trifluoromethyl), 5-methyl-2-(trifluoromethyl), 2-chloro-6-(trifluoromethyl), 3-chloro-2-fluoro-6-(trifluoromethyl) and 2-ethyl-4,5-dimethyl, or an agrochemically acceptable salt thereof,
for treating plants in need of growth promotion.

8. Use according to claim 7 wherein the compound of formula **(I)** is selected from the group consisting of :
N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound Al),
N-cyclopropyl-N-(2-cyclopropylbenzyl)-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A2),
N-(2-tert-butylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A3),
N-(5-chloro-2-ethylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A4),

N-(5-chloro-2-isopropylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-lH-pyrazole-4-carboxamide (compound A5),

N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-fluorobenzyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A6),

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(5-fluoro-2-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound A7),

N-cyclopropyl-N-(2-cyclopropyl-5-fluorobenzyl)-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A8),

N-(2-cyclopentyl-5-fluorobenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A9),

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-fluoro-6-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound A10),

N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-5-methylbenzyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound All),

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropyl-5-methylbenzyl)-l-methyl-lH-pyrazole-4-carboxamide (compound A12),

N-cyclopropyl-N-(2-cyclopropyl-5-methylbenzyl)-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A13),

N-(2-tert-butyl-5-methylbenzyl)-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A14),

N-[5-chloro-2-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A15),

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-l-methyl-N-[5-methyl-2-(trifluoromethyl)benzyl]-1H-pyrazole-4-carboxamide (compound A16),

N-[2-chloro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-lH-pyrazole-4-carboxamide (compound A17),

N-[3-chloro-2-fluoro-6-(trifluoromethyl)benzyl]-N-cyclopropyl-3-(difluoromethyl)-5-fluoro-1-methyl-lH-pyrazole-4-carboxamide (compound A18).

N-cyclopropyl-3-(difluoromethyl)-N-(2-ethyl-4,5-dimethylbenzyl)-5-fluoro-l-methyl-lH-pyrazole-4-carboxamide (compound A19),and

N-cyclopropyl-3-(difluoromethyl)-5-fluoro-N-(2-isopropylbenzyl)-l-methyl-lH-pyrazole-4-carbothio-amide (compound A20).

9. Use according to claim 7 or 8 wherein the compound of formula (I) applied is sufficient to provide at least one plant growth promoting effect selected from the group consisting of: a) greener leaf color, b) bigger vegetable size, c) higher sugar concentration of fruits, d) more developed root system, e) higher crop firmness longer storability, g) improved

appearance, h) better fruit finish, l) earlier fruit maturation, j) increase in plant height, k) bigger leaf blade, i) less dead basal leaves, m) bigger fruit size, n) earlier flowering, o) increased shoot growth, p) improved plant vigour, q) early germination, r) yield improvement.

10. Use according to claim 7 or 8 wherein the compound of formula **(I)** is applied to said plants or the locus in which they grow at an application rate of from about 0.005 kg/ha to about 0.5 kg/ha of compound of formula **(I).**

11. Use according to claim 7 or 8 wherein the compound of formula **(I)** is applied as seed treatment at an application rate of from 0.001 to 250 g/kg of seeds.

12. Use according to claim 7 or 8 wherein the plants being selected from the group consisting of cotton, vine, cereals, maize , soybean, oilseed rape, sunflower, turf, horticultural crops, shrubs, fruit-trees and fruit-plants, vegetables.

.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/071732

A. CLASSIFICATION OF SUBJECT MATTER
INV. A01N43/56
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal , CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2010/130767 A2 (BAYER CROPSCIENCE AG [DE]; BARTELS GUENTER [DE]; BECKER ANGELA [DE]; B) 18 November 2010 (2010-11-18) cited in the application page 29, 1. 23, 25-26; compounds 1, 6, 12, 29, 47, 53, 54, 76, 114, 123, 125, 131, 132, 135, 139, -----	1-12
X	EP 2 251 331 Al (BAYER CROPSCIENCE AG [DE]) 17 November 2010 (2010-11-17) [0063], Compounds 1, 6, 12, 29, 47, 53 ----- -/-	1-12

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" documentwhich may throw doubts on priority claim(s) orwhich is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
16 December 2013

Date of mailing of the international search report
03/01/2014

Name and mailing address of the ISA/
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer
Bueno Torres , Pilar

1

Form PCT/ISA/210 (second sheet) (April 2005)

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	WO 2012/143127 Al (BAYER CROPSCIENCES AG [DE]; DAHMEN PETER [DE]; DESBORDES PHILIPPE [FR]) 26 October 2012 (2012-10-26) cited in the application Formula (I); page 30, 1. 5, 9-13, page 44, 1. 15; Compounds A-1, A-5, A-7, A-12, A-15, A-17, A-18. Claims 1-13 -----	1-12
X,P	W0 2012/143125 Al (BAYER CR0PSCIENCE AG [DE]; DAHMEN PETER [DE]; DESBORDES PHILIPPE [FR];) 26 October 2012 (2012-10-26) cited in the application Formula (I); Page 2, 1. 4; page 24, 1. 6-7; page 25, 1. 7-10; page 41, 1. 1-2; Compounds A-1, A-5, A-7, A-12, A-15, A-17, A-18. Claims 1-13 -----	1-12

1

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2010130767 A2	18-11-2010	AR 076839 A1	13-07-2011
		AU 2010247385 A1	22-12-2011
		CA 2761269 A1	18-11-2010
		CN 102421757 A	18-04-2012
		CO 6460782 A2	15-06-2012
		EA 201171409 A1	30-05-2012
		EP 2430000 A2	21-03-2012
		JP 2012526768 A	01-11-2012
		KR 20120023095 A	12-03-2012
		TW 201043138 A	16-12-2010
		US 2012065164 A1	15-03-2012
		WO 2010130767 A2	18-11-2010
EP 2251331 A1	17-11-2010	NONE	
WO 2012143127 A1	26-10-2012	CA 2833749 A1	26-10-2012
		WO 2012143127 A1	26-10-2012
WO 2012143125 A1	26-10-2012	CA 2833746 A1	26-10-2012
		WO 2012143125 A1	26-10-2012