



(43) International Publication Date
19 June 2014 (19.06.2014)

(10) International Publication Number
WO 2014/090765 A1

- (51) **International Patent Classification:**
A01N 43/653 (2006.01) *A01P 5/00* (2006.01)
- (21) **International Application Number:**
PCT/EP2013/076012
- (22) **International Filing Date:**
10 December 2013 (10.12.2013)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
12196752.5 12 December 2012 (12.12.2012) EP
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- (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(ii))*

Published:

- *with international search report (Art. 21(3))*

(54) **Title:** USE OF 1-[2-FLUORO-4-METHYL-5-(2,2,2-TRIFLUOROETHYLSULFINYL)PHENYL]-5-AMINO-3-TRIFLUOROMETHYL-1 H-1,2,4 TFIA ZOLE FOR CONTROLLING NEMATODES IN NEMATODE-RESISTANT CROPS

(57) **Abstract:** The present invention relates generally to the use of the compound of the formula (I), (I-A), (I-B) or a mixture of compounds of the formula (I-A) and (I-B). The present invention relates generally to the use of the compound of the formula (I), (I-A), (I-B) or a mixture of compounds of the formula (I-A) and (I-B) for controlling nematodes in nematode resistant crops and to methods particularly useful for controlling nematodes and/or increasing crop yield in those crops.



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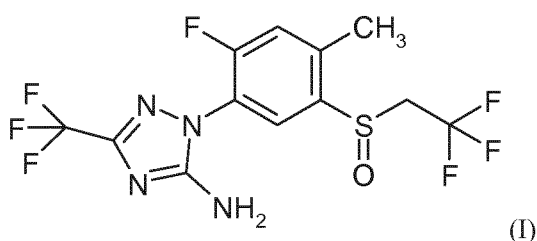
**USE OF
1-[2-FLUORO-4-METHYL-5-(2,2,2-TRIFLUOROETHYLSULFINYL)PHENYL]-5-AMINO-3-TRIFLUOROMETHYL-1H-1,2,4-TRIAZOLE FOR CONTROLLING NEMATODES IN NEMATODE-RESISTANT CROPS**

Field of the Invention

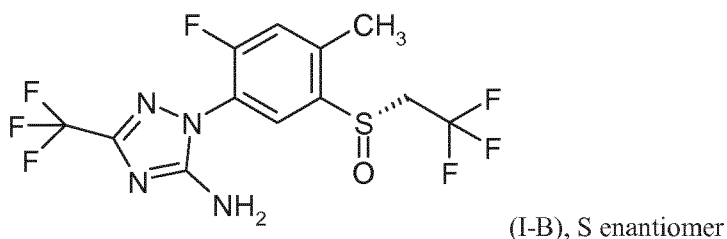
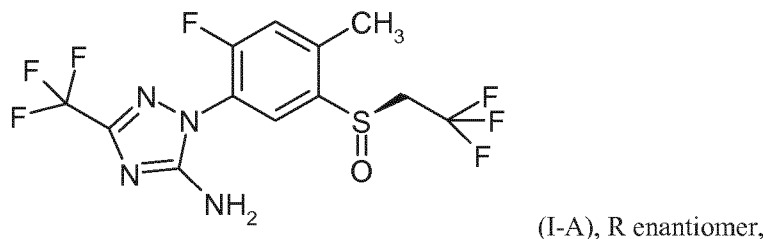
The present invention relates generally to the use of the compound of the formula (I) for controlling nematodes in nematode resistant crops and to methods particularly useful for controlling nematodes and/or increasing crop yield in those crops.

Description of the Current Technology

The compound of the formula (I) is defined to be the compound of the formula (I)



The compound of the formula (I) has a chiral sulfoxide group so that it forms two enantiomers having R or S configuration at the sulphur:



In the synthesis from achiral starting materials the two enantiomers are formed in equal amounts so that a racemate is present. The separation of the racemate known from the literature (cf. WO 1999/055668 and WO 2006/043635) into the individual enantiomers can be carried out by preparative HPLC on a chiral stationary phase. The separation may take place, for example, on a Daical Chiralpak AD-H 250 mm x 30 mm column using a mobile phase of n-heptane/ethanol/methanol 60:20:20 (v/v/V), a flow rate of 30 ml/min and UV detection at 220 nm. The two enantiomers can then be characterized by methods known from the literature, for example by X-ray structural analysis or by determining the optical

rotation. Further, the two enantiomers can be synthesized in enantiomerically pure form as well as in enantiomerically enriched form by the process as described in WO 2011/006646.

Accordingly, the present invention relates generally to the use of the racemate or the R enantiomer (compound (I-A)) or S enantiomer (compound (I-B)) , or a mixture of R- and S-enantiomer of the compound of the formula (I) for controlling nematodes in nematode resistant crops and to methods particularly useful for controlling nematodes and/or increasing crop yield in those crops. If a mixture of R- and S-enantiomer is present, the ratio of the two enantiomers can range from 50.5:49.5 to 99.5:0.5 (R):(S)enantiomer. Accordingly, the present invention further relates to the use of a mixture ranging from 50.5:49.5 to 99.5:0.5 (R):(S)enantiomer for controlling nematodes in nematode resistant crops.

10 The compound of the formula (I) is already known (see WO 1999/055668, WO 2006/043635, WO 2011/006605, WO 2011/006603, WO 2011/006646, WO 2011/006646). Its insecticidal and acaricidal and nematocidal activity as well as its manufacturing process already have been described.

However, it has now been found, that the compound of the formula (I), as well as the compounds of formula (I-A), (I-B) or a mixture thereof are particularly useful in controlling nematodes in nematode resistant crops.

Nematodes are tiny, worm-like, multicellular animals adapted to living in water. The number of nematode species is estimated at half a million. An important part of the soil fauna, nematodes live in a maze of interconnected channels, called pores, that are formed by soil processes. They move in the films of water that cling to soil particles. Plant nematodes encompass plant parasitic nematodes and nematodes living in the soil. Plant-parasitic nematodes, a majority of which are root feeders, are found in association with most plants. Some are endoparasitic, living and feeding within the tissue of the roots, tubers, buds, seeds, etc. Others are ectoparasitic, feeding externally through plant walls. A single endoparasitic nematode can kill a plant or reduce its productivity. Endoparasitic root feeders include such economically important pests as the root-knot nematodes (*Meloidogyne* species), the reniform nematodes (*Rotylenchulus* species), the cyst nematodes (*Heterodera* species), and the root-lesion nematodes (*Pratylenchus* species). Direct feeding by nematodes can drastically decrease a plant's uptake of nutrients and water. Nematodes have the greatest impact on crop productivity when they attack the roots of seedlings immediately after seed germination. Nematode feeding also creates open wounds that provide entry to a wide variety of plant-pathogenic fungi and bacteria. These microbial infections are often more economically damaging than the direct effects of nematode feeding.

Generally nematode resistance is characterized by host plant cell death at or nearby the feeding site of the parasitic nematode. Particular resistance genes and nematode interaction influence the timing and localization of the resistance response. Williamson et al. (Trends in Genetics, Vol. 22, No.7, July 2006) describes the nature and mechanisms of plant-nematode interactions with respect to resistance in plants.

Nematode-resistant plants can be related to three main approaches being nematode targets, nematode-crop interface and plant response. Antifeedant or nematicidal proteins, disruption of essential nematode gene expression by RNA interference, disruption of sensory function by RNA interference, peptides or plantibodies or nematicidal metabolites are examples for nematode targets; disruption of nematode pathogenicity factors regarding migration and invasion or regarding feeding site induction and maintenance by RNA interference, peptides or plantibodies, stealth or repellant plants; or the conversion of host plants to non-host plants are examples for nematode-crop interface while plant resistance gene or hypersensitive response activation by nematode invasion; Induced cell death or other site incompatibility by feeding site specific promoters or conversion of crops to tolerance are examples for plant response.

Although nematode-resistant plants are described to be resistant towards specific nematodes, there is still some interactions between the nematode and the crop which, due to the different defense reactions of the plant, might lead to a partially impaired plant. One example of these defense reactions is the hypersensitive response. One consequence might result in impaired roots and loss of vigor of the affected plants.

Current nematode control focuses essentially on the prevention of nematode attack on the plant. Once a plant is parasitized it is virtually impossible to kill the nematode without also destroying the plant. Therefore, it would be advantageous to provide enhanced nematode control compounds and methods of treating nematode resistant plants to prevent or reduce nematode damage.

A large part of the damage to crop plants which is caused by pests occurs as early as when the seed is attacked during storage and after the seed is introduced into the soil, during and immediately after germination of the plants. This phase is particularly critical since the roots and shoots of the growing plant are particularly sensitive and even minor damage can lead to the death of the whole plant. Thus, it is desirable to develop methods for protecting the seed and the germinating plant which dispense with the additional application of crop protection agents after sowing or after the emergence of the plants. It is furthermore desirable to optimize the amount of active compound employed in such a way as to provide maximum protection for the seed and the germinating plant from attack by pests, but without damaging the plant itself by the active compound employed. In particular, methods for the treatment of seed should also take into consideration the intrinsic insecticidal properties of transgenic plants in order to achieve optimum protection of the seed and also the germinating plant with a minimum of crop protection agents being employed.

SUMMARY OF THE INVENTION

This invention now provides advantageous uses of the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) for controlling nematodes infesting nematode resistant crops and/or increasing yield.

- 5 Accordingly, the present invention also relates to the use of compositions comprising the compound of the formula (I) for controlling nematodes infesting nematode resistant crops and/or increasing yield.

Accordingly, the present invention also relates to the use of compositions comprising the compound of formula (I-A) for controlling nematodes infesting insect resistant crops.

- 10 Accordingly, the present invention also relates to the use of compositions comprising the compound of formula (I-B) for controlling nematodes infesting insect resistant crops.

Accordingly, the present invention also relates to the use of compositions comprising a mixture of the compounds of formula (I-A) and (I-B) for controlling nematodes infesting insect resistant crops ranging from 50.5:49.5 to 99.5:0.5.

- 15 Accordingly, the present invention also relates to the use of compositions comprising
- A) the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) and
 - B) at least further one agrochemically active compound and/or
 - C) at least one nematicidal biological control agent

- 20 for controlling nematodes infesting nematode resistant crops and/or increasing yield.

An exemplary method of the invention comprises applying a the compound of the formula (I), formula (I-A), (I-B) or of a mixture of the compounds of formula (I-A) and (I-B) of the invention to either soil or a plant (e.g., seeds or foliarly) to control nematode damage and/or increase crop yield.

- 25 The present invention is drawn to compositions and methods for regulating pest resistance or tolerance in plants or plant cells. By “resistance” is intended that the pest (e.g., insect or nematode) is killed upon ingestion or other contact with the plant or parts thereof. By “tolerance” is intended an impairment or reduction in the movement, feeding, reproduction, or other functions of the pest. Methods for measuring pesticidal activity are well known in the art. See, for example, Czaplá and Lang (1990) *J.*

Econ. Entomol. 83:2480-2485; Andrews *et al.* (1988) *Biochem. J.* 252:199-206; Marrone *et al.* (1985) *J. of Economic Entomology* 78:290-293; and U.S. Patent No. 5,743,477, all of which are herein incorporated by reference in their entirety.

In conjunction with the present invention “controlling” denotes a preventive or curative reduction of the insect or nematode infestation in comparison to the untreated crop, more preferably the infestation is essentially repelled, most preferably the infestation is totally suppressed.

By “pesticidally-effective amount” is intended an amount of the pesticide that is able to bring about death to at least one pest, or to noticeably reduce pest growth, feeding, or normal physiological development e.g.(retarding the growth or reproduction of nematodes, reducing a nematode population) and/or reducing damage to plants caused by nematodes. This amount will vary depending on such factors as, for example, the specific target pests to be controlled, the specific environment, location, plant, crop, or agricultural site to be treated, the environmental conditions, and the method, rate, concentration, stability, and quantity of application of the pesticidally-effective polypeptide composition, , the specific nematicide used including the different fungi or bacteria species and the seriousness of the nematode infection or damage to the plant(s).. The present invention also relates to a method for the protection of seed and germinating plants, or plant from attack by pests, by selectively applying pesticidal agents to the seed of a transgenic plant. Pesticidal agents include chemical or biological control agents compositions applied to the seed of the transgenic plant, wherein the agent is intended to provide protection of the plant or seed thereof against damage caused by one or more plant pests. Furthermore, the invention relates to seed which has been treated with a pesticidal agent as described herein. Application of a pesticidal agent to the seed of a transgenic plant results in an improved resistance or tolerance to one or more plant pests and/or improved yield or vigor compared to a transgenic plant cultivated from a seed not treated with a pesticidal agent as described herein, or a plant of the same species as the referenced transgenic plant that has been cultivated from a seed treated with a pesticidal agent as described herein but that lacks the transgene (either of which may be herein referred to as a “control” plant).

In some embodiments, treatment of the seed with these agents not only protects the seed itself, but also the resulting plants after emergence, from pests. In this manner, the immediate treatment of the crop at the time of sowing or shortly thereafter can be dispensed with.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In a preferred embodiment, a mixture of compounds (I-A) and (I-B) can range from 50.5:49.5 to 99.5:0.5 (I-A): (I-B). In a further preferred embodiment, a mixture of compounds (I-A) and (I-B) can range from 60:40 to 95:5 (I-A): (I-B). In an even further preferred embodiment, a mixture of compounds (I-A) and (I-B) can range from 75:25 to 90:10 (I-A): (I-B).

The methods according to the present invention have been found to provide a greater degree of plant vigor and yield in nematode, insect and fungal infested environments than would be expected from application of a biological or chemical control agent or the presence of an insect or nematode control gene alone. At least some of the insect control agents within the scope of the present invention have been shown to provide increased root mass even in the absence of insect pressure which increased root mass leads to improved establishment of the beneficial bacteria within the rhizosphere which, in turn, reduces overall losses in crop vigor and yields caused by either plant parasitic nematodes, insects or fungi. Along with the physical combination of these components while treating plants and plant material, in one preferred embodiment of this invention, the compositions of the present invention have been formulated to provide a stable environment for living biological control agents such as spore-forming, root-colonizing bacteria. Various additives may be added to each inventive composition depending on the desired properties for a final formulation which has the necessary physical and chemical stability to produce a commercially viable product.

Nematode resistant / tolerant plants

- 15 Nematode resistant / tolerant plants can be plants obtained by breeding and conventional propagation methods which can be assisted or supplemented e.g by one or more of the following methods use of double haploids, protoplast fusion, random and directed mutagenesis, molecular or genetic markers or by bioengineering and genetic engineering methods, including transgenic plants and including the plant varieties.
- 20 Plants of the plant cultivar/varieties or hybrids which are in each case commercially available or in use can be treated according to the invention.

In one embodiment, plant species and plant cultivars/varieties, obtained by breeding, such as crossing or protoplast fusion or marker-assistant molecular breeding , and parts thereof are treated. Nematode resistance or tolerance can be introduced into plants by various technologies known to a person skilled in the art. An additional possibility is to support breeding by the use of markers, RAPDs (Randomly Amplified Polymorphic DNA), AFLPs (Amplified Fragment Length Polymorphisms), or SSRs (Simple Sequence Repeats) that are associated with a fragment of DNA that co-segregates with the resistance trait in crosses of plants comprising a nematode resistance or tolerance. The mapped endogenous nematode resistant genes can be introgressed in other plants by e.g. crossing and back-crossing.

- 30 A further possibility is to introduce nematode resistance or tolerance by genetic engineering leading to nematode resistant or tolerant transgenic plants and plant cultivars. If appropriate genetic engineering can be used in combination with conventional breeding methods. Genetically modified plants (or transgenic plants) are plants in which a foreign nucleic acid molecule or foreign nucleic acid molecules has/have been integrated into the genome. A foreign nucleic acid molecule means a nucleic acid

molecule provided or assembled outside the plant and when introduced into the nuclear, chloroplastic or mitochondrial genome gives the transformed plant new properties by e.g. expressing a protein or polypeptide of interest or by downregulating or silencing other gene(s) which are present in the plant: Methods for downregulating genes in a plant are known to a person skilled in the art and comprise but
5 are not limited to antisense technology, cosuppression technology or RNA interference – RNAi - technology.

The method of treatment according to the invention can be used in the treatment of transgenic plants or seeds. The transgenic plants or plant cultivars (i.e. those obtained by genetic engineering) which can be treated according to the invention can be any plant, preferably it is a cultivated plant, which can be
10 cultivated for use as food, feed or industrial processes.

RNA interference (RNAi), also referred to as gene silencing, has been proposed as a method for controlling nematodes. Use of RNAi to target essential nematode genes has been proposed, for example, in PCT Publication WO 01/96584, WO 01/17654, US 2004/0098761, US 2005/0091713, US 2005/0188438, US 2006/0037101, US 2006/0080749, US 2007/0199100, and US 2007/0250947. A
15 number of models have been proposed for the action of RNAi. U.S. Pat. No. 6,506,559 discloses that in nematodes, the length of the (ds) RNA corresponding to the target gene sequence may be at least 25, 50, 100, 200, 300, or 400 bases, and that even larger dsRNAs were effective at inducing RNAi in *C. elegans*. When a dsRNA is expressed in a plant, a nematode feeding on this plant will incorporate the dsRNA. If this dsRNA will block the expression of an essential nematode gene then the nematode is
20 expected to suffer and die. A plant expressing such dsRNA interfering with a nematode gene is also understood in connection with the present invention to be a nematode resistant or tolerant plant.

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).

25 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).

The compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) is particularly useful in controlling plant-parasitic nematodes in plants carrying one or more
30 of the genes listed in Table 1. The compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) in combination with at least one agrochemically active compound is particularly useful in controlling plant-parasitic nematodes in plants carrying one or more of the genes listed in Table 1. The compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) in combination with nematicidal biological control agent is

particularly useful in controlling plant-parasitic nematodes in plants carrying one or more of the genes listed in Table 1.

The nucleotide and amino acid sequence information for each of these genes are represented by the SEQ ID NOs listed in columns 4 and 5 of Table 1 with respect to the United States Patent Application
5 Serial No. listed in column 2 of Table 1. Specifically, compound (I) is particularly useful in controlling plant-parasitic nematodes in plants carrying one or more of the genes listed in Table 1.

Further, compound (I-A) is particularly useful in controlling plant-parasitic nematodes in plants carrying one or more of the genes listed in Table 1.

Further, Compound (I-B) is particularly useful in controlling plant-parasitic nematodes in plants
10 carrying one or more of the genes listed in Table 1.

Further, a mixture of the compounds of formula (I-A) and (I-B) is particularly useful in controlling plant-parasitic nematodes in plants carrying one or more of the genes listed in Table 1

GENE NAME	U.S. APPLICATION SERIAL NO.	FILING DATE	NUCLEOTIDE SEQ ID NO	AMINO ACID SEQ ID NO
Axmi031	11/762,886	14 Jun 2007	20	21
Axn2	12/638,591	15 Dec 2009	7, 10	8
Axn1	12/638,591	15 Dec 2009	3, 6	4, 5
Axn8	12/638,591	15 Dec 2009	12, 15	13, 14
Axn9	12/638,591	15 Dec 2009	46	47
Axmi196	20110030096	30 Jul 2010	7	34, 35
Axmi277	PCT/US2012/04475 1	29 Jun 2012	1	2, 3

The compound of the formula (I) formula (I-A), (I-B) or a mixture of the compounds of formula (I-A)
15 and (I-B) in combination with at least one agrochemically active compound is particularly useful in controlling plant-parasitic nematodes in plants carrying one or more of the genes listed in Table 1.

The compound of the formula (I), (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B)
- or the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) in combination with at least one agrochemically active compound or a nematicidal
20 biological control agent is particularly useful in controlling plant-parasitic nematodes in plants carrying one or more of the genes as described in the following documents/patent applications:
WO 2012135501A2, WO2012109430A2, WO2012/094529A2, WO2012018489A2,

	WO2012084756A1,	WO2012078949A2,	WO2012001626A1,	WO2011104153A1,
	WO2011023571A1,	WO2011/082217A2,	WO2010060162A1,	WO2010/027809A1,
	WO2010147879A1,	WO2010/027805A2,	WO2010/027805A3,	WO2010/027804A2,
	WO2010/027804A3,	WO2010/027799A1,	WO2010027793A1,	WO2010023186A1,
5	WO2009/126896A2	WO2009/126896A3,	WO2010/027808A2	WO2010/027808A3,
	WO2009/048847A1,	WO2009/027539A2,	WO2009/027313A2,	WO2008/152008A2,
	WO2008/110522A1,	WO2008/095972A1,	WO2008/095970A1,	WO2008/095969A1,
	WO2008/095919A1,	WO2008/095916A1,	WO2008/095911A2,	WO2008/095910A1,
	WO2008/095889A1,	WO2008/095886A1,	WO2008/077892A1,	WO2008/071726A2,
10	WO2007/104570A2,	WO2007/095469A2,	WO2007087153A2	WO2006/020821A2,
	WO2005/082932A2,	WO2005/012340A1,	WO9318170 A1	

And the following US patents/patent applications

	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,
15	11/763,947, 12/252,453, 12/209,354, 12/491,396 or 12/497,221 12/644,632, 12/646,004, 12/701,058,
	12/718,059, 12/721,595, 12/638,591, 12/249,016, 12/828,594, US2012260368, US2012151629,
	US2012110706, US2012246765, US20120260368, US20120167251, US20120066793,
	US20110203014, US20110083234, US20100298207, US2011145945, US2011231963,
	US201122568, US20110239334, US20110214208, US20110214209, US2011239334,
20	US2010281572, US2009012029,

The compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - in combination with at least one agrochemically active compound and/or a nematicidal biological control agent is particularly useful in controlling plant-parasitic nematodes in plants carrying one or more of the following genes Hs1^{pro-1}, Hs2, Mi-1, Mi-1.2, Hero A, Gpa2, Gro1, Gro1-4, Rhg1, Rhg4, Mi-3, Mi-9, Cre1, Cre2, Cre3, Cre4, Cre5, Cre6, Cre7, Cre8, CreR, Ma, Mae, Mag, H1, Ha2, Ha3, Ha4, Hsa-1^{og}, Me3, Rmc1, CLAVATA3-like peptides (e.g. SYV46), cry5, cry6, cry12, cry13, cry14, cry21 cry5B, cry6A, cry12A, cry14A, cry21A, Cry55, GmBAG6, GmAP2, CLAVATA3/ESR.

The compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - in combination with at least one agrochemically active compound and/or a nematicidal biological control agent is particularly useful in controlling plant-parasitic nematodes in plants containing natural nematode resistant/tolerant genes. Examples for such plant are varieties of soybean have been bred to express a characteristic in the plant which reduces damage due to the

soybean cyst nematode (SCN). Soybean genetic resistance to SCN have been found in various resistant sources, for example, Plant Introduction (PI) lines PI88788, PI548402, PI437654, PI90763, PI209332, PI89882 and PI548316. These indicator lines are suitable for use as the source of resistance in breeding programs against SCN. Further example are varieties of soybean expressing characteristics associated with resistance to Southern Root Knot Nematode (SRKN, US2009064354) or are cotton plants comprising root knot nematode resistance as described in US2011173713.

A preferred embodiment comprises the nematode-resistant plant as described above treated with the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B).

- 10 A preferred embodiment comprises the nematode-resistant plant as described above treated with the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) in combination with at least one agrochemically active compound and/or nematicidal biological control agent.

- 15 In various embodiments, the compositions and methods of the present invention comprise treatment of a transgenic plant comprising one or more of the genes listed in Table 1 with the compound of the formula (I), formula (I-A), (I-B) or of a mixture of the compounds of formula (I-A) and (I-B) - or the compound of the formula (I) formula (I-A), (I-B) or of a mixture of the compounds of formula (I-A) and (I-B) in combination with at least one agrochemically active compound and/or nematicidal biological control agent.

- 20 In particular embodiments, the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or the compound of the formula (I) formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) in combination with at least one agrochemically active compound and/or nematicidal biological control agent - is applied to the seed of the transgenic plant comprising one or more of the genes listed in Table 1, including biologically-active variants and fragments thereof.

- 25 An exemplary method of the invention comprises applying the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) in combination with at least one agrochemically active compound and/or nematicidal biological control agent of the invention to propagation material (e.g seeds) of plants to combat nematode damage and/or increase crop yield.

A further exemplary method of the invention comprises applying the compound of the formula (I) formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or the compound of the formula (I) formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) in

combination with at least one agrochemically active compound and/or nematicidal biological control agent to either soil or a plant (e.g. foliarly) to combat nematode damage and/or increase crop yield.

In various embodiments, the nematicidal active ingredient is the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) and the nematode resistant crop
5 comprises a transgenic plant comprising Axmi031 or Axn2 (Table 1).

In a preferred embodiment of the invention the transgenic plant is homozygous with respect to the exogenous gene of Table 1.

In another preferred embodiment of the invention the transgenic plant is hemizygous with respect to the exogenous gene of Table 1.

10 The nucleotide and amino acid SEQ ID NOs listed in Table 1 are exemplary sequences and do not limit the scope of the invention. The invention encompasses plants and plant parts, including plant cells and seed, comprising one or more of the genes listed in column 1 of Table 1. In some embodiments, the invention encompasses plants and plant parts, including plant cells and seed, comprising one or more
15 nucleotide sequences listed in column 4 of Table 1. In some embodiments, the invention encompasses plants and plant parts, including plant cells and seed, comprising one or more nucleotide sequences encoding one or more of the polypeptides listed in column 5 of Table 1.

In yet another embodiment, the invention encompasses plants and plant parts, including plant cells and seed, comprising one or more nucleotide sequences encoding a biologically-active variant or fragment of the amino acid sequence(s) listed in column 5 of Table 1.

20 A fragment of a nucleotide sequence that encodes a biologically active portion of a pesticidal protein of the invention will encode at least about 15, 25, 30, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450 contiguous amino acids, or up to the total number of amino acids present in a full-length pesticidal protein listed in Table 2 herein. Such biologically active portions can be prepared by recombinant techniques and evaluated for pesticidal activity. Methods for measuring pesticidal
25 activity are well known in the art. See, for example, Czapla and Lang (1990) *J. Econ. Entomol.* 83:2480-2485; Andrews *et al.* (1988) *Biochem. J.* 252:199-206; Marrone *et al.* (1985) *J. of Economic Entomology* 78:290-293; and U.S. Patent No. 5,743,477, all of which are herein incorporated by reference in their entirety.

In some embodiments, the fragment is a proteolytic cleavage fragment. For example, the proteolytic
30 cleavage fragment may have an N-terminal or a C-terminal truncation of at least about 100 amino acids, about 120, about 130, about 140, about 150, or about 160 amino acids relative to the amino acid sequence listed in Table 2. In some embodiments, the fragments encompassed herein result from the

removal of the C-terminal crystallization domain, e.g., by proteolysis or by insertion of a stop codon in the coding sequence.

Preferred pesticidal proteins of the present invention are encoded by a nucleotide sequence sufficiently identical to the nucleotide sequence(s) listed in Table 2, or are pesticidal proteins that are sufficiently identical to the amino acid sequence(s) listed in Table 2. By “sufficiently identical” is intended an amino acid or nucleotide sequence that has at least about 60% or 65% sequence identity, about 70% or 75% sequence identity, about 80% or 85% sequence identity, about 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99% or greater sequence identity compared to a reference sequence using one of the alignment programs described herein using standard parameters. One of skill in the art will recognize that these values can be appropriately adjusted to determine corresponding identity of proteins encoded by two nucleotide sequences by taking into account codon degeneracy, amino acid similarity, reading frame positioning, and the like.

To determine the percent identity of two amino acid sequences or of two nucleic acids, the sequences are aligned for optimal comparison purposes. The percent identity between the two sequences is a function of the number of identical positions shared by the sequences (i.e., percent identity = number of identical positions/total number of positions (e.g., overlapping positions) x 100). In one embodiment, the two sequences are the same length. In another embodiment, the percent identity is calculated across the entirety of the reference sequence (e.g., a sequence listed in Table 2). The percent identity between two sequences can be determined using techniques similar to those described below, with or without allowing gaps. In calculating percent identity, typically exact matches are counted. A gap, i.e. a position in an alignment where a residue is present in one sequence but not in the other, is regarded as a position with non-identical residues.

The determination of percent identity between two sequences can be accomplished using a mathematical algorithm. A nonlimiting example of a mathematical algorithm utilized for the comparison of two sequences is the algorithm of Karlin and Altschul (1990) *Proc. Natl. Acad. Sci. USA* 87:2264, modified as in Karlin and Altschul (1993) *Proc. Natl. Acad. Sci. USA* 90:5873-5877. Such an algorithm is incorporated into the BLASTN and BLASTX programs of Altschul *et al.* (1990) *J. Mol. Biol.* 215:403. BLAST nucleotide searches can be performed with the BLASTN program, score = 100, wordlength = 12, to obtain nucleotide sequences homologous to pesticidal-like nucleic acid molecules of the invention. BLAST protein searches can be performed with the BLASTX program, score = 50, wordlength = 3, to obtain amino acid sequences homologous to pesticidal protein molecules of the invention. To obtain gapped alignments for comparison purposes, Gapped BLAST (in BLAST 2.0) can be utilized as described in Altschul *et al.* (1997) *Nucleic Acids Res.* 25:3389. Alternatively, PSI-Blast can be used to perform an iterated search that detects distant relationships between molecules. See Altschul *et al.* (1997) *supra*. When utilizing BLAST, Gapped BLAST, and

PSI-Blast programs, the default parameters of the respective programs (e.g., BLASTX and BLASTN) can be used. Alignment may also be performed manually by inspection.

Another non-limiting example of a mathematical algorithm utilized for the comparison of sequences is the ClustalW algorithm (Higgins *et al.* (1994) *Nucleic Acids Res.* 22:4673-4680). ClustalW compares
5 sequences and aligns the entirety of the amino acid or DNA sequence, and thus can provide data about the sequence conservation of the entire amino acid sequence. The ClustalW algorithm is used in several commercially available DNA/amino acid analysis software packages, such as the ALIGNX module of the Vector NTI Program Suite (Invitrogen Corporation, Carlsbad, CA). After alignment of amino acid sequences with ClustalW, the percent amino acid identity can be assessed. A non-limiting
10 example of a software program useful for analysis of ClustalW alignments is GENEDOC™. GENEDOC™ (Karl Nicholas) allows assessment of amino acid (or DNA) similarity and identity between multiple proteins. Another non-limiting example of a mathematical algorithm utilized for the comparison of sequences is the algorithm of Myers and Miller (1988) *CABIOS* 4:11-17. Such an algorithm is incorporated into the ALIGN program (version 2.0), which is part of the GCG Wisconsin
15 Genetics Software Package, Version 10 (available from Accelrys, Inc., 9685 Scranton Rd., San Diego, CA, USA). When utilizing the ALIGN program for comparing amino acid sequences, a PAM120 weight residue table, a gap length penalty of 12, and a gap penalty of 4 can be used.

Unless otherwise stated, GAP Version 10, which uses the algorithm of Needleman and Wunsch (1970) *J. Mol. Biol.* 48(3):443-453, will be used to determine sequence identity or similarity using the
20 following parameters: % identity and % similarity for a nucleotide sequence using GAP Weight of 50 and Length Weight of 3, and the nwsgapdna.cmp scoring matrix; % identity or % similarity for an amino acid sequence using GAP weight of 8 and length weight of 2, and the BLOSUM62 scoring program. Equivalent programs may also be used. By “equivalent program” is intended any sequence comparison program that, for any two sequences in question, generates an alignment having identical
25 nucleotide residue matches and an identical percent sequence identity when compared to the corresponding alignment generated by GAP Version 10.

“Variants” of the amino acid sequences listed in Table 2 include those sequences that encode the pesticidal proteins disclosed herein but that differ conservatively because of the degeneracy of the genetic code as well as those that are sufficiently identical as discussed above. Naturally occurring
30 allelic variants can be identified with the use of well-known molecular biology techniques, such as polymerase chain reaction (PCR) and hybridization techniques as outlined below. Variant nucleotide sequences also include synthetically derived nucleotide sequences that have been generated, for example, by using site-directed mutagenesis but which still encode the pesticidal proteins disclosed in the present invention as discussed below.

The skilled artisan will further appreciate that changes can be introduced by mutation of the nucleotide sequences of the invention thereby leading to changes in the amino acid sequence of the encoded pesticidal proteins, without altering the biological activity of the proteins. Thus, variant isolated nucleic acid molecules can be created by introducing one or more nucleotide substitutions, additions, or deletions into the corresponding nucleotide sequence disclosed herein, such that one or more amino acid substitutions, additions or deletions are introduced into the encoded protein. Mutations can be introduced by standard techniques, such as site-directed mutagenesis and PCR-mediated mutagenesis. Such variant nucleotide sequences are also encompassed by the present invention.

For example, conservative amino acid substitutions may be made at one or more, predicted, nonessential amino acid residues. A “nonessential” amino acid residue is a residue that can be altered from the wild-type sequence of a pesticidal protein without altering the biological activity, whereas an “essential” amino acid residue is required for biological activity. A “conservative amino acid substitution” is one in which the amino acid residue is replaced with an amino acid residue having a similar side chain. Families of amino acid residues having similar side chains have been defined in the art. These families include amino acids with basic side chains (e.g., lysine, arginine, histidine), acidic side chains (e.g., aspartic acid, glutamic acid), uncharged polar side chains (e.g., glycine, asparagine, glutamine, serine, threonine, tyrosine, cysteine), nonpolar side chains (e.g., alanine, valine, leucine, isoleucine, proline, phenylalanine, methionine, tryptophan), beta-branched side chains (e.g., threonine, valine, isoleucine) and aromatic side chains (e.g., tyrosine, phenylalanine, tryptophan, histidine).

Amino acid substitutions may be made in nonconserved regions that retain function. In general, such substitutions would not be made for conserved amino acid residues, or for amino acid residues residing within a conserved motif, where such residues are essential for protein activity. Examples of residues that are conserved and that may be essential for protein activity include, for example, residues that are identical between all proteins contained in an alignment of similar or related toxins to the sequences of the invention (e.g., residues that are identical in an alignment of homologous proteins). Examples of residues that are conserved but that may allow conservative amino acid substitutions and still retain activity include, for example, residues that have only conservative substitutions between all proteins contained in an alignment of similar or related toxins to the sequences of the invention (e.g., residues that have only conservative substitutions between all proteins contained in the alignment homologous proteins). However, one of skill in the art would understand that functional variants may have minor conserved or nonconserved alterations in the conserved residues.

Alternatively, variant nucleotide sequences can be made by introducing mutations randomly along all or part of the coding sequence, such as by saturation mutagenesis, and the resultant mutants can be screened for ability to confer pesticidal activity to identify mutants that retain activity. Following mutagenesis, the encoded protein can be expressed recombinantly, and the activity of the protein can be determined using standard assay techniques.

Using methods such as PCR, hybridization, and the like corresponding pesticidal sequences can be identified, such sequences having substantial identity to the sequences of the invention. See, for example, Sambrook and Russell (2001) *Molecular Cloning: A Laboratory Manual*. (Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY) and Innis, *et al.* (1990) *PCR Protocols: A Guide to Methods and Applications* (Academic Press, NY).

Variant nucleotide and amino acid sequences of the present invention also encompass sequences derived from mutagenic and recombinogenic procedures such as DNA shuffling. With such a procedure, one or more different pesticidal protein coding regions can be used to create a new pesticidal protein possessing the desired properties. In this manner, libraries of recombinant polynucleotides are generated from a population of related sequence polynucleotides comprising sequence regions that have substantial sequence identity and can be homologously recombined *in vitro* or *in vivo*. For example, using this approach, sequence motifs encoding a domain of interest may be shuffled between a pesticidal gene of the invention and other known pesticidal genes to obtain a new gene coding for a protein with an improved property of interest, such as an increased insecticidal activity. Strategies for such DNA shuffling are known in the art. See, for example, Stemmer (1994) *Proc. Natl. Acad. Sci. USA* 91:10747-10751; Stemmer (1994) *Nature* 370:389-391; Cramer *et al.* (1997) *Nature Biotech.* 15:436-438; Moore *et al.* (1997) *J. Mol. Biol.* 272:336-347; Zhang *et al.* (1997) *Proc. Natl. Acad. Sci. USA* 94:4504-4509; Cramer *et al.* (1998) *Nature* 391:288-291; and U.S. Patent Nos. 5,605,793 and 5,837,458.

Domain swapping or shuffling is another mechanism for generating altered pesticidal proteins. Domains may be swapped between pesticidal proteins, resulting in hybrid or chimeric toxins with improved pesticidal activity or target spectrum. Methods for generating recombinant proteins and testing them for pesticidal activity are well known in the art (see, for example, Naimov *et al.* (2001) *Appl. Environ. Microbiol.* 67:5328-5330; de Maagd *et al.* (1996) *Appl. Environ. Microbiol.* 62:1537-1543; Ge *et al.* (1991) *J. Biol. Chem.* 266:17954-17958; Schnepf *et al.* (1990) *J. Biol. Chem.* 265:20923-20930; Rang *et al.* (1999) *Appl. Environ. Microbiol.* 65:2918-2925).

Variants and fragments of the proteins encompassed by the present invention are biologically active, that is they continue to possess the desired biological activity of the native protein, that is, pesticidal activity. By "retains activity" is intended that the variant will have at least about 30%, at least about 50%, at least about 70%, or at least about 80% of the pesticidal activity of the native protein. Methods for measuring pesticidal activity are well known in the art. See, for example, Czapla and Lang (1990) *J. Econ. Entomol.* 83: 2480-2485; Andrews *et al.* (1988) *Biochem. J.* 252:199-206; Marrone *et al.* (1985) *J. of Economic Entomology* 78:290-293; and U.S. Patent No. 5,743,477, all of which are herein incorporated by reference in their entirety.

In the present context, agrochemically active compounds are to be understood as meaning all substances

which are or may be customarily used for treating plants. Fungicides, bactericides, insecticides, acaricides, nematocides, molluscicides, safeners, plant growth regulators and plant nutrients as well as biological control agents may be mentioned as being preferred.

- 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, tubers, corms and rhizomes are listed. Crops and vegetative and generative propagating material, for example cuttings, corms, rhizomes, tubers, runners and seeds also belong to plant parts.
- 15 The transgenic plants or plant cultivars (i.e. those obtained by genetic engineering) which can be treated according to the invention include also all plants which - besides nematode resistant / tolerant traits - contain other genetic modifications, received genetic material which imparted particularly other advantageous useful traits to these plants.

- 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, higher harvest yields, bigger fruits, larger plant height, greener leaf color, higher quality 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.
- 20
- 25

- 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,
- 30
- 35

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.

- 5 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 - besides nematode resistance / tolerance – resistant against one or more biotic stresses, i.e. said plants show a better
10 defense against animal and microbial pests, such as against insects, mites, phytopathogenic fungi, bacteria, viruses and/or viroids.

Plants and plant cultivars which may also be treated according to the invention are those plants which are - besides nematode resistance / tolerance – resistant to one or more abiotic stresses. Abiotic stress conditions may include, for example, drought, cold temperature exposure, heat exposure, osmotic
15 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 - besides nematode resistance / tolerance – by enhanced yield characteristics. Increased
20 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
25 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.

30 Plants and plant cultivars which may also be treated according to the invention, are those plants characterized - besides nematode resistance / tolerance – 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

5 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.

Examples of plants with the above-mentioned traits are non-exhaustively listed in Table A.

Table A:

- 10 Non-exclusive list of transgenic plants and events for the design of experiments with the compound of formula (I) related to the invention (source: (AGBIOS, P.O. Box 475, 106 St. John St. Merrickville, Ontario K0G1N0, CANADA) accessible under: <http://www.agbios.com/dbase.php>).

	Event	Company	Description	Crop	Patent Ref
A-1	ASR-368	Scotts Seeds	Glyphosate tolerance derived by inserting a modified 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) encoding gene from <i>Agrobacterium tumefaciens</i> , parent line B99061	<i>Agrostis stolonifera</i> <i>Creeping Bentgrass</i>	US 2006-162007
A-2	GM RZ13	Syngenta International AG	Beet Necrotic Yellow Vein Virus (BNYVV) resistance	<i>Beta vulgaris</i> (sugar beet)	WO2010076212
A-3	GTSB77	Novartis Seeds; Monsanto Company	Glyphosate herbicide tolerant sugar beet produced by inserting a gene encoding the enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) from the CP4 strain of <i>Agrobacterium tumefaciens</i> .	<i>Beta vulgaris</i> (sugar beet)	
A-4	H7-1	Monsanto Company	Glyphosate herbicide tolerant sugar beet produced by inserting a gene encoding the enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) from the CP4 strain of <i>Agrobacterium tumefaciens</i>	<i>Beta vulgaris</i> (sugar beet)	WO 2004-074492
A-5	T120-7	Bayer CropScience (Aventis CropScience)	Introduction of the PPT-acetyltransferase (PAT) encoding gene from <i>Streptomyces viridochromogenes</i> , an	<i>Beta vulgaris</i> (sugar beet)	

		AgrEvo))	aerobic soil bacteria. PPT normally acts to inhibit glutamine synthetase, causing a fatal accumulation of ammonia. Acetylated PPT is inactive.		
A-6	T227-1	WEYENS G; BARNES S; ROSQUIN I; SES EUROPE N.V./S.A	Glyphosate tolerance	<i>Beta vulgaris</i> (sugar beet)	US 2004- 117870
A-7	23-18-17, 23-198	Monsanto Company (formerly Calgene)	High laurate (12:0) and myristate (14:0) canola produced by inserting a thioesterase encoding gene from the California bay laurel (<i>Umbellularia californica</i>).	<i>Brassica napus</i> (Argentine Canola)	
A-8	45A37, 46A40	Pioneer Hi-Bred International Inc.	High oleic acid and low linolenic acid canola produced through a combination of chemical mutagenesis to select for a fatty acid desaturase mutant with elevated oleic acid, and traditional back-crossing to introduce the low linolenic acid trait.	<i>Brassica napus</i> (Argentine Canola)	
A-9	46A12, 46A16	Pioneer Hi-Bred International Inc.	Combination of chemical mutagenesis, to achieve the high oleic acid trait, and traditional breeding with registered canola varieties.	<i>Brassica napus</i> (Argentine Canola)	
A-10	GT200	Monsanto Company	Glyphosate herbicide tolerant canola produced by inserting genes encoding the enzymes 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) from the CP4 strain of <i>Agrobacterium tumefaciens</i> and glyphosate oxidase from <i>Ochrobactrum anthropi</i> .	<i>Brassica napus</i> (Argentine Canola)	
A-11	GT73, RT73	Monsanto Company	Glyphosate herbicide tolerant canola produced by inserting genes encoding the enzymes 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) from the CP4 strain of <i>Agrobacterium tumefaciens</i> and glyphosate oxidase from <i>Ochrobactrum anthropi</i> .	<i>Brassica napus</i> (Argentine Canola)	

A-12	HCN10	Aventis CropScience	Introduction of the PPT-acetyltransferase (PAT) encoding gene from <i>Streptomyces viridochromogenes</i> , an aerobic soil bacteria. PPT normally acts to inhibit glutamine synthetase, causing a fatal accumulation of ammonia. Acetylated PPT is inactive.	<i>Brassica napus</i> (Argentine Canola)	
A-13	HCN92	Bayer CropScience (Aventis CropScience(AgrEvo))	Introduction of the PPT-acetyltransferase (PAT) encoding gene from <i>Streptomyces viridochromogenes</i> , an aerobic soil bacteria. PPT normally acts to inhibit glutamine synthetase, causing a fatal accumulation of ammonia. Acetylated PPT is inactive.	<i>Brassica napus</i> (Argentine Canola)	
A-14	MS1, RF1 =>PGS1	Aventis CropScience (formerly Plant Genetic Systems)	Male-sterility, fertility restoration, pollination control system displaying glufosinate herbicide tolerance. MS lines contained the barnase gene from <i>Bacillus amyloliquefaciens</i> , RF lines contained the barstar gene from the same bacteria, and both lines contained the phosphinothricin N-acetyltransferase (PAT) encoding gene from <i>Streptomyces hygroscopicus</i> .	<i>Brassica napus</i> (Argentine Canola)	
A-15	MS1, RF2 =>PGS2	Aventis CropScience (formerly Plant Genetic Systems)	Male-sterility, fertility restoration, pollination control system displaying glufosinate herbicide tolerance. MS lines contained the barnase gene from <i>Bacillus amyloliquefaciens</i> , RF lines contained the barstar gene from the same bacteria, and both lines contained the phosphinothricin N-acetyltransferase (PAT) encoding gene from <i>Streptomyces hygroscopicus</i> .	<i>Brassica napus</i> (Argentine Canola)	
A-16	MS8xRF 3	Bayer CropScience (Aventis CropScience(	Male-sterility, fertility restoration, pollination control system displaying glufosinate herbicide	<i>Brassica napus</i> (Argentine Canola)	

		AgrEvo))	tolerance. MS lines contained the barnase gene from <i>Bacillus amyloliquefaciens</i> , RF lines contained the barstar gene from the same bacteria, and both lines contained the phosphinothricin N-acetyltransferase (PAT) encoding gene from <i>Streptomyces hygroscopicus</i> .		
A-17	MS-B2	AVENTIS CROPSCIENCE N.V.	Male sterility	<i>Brassica napus</i> (Argentine Canola)	WO 01/31042
A-18	MS-BN1/RF-BN1	AVENTIS CROPSCIENCE N.V.	Male sterility/restoration	<i>Brassica napus</i> (Argentine Canola)	WO 01/41558
A-19	NS738, NS1471, NS1473	Pioneer Hi-Bred International Inc.	Selection of somaclonal variants with altered acetolactate synthase (ALS) enzymes, following chemical mutagenesis. Two lines (P1,P2) were initially selected with modifications at different unlinked loci. NS738 contains the P2 mutation only.	<i>Brassica napus</i> (Argentine Canola)	
A-20	OXY-235	Aventis CropScience (formerly Rhône Poulenc Inc.)	Tolerance to the herbicides bromoxynil and ioxynil by incorporation of the nitrilase gene from <i>Klebsiella pneumoniae</i> .	<i>Brassica napus</i> (Argentine Canola)	
A-21	PHY14, PHY35	Aventis CropScience (formerly Plant Genetic Systems)	Male sterility was via insertion of the barnase ribonuclease gene from <i>Bacillus amyloliquefaciens</i> ; fertility restoration by insertion of the barstar RNase inhibitor; PPT resistance was via PPT-acetyltransferase (PAT) from <i>Streptomyces hygroscopicus</i> .	<i>Brassica napus</i> (Argentine Canola)	
A-22	PHY36	Aventis CropScience (formerly Plant Genetic Systems)	Male sterility was via insertion of the barnase ribonuclease gene from <i>Bacillus amyloliquefaciens</i> ; fertility restoration by insertion of the barstar RNase inhibitor; PPT resistance was via PPT-acetyltransferase (PAT) from <i>Streptomyces hygroscopicus</i> .	<i>Brassica napus</i> (Argentine Canola)	
A-23	RT73	MONSANT	Glyphosate resistance	<i>Brassica</i>	WO

		O TECHNOLO GY LLC		napus (Argen tine Canola)	02/36831
A-24	T45 (HCN28)	Bayer CropScience (Aventis CropScience(AgrEvo))	Introduction of the PPT- acetyltransferase (PAT) encoding gene from Streptomyces viridochromogenes, an aerobic soil bacteria. PPT normally acts to inhibit glutamine synthetase, causing a fatal accumulation of ammonia. Acetylated PPT is inactive.	<i>Brassica napus</i> (Argen tine Canola)	
A-25	HCR-1	Bayer CropScience (Aventis CropScience(AgrEvo))	Introduction of the glufosinate ammonium herbicide tolerance trait from transgenic B. napus line T45. This trait is mediated by the phosphinothricin acetyltransferase (PAT) encoding gene from S. viridochromogenes.	<i>Brassica rapa</i> (Polish Canola)	
A-26	ZSR500/ 502	Monsanto Company	Introduction of a modified 5- enol-pyruvylshikimate-3- phosphate synthase (EPSPS) and a gene from Achromobacter sp that degrades glyphosate by conversion to aminomethylphosphonic acid (AMPA) and glyoxylate by interspecific crossing with GT73.	<i>Brassica rapa</i> (Polish Canola)	
A-27	EE-1	MAHARAS HTRA HYBRID SEEDS COMPANY LIMITED (MAHYCO)	Insect resistance (Cry1Ac)	Brinjal	WO 2007/091277
A-28	55-1/63-1	Cornell University	Papaya ringspot virus (PRSV) resistant papaya produced by inserting the coat protein (CP) encoding sequences from this plant potyvirus.	<i>Carica papaya</i> (Papa ya)	
A-29	X17-2	University of Florida	Papaya ringspot virus (PRSV) resistant papaya produced by inserting the coat protein (CP) encoding sequences from PRSV isolate H1K with a thymidine	<i>Carica papaya</i> (Papa ya)	

			inserted after the initiation codon to yield a frameshift. Also contains <i>nptII</i> as a selectable marker.		
A-30	RM3-3, RM3-4, RM3-6	Bejo Zaden BV	Male sterility was via insertion of the barnase ribonuclease gene from <i>Bacillus amyloliquefaciens</i> ; PPT resistance was via the bar gene from <i>S. hygrosopicus</i> , which encodes the PAT enzyme.	<i>Cichorium intybus</i> (Chicory)	
A-31	A, B	Agritope Inc.	Reduced accumulation of S-adenosylmethionine (SAM), and consequently reduced ethylene synthesis, by introduction of the gene encoding S-adenosylmethionine hydrolase.	<i>Cucumis melo</i> (Melon)	
A-32	CZW-3	Asgrow (USA); Seminis Vegetable Inc. (Canada)	Cucumber mosaic virus (CMV), zucchini yellows mosaic (ZYMV) and watermelon mosaic virus (WMV) 2 resistant squash (<i>Curcubita pepo</i>) produced by inserting the coat protein (CP) encoding sequences from each of these plant viruses into the host genome.	<i>Curcubita pepo</i> (Squash)	
A-33	ZW20	Upjohn (USA); Seminis Vegetable Inc. (Canada)	Zucchini yellows mosaic (ZYMV) and watermelon mosaic virus (WMV) 2 resistant squash (<i>Curcubita pepo</i>) produced by inserting the coat protein (CP) encoding sequences from each of these plant potyviruses into the host genome.	<i>Curcubita pepo</i> (Squash)	
A-34	66	Florigene Pty Ltd.	Delayed senescence and sulfonylurea herbicide tolerant carnations produced by inserting a truncated copy of the carnation aminocyclopropane cyclase (ACC) synthase encoding gene in order to suppress expression of the endogenous unmodified gene, which is required for normal ethylene biosynthesis. Tolerance to sulfonyl urea herbicides was	<i>Dianthus caryophyllus</i> (Carnation)	

			via the introduction of a chlorsulfuron tolerant version of the acetolactate synthase (ALS) encoding gene from tobacco.		
A-35	4, 11, 15, 16	Florigene Pty Ltd.	Modified colour and sulfonylurea herbicide tolerant carnations produced by inserting two anthocyanin biosynthetic genes whose expression results in a violet/mauve colouration. Tolerance to sulfonyl urea herbicides was via the introduction of a chlorsulfuron tolerant version of the acetolactate synthase (ALS) encoding gene from tobacco.	<i>Dianthus caryophyllus</i> (Carnation)	
A-36	959A, 988A, 1226A, 1351A, 1363A, 1400A	Florigene Pty Ltd.	Introduction of two anthocyanin biosynthetic genes to result in a violet/mauve colouration; Introduction of a variant form of acetolactate synthase (ALS).	<i>Dianthus caryophyllus</i> (Carnation)	
A-37	127	BASF AGROCHEMICAL PRODUCTS B.V.	ALS/AHAS inhibitor-tolerance	Glycine max L. (Soybean)	WO2010080829
A-38	3560.4.3.5	PIONEER HI-BRED INTERNATIONAL, INC	Glyphosate/ALS inhibitor-tolerance	Glycine max L. (Soybean)	WO 2008002872, US2010184079
A-39	A2704-12, A2704-21	Bayer CropScience (Aventis CropScience(AgrEvo))	Glufosinate ammonium herbicide tolerant soybean produced by inserting a modified phosphinothricin acetyltransferase (PAT) encoding gene from the soil bacterium Streptomyces viridochromogenes	Glycine max L. (Soybean)	WO 2006/108674
A-40	A5547-127	Bayer CropScience (Aventis CropScience(AgrEvo))	Glufosinate ammonium herbicide tolerant soybean produced by inserting a modified phosphinothricin acetyltransferase (PAT) encoding gene from the soil bacterium Streptomyces viridochromogenes.	<i>Glycine max</i> L. (Soybean)	
A-41	A5547-	Bayer	Glufosinate tolerance	Glycine max	WO

	35	CropScience (Aventis CropScience(AgrEvo))		L. (Soybean)	2006/108675
A-42	DP- 305423-1	Pioneer Hi- Bred International Inc.	High oleic acid / ALS inhibitor tolerance	Glycine max L. (Soybean)	WO 2008/054747
A-43	DP35604 3	Pioneer Hi- Bred International Inc.	Soybean event with two herbicide tolerance genes: glyphosate N- acetyltransferase, which detoxifies glyphosate, and a modified acetolactate synthase (A	<i>Glycine max</i> L. (Soybean)	
A-44	G94-1, G94-19, G168	DuPont Canada Agricultural Products	High oleic acid soybean produced by inserting a second copy of the fatty acid desaturase (GmFad2-1) encoding gene from soybean, which resulted in "silencing" of the endogenous host gene.	<i>Glycine max</i> L. (Soybean)	
A-45	GTS 40- 3-2	Monsanto Company	Glyphosate tolerant soybean variety produced by inserting a modified 5- enolpyruvylshikimate-3- phosphate synthase (EPSPS) encoding gene from the soil bacterium <i>Agrobacterium</i> <i>tumefaciens</i> .	<i>Glycine max</i> L. (Soybean)	
A-46	GU262	Bayer CropScience (Aventis CropScience(AgrEvo))	Glufosinate ammonium herbicide tolerant soybean produced by inserting a modified phosphinothricin acetyltransferase (PAT) encoding gene from the soil bacterium <i>Streptomyces</i> <i>viridochromogenes</i> .	<i>Glycine max</i> L. (Soybean)	
A-47	MON877 01	Monsanto Company	insect resistance (CryIac)	Glycine max L. (Soybean)	WO 2009064652
A-48	MON877 05	Monsanto Company	altered fatty acid levels (mid- oleic and low saturate)	Glycine max L. (Soybean)	WO 2010037016
A-49	MON877 54	Monsanto Company	increased oil content	Glycine max L. (Soybean)	WO 2010024976
A-50	MON877 69	Monsanto Company	stearidonic acid (SDA) comprising oil	Glycine max L. (Soybean)	WO 2009102873
A-51	MON897 88	Monsanto Company	Glyphosate-tolerant soybean produced by inserting a modified 5- enolpyruvylshikimate-3- phosphate synthase (EPSPS)	<i>Glycine max</i> L. (Soybean)	WO2006130 436

			encoding aroA (epsps) gene from <i>Agrobacterium tumefaciens</i> CP4		
A-52	MON19788	Monsanto Company	Glyphosate tolerance	<i>Glycine max</i> L. (Soybean)	WO2006130436
A-53	OT96-15	Agriculture & Agri-Food Canada	Low linolenic acid soybean produced through traditional cross-breeding to incorporate the novel trait from a naturally occurring fan1 gene mutant that was selected for low linolenic acid.	<i>Glycine max</i> L. (Soybean)	
A-54	W62, W98	Bayer CropScience (Aventis CropScience(AgrEvo))	Glufosinate ammonium herbicide tolerant soybean produced by inserting a modified phosphinothricin acetyltransferase (PAT) encoding gene from the soil bacterium <i>Streptomyces hygroscopicus</i> .	<i>Glycine max</i> L. (Soybean)	
A-55	MON 87708	MONSANTO TECHNOLOGY LLC	Dicamba herbicide tolerance, transformation vector PV-GMHT4355 1) DMO: full length transcript (Peanut Chlorotic Streak Virus) promoter > tobacco Etch Virus leader > ribulose 1,5-biphosphate carboxylase small subunit (<i>Pisum sativum</i>) chloroplast transit peptide > dicamba mono-oxygenase (<i>Stenotrophomonas maltophilia</i>) coding sequence > ribulose-1,5-bisphosphate carboxylase small subunit E9 (<i>Pisum sativum</i>) 3'-untranslated region. A CP4 epsps chimeric gene contained within a second T-DNA on the transformation vector used was segregated away.	<i>Glycine max</i> L. (Soybean)	WO 2011034704
A-56	EE-GM3 / FG72	BAYER BIOSCIENCE NV [BE]; MS TECHNOLOGIES LLC [US]	1) Ph4a748 ABBC: sequence including the promoter region of the histone H4 gene of <i>Arabidopsis thaliana</i> , containing an internal duplication>5'tev: sequence including the leader sequence of the tobacco etch virus>TPotp Y: coding	<i>Glycine max</i> L. (Soybean)	WO 2011063411

			sequence of an optimized transit peptide derivative (position 55 changed into Tyrosine), containing sequence of the RuBisCO small subunit genes of Zea mays (corn) and Helianthus annuus (sunflower)>hppdPf W336: the coding sequence of the 4-hydroxyphenylpyruvate dioxygenase of Pseudomonas fluorescens strain A32 modified by the replacement of the amino acid Glycine 336 with a Tryptophane>3'nos: sequence including the 3' untranslated region of the nopaline synthase gene from the T-DNA of pTiT37 of Agrobacterium tumefaciens. 2) Ph4a748: sequence including the promoter region of the histone H4 gene of Arabidopsis thaliana>intron1 h3At: first intron of gene II of the histone H3.III variant of Arabidopsis thaliana >TPotp C: coding sequence of the optimized transit peptide, containing sequence o		
A-57	416 / pDAB44 68-0416	DOW AGROSCIENCE LLC	A novel aad-12 transformation event for herbicide tolerance in soybean plants - referred to herein as pDAB4468-0416. The aad-12 gene (originally from Delftia acidovorans) encodes the aryloxyalkanoate dioxygenase (AAD-12) protein. The trait confers tolerance to 2,4-dichlorophenoxyacetic acid, for example, and to pyridyloxyacetate herbicides. The aad-12 gene, itself, for herbicide tolerance in plants	Glycine max L. (Soybean)	<u>WO 2011066384</u>, <u>WO 2007/053482</u>, -
A-58	15985	Monsanto Company	Insect resistant cotton derived by transformation of the DP50B parent variety, which contained event 531 (expressing Cry1Ac protein), with purified plasmid DNA containing the cry2Ab gene	Gossypium hirsutum L. (Cotton)	

			from <i>B. thuringiensis</i> subsp. <i>kurstaki</i> .		
A-59	1143-14A	SYNGENTA PARTICIPATIONS AG	Insect resistance (Cry1Ab)	<i>Gossypium hirsutum</i> L. (Cotton)	WO 2006/128569
A-60	1143-51B	SYNGENTA PARTICIPATIONS AG	Insect resistance (Cry1Ab)	<i>Gossypium hirsutum</i> L. (Cotton)	WO 2006/128570
A-61	19-51A	DuPont Canada Agricultural Products	Introduction of a variant form of acetolactate synthase (ALS).	<i>Gossypium hirsutum</i> L. (Cotton)	
A-62	281-24-236	DOW AgroScience s LLC	Insect-resistant cotton produced by inserting the cry1F gene from <i>Bacillus thuringiensis</i> var. <i>aizawai</i> . The PAT encoding gene from <i>Streptomyces viridochromogenes</i> was introduced as a selectable marker.	<i>Gossypium hirsutum</i> L. (Cotton)	
A-63	3006-210-23	DOW AgroScience s LLC	Insect-resistant cotton produced by inserting the cry1Ac gene from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> . The PAT encoding gene from <i>Streptomyces viridochromogenes</i> was introduced as a selectable marker.	<i>Gossypium hirsutum</i> L. (Cotton)	
A-64	31807/31808	Calgene Inc.	Insect-resistant and bromoxynil herbicide tolerant cotton produced by inserting the cry1Ac gene from <i>Bacillus thuringiensis</i> and a nitrilase encoding gene from <i>Klebsiella pneumoniae</i> .	<i>Gossypium hirsutum</i> L. (Cotton)	
A-65	BXN	Calgene Inc.	Bromoxynil herbicide tolerant cotton produced by inserting a nitrilase encoding gene from <i>Klebsiella pneumoniae</i> .	<i>Gossypium hirsutum</i> L. (Cotton)	
A-66	CE43-67B	SYNGENTA PARTICIPATIONS AG	Insect resistance (Cry1Ab)	<i>Gossypium hirsutum</i> L. (Cotton)	WO 2006/128573, US 2011020828
A-67	CE44-69D	SYNGENTA PARTICIPATIONS AG	Insect resistance (Cry1Ab)	<i>Gossypium hirsutum</i> L. (Cotton)	WO 2006/128571
A-68	CE46-	SYNGENTA PARTICIPATIONS AG	Insect resistance (Cry1Ab)	<i>Gossypium hirsutum</i>	WO

	02A	TIONS AG		L. (Cotton)	2006/128572
A-69	Cot102	Syngenta Seeds, Inc.	Insect-resistant cotton produced by inserting the vip3A(a) gene from <i>Bacillus thuringiensis</i> AB88. The APH4 encoding gene from <i>E. coli</i> was introduced as a selectable marker	<i>Gossypium hirsutum</i> L. (Cotton)	US 2006-130175, WO2004039986, US 2010298553
A-70	COT202	Syngenta Seeds, Inc.	Insect resistance (VIP3A)	<i>Gossypium hirsutum</i> L. (Cotton)	US2009181399
A-71	Cot202	Syngenta Seeds, Inc.	Insect resistance (VIP3)	<i>Gossypium hirsutum</i> L. (Cotton)	US 2007-067868
A-72	Cot67B	Syngenta Seeds, Inc.	Insect-resistant cotton produced by inserting a full-length <i>cry1Ab</i> gene from <i>Bacillus thuringiensis</i> . The APH4 encoding gene from <i>E. coli</i> was introduced as a selectable marker.	<i>Gossypium hirsutum</i> L. (Cotton)	
A-73	DAS-21Ø23-5 x DAS-24236-5	DOW AgroScience s LLC	WideStrike™, a stacked insect-resistant cotton derived from conventional cross-breeding of parental lines 3006-210-23 (OECD identifier: DAS-21Ø23-5) and 281-24-236 (OECD identifier: DAS-24236-5).	<i>Gossypium hirsutum</i> L. (Cotton)	
A-74	DAS-21Ø23-5 x DAS-24236-5 x MON88913	DOW AgroScience s LLC and Pioneer Hi-Bred International Inc.	Stacked insect-resistant and glyphosate-tolerant cotton derived from conventional cross-breeding of WideStrike cotton (OECD identifier: DAS-21Ø23-5 x DAS-24236-5) with MON88913, known as RoundupReady Flex (OECD identifier: MON-88913-8).	<i>Gossypium hirsutum</i> L. (Cotton)	
A-75	DAS-21Ø23-5 x DAS-24236-5 x MON-Ø1445-2	DOW AgroScience s LLC	WideStrike™/Roundup Ready® cotton, a stacked insect-resistant and glyphosate-tolerant cotton derived from conventional cross-breeding of WideStrike cotton (OECD identifier: DAS-21Ø23-5 x DAS-24236-5) with MON1445 (OECD identifier: MON-Ø1445-2).	<i>Gossypium hirsutum</i> L. (Cotton)	
A-76	EE-GH3	BAYER BIOSCIENC	Glyphosate tolerance	<i>Gossypium hirsutum</i>	WO 2007/017186

		E N.V.		L. (Cotton)	
A-77	EE-GH5	BAYER BIOSCIENC E N.V.	Insect resistance (Cry1Ab)	Gossypium hirsutum L. (Cotton)	WO 2008/122406
A-78	EE-GH6	BAYER BIOSCIENC E N.V.	Insect resistance (cry2Ae)	Gossypium hirsutum L. (Cotton)	WO2008151 780, US20102182 81
A-79	event 281-24- 236	DOW AGROSCIE NCES LLC	Insect resistance (Cry1F)	Gossypium hirsutum L. (Cotton)	WO 2005/103266
A-80	Event-1	JK Agri Genetics Ltd (India)	Insect-resistant cotton produced by inserting the <i>cry1Ac</i> gene from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> HD-73 (B.t.k.).	Gossypium hirsutum L. (Cotton)	
A-81	event300 6-210-23	DOW AGROSCIE NCES LLC	Insect resistance (Cry1Ac)	Gossypium hirsutum L. (Cotton)	WO 2005/103266
A-82	GBH614	Bayer CropScience (Aventis CropScience(AgrEvo))	Glyphosate herbicide tolerant cotton produced by inserting 2mepsps gene into variety Coker312 by Agrobacterium under the control of Ph4a748At and TPotpC	<i>Gossypium hirsutum</i> L. (Cotton)	
A-83	LLCotto n25	Bayer CropScience (Aventis CropScience(AgrEvo))	Glufosinate ammonium herbicide tolerant cotton produced by inserting a modified phosphinothricin acetyltransferase (PAT) encoding gene from the soil bacterium <i>Streptomyces hygroscopicus</i>	<i>Gossypium hirsutum</i> L. (Cotton)	WO 2003013224, WO 2007/017186
A-84	LLCotto n25 x MON159 85	Bayer CropScience (Aventis CropScience(AgrEvo))	Stacked herbicide tolerant and insect resistant cotton combining tolerance to glufosinate ammonium herbicide from LLCotton25 (OECD identifier: ACS- GHØØ1-3) with resistance to insects from MON15985 (OECD identifier: MON- 15985-7)	<i>Gossypium hirsutum</i> L. (Cotton)	
A-85	MON 15985	MONSANT O TECHNOLO GY LLC	Insect resistance (Cry1Ac/Cry2Ab)	Gossypium hirsutum L. (Cotton)	US 2004- 250317
A-86	MON144 5/1698	Monsanto Company	Glyphosate herbicide tolerant cotton produced by inserting a naturally glyphosate	<i>Gossypium hirsutum</i> L. (Cotton)	

			tolerant form of the enzyme 5-enolpyruvyl shikimate-3-phosphate synthase (EPSPS) from <i>A. tumefaciens</i> strain CP4.		
A-87	MON15985 x MON88913	Monsanto Company	Stacked insect resistant and glyphosate tolerant cotton produced by conventional cross-breeding of the parental lines MON88913 (OECD identifier: MON-88913-8) and 15985 (OECD identifier: MON-15985-7). Glyphosate tolerance is derived from MON88913 which contains two genes encoding the enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) from the CP4 strain of <i>Agrobacterium tumefaciens</i> . Insect resistance is derived from MON15985 which was produced by transformation of the DP50B parent variety, which contained event 531 (expressing Cry1Ac protein), with purified plasmid DNA containing the cry2Ab gene from <i>B. thuringiensis</i> subsp. <i>kurstaki</i> .	<i>Gossypium hirsutum</i> L. (Cotton)	
A-88	MON-15985-7 x MON-Ø1445-2	Monsanto Company	Stacked insect resistant and herbicide tolerant cotton derived from conventional cross-breeding of the parental lines 15985 (OECD identifier: MON-15985-7) and MON1445 (OECD identifier: MON-Ø1445-2).	<i>Gossypium hirsutum</i> L. (Cotton)	
A-89	MON531 /757/1076	Monsanto Company	Insect-resistant cotton produced by inserting the cry1Ac gene from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> HD-73 (B.t.k.).	<i>Gossypium hirsutum</i> L. (Cotton)	
A-90	MON531 /757/1076	Monsanto Company	Insect-resistant cotton produced by inserting the <i>cry1Ac</i> gene from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> HD-73 (B.t.k.).	<i>Gossypium hirsutum</i> L. (Cotton)	
A-91	MON88913	Monsanto Company	Glyphosate herbicide tolerant cotton produced by inserting two genes encoding the enzyme 5-	<i>Gossypium hirsutum</i> L. (Cotton)	WO 2004/072235

			enolpyruvylshikimate-3-phosphate synthase (EPSPS) from the CP4 strain of <i>Agrobacterium tumefaciens</i> ; ; WO 2004/072235		
A-92	MON-ØØ531-6 x MON-Ø1445-2	Monsanto Company	Stacked insect resistant and herbicide tolerant cotton derived from conventional cross-breeding of the parental lines MON531 (OECD identifier: MON-ØØ531-6) and MON1445 (OECD identifier: MON-Ø1445-2).	<i>Gossypium hirsutum</i> L. (Cotton)	
A-93	PV-GHGT07 (1445)	MONSANTO TECHNOLOGY LLC	Glyphosate tolerance	<i>Gossypium hirsutum</i> L. (Cotton)	US 2004-148666
A-94	T304-40	BAYER BIOSCIENCE NV	Insect-resistance (Cry1Ab)	<i>Gossypium hirsutum</i> L. (Cotton)	WO2008/122406, US2010077501
A-95	T342-142	SYNGENTA PARTICIPATIONS AG	Insect resistance (Cry1Ab)	<i>Gossypium hirsutum</i> L. (Cotton)	WO 2006/128568
A-96	LLcotton 25	BAYER BIOSCIENCE N.V.	Glufosinate resistance	<i>Gossypium hirsutum</i> L. (Cotton)	WO 2003013224
A-97	X81359	BASF Inc.	Tolerance to imidazolinone herbicides by selection of a naturally occurring mutant.	<i>Helianthus annuus</i> (Sunflower)	
A-98	RH44	BASF Inc.	Selection for a mutagenized version of the enzyme acetohydroxyacid synthase (AHAS), also known as acetolactate synthase (ALS) or acetolactate pyruvate-lyase.	<i>Lens culinaris</i> (Lentil)	
A-99	FP967	University of Saskatchewan, Crop Dev. Centre	A variant form of acetolactate synthase (ALS) was obtained from a chlorsulfuron tolerant line of <i>A. thaliana</i> and used to transform flax.	<i>Linum usitatissimum</i> L. (Flax, Linseed)	
A-100	5345	Monsanto Company	Resistance to lepidopteran pests through the introduction of the cry1Ac gene from <i>Bacillus thuringiensis</i> subsp. <i>Kurstaki</i> .	<i>Lycopersicon esculentum</i> (Tomato)	
A-101	8338	Monsanto Company	Introduction of a gene sequence encoding the enzyme 1-amino-cyclopropane-1-carboxylic	<i>Lycopersicon esculentum</i> (Tomato)	

			acid deaminase (ACCD) that metabolizes the precursor of the fruit ripening hormone ethylene.		
A-102	1345-4	DNA Plant Technology Corporation	Delayed ripening tomatoes produced by inserting an additional copy of a truncated gene encoding 1-aminocyclopropane-1-carboxylic acid (ACC) synthase, which resulted in downregulation of the endogenous ACC synthase and reduced ethylene accumulation.	<i>Lycopersicon esculentum</i> (Tomato)	
A-103	35 1 N	Agritope Inc.	Introduction of a gene sequence encoding the enzyme S-adenosylmethionine hydrolase that metabolizes the precursor of the fruit ripening hormone ethylene	<i>Lycopersicon esculentum</i> (Tomato)	
A-104	B, Da, F	Zeneca Seeds	Delayed softening tomatoes produced by inserting a truncated version of the polygalacturonase (PG) encoding gene in the sense or anti-sense orientation in order to reduce expression of the endogenous PG gene, and thus reduce pectin degradation.	<i>Lycopersicon esculentum</i> (Tomato)	
A-105	FLAVR SAVR	Calgene Inc.	Delayed softening tomatoes produced by inserting an additional copy of the polygalacturonase (PG) encoding gene in the anti-sense orientation in order to reduce expression of the endogenous PG gene and thus reduce pectin degradation.	<i>Lycopersicon esculentum</i> (Tomato)	
A-106	J101, J163	Monsanto Company and Forage Genetics International	Glyphosate herbicide tolerant alfalfa (lucerne) produced by inserting a gene encoding the enzyme 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) from the CP4 strain of <i>Agrobacterium tumefaciens</i> .	<i>Medicago sativa</i> (Alfalfa)	
A-107	C/F/93/08-02	Societe National d'Exploitation des Tabacs	Tolerance to the herbicides bromoxynil and ioxynil by incorporation of the nitrilase gene from <i>Klebsiella</i>	<i>Nicotiana tabacum</i> L. (Tobacco)	

		et Allumettes	pneumoniae.		
A-108	Vector 21-41	Vector Tobacco Inc.	Reduced nicotine content through introduction of a second copy of the tobacco quinolinic acid phosphoribosyltransferase (QTPase) in the antisense orientation. The NPTII encoding gene from E. coli was introduced as a selectable marker to identify transformants.	<i>Nicotiana tabacum</i> L. (Tobacco)	
A-109	17053	MONSANTO TECHNOLOGY LLC	Glyphosate tolerance	<i>Oryza sativa</i> (Rice)	WO2010117737
A-110	17314	MONSANTO TECHNOLOGY LLC	Glyphosate tolerance	<i>Oryza sativa</i> (Rice)	WO2010117735
A-111	CL121, CL141, CFX51	BASF Inc.	Tolerance to the imidazolinone herbicide, imazethapyr, induced by chemical mutagenesis of the acetolactate synthase (ALS) enzyme using ethyl methanesulfonate (EMS).	<i>Oryza sativa</i> (Rice)	
A-112	GAT-OS2	AVENTIS CROPSCIENCE, N.V.	Glufosinate tolerance	<i>Oryza sativa</i> (Rice)	WO 01/83818
A-113	GAT-OS3	BAYER BIOSCIENCE NV	Glufosinate tolerance	<i>Oryza sativa</i> (Rice)	US 2008-289060
A-114	IMINTA-1, IMINTA-4	BASF Inc.	Tolerance to imidazolinone herbicides induced by chemical mutagenesis of the acetolactate synthase (ALS) enzyme using sodium azide.	<i>Oryza sativa</i> (Rice)	
A-115	LLRICE 06, LLRICE 62	Aventis CropScience	Glufosinate ammonium herbicide tolerant rice produced by inserting a modified phosphinothricin acetyltransferase (PAT) encoding gene from the soil bacterium <i>Streptomyces hygroscopicus</i> .	<i>Oryza sativa</i> (Rice)	WO2001/083818
A-116	LLRICE 601	Bayer CropScience (Aventis CropScience(AgrEvo))	Glufosinate ammonium herbicide tolerant rice produced by inserting a modified phosphinothricin acetyltransferase (PAT)	<i>Oryza sativa</i> (Rice)	

			encoding gene from the soil bacterium <i>Streptomyces hygrosopicus</i>).		
A-117	PE-7	MAHARAS HTRA HYBRID SEEDS COMPANY LIMITED	Insect resistance (Cry1Ac)	<i>Oryza sativa</i> (Rice)	WO 2008/114282
A-118	PWC16	BASF Inc.	Tolerance to the imidazolinone herbicide, imazethapyr, induced by chemical mutagenesis of the acetolactate synthase (ALS) enzyme using ethyl methanesulfonate (EMS).	<i>Oryza sativa</i> (Rice)	
A-119	TT51	UNIV ZHEJIANG	Insect resistance (Cry1Ab/Cry1Ac)	<i>Oryza sativa</i> (Rice)	CN1840655
A-120	Kefeng No. 6	CHINA NAT RICE RES INST	Transgenic rice Kefeng 6 is a transformation event containing two insect-resistant genes, cry1Ac and SCK (modified CpTI gene) in China.	<i>Oryza sativa</i> (Rice)	CN 101824411
A-121	C5	United States Department of Agriculture - Agricultural Research Service	Plum pox virus (PPV) resistant plum tree produced through <i>Agrobacterium</i> -mediated transformation with a coat protein (CP) gene from the virus.	<i>Prunus domestica</i> (Plum)	
A-122	ATBT04 -6, ATBT04 -27, ATBT04 -30, ATBT04 -31, ATBT04 -36, SPBT02- 5, SPBT02- 7	Monsanto Company	Colorado potato beetle resistant potatoes produced by inserting the cry3A gene from <i>Bacillus thuringiensis</i> (subsp. <i>Tenebrionis</i>).	<i>Solanum tuberosum</i> L. (Potato)	
A-123	BT6, BT10, BT12, BT16, BT17, BT18, BT23	Monsanto Company	Colorado potato beetle resistant potatoes produced by inserting the cry3A gene from <i>Bacillus thuringiensis</i> (subsp. <i>Tenebrionis</i>).	<i>Solanum tuberosum</i> L. (Potato)	

A-124	RBMT15-101, SEMT15-02, SEMT15-15	Monsanto Company	Colorado potato beetle and potato virus Y (PVY) resistant potatoes produced by inserting the cry3A gene from <i>Bacillus thuringiensis</i> (subsp. <i>Tenebrionis</i>) and the coat protein encoding gene from PVY.	<i>Solanum tuberosum</i> L. (Potato)	
A-125	RBMT21-129, RBMT21-350, RBMT22-082	Monsanto Company	Colorado potato beetle and potato leafroll virus (PLRV) resistant potatoes produced by inserting the cry3A gene from <i>Bacillus thuringiensis</i> (subsp. <i>Tenebrionis</i>) and the replicase encoding gene from PLRV.	<i>Solanum tuberosum</i> L. (Potato)	
A-126	EH92-527	BASF Plant Science	Crop composition; Amflora; Unique EU identifier: BPS-25271-9	<i>Solanum tuberosum</i> L. (Potato)	
A-127	AP205C L	BASF Inc.	Selection for a mutagenized version of the enzyme acetohydroxyacid synthase (AHAS), also known as acetolactate synthase (ALS) or acetolactate pyruvate-lyase.	<i>Triticum aestivum</i> (W heat)	
A-128	AP602C L	BASF Inc.	Selection for a mutagenized version of the enzyme acetohydroxyacid synthase (AHAS), also known as acetolactate synthase (ALS) or acetolactate pyruvate-lyase.	<i>Triticum aestivum</i> (W heat)	
A-129	BW255-2, BW238-3	BASF Inc.	Selection for a mutagenized version of the enzyme acetohydroxyacid synthase (AHAS), also known as acetolactate synthase (ALS) or acetolactate pyruvate-lyase.	<i>Triticum aestivum</i> (W heat)	
A-130	BW7	BASF Inc.	Tolerance to imidazolinone herbicides induced by chemical mutagenesis of the acetohydroxyacid synthase (AHAS) gene using sodium azide.	<i>Triticum aestivum</i> (W heat)	
A-131	Event 1	SYNGENTA PARTICIPATIONS AG	Fusarium resistance (trichothecene 3-O-acetyltransferase)	<i>Triticum aestivum</i> (W heat)	CA 2561992
A-132	JOPLIN1	SYNGENTA PARTICIPATIONS AG	disease (fungal) resistance (trichothecene 3-O-	<i>Triticum aestivum</i> (W	WO; US 2008064032

		TIONS AG	acetyltransferase)	heat)	
A-133	MON718 00	Monsanto Company	Glyphosate tolerant wheat variety produced by inserting a modified 5- enolpyruvylshikimate-3- phosphate synthase (EPSPS) encoding gene from the soil bacterium <i>Agrobacterium</i> <i>tumefaciens</i> , strain CP4.	<i>Triticum</i> <i>aestivum</i> (W heat)	
A-134	SWP965 001	Cyanamid Crop Protection	Selection for a mutagenized version of the enzyme acetohydroxyacid synthase (AHAS), also known as acetolactate synthase (ALS) or acetolactate pyruvate- lyase.	<i>Triticum</i> <i>aestivum</i> (W heat)	
A-135	Teal 11A	BASF Inc.	Selection for a mutagenized version of the enzyme acetohydroxyacid synthase (AHAS), also known as acetolactate synthase (ALS) or acetolactate pyruvate- lyase.	<i>Triticum</i> <i>aestivum</i> (W heat)	
A-136	176	Syngenta Seeds, Inc.	Insect-resistant maize produced by inserting the cry1Ab gene from <i>Bacillus</i> <i>thuringiensis</i> subsp. <i>kurstaki</i> . The genetic modification affords resistance to attack by the European corn borer (ECB).	<i>Zea mays</i> L. (Maize)	
A-137	3272	SYNGENTA PARTICIPA TIONS AG	Self processing corn (alpha- amylase)	<i>Zea mays</i> L. (Maize)	US 2006- 230473, US20100632 65
A-138	5307	SYNGENTA PARTICIPA TIONS AG	Insect (corn rootworm) resistance (FR8a)	<i>Zea mays</i> L. (Maize)	WO2010077 816
A-139	3751IR	Pioneer Hi- Bred International Inc.	Selection of somaclonal variants by culture of embryos on imidazolinone containing media.	<i>Zea mays</i> L. (Maize)	
A-140	676, 678, 680	Pioneer Hi- Bred International Inc.	Male-sterile and glufosinate ammonium herbicide tolerant maize produced by inserting genes encoding DNA adenine methylase and phosphinothricin acetyltransferase (PAT) from <i>Escherichia coli</i> and <i>Streptomyces</i> <i>viridochromogenes</i> ,	<i>Zea mays</i> L. (Maize)	

			respectively.		
A-141	ACS-ZM003-2 x MON-00810-6	Bayer CropScience (Aventis CropScience(AgrEvo))	Stacked insect resistant and herbicide tolerant corn hybrid derived from conventional cross-breeding of the parental lines T25 (OECD identifier: ACS-ZM003-2) and MON810 (OECD identifier:MON-00810-6).	<i>Zea mays</i> L. (Maize)	
A-142	B16	DEKALB GENETICS CORP	Glufosinate resistance	<i>Zea mays</i> L. (Maize)	US 2003-126634
A-143	B16 (DLL25)	Dekalb Genetics Corporation	Glufosinate ammonium herbicide tolerant maize produced by inserting the gene encoding phosphinothricin acetyltransferase (PAT) from <i>Streptomyces hygroscopicus</i> .	<i>Zea mays</i> L. (Maize)	
A-144	BT11 (X4334C BR, X4734C BR)	Syngenta Seeds, Inc.	Insect-resistant and herbicide tolerant maize produced by inserting the cry1Ab gene from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> , and the phosphinothricin N-acetyltransferase (PAT) encoding gene from <i>S. viridochromogenes</i> .	<i>Zea mays</i> L. (Maize)	WO 2010148268
A-145	BT11 x GA21	Syngenta Seeds, Inc.	Stacked insect resistant and herbicide tolerant maize produced by conventional cross breeding of parental lines BT11 (OECD unique identifier: SYN-BT011-1) and GA21 (OECD unique identifier: MON-00021-9).	<i>Zea mays</i> L. (Maize)	
A-146	BT11 x MIR162	Syngenta Seeds, Inc.	Stacked insect resistant and herbicide tolerant maize produced by conventional cross breeding of parental lines BT11 (OECD unique identifier: SYN-BT011-1) and MIR162 (OECD unique identifier: SYN-IR162-4). Resistance to the European Corn Borer and tolerance to the herbicide glufosinate ammonium (Liberty) is derived from BT11, which contains the <i>cry1Ab</i> gene from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> , and the	<i>Zea mays</i> L. (Maize)	

			phosphinothricin N-acetyltransferase (PAT) encoding gene from <i>S. viridochromogenes</i>. Resistance to other lepidopteran pests, including <i>H. zea</i>, <i>S. frugiperda</i>, <i>A. ipsilon</i>, and <i>S. albicosta</i>, is derived from MIR162, which contains the <i>vip3Aa</i> gene from <i>Bacillus thuringiensis</i> strain AB88.		
A-147	<u>BT11 x</u> <u>MIR162</u> <u>x</u> <u>MIR604</u>	Syngenta Seeds, Inc.	<i>Bacillus thuringiensis</i> Cry1Ab delta-endotoxin protein and the genetic material necessary for its production (via elements of vector pZO1502) in Event Bt11 corn (OECD Unique Identifier: SYN-BTØ11-1) x <i>Bacillus thuringiensis</i> Vip3Aa20 insecticidal protein and the genetic material necessary for its production (via elements of vector pNOV1300) in Event MIR162 maize (OECD Unique Identifier: SYN-IR162-4) x modified Cry3A protein and the genetic material necessary for its production (via elements of vector pZM26) in Event MIR604 corn (OECD Unique Identifier: SYN-IR6Ø4-5).	<i>Zea mays</i> L. (Maize)	
A-148	BT11 x MIR604	Syngenta Seeds, Inc.	Stacked insect resistant and herbicide tolerant maize produced by conventional cross breeding of parental lines BT11 (OECD unique identifier: SYN-BTØ11-1) and MIR604 (OECD unique identifier: SYN-IR6Ø5-5). Resistance to the European Corn Borer and tolerance to the herbicide glufosinate ammonium (Liberty) is derived from BT11, which contains the <i>cry1Ab</i> gene from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i>, and the phosphinothricin N-acetyltransferase (PAT) encoding gene from <i>S. viridochromogenes</i>. Corn	<i>Zea mays</i> L. (Maize)	

			rootworm-resistance is derived from MIR604 which contains the mcr3A gene from <i>Bacillus thuringiensis</i> .		
A-149	BT11 x MIR604 x GA21	Syngenta Seeds, Inc.	Stacked insect resistant and herbicide tolerant maize produced by conventional cross breeding of parental lines BT11 (OECD unique identifier: SYN-BT011-1), MIR604 (OECD unique identifier: SYN-IR605-5) and GA21 (OECD unique identifier: MON-00021-9). Resistance to the European Corn Borer and tolerance to the herbicide glufosinate ammonium (Liberty) is derived from BT11, which contains the cry1Ab gene from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> , and the phosphinothricin N-acetyltransferase (PAT) encoding gene from <i>S. viridochromogenes</i> . Corn rootworm-resistance is derived from MIR604 which contains the mcr3A gene from <i>Bacillus thuringiensis</i> . Tolerance to glyphosate herbicide is derived from GA21 which contains a modified EPSPS gene from maize.	<i>Zea mays</i> L. (Maize)	
A-150	CBH-351	Aventis CropScience	Insect-resistant and glufosinate ammonium herbicide tolerant maize developed by inserting genes encoding Cry9C protein from <i>Bacillus thuringiensis</i> subsp. <i>tolworthi</i> and phosphinothricin acetyltransferase (PAT) from <i>Streptomyces hygroscopicus</i> .	<i>Zea mays</i> L. (Maize)	
A-151	DAS-06275-8	DOW AgroSciences LLC	Lepidopteran insect resistant and glufosinate ammonium herbicide-tolerant maize variety produced by inserting the cry1F gene from <i>Bacillus thuringiensis</i> var <i>aizawai</i> and the phosphinothricin acetyltransferase (PAT) from	<i>Zea mays</i> L. (Maize)	

			<i>Streptomyces hygroscopicus</i> .		
A-152	DAS-59122-7	DOW AgroScience s LLC and Pioneer Hi-Bred International Inc.	Corn rootworm-resistant maize produced by inserting the cry34Ab1 and cry35Ab1 genes from <i>Bacillus thuringiensis</i> strain PS149B1. The PAT encoding gene from <i>Streptomyces viridochromogenes</i> was introduced as a selectable marker	<i>Zea mays</i> L. (Maize)	US 2006-070139, US 2011030086
A-153	DAS-59122-7 x NK603	DOW AgroScience s LLC and Pioneer Hi-Bred International Inc.	Stacked insect resistant and herbicide tolerant maize produced by conventional cross breeding of parental lines DAS-59122-7 (OECD unique identifier: DAS-59122-7) with NK603 (OECD unique identifier: MON-ØØ6Ø3-6). Corn rootworm-resistance is derived from DAS-59122-7 which contains the cry34Ab1 and cry35Ab1 genes from <i>Bacillus thuringiensis</i> strain PS149B1. Tolerance to glyphosate herbicide is derived from NK603.	<i>Zea mays</i> L. (Maize)	
A-154	DAS-59122-7 x TC1507 x NK603	DOW AgroScience s LLC and Pioneer Hi-Bred International Inc.	Stacked insect resistant and herbicide tolerant maize produced by conventional cross breeding of parental lines DAS-59122-7 (OECD unique identifier: DAS-59122-7) and TC1507 (OECD unique identifier: DAS-Ø15Ø7-1) with NK603 (OECD unique identifier: MON-ØØ6Ø3-6). Corn rootworm-resistance is derived from DAS-59122-7 which contains the cry34Ab1 and cry35Ab1 genes from <i>Bacillus thuringiensis</i> strain PS149B1. Lepidopteran resistance and tolerance to glufosinate ammonium herbicide is derived from TC1507. Tolerance to glyphosate herbicide is derived from NK603.	<i>Zea mays</i> L. (Maize)	
A-155	DAS-Ø15Ø7-1	DOW AgroScience	Stacked insect resistant and herbicide tolerant corn hybrid	<i>Zea mays</i> L. (Maize)	

	x MON- ØØ6Ø3- 6	s LLC	derived from conventional cross-breeding of the parental lines 1507 (OECD identifier: DAS-Ø15Ø7-1) and NK603 (OECD identifier: MON-ØØ6Ø3-6).		
A-156	DBT418	Dekalb Genetics Corporation	Insect-resistant and glufosinate ammonium herbicide tolerant maize developed by inserting genes encoding Cry1AC protein from <i>Bacillus thuringiensis</i> subsp <i>kurstaki</i> and phosphinothricin acetyltransferase (PAT) from <i>Streptomyces hygroscopicus</i>	<i>Zea mays</i> L. (Maize)	
A-157	DK404SR	BASF Inc.	Somaclonal variants with a modified acetyl-CoA-carboxylase (ACCase) were selected by culture of embryos on sethoxydim enriched medium.	<i>Zea mays</i> L. (Maize)	
A-158	DP-098140-6	PIONEER HI-BRED INTERNATIONAL	Glyphosate tolerance / ALS inhibitor tolerance	<i>Zea mays</i> L. (Maize)	WO 2008/112019, US2010240059
A-159	DP-Ø9814Ø-6 (Event 98140)	Pioneer Hi-Bred International Inc.	Corn line 98140 was genetically engineered to express the GAT4621 (glyphosate acetyltransferase) and ZM-HRA (modified version of a maize acetolactate synthase) proteins. The GAT4621 protein, encoded by the <i>gat4621</i> gene, confers tolerance to glyphosate-containing herbicides by acetylating glyphosate and thereby rendering it non-phytotoxic. The ZM-HRA protein, encoded by the <i>zm-hra</i> gene, confers tolerance to the ALS-inhibiting class of herbicides.	<i>Zea mays</i> L. (Maize)	
A-160	Event 3272	Syngenta Seeds, Inc.	Maize line expressing a heat stable alpha-amylase gene <i>amy797E</i> for use in the dry-grind ethanol process. The phosphomannose isomerase gene from <i>E.coli</i> was used as a selectable marker.	<i>Zea mays</i> L. (Maize)	

A-161	Event 98140	Pioneer Hi-Bred International Inc.	Maize event expressing tolerance to glyphosate herbicide, via expression of a modified bacterial glyphosate N-acetyltransferase, and ALS-inhibiting herbicides, via expression of a modified form of the maize acetolactate synthase enzyme.	<i>Zea mays</i> L. (Maize)	
A-162	EXP1910 IT	Syngenta Seeds, Inc. (formerly Zeneca Seeds)	Tolerance to the imidazolinone herbicide, imazethapyr, induced by chemical mutagenesis of the acetolactate synthase (ALS) enzyme using ethyl methanesulfonate (EMS).	<i>Zea mays</i> L. (Maize)	
A-163	FI117	DEKALB GENETICS CORP	Glyphosate resistance	<i>Zea mays</i> L. (Maize)	US 6,040,497
A-164	GA21	Monsanto Company	Introduction, by particle bombardment, of a modified 5-enolpyruvyl shikimate-3-phosphate synthase (EPSPS), an enzyme involved in the shikimate biochemical pathway for the production of the aromatic amino acids	<i>Zea mays</i> L. (Maize)	US 6,040,497
A-165	GA21 x MON810	Monsanto Company	Stacked insect resistant and herbicide tolerant corn hybrid derived from conventional cross-breeding of the parental lines GA21 (OECD identifier: MON-00021-9) and MON810 (OECD identifier: MON-00810-6).	<i>Zea mays</i> L. (Maize)	
A-166	GAT-ZM1	BAYER CROPS SCIENCE N.V.	Glufosinate tolerance	<i>Zea mays</i> L. (Maize)	WO 01/51654
A-167	GG25	DEKALB GENETICS CORP	Glyphosate resistance	<i>Zea mays</i> L. (Maize)	US 6,040,497
A-168	GJ11	DEKALB GENETICS CORP	Glyphosate resistance	<i>Zea mays</i> L. (Maize)	US 6,040,497
A-169	IT	Pioneer Hi-Bred International Inc.	Tolerance to the imidazolinone herbicide, imazethapyr, was obtained by in vitro selection of somaclonal variants.	<i>Zea mays</i> L. (Maize)	

A-170	LY038	Monsanto Company	Altered amino acid composition, specifically elevated levels of lysine, through the introduction of the cordapA gene, derived from <i>Corynebacterium glutamicum</i> , encoding the enzyme dihydrodipicolinate synthase (cDHDPS)	<i>Zea mays</i> L. (Maize)	US 7,157,281, US2010212051, US 2007028322
A-171	MIR162	SYNGENTA PARTICIPATIONS AG	Insect resistance	<i>Zea mays</i> L. (Maize)	WO 2007142840
A-172	MIR604	Syngenta Seeds, Inc.	Corn rootworm resistant maize produced by transformation with a modified cry3A gene. The phosphomannose isomerase gene from <i>E.coli</i> was used as a selectable marker; (Cry3a055)	<i>Zea mays</i> L. (Maize)	EP 1 737 290
A-173	MIR604 x GA21	Syngenta Seeds, Inc.	Stacked insect resistant and herbicide tolerant maize produced by conventional cross breeding of parental lines MIR604 (OECD unique identifier: SYN-IR605-5) and GA21 (OECD unique identifier: MON-00021-9). Corn rootworm-resistance is derived from MIR604 which contains the mcry3A gene from <i>Bacillus thuringiensis</i> . Tolerance to glyphosate herbicide is derived from GA21.	<i>Zea mays</i> L. (Maize)	
A-174	MON80100	Monsanto Company	Insect-resistant maize produced by inserting the cry1Ab gene from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> . The genetic modification affords resistance to attack by the European corn borer (ECB).	<i>Zea mays</i> L. (Maize)	
A-175	MON802	Monsanto Company	Insect-resistant and glyphosate herbicide tolerant maize produced by inserting the genes encoding the Cry1Ab protein from <i>Bacillus thuringiensis</i> and the 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) from <i>A. tumefaciens</i> strain CP4.	<i>Zea mays</i> L. (Maize)	

A-176	MON809	Pioneer Hi-Bred International Inc.	Resistance to European corn borer (<i>Ostrinia nubilalis</i>) by introduction of a synthetic cry1Ab gene. Glyphosate resistance via introduction of the bacterial version of a plant enzyme, 5-enolpyruvyl shikimate-3-phosphate synthase (EPSPS).	<i>Zea mays</i> L. (Maize)	
A-177	MON810	Monsanto Company	Insect-resistant maize produced by inserting a truncated form of the cry1Ab gene from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> HD-1. The genetic modification affords resistance to attack by the European corn borer (ECB)	<i>Zea mays</i> L. (Maize)	US 2004-180373
A-178	MON810 x MON880 17	Monsanto Company	Stacked insect resistant and glyphosate tolerant maize derived from conventional cross-breeding of the parental lines MON810 (OECD identifier: MON-ØØ81Ø-6) and MON88017 (OECD identifier: MON-88Ø17-3). European corn borer (ECB) resistance is derived from a truncated form of the cry1Ab gene from <i>Bacillus thuringiensis</i> subsp. <i>kurstaki</i> HD-1 present in MON810. Corn rootworm resistance is derived from the cry3Bb1 gene from <i>Bacillus thuringiensis</i> subspecies <i>kumamotoensis</i> strain EG4691 present in MON88017. Glyphosate tolerance is derived from a 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) encoding gene from <i>Agrobacterium tumefaciens</i> strain CP4 present in MON88017.	<i>Zea mays</i> L. (Maize)	
A-179	MON832	Monsanto Company	Introduction, by particle bombardment, of glyphosate oxidase (GOX) and a modified 5-enolpyruvyl shikimate-3-phosphate synthase (EPSPS), an enzyme involved in the shikimate biochemical pathway for the	<i>Zea mays</i> L. (Maize)	

			production of the aromatic amino acids.		
A-180	MON863	Monsanto Company	Corn root worm resistant maize produced by inserting the cry3Bb1 gene from <i>Bacillus thuringiensis</i> subsp. <i>kumamotoensis</i> .	<i>Zea mays</i> L. (Maize)	
A-181	MON863 x MON810	Monsanto Company	Stacked insect resistant corn hybrid derived from conventional cross-breeding of the parental lines MON863 (OECD identifier: MON-ØØ863-5) and MON810 (OECD identifier: MON-ØØ81Ø-6)	<i>Zea mays</i> L. (Maize)	
A-182	MON863 x MON810 x NK603	Monsanto Company	Stacked insect resistant and herbicide tolerant corn hybrid derived from conventional cross-breeding of the stacked hybrid MON-ØØ863-5 x MON-ØØ81Ø-6 and NK603 (OECD identifier: MON-ØØ6Ø3-6).	<i>Zea mays</i> L. (Maize)	
A-183	MON863 x NK603	Monsanto Company	Stacked insect resistant and herbicide tolerant corn hybrid derived from conventional cross-breeding of the parental lines MON863 (OECD identifier: MON-ØØ863-5) and NK603 (OECD identifier: MON-ØØ6Ø3-6).	<i>Zea mays</i> L. (Maize)	
A-184	MON874 60	Monsanto Company	Drought tolerance; Water deficit tolerance	<i>Zea mays</i> L. (Maize)	WO 2009111263
A-185	MON880 17	Monsanto Company	Corn rootworm-resistant maize produced by inserting the cry3Bb1 gene from <i>Bacillus thuringiensis</i> subspecies <i>kumamotoensis</i> strain EG4691. Glyphosate tolerance derived by inserting a 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) encoding gene from <i>Agrobacterium tumefaciens</i> strain CP4	<i>Zea mays</i> L. (Maize)	WO2005059 103
A-186	MON890 34	Monsanto Company	Maize event expressing two different insecticidal proteins from <i>Bacillus thuringiensis</i> providing resistance to number of lepidopteran pests; insect resistance (Lepidoptera –Cry1A.105- Cry2Ab)	<i>Zea mays</i> L. (Maize)	WO 2007140256

A-187	MON890 34 x MON880 17	Monsanto Company	Stacked insect resistant and glyphosate tolerant maize derived from conventional cross-breeding of the parental lines MON89034 (OECD identifier: MON-89Ø34-3) and MON88017 (OECD identifier: MON-88Ø17-3). Resistance to Lepidopteran insects is derived from two crygenes present in MON89043. Corn rootworm resistance is derived from a single cry genes and glyphosate tolerance is derived from the 5-enolpyruvylshikimate-3-phosphate synthase (EPSPS) encoding gene from <i>Agrobacterium tumefaciens</i> present in MON88017.	<i>Zea mays</i> L. (Maize)	
A-188	<u>MON890</u> 34 x <u>NK603</u>	Monsanto Company	Stacked insect resistant and herbicide tolerant maize produced by conventional cross breeding of parental lines MON89034 (OECD identifier: MON-89Ø34-3) with NK603 (OECD unique identifier: MON-ØØ6Ø3-6). Resistance to Lepidopteran insects is derived from two crygenes present in MON89043. Tolerance to glyphosate herbicide is derived from NK603.	<i>Zea mays</i> L. (Maize)	
A-189	<u>MON890</u> 34 x <u>TC1507</u> x <u>MON880</u> 17 x <u>DAS-</u> <u>59122-7</u>	Monsanto Company	Stacked insect resistant and herbicide tolerant maize produced by conventional cross breeding of parental lines: MON89034, TC1507, MON88017, and DAS-59122. Resistance to the above-ground and below-ground insect pests and tolerance to glyphosate and glufosinate-ammonium containing herbicides.	<i>Zea mays</i> L. (Maize)	
A-190	MON- ØØ6Ø3- 6 x MON- ØØ81Ø- 6	Monsanto Company	Stacked insect resistant and herbicide tolerant corn hybrid derived from conventional cross-breeding of the parental lines NK603 (OECD identifier: MON-ØØ6Ø3-6) and MON810 (OECD	<i>Zea mays</i> L. (Maize)	

			identifier: MON-ØØ81Ø-6).		
A-191	MON-ØØ81Ø-6 x LY038	Monsanto Company	Stacked insect resistant and enhanced lysine content maize derived from conventional cross-breeding of the parental lines MON810 (OECD identifier: MON-ØØ81Ø-6) and LY038 (OECD identifier: REN-ØØØ38-3).	<i>Zea mays</i> L. (Maize)	
A-192	MON-ØØ863-5 x MON-ØØ6Ø3-6	Monsanto Company	Stacked insect resistant and herbicide tolerant corn hybrid derived from conventional cross-breeding of the parental lines MON863 (OECD identifier: MON-ØØ863-5) and NK603 (OECD identifier: MON-ØØ6Ø3-6).	<i>Zea mays</i> L. (Maize)	
A-193	MON-ØØ863-5 x MON-ØØ81Ø-6	Monsanto Company	Stacked insect resistant corn hybrid derived from conventional cross-breeding of the parental lines MON863 (OECD identifier: MON-ØØ863-5) and MON810 (OECD identifier: MON-ØØ81Ø-6)	<i>Zea mays</i> L. (Maize)	
A-194	MON-ØØ863-5 x MON-ØØ81Ø-6 x MON-ØØ6Ø3-6	Monsanto Company	Stacked insect resistant and herbicide tolerant corn hybrid derived from conventional cross-breeding of the stacked hybrid MON-ØØ863-5 x MON-ØØ81Ø-6 and NK603 (OECD identifier: MON-ØØ6Ø3-6).	<i>Zea mays</i> L. (Maize)	
A-195	MON-ØØØ21-9 x MON-ØØ81Ø-6	Monsanto Company	Stacked insect resistant and herbicide tolerant corn hybrid derived from conventional cross-breeding of the parental lines GA21 (OECD identifier: MON-ØØØ21-9) and MON810 (OECD identifier: MON-ØØ81Ø-6).	<i>Zea mays</i> L. (Maize)	
A-196	MS3	Bayer CropScience (Aventis CropScience(AgrEvo))	Male sterility caused by expression of the barnase ribonuclease gene from <i>Bacillus amyloliquefaciens</i> ; PPT resistance was via PPT-acetyltransferase (PAT).	<i>Zea mays</i> L. (Maize)	
A-197	MS6	Bayer CropScience (Aventis	Male sterility caused by expression of the barnase ribonuclease gene from	<i>Zea mays</i> L. (Maize)	

		CropScience(AgrEvo))	Bacillus amyloliquefaciens; PPT resistance was via PPT-acetyltransferase (PAT).		
A-198	NK603	Monsanto Company	Introduction, by particle bombardment, of a modified 5-enolpyruvyl shikimate-3-phosphate synthase (EPSPS), an enzyme involved in the shikimate biochemical pathway for the production of the aromatic amino acids.	<i>Zea mays</i> L. (Maize)	
A-199	NK603 x MON810	Monsanto Company	Stacked insect resistant and herbicide tolerant corn hybrid derived from conventional cross-breeding of the parental lines NK603 (OECD identifier: MON-ØØ6Ø3-6) and MON810 (OECD identifier: MON-ØØ81Ø-6).	<i>Zea mays</i> L. (Maize)	
A-200	NK603 x T25	Monsanto Company	Stacked glufosinate ammonium and glyphosate herbicide tolerant maize hybrid derived from conventional cross-breeding of the parental lines NK603 (OECD identifier: MON-ØØ6Ø3-6) and T25 (OECD identifier: ACS-ZM003-2).	<i>Zea mays</i> L. (Maize)	
A-201	PV-ZMGT32 (NK603)	MONSANTO TECHNOLOGY LLC	Glyphosate tolerance	<i>Zea mays</i> L. (Maize)	US 2007-056056
A-202	PV-ZMGT32 (nk603)	MONSANTO TECHNOLOGY LLC	Glyphosate tolerance	<i>Zea mays</i> L. (Maize)	US 2007292854
A-203	PV-ZMIR13 (MON863)	MONSANTO TECHNOLOGY LLC	Insect resistance (Cry3Bb)	<i>Zea mays</i> L. (Maize)	US 2006-095986
A-204	SYN-BTØ11-1 x MON-ØØØ21-9	Syngenta Seeds, Inc.	Stacked insect resistant and herbicide tolerant maize produced by conventional cross breeding of parental lines BT11 (OECD unique identifier: SYN-BTØ11-1) and GA21 (OECD unique identifier: MON-ØØØ21-9).	<i>Zea mays</i> L. (Maize)	
A-205	T14	Bayer CropScience (Aventis CropScience(	Glufosinate herbicide tolerant maize produced by inserting the phosphinothricin N-acetyltransferase (PAT)	<i>Zea mays</i> L. (Maize)	

		AgrEvo))	encoding gene from the aerobic actinomycete <i>Streptomyces viridochromogenes</i> .		
A-206	T14, T25	Bayer CropScience (Aventis CropScience(AgrEvo))	Glufosinate herbicide tolerant maize produced by inserting the phosphinothricin N-acetyltransferase (PAT) encoding gene from the aerobic actinomycete <i>Streptomyces viridochromogenes</i> .	<i>Zea mays</i> L. (Maize)	
A-207	T25 x MON810	Bayer CropScience (Aventis CropScience(AgrEvo))	Stacked insect resistant and herbicide tolerant corn hybrid derived from conventional cross-breeding of the parental lines T25 (OECD identifier: ACS-ZM003-2) and MON810 (OECD identifier:MON-00810-6).	<i>Zea mays</i> L. (Maize)	
A-208	TC1507	Mycogen (c/o Dow AgroScience s); Pioneer (c/o Dupont)	Insect-resistant and glufosinate ammonium herbicide tolerant maize produced by inserting the cry1F gene from <i>Bacillus thuringiensis</i> var. <i>aizawai</i> and the phosphinothricin N-acetyltransferase encoding gene from <i>Streptomyces viridochromogenes</i> ; Insect resistance (Cry1F)	<i>Zea mays</i> L. (Maize)	US 7,435,807 WO2004/099447
A-209	TC1507 x DAS-59122-7	DOW AgroScience s LLC and Pioneer Hi-Bred International Inc.	Stacked insect resistant and herbicide tolerant maize produced by conventional cross breeding of parental lines TC1507 (OECD unique identifier: DAS-01507-1) with DAS-59122-7 (OECD unique identifier: DAS-59122-7). Resistance to lepidopteran insects is derived from TC1507 due the presence of the cry1F gene from <i>Bacillus thuringiensis</i> var. <i>aizawai</i> . Corn rootworm-resistance is derived from DAS-59122-7 which contains the cry34Ab1 and cry35Ab1 genes from <i>Bacillus thuringiensis</i> strain PS149B1. Tolerance to glufosinate ammonium herbicide is derived from TC1507 from the phosphinothricin N-	<i>Zea mays</i> L. (Maize)	

			acetyltransferase encoding gene from Streptomyces viridochromogenes.		
A-210	VIP1034	SYNGENTA PARTICIPATIONS AG	Insect resistance	Zea mays L. (Maize)	WO 2003/052073
A-211	E6611.32 .1.38 / DP-32138-1 / 32138	Pioneer Hi-Bred International Inc.	1) MS45: anther-specific 5126 (Zea mays) promoter > fertility restoration Ms45 (Zea mays) coding sequence > fertility restoration Ms45 (Zea mays) 3'-untranslated region 2) ZM-AA1: polygalacturonase 47 (Zea mays) promoter > brittle-1 (Zea mays) chloroplast transit peptide > alpha-amylase-1 (Zea mays) truncated coding sequence > >In2-1 (Zea mays) 3'-untranslated region 3) DSRED2: 35S (Cauliflower Mosaic Virus) enhancer > lipid transfer protein-2 (Hordeum vulgare) promoter > red fluorescent protein (Dicosoma sp.) variant coding sequence > protein inhibitor II (Solanum tuberosum) 3'-untranslated region	zea mays L. (Maize)	WO 2009103049, MX 2010008977
A-212	DAS-40278-9	DOW AgroSciences LLC	RB7 MARv3>zmUbiquitin 1 promoter>aad1>zmPER5 3'UTR>RB 7 MARv4. The aad-1 gene confers tolerance to 2,4- dichlorophenoxyacetic acid and aryloxyphenoxypropionate (commonly referred to as "fop" herbicides such as quizalofop) herbicides	Zea mays L. (Maize)	WO 2011022 469
A-213	MIR604	Syngenta Participations AG	1) CRY3A: metallotionin-like gene (Zea mays) promoter > delta-endotoxin cry3a (Bacillus thuringiensis subsp. tenebrionis) coding sequence, modified to include a cathepsin-G protease recognition site and maize codon optimized > nopaline synthase (Agrobacterium tumefaciens) 3'-untranslated	Zea mays L. (Maize)	US 2005216970, US 2008167456, US 2011111420

			region 2) PMI: polyubiquitin (Zea mays) promoter (incl. first intron) > mannose-6-phosphate isomerase (Escherichia coli) coding sequence > nopaline synthase (Agrobacterium tumefaciens) 3'-untranslated region		
A-214	MON 87427	MONSANTO TECHNOLOGY LLC	The transgene insert and expression cassette of MON 87427 comprises the promoter and leader from the cauliflower mosaic virus (CaMV) 35 S containing a duplicated enhancer region (P-e35S); operably linked to a DNA leader derived from the first intron from the maize heat shock protein 70 gene (I-HSP70); operably linked to a DNA molecule encoding an N-terminal chloroplast transit peptide from the shkG gene from Arabidopsis thaliana EPSPS (Ts-CTP2); operably linked to a DNA molecule derived from the aroA gene from the Agrobacterium sp. strain CP4 and encoding the CP4 EPSPS protein; operably linked to a 3' UTR DNA molecule derived from the nopaline synthase (T-NOS) gene from Agrobacterium tumefaciens .	Zea mays L. (Maize)	WO 2011062904
A-215	DP-004114-3	Pioneer Hi-Bred International Inc.	cry1F, cry34Ab1, cry35Ab1, and pat: resistance to certain lepidopteran and coleopteran pests, as well as tolerance to phosphinothricin.	Zea mays L. (Maize)	US 2011154523
A-216	DP-032316-8	Pioneer Hi-Bred International Inc.	Cry1F, cry34Ab1, cry35Ab1, pat: resistance to certain lepidopteran and coleopteran pests, as well as tolerance to phosphinothricin	Zea mays L. (Maize)	US 2011154524
A-217	DP-040416-8a	Pioneer Hi-Bred International Inc.	Cry1F, cry34Ab1, cry35Ab1, pat: resistance to certain lepidopteran and coleopteran pests, as well as tolerance to phosphinothricin	Zea mays L. (Maize)	US 20110154525
A-218	DP-043A47-3	Pioneer Hi-Bred International	Cry1F, cry34Ab1, cry35Ab1, pat: resistance to certain lepidopteran and coleopteran	Zea mays L. (Maize)	US20110154526

		Inc.	pests, as well as tolerance to phosphinothricin		
A219	33391	Monsanto Technology LLC	Herbicide tolerance	<i>Triticum aestivum</i> (wheat)	WO2002/027 004
A220	531/ PV-GHBK04 / MON-00531-6	Monsanto Technology LLC	Cry1Ac, lepidopteran resistance	<i>Gossypium hirsutum</i> L. (Cotton)	WO2002/040 677
A221	BLR1	SYNGENTA PARTICIPATIONS AG	Improved fertility restoration for Ogura cytoplasmic male sterile brassica	<i>Brassica napus</i> (oilseed rape)	WO2005/074 671
A222	FG72	Bayer BioScience N.V. / MS Technologies	glyphosate and isoxaflutole tolerance	<i>Glycine max</i> L (soybean)	WO2011/063 413
A-223	MON883 02	Monsanto Technology LLC	Glyphosate tolerance	<i>Brassica napus</i>	WO2011/153 186
A-224	1606 / DAS-21606-3	Dow AgroScience LLC	aad-12; tolerance to phenoxy auxin herbicides	<i>Glycine max</i> L (soybean)	WO2012/033 794
A-225	MON877 12	Monsanto Technology LLC	BBX32 gene, yield	<i>Glycine max</i> L (soybean)	WO2012/051 199
A-226	pDAB82 64.44.06.1 / DAS-44406-6	Dow AgroScience LLC	Multiple traits conferring resistance to glyphosate, aryloxyalkanoate and glufosinate herbicides	<i>Glycine max</i> L (soybean)	WO2012/075 426
A-227	pDAB82 91.45.36.2 / DAS-14536-7	Dow AgroScience LLC	Multiple traits conferring resistance to glyphosate, aryloxyalkanoate and glufosinate herbicides	<i>Glycine max</i> L (soybean)	WO2012/075 429
A-228	SYHT0H 2 / SYN-000H2-5	SYNGENTA PARTICIPATIONS AG	Herbicide resistance	<i>Glycine max</i> L (soybean)	WO2012/082 548
A-229	MON887 01	Monsanto Technology LLC	Tolerance to dicamba and glufosinate herbicides	<i>Gossypium hirsutum</i> L. (Cotton)	WO2012/134 808

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 1143-51B (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 WO2010/117737); Event 17314 (rice, herbicide tolerance, deposited as PTA-9844, described in WO2010/117735); Event 281-24-236 (cotton, insect control - herbicide tolerance, deposited as PTA-6233, described in WO2005/103266 or US2005216969); Event 3006-210-23 (cotton, insect control - herbicide tolerance, deposited as PTA-6233, described in
5 US2007143876 or WO2005/103266); 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-11508, described in WO2011/075593); Event 43A47 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-11509, described in WO2011/075595); Event 5307 (corn, insect control, deposited as ATCC PTA-9561, described in WO2010/077816); Event ASR-368 (bent
10 grass, herbicide tolerance, deposited as ATCC PTA-4816, described in US2006162007 or WO2004053062); Event B16 (corn, herbicide tolerance, not deposited, described in US2003126634); Event BPS-CV127-9 (soybean, herbicide tolerance, deposited as NCIMB No. 41603, described in WO2010/080829); Event CE43-67B (cotton, insect control, deposited as DSM ACC2724, described in US2009217423 or WO2006/128573); Event CE44-69D (cotton, insect control, not deposited, described
15 in US20100024077); 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);
20 Event DAS40278 (corn, herbicide tolerance, deposited as ATCC PTA-10244, described in WO2011/022469); 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 WO2011/066384 or WO2011/066360); Event
25 DP-098140-6 (corn, herbicide tolerance, deposited as ATCC PTA-8296, described in US2009137395 or WO2008/112019); Event DP-305423-1 (soybean, quality trait, not deposited, described in US2008312082 or WO2008/054747); Event DP-32138-1 (corn, hybridization system, deposited as ATCC PTA-9158, described in US20090210970 or WO2009/103049); Event DP-356043-5 (soybean, herbicide tolerance, deposited as ATCC PTA-8287, described in US20100184079 or WO2008/002872);
30 Event EE-1 (brinjal, insect control, not deposited, described in WO2007/091277); Event FI117 (corn, herbicide tolerance, deposited as ATCC 209031, described in US2006059581 or WO1998/044140); Event GA21 (corn, herbicide tolerance, deposited as ATCC 209033, described in US2005086719 or WO1998/044140); Event GG25 (corn, herbicide tolerance, deposited as ATCC 209032, described in US2005188434 or WO1998/044140); Event GHB119 (cotton, insect control - herbicide tolerance,
35 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 GJ11 (corn, herbicide tolerance, deposited as ATCC 209030, described in US2005188434 or

WO1998/044140); Event GM RZ13 (sugar beet, virus resistance , deposited as NCIMB-41601, described in WO2010/076212); Event H7-1 (sugar beet, herbicide tolerance, deposited as NCIMB 41158 or NCIMB 41159, 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 US2008289060 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 WO2005103301); 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 WO2004/011601 or US2006095986); Event MON87427 (corn, pollination control, deposited as ATCC PTA-7899, described in WO2011/062904); Event MON87460 (corn, stress tolerance, deposited as ATCC PTA-8910, described in WO2009/111263 or US20110138504); Event MON87701 (soybean, insect control, deposited as ATCC PTA-8194, described in US2009130071 or WO2009/064652); Event MON87705 (soybean, quality trait - herbicide tolerance, deposited as ATCC PTA-9241, described in US20100080887 or WO2010/037016); Event MON87708 (soybean, herbicide tolerance, deposited as ATCC PTA9670, described in WO2011/034704); Event MON87754 (soybean, quality trait, deposited as ATCC PTA-9385, described in WO2010/024976); Event MON87769 (soybean, quality trait, deposited as ATCC PTA-8911, described in US20110067141 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 WO2006/130436); Event MS11 (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-850 or PTA-2485, described in WO2001/031042); Event MS8 (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-730, described in WO2001/041558 or US2003188347); Event NK603 (corn, herbicide tolerance, deposited as ATCC PTA-2478, described in US2007-292854); Event PE-7 (rice, insect control, not deposited, described in WO2008/114282); Event RF3 (oilseed rape, pollination control - herbicide tolerance, deposited as ATCC PTA-730, described in WO2001/041558 or US2003188347); 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 US2001029014 or WO2001/051654); Event T304-40 (cotton, insect control - herbicide tolerance, deposited as ATCC PTA-8171, described in
5 US2010077501 or WO2008/122406); Event T342-142 (cotton, insect control, not deposited, described in WO2006/128568); Event TC1507 (corn, insect control - herbicide tolerance, not deposited, described in US2005039226 or WO2004/099447); Event VIP1034 (corn, insect control - herbicide tolerance, deposited as ATCC PTA-3925., described in WO2003/052073), Event 32316 (corn, insect control-herbicide tolerance, deposited as PTA-11507, described in WO2011/084632), Event 4114 (corn, insect
10 control-herbicide tolerance, deposited as PTA-11506, described in WO2011/084621), Event MON88302 (oilseed rape, herbicide tolerance, deposited as PTA-10955, described in WO2011/153186), Event 1606 (soybean, herbicide tolerance, deposited as PTA-11028, described in WO2012/033794), Event MON87712 (soybean, yield, deposited as PTA-10296, described in WO2012/051199), Event pDAB8264.44.06.1 / DAS-44406-6 (soybean, herbicide tolerance, deposited
15 as PTA-11336, described in WO2012/075426), Event pDAB8291.45.36.2 / DAS-14536-7 (soybean, herbicide tolerance, deposited as PTA-11335, described in WO2012/075429), Event SYHT0H2 / SYN-000H2-5 (soybean, herbicide tolerance, deposited as PTA-11226, described in WO2012/082548), Event MON88701 (cotton, herbicide tolerance, deposited as PTA-11754, described in WO2012/134808), Event FG72 (soybean, herbicide tolerance, deposited as PTA-11041, described in WO2011/063413),
20 Event BLR1 (oilseed rape, restoration of male sterility, deposited as NCIMB 41193, described in WO2005/074671), Event 531/ PV-GHBK04 (cotton, insect resistance, described in WO2002/040677), Event 33391 (wheat, herbicide tolerance, deposited as PTA-2347, described in WO2002/027004).

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
25 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
30 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
35 cytoplasm. Examples of cytoplasmic male sterility (CMS) were for instance described in Brassica species (WO 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 plants containing the nematode resistance / tolerance genes and are in addition herbicide-tolerant, 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-enolpyruvylshikimate-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 or WO02/26995. 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). Hydroxyphenylpyruvatedioxygenases HPPD is an are enzymes that catalyze the reaction in which para-hydroxyphenylpyruvate (HPP) is transformed into homogentisate.

- 5 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, and WO 99/24586, WO 2009/144079, WO 2002/046387, or US 6,768,044. 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
- 10 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
- 15 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, imidazolinone, triazolopyrimidines, pyrimidinyoxy(thio)benzoates, and/or sulfonylaminocarbonyltriazolinone herbicides. Different mutations in the ALS enzyme (also known as acetohydroxyacid synthase, AHAS) are known to confer tolerance to
- 20 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
- 25 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 and US Patent Application No 61/288958.

- Other plants tolerant to imidazolinone and/or sulfonylurea can be obtained by induced mutagenesis, selection
- 30 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 - besides nematode resistance / tolerance – insect-resistant, i.e.
- 35 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 Cry1Ab, Cry1Ac, Cry1B, Cry1C, Cry1D, Cry1F, 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 Cry1A or Cry1F 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 Cry1A.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 Cry3Bb1 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 insecticidal 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 Cry1A or Cry1F (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 - besides nematode resistance / tolerance – 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
5 phosphoribosyltransferase, nicotinic acid mononucleotide adenylyl 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 are nematode resistant / tolerant plants showing in addition altered
10 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
15 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 97/11188, WO 97/26362, WO 97/32985, WO 97/42328, WO 97/44472, WO 97/45545, WO 98/27212, WO 98/40503, WO99/58688, WO 99/58690, WO 99/58654, WO 00/08184, WO 00/08185,
20 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
25 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 00/11192, 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 94/11520, WO 95/35026, WO 97/20936

2) transgenic plants which synthesize non starch carbohydrate polymers or which synthesize non starch
30 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
35 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',
5 'low pungency' (LP) and/or 'long storage' (LS), as described in US Patent Appl. No. 12/020,360 and 61/054,026.

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, which are nematode resistant / tolerant and showing in addition altered fiber characteristics. Such plants can be obtained by
10 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
15 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
- 20 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 β -1,3-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
25 2006/136351

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, which are nematode resistant / tolerant and showing in addition altered oil profile characteristics. Such plants can be obtained by genetic transformation, or by selection of plants contain a mutation imparting such
30 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, or US 5,965,755

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

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 potatoes which are nematode resistant / tolerant and in addition virus-resistant, e.g. against potato virus Y (event SY230 and SY233 from Tecnoplant, Argentina), which are disease resistant, e.g. against potato late blight (e.g. RB gene), which show a reduction in cold-induced sweetening (carrying the Nt-Inhh, IIR-INV gene) or which possess a dwarf phenotype (Gene A-20 oxidase).

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, which are nematode resistant / tolerant and showing in addition 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, and EP 08075648.9, WO09/068313 and WO10/006732.

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 listed in table B 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.
- 5 - APHIS documents : various documents published by APHIS in relation to the Petition and which can be requested with APHIS.

Mixing Partners

In one embodiment, the present invention relates to the use of a composition comprising A) the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and
 10 (I-B) and B) at least one further agrochemically active compound and/or at least one nematocidal biological control agent.

In another embodiment, the present invention relates to the use of a composition comprising A) the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) and B) at least one further agrochemically active compound.

- 15 The agrochemically active compound described under B) are the following active ingredients
 being fungicides which may be mentioned are:

- 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, (1.11) dodemorph acetate, (1.12) epoxiconazole,
 20 (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,
 25 (1.38) piperalin, (1.39) prochloraz, (1.40) propiconazole, (1.41) prothioconazole, (1.42) pyributicarb, (1.43) pyrifenoxy, (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-(1H-1,2,4-triazol-1-yl)cycloheptanol,
 30 (1.61) methyl 1-(2,2-dimethyl-2,3-dihydro-1H-inden-1-yl)-1H-imidazole-5-carboxylate, (1.62) N'-{5-(difluoromethyl)-2-methyl-4-[3-(trimethylsilyl)propoxy]phenyl}-N-ethyl-N-methylimidoforamide,
 (1.63) N-ethyl-N-methyl-N'-{2-methyl-5-(trifluoromethyl)-4-[3-

(trimethylsilyl)propoxy]phenyl}imidoformamide, (1.64) O-[1-(4-methoxyphenoxy)-3,3-dimethylbutan-2-yl] 1H-imidazole-1-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, (2.11) 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-(1,1,2,2-tetrafluoroethoxy)phenyl]-3-(trifluoromethyl)-1H-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-(1,1,2,3,3,3-hexafluoropropoxy)phenyl]-1-methyl-1H-pyrazole-4-carboxamide, (2.27) N-[1-(2,4-dichlorophenyl)-1-methoxypropan-2-yl]-3-(difluoromethyl)-1-methyl-1H-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-[(1S,4R)-9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide, (2.31) N-[(1R,4S)-9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide, (2.32) 3-(difluoromethyl)-1-methyl-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-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-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)-1H-pyrazole-4-carboxamide, (2.35) 1-methyl-3-(trifluoromethyl)-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide, (2.36) 1-methyl-3-(trifluoromethyl)-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide, (2.37) 3-(difluoromethyl)-1-methyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide, (2.38) 3-(difluoromethyl)-1-methyl-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide, (2.39) 1,3,5-trimethyl-N-[(3R)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide, (2.40) 1,3,5-trimethyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide, (2.41) benodanil, (2.42) 2-chloro-N-(1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl)pyridine-3-carboxamide, (2.43) N-[1-(4-isopropoxy-2-methylphenyl)-2-methyl-1-oxopropan-2-yl]-3-methylthiophene-2-carboxamide.

- 3) Inhibitors of the respiratory chain at complex III, for example (3.1) ametocetradin, (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, (3.11) 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-{[(1E)-1-[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-{[(1E)-1-[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.
- 15 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-1-yl)-6-(2,4,6-trifluorophenyl)[1,2,4]triazolo[1,5-a]pyrimidine, (4.14) 3-chloro-5-(6-chloropyridin-3-yl)-6-methyl-4-(2,4,6-trifluorophenyl)pyridazine.
- 20 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,
- 25 (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.
- 30 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) quintozone, (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-1-[(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) chlozolate, (13.2) fenpiclonil, (13.3) fludioxonil, (13.4) iprodione, (13.5) procymidone, (13.6) quinoxifen, (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) mildiomyacin, (15.33) natamycin, (15.34) nickel dimethyldithiocarbamate, (15.35) nitrothal-isopropyl, (15.37) oxamocarb, (15.38) oxyfenthiiin, (15.39) pentachlorophenol and salts, (15.40) phenothrin, (15.41) phosphorous acid and its salts, (15.42) propamocarb-fosetilate, (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) tolknifanide, (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-1,5-dioxonan-7-yl 2-methylpropanoate, (15.55) 1-(4-{4-[(5R)-5-(2,6-difluorophenyl)-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone, (15.56) 1-(4-{4-[(5S)-5-(2,6-difluorophenyl)-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone, (15.57) 1-(4-{4-[5-(2,6-difluorophenyl)-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)-2-[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]ethanone, (15.58) 1-(4-methoxyphenoxy)-3,3-dimethylbutan-2-yl 1H-imidazole-1-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-1H,5H-[1,4]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)-1H-pyrazol-1-yl]-1-(4-{4-[(5S)-5-phenyl-4,5-dihydro-1,2-oxazol-3-yl]-1,3-thiazol-2-yl}piperidin-1-yl)ethanone, (15.64) 2-[5-methyl-3-(trifluoromethyl)-1H-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-1-(2,6-difluoro-4-methoxyphenyl)-4-methyl-1H-imidazol-5-yl]pyridine, (15.67) 2-phenylphenol and salts, (15.68) 3-(4,4,5-trifluoro-3,3-dimethyl-3,4-dihydroisoquinolin-1-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-1,3,4-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[1,2,4]triazolo[1,5-a]pyrimidin-7-amine, (15.77) ethyl (2Z)-3-amino-2-cyano-3-phenylacrylate, (15.78) N'-(4-{3-(4-chlorobenzyl)-1,2,4-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-[1-(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-1,2-thiazol-5-yl)oxy]-2-chloro-5-methylphenyl}-N-ethyl-N-methylimidoformamide, (15.87) N-methyl-2-(1-{[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-N-(1,2,3,4-tetrahydronaphthalen-1-yl)-1,3-thiazole-4-carboxamide, (15.88) N-methyl-2-(1-{[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-N-[(1R)-1,2,3,4-

- tetrahydronaphthalen-1-yl]-1,3-thiazole-4-carboxamide, (15.89) N-methyl-2-(1-{[5-methyl-3-(trifluoromethyl)-1H-pyrazol-1-yl]acetyl}piperidin-4-yl)-N-[(1S)-1,2,3,4-tetrahydronaphthalen-1-yl]-1,3-thiazole-4-carboxamide, (15.90) pentyl {6-[[[(1-methyl-1H-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-1H-tetrazol-5-yl)(phenyl)methylene]amino}oxy)methyl]pyridin-2-yl} carbamate, (15.95) 1-methyl-3-(trifluoromethyl)-N-[2'-(trifluoromethyl)biphenyl-2-yl]-1H-pyrazole-4-carboxamide, (15.96) N-(4'-chlorobiphenyl-2-yl)-3-(difluoromethyl)-1-methyl-1H-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]-1H-pyrazole-4-carboxamide, (15.99) N-(2',5'-difluorobiphenyl-2-yl)-1-methyl-3-(trifluoromethyl)-1H-pyrazole-4-carboxamide, (15.100) 3-(difluoromethyl)-1-methyl-N-[4'-(prop-1-yn-1-yl)biphenyl-2-yl]-1H-pyrazole-4-carboxamide, (15.101) 5-fluoro-1,3-dimethyl-N-[4'-(prop-1-yn-1-yl)biphenyl-2-yl]-1H-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-1-yl)biphenyl-2-yl]-1-methyl-1H-pyrazole-4-carboxamide, (15.104) N-[4'-(3,3-dimethylbut-1-yn-1-yl)biphenyl-2-yl]-5-fluoro-1,3-dimethyl-1H-pyrazole-4-carboxamide, (15.105) 3-(difluoromethyl)-N-(4'-ethynylbiphenyl-2-yl)-1-methyl-1H-pyrazole-4-carboxamide, (15.106) N-(4'-ethynylbiphenyl-2-yl)-5-fluoro-1,3-dimethyl-1H-pyrazole-4-carboxamide, (15.107) 2-chloro-N-(4'-ethynylbiphenyl-2-yl)nicotinamide, (15.108) 2-chloro-N-[4'-(3,3-dimethylbut-1-yn-1-yl)biphenyl-2-yl]nicotinamide, (15.109) 4-(difluoromethyl)-2-methyl-N-[4'-(trifluoromethyl)biphenyl-2-yl]-1,3-thiazole-5-carboxamide, (15.110) 5-fluoro-N-[4'-(3-hydroxy-3-methylbut-1-yn-1-yl)biphenyl-2-yl]-1,3-dimethyl-1H-pyrazole-4-carboxamide, (15.111) 2-chloro-N-[4'-(3-hydroxy-3-methylbut-1-yn-1-yl)biphenyl-2-yl]nicotinamide, (15.112) 3-(difluoromethyl)-N-[4'-(3-methoxy-3-methylbut-1-yn-1-yl)biphenyl-2-yl]-1-methyl-1H-pyrazole-4-carboxamide, (15.113) 5-fluoro-N-[4'-(3-methoxy-3-methylbut-1-yn-1-yl)biphenyl-2-yl]-1,3-dimethyl-1H-pyrazole-4-carboxamide, (15.114) 2-chloro-N-[4'-(3-methoxy-3-methylbut-1-yn-1-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-1-yl]oxy}-3-methoxyphenyl)ethyl]-N2-(methylsulfonyl)valinamide, (15.117) 4-oxo-4-[(2-phenylethyl)amino]butanoic acid, (15.118) but-3-yn-1-yl {6-[[[(Z)-(1-methyl-1H-tetrazol-5-yl)(phenyl)methylene]amino}oxy)methyl]pyridin-2-yl} carbamate, (15.119) 4-amino-5-fluoropyrimidin-2-ol (mesomeric form: 4-amino-5-fluoropyrimidin-2(1H)-one), (15.120) propyl 3,4,5-trihydroxybenzoate, (15.121) 1,3-dimethyl-N-(1,1,3-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-1H-inden-4-yl]-1H-pyrazole-4-carboxamide, (15.123) 1,3-dimethyl-N-[(3S)-1,1,3-trimethyl-2,3-dihydro-1H-inden-4-yl]-1H-pyrazole-4-carboxamide, (15.124) [3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol, (15.125) (S)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-1,2-oxazol-4-yl](pyridin-3-yl)methanol, (15.126) (R)-[3-(4-chloro-2-fluorophenyl)-5-(2,4-difluorophenyl)-

1,2-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-1,2,4-triazole-3-thione, (15.128) 1-{{3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl}methyl}-1H-1,2,4-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-[1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.131) 2-{{rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl}methyl}-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.132) 2-{{rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl}methyl}-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.133) 1-{{rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl}methyl}-1H-1,2,4-triazol-5-yl thiocyanate, (15.134) 1-{{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)-1-{{rel(2R,3S)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl}methyl}-1H-1,2,4-triazole, (15.136) 5-(allylsulfanyl)-1-{{rel(2R,3R)-3-(2-chlorophenyl)-2-(2,4-difluorophenyl)oxiran-2-yl}methyl}-1H-1,2,4-triazole, (15.137) 2-[(2S,4S,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.138) 2-[(2R,4S,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.139) 2-[(2R,4R,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.140) 2-[(2S,4R,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.141) 2-[(2S,4S,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.142) 2-[(2R,4S,5R)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.143) 2-[(2R,4R,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.144) 2-[(2S,4R,5S)-1-(2,4-dichlorophenyl)-5-hydroxy-2,6,6-trimethylheptan-4-yl]-2,4-dihydro-3H-1,2,4-triazole-3-thione, (15.145) 2-fluoro-6-(trifluoromethyl)-N-(1,1,3-trimethyl-2,3-dihydro-1H-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-1-yl)quinoline, (15.149) Absciscic acid.

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.

Wherein 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;

Being bactericides which may be mentioned are:

bronopol, dichlorophen, nitrapyrin, nickel dimethyldithiocarbamate, kasugamycin, octhilinone, furancarboxylic acid, oxytetracycline, probenazole, streptomycin, tecloftalam, copper sulphate and other copper preparations.

being insecticides, acaricides and nematicides which may be mentioned are:

((1) Acetylcholinesterase (AChE) inhibitors, for example

carbamates, e.g. Alanycarb, Aldicarb, Bendiocarb, Benfuracarb, Butocarboxim, Butoxycarboxim, Carbaryl, Carbofuran, Carbosulfan, Ethiofencarb, Fenobucarb, Formetanate, Furathiocarb, Isoprocarb,
 5 Methiocarb, Methomyl, Metolcarb, Oxamyl, Pirimicarb, Propoxur, Thiodicarb, Thiofanox, Triazamate, Trimethacarb, XMC, and Xylcarb; or

organophosphates, e.g. Acephate, Azamethiphos, Azinphos-ethyl, Azinphos-methyl, Cadusafos, Chlorethoxyfos, Chlorfenvinphos, Chlormephos, Chlorpyrifos, Chlorpyrifos-methyl, Coumaphos, Cyanophos, Demeton-S-methyl, Diazinon, Dichlorvos/DDVP, Dicrotophos, Dimethoate,
 10 Dimethylvinphos, Disulfoton, EPN, Ethion, Ethoprophos, Famphur, Fenamiphos, Fenitrothion, Fenthion, Fosthiate, Heptenophos, Imicyafos, Isafenphos, Isopropyl O-(methoxyaminothio-phosphoryl) salicylate, Isoxathion, Malathion, Mecarbam, Methamidophos, Methidathion, Mevinphos, Monocrotophos, Naled, Omethoate, Oxydemeton-methyl, Parathion, Parathion-methyl, Phenthoate, Phorate, Phosalone, Phosmet, Phosphamidon, Phoxim, Pirimiphos-methyl, Profenofos, Propetamphos,
 15 Prothiofos, Pyraclofos, Pyridaphenthion, Quinalphos, Sulfotep, Tebupirimfos, Temephos, Terbufos, Tetrachlorvinphos, Thiometon, Triazophos, Trichlorfon, and Vamidothion.

(2) GABA-gated chloride channel antagonists, for example

cyclodiene organochlorines, e.g. Chlordane and Endosulfan; or

phenylpyrazoles (fiproles), e.g. Ethiprole and Fipronil.

20 (3) Sodium channel modulators / voltage-dependent sodium channel blockers, for example

pyrethroids, e.g. Acrinathrin, Allethrin, d-cis-trans Allethrin, d-trans Allethrin, Bifenthrin, Bioallethrin, Bioallethrin S-cyclopentenyl isomer, Bioresmethrin, Cycloprothrin, Cyfluthrin, beta-Cyfluthrin, Cyhalothrin, lambda-Cyhalothrin, gamma-Cyhalothrin, Cypermethrin, alpha-Cypermethrin, beta-Cypermethrin, theta-Cypermethrin, zeta-Cypermethrin, Cyphenothrin [(1R)-trans isomers],
 25 Deltamethrin, Empenthrin [(EZ)-(1R) isomers], Esfenvalerate, Etofenprox, Fenpropathrin, Fenvalerate, Flucythrinate, Flumethrin, tau-Fluvalinate, Halfenprox, Imiprothrin, Kadethrin, Permethrin, Phenothrin [(1R)-trans isomer), Prallethrin, Pyrethrine (pyrethrum), Resmethrin, Silafluofen, Tefluthrin, Tetramethrin, Tetramethrin [(1R) isomers], Tralomethrin, and Transfluthrin; or

DDT; or Methoxychlor.

30 (4) Nicotinic acetylcholine receptor (nAChR) agonists, for example

neonicotinoids, e.g. Acetamiprid, Clothianidin, Dinotefuran, Imidacloprid, Nitenpyram, Thiacloprid, and Thiamethoxam; or

Nicotine; or

Sulfoxaflor.

- 5 (5) Nicotinic acetylcholine receptor (nAChR) allosteric activators, for example spinosyns, e.g. Spinetoram and Spinosad.

(6) Chloride channel activators, for example

avermectins/milbemycins, e.g. Abamectin, Enamectin benzoate, Lepimectin, and Milbemectin.

(7) Juvenile hormone mimics, for example

- 10 juvenile hormon analogues, e.g. Hydroprene, Kinoprene, and Methoprene; or Fenoxycarb; or Pyriproxyfen.

(8) Miscellaneous non-specific (multi-site) inhibitors, for example

alkyl halides, e.g. Methyl bromide and other alkyl halides; or

Chloropicrin; or Sulfuryl fluoride; or Borax; or Tartar emetic.

- 15 (9) Selective homopteran feeding blockers, e.g. Pymetrozine; or Flonicamid.

(10) Mite growth inhibitors, e.g. Clofentezine, Hexythiazox, and Diflovidazin; or Etoxazole.

- (11) Microbial disruptors of insect midgut membranes, e.g. *Bacillus thuringiensis* subspecies israelensis, *Bacillus thuringiensis* subspecies aizawai, *Bacillus thuringiensis* subspecies kurstaki, 20 *Bacillus thuringiensis* subspecies tenebrionis, and B.t. crop proteins: Cry1Ab, Cry1Ac, Cry1Fa, Cry1A.105, Cry2Ab, Vip3A, mCry3A, Cry3Ab, Cry3Bb, Cry34 Ab1/35Ab1; or

Bacillus sphaericus.

(12) Inhibitors of mitochondrial ATP synthase, for example Diafenthiuron; or

organotin miticides, e.g. Azocyclotin, Cyhexatin, and Fenbutatin oxide; or

- 25 Propargite; or Tetradifon.

- (13) Uncouplers of oxidative phosphorylation via disruption of the proton gradient, for example Chlorfenapyr, DNOC, and Sulfluramid.
- (14) Nicotinic acetylcholine receptor (nAChR) channel blockers, for example Bensultap, Cartap hydrochloride, Thiocyclam, and Thiosultap-sodium.
- 5 (15) Inhibitors of chitin biosynthesis, type 0, for example Bistrifluron, Chlorfluazuron, Diflubenzuron, Flucycloxuron, Flufenoxuron, Hexaflumuron, Lufenuron, Novaluron, Noviflumuron, Teflubenzuron, and Triflumuron.
- (16) Inhibitors of chitin biosynthesis, type 1, for example Buprofezin.
- (17) Moulting disruptors, for example Cyromazine.
- 10 (18) Ecdysone receptor agonists, for example Chromafenozide, Halofenozide, Methoxyfenozide, and Tebufenozide.
- (19) Octopamine receptor agonists, for example Amitraz.
- (20) Mitochondrial complex III electron transport inhibitors, for example Hydramethylnon; or Acequinocyl; or Fluacrypyrim.
- 15 (21) Mitochondrial complex I electron transport inhibitors, for example
- METI acaricides, e.g. Fenazaquin, Fenpyroximate, Pyrimidifen, Pyridaben, Tebufenpyrad, and Tolfenpyrad; or
- Rotenone (Derris).
- (22) Voltage-dependent sodium channel blockers, e.g. Indoxacarb; or Metaflumizone.
- 20 (23) Inhibitors of acetyl CoA carboxylase, for example
- tetronic and tetramic acid derivatives, e.g. Spirodiclofen, Spiromesifen, and Spirotetramat.
- (24) Mitochondrial complex IV electron transport inhibitors, for example
- phosphines, e.g. Aluminium phosphide, Calcium phosphide, Phosphine, and Zinc phosphide; or
- Cyanide.
- 25 (25) Mitochondrial complex II electron transport inhibitors, for example beta-ketonitrile derivatives, e.g. Cyenopyrafen and Cyflumetofen.

(28) Ryanodine receptor modulators, for example

diamides, e.g. Chlorantraniliprole, Cyantraniliprole, and Flubendiamide.

Further active ingredients with unknown or uncertain mode of action, for example Amidoflumet, Azadirachtin, Benclothiaz, Benzoximate, Bifenazate, Bromopropylate, Chinomethionat, Cryolite, Dicofol, Diflovidazin, Fluensulfone, Flufenerim, Flufiprole, Fluopyram, Fufenozide, Imidaclothiz, Iprodione, Meperfluthrin, Pyridalyl, Pyrifluquinazon, Tetramethylfluthrin, and iodomethane; furthermore products based on *Bacillus firmus* (including but not limited to strain CNCM I-1582, such as, for example, VOTiVO™, BioNem) or one of the following known active compounds: 3-bromo-N-{2-bromo-4-chloro-6-[(1-cyclopropylethyl)carbamoyl]phenyl}-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamide (known from WO2005/077934), 4-[[[(6-bromopyridin-3-yl)methyl](2-fluoroethyl)amino]furan-2(5H)-one (known from WO2007/115644), 4-[[[(6-fluoropyridin-3-yl)methyl](2,2-difluoroethyl)amino]furan-2(5H)-one (known from WO2007/115644), 4-[[[(2-chloro-1,3-thiazol-5-yl)methyl](2-fluoroethyl)amino]furan-2(5H)-one (known from WO2007/115644), 4-[[[(6-chloropyridin-3-yl)methyl](2-fluoroethyl)amino]furan-2(5H)-one (known from WO2007/115644), Flupyradifurone, 4-[[[(6-chlor-5-fluoropyridin-3-yl)methyl](methyl)amino]furan-2(5H)-one (known from WO2007/115643), 4-[[[(5,6-dichloropyridin-3-yl)methyl](2-fluoroethyl)amino]furan-2(5H)-one (known from WO2007/115646), 4-[[[(6-chloro-5-fluoropyridin-3-yl)methyl](cyclopropyl)amino]furan-2(5H)-one (known from WO2007/115643), 4-[[[(6-chloropyridin-3-yl)methyl](cyclopropyl)amino]furan-2(5H)-one (known from EP-A-0 539 588), 4-[[[(6-chloropyridin-3-yl)methyl](methyl)amino]furan-2(5H)-one (known from EP-A-0 539 588), {[1-(6-chloropyridin-3-yl)ethyl](methyl)oxido- λ 4-sulfanylidene}cyanamide (known from WO2007/149134) and its diastereomers {[1(R)-1-(6-chloropyridin-3-yl)ethyl](methyl)oxido- λ 4-sulfanylidene}cyanamide (A) and {[1(S)-1-(6-chloropyridin-3-yl)ethyl](methyl)oxido- λ 4-sulfanylidene}cyanamide (B) (also known from WO2007/149134) as well as diastereomers [(R)-methyl(oxido){1(R)-1-[6-(trifluoromethyl)pyridin-3-yl]ethyl}- λ 4-sulfanylidene]cyanamide (A1) and [(S)-methyl(oxido){1(S)-1-[6-(trifluoromethyl)pyridin-3-yl]ethyl}- λ 4-sulfanylidene]cyanamide (A2), referred to as group of diastereomers A (known from WO2010/074747, WO2010/074751), [(R)-methyl(oxido){1(S)-1-[6-(trifluoromethyl)pyridin-3-yl]ethyl}- λ 4-sulfanylidene]cyanamide (B1) and [(S)-methyl(oxido){1(R)-1-[6-(trifluoromethyl)pyridin-3-yl]ethyl}- λ 4-sulfanylidene]cyanamide (B2), referred to as group of diastereomers B (also known from WO2010/074747, WO2010/074751), and 11-(4-chloro-2,6-dimethylphenyl)-12-hydroxy-1,4-dioxo-9-azadispiro[4.2.4.2]tetradec-11-en-10-one (known from WO2006/089633), 3-(4'-fluoro-2,4-dimethylbiphenyl-3-yl)-4-hydroxy-8-oxa-1-azaspiro[4.5]dec-3-en-2-one (known from WO2008/067911), 1-{2-fluoro-4-methyl-5-[(2,2,2-trifluoroethyl)sulfinyl]phenyl}-3-(trifluoromethyl)-1H-1,2,4-triazol-5-amine (known from WO2006/043635), Afidopyropen (known from WO2008/066153), 2-cyano-3-(difluoromethoxy)-N,N-dimethylbenzenesulfonamide (known from WO2006/056433), 2-cyano-3-(difluoromethoxy)-N-methylbenzenesulfonamide (known from

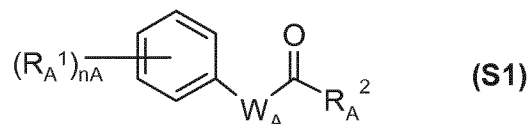
WO2006/100288), 2-cyano-3-(difluoromethoxy)-N-ethylbenzenesulfonamide (known from WO2005/035486), 4-(difluoromethoxy)-N-ethyl-N-methyl-1,2-benzothiazol-3-amine 1,1-dioxide (known from WO2007/057407), N-[1-(2,3-dimethylphenyl)-2-(3,5-dimethylphenyl)ethyl]-4,5-dihydro-1,3-thiazol-2-amine (known from WO2008/104503), {1'-[(2E)-3-(4-chlorophenyl)prop-2-en-1-yl]-5-fluorospiro[indole-3,4'-piperidin]-1(2H)-yl}(2-chloropyridin-4-yl)methanone (known from
5 WO2003/106457), 3-(2,5-dimethylphenyl)-4-hydroxy-8-methoxy-1,8-diazaspiro[4.5]dec-3-en-2-one (known from WO2009/049851), 3-(2,5-dimethylphenyl)-8-methoxy-2-oxo-1,8-diazaspiro[4.5]dec-3-en-4-yl ethyl carbonate (known from WO2009/049851), 4-(but-2-yn-1-yloxy)-6-(3,5-dimethylpiperidin-1-yl)-5-fluoropyrimidine (known from WO2004/099160), (2,2,3,3,4,4,5,5-octafluoropentyl)(3,3,3-trifluoropropyl)malononitrile (known from WO2005/063094), (2,2,3,3,4,4,5,5-octafluoropentyl)(3,3,4,4,4-pentafluorobutyl)malononitrile (known from WO2005/063094), 8-[2-(cyclopropylmethoxy)-4-(trifluoromethyl)phenoxy]-3-[6-(trifluoromethyl)pyridazin-3-yl]-3-azabicyclo[3.2.1]octane (known from WO2007/040280), Flumetozin, PF1364 (CAS-Reg.No. 1204776-60-2) (known from JP2010/018586), 5-[5-(3,5-dichlorophenyl)-5-(trifluoromethyl)-4,5-dihydro-1,2-oxazol-3-yl]-2-(1H-1,2,4-triazol-1-yl)benzonitrile (known from WO2007/075459), 5-[5-(2-chloropyridin-4-yl)-5-(trifluoromethyl)-4,5-dihydro-1,2-oxazol-3-yl]-2-(1H-1,2,4-triazol-1-yl)benzonitrile (known from WO2007/075459), 4-[5-(3,5-dichlorophenyl)-5-(trifluoromethyl)-4,5-dihydro-1,2-oxazol-3-yl]-2-methyl-N-{2-oxo-2-[(2,2,2-trifluoroethyl)amino]ethyl}benzamide (known from WO2005/085216), 4-{[(6-chloropyridin-3-yl)methyl](cyclopropyl)amino}-1,3-oxazol-2(5H)-one, 4-{[(6-chloropyridin-3-yl)methyl](2,2-difluoroethyl)amino}-1,3-oxazol-2(5H)-one, 4-{[(6-chloropyridin-3-yl)methyl](ethyl)amino}-1,3-oxazol-2(5H)-one, 4-{[(6-chloropyridin-3-yl)methyl](methyl)amino}-1,3-oxazol-2(5H)-one (all known from WO2010/005692), Pyflubumide (known from WO2002/096882), methyl 2-[2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl}amino)-5-chloro-3-methylbenzoyl]-2-methylhydrazinecarboxylate (known from
25 WO2005/085216), methyl 2-[2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl}amino)-5-cyano-3-methylbenzoyl]-2-ethylhydrazinecarboxylate (known from WO2005/085216), methyl 2-[2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl}amino)-5-cyano-3-methylbenzoyl]-2-methylhydrazinecarboxylate (known from WO2005/085216), methyl 2-[3,5-dibromo-2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl}amino)benzoyl]-1,2-diethylhydrazinecarboxylate (known from WO2005/085216), methyl 2-[3,5-dibromo-2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl}amino)benzoyl]-2-ethylhydrazinecarboxylate (known from WO2005/085216), (5RS,7RS;5RS,7SR)-1-(6-chloro-3-pyridylmethyl)-1,2,3,5,6,7-hexahydro-7-methyl-8-nitro-5-propoxyimidazo[1,2-a]pyridine (known from WO2007/101369), 2-{6-[2-(5-fluoropyridin-3-yl)-1,3-thiazol-5-yl]pyridin-2-yl}pyrimidine (known from WO2010/006713), 2-{6-[2-(pyridin-3-yl)-1,3-thiazol-5-yl]pyridin-2-yl}pyrimidine (known from WO2010/006713), 1-(3-chloropyridin-2-yl)-N-[4-cyano-2-methyl-6-(methylcarbamoyl)phenyl]-3-{[5-(trifluoromethyl)-1H-tetrazol-1-yl]methyl}-1H-pyrazole-5-carboxamide (known from WO2010/069502), 1-(3-chloropyridin-2-yl)-N-[4-cyano-2-methyl-6-

(methylcarbamoyl)phenyl]-3-{{5-(trifluoromethyl)-2H-tetrazol-2-yl)methyl}-1H-pyrazole-5-carboxamide (known from WO2010/069502), N-[2-(tert-butylcarbamoyl)-4-cyano-6-methylphenyl]-1-(3-chloropyridin-2-yl)-3-{{5-(trifluoromethyl)-1H-tetrazol-1-yl)methyl}-1H-pyrazole-5-carboxamide (known from WO2010/069502), N-[2-(tert-butylcarbamoyl)-4-cyano-6-methylphenyl]-1-(3-chloropyridin-2-yl)-3-{{5-(trifluoromethyl)-2H-tetrazol-2-yl)methyl}-1H-pyrazole-5-carboxamide (known from WO2010/069502), (1E)-N-[(6-chloropyridin-3-yl)methyl]-N'-cyano-N-(2,2-difluoroethyl)ethanimidamide (known from WO2008/009360), N-[2-(5-amino-1,3,4-thiadiazol-2-yl)-4-chloro-6-methylphenyl]-3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazole-5-carboxamide (known from CN102057925), methyl 2-[3,5-dibromo-2-({[3-bromo-1-(3-chloropyridin-2-yl)-1H-pyrazol-5-yl]carbonyl}amino)benzoyl]-2-ethyl-1-methylhydrazinecarboxylate (known from WO2011/049233), Heptafluthrin, Pyriminostrobin, Flufenoxystrobin, and 3-chloro-N2-(2-cyanopropan-2-yl)-N1-[4-(1,1,1,2,3,3,3-heptafluoropropan-2-yl)-2-methylphenyl]phthalamide (known from WO2012/034472), Cycloxaprid (1203791-41-6).

being molluscicides which may be mentioned are metaldehyde and methiocarb.

15 being safeners which may be mentioned are:

S1) compounds of the formula (S1)

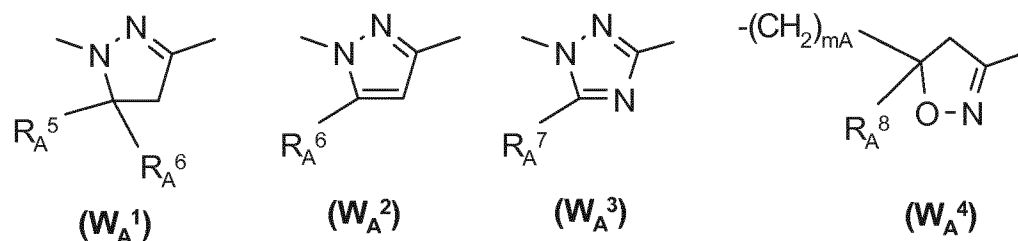


where the symbols and indices have the following meanings:

n_A is a natural number from 0 to 5, preferably from 0 to 3;

20 R_A^1 is halogen, (C₁-C₄)-alkyl, (C₁-C₄)-alkoxy, nitro or (C₁-C₄)-haloalkyl;

W_A is an unsubstituted or substituted divalent heterocyclic radical from the group consisting of partially unsaturated or aromatic five-membered heterocycles having 1 to 3 hetero ring atoms from the group consisting of N and O, where at least one nitrogen atom and at most one oxygen atom is present in the ring, preferably a radical from the group consisting of (W_A^1) to (W_A^4),

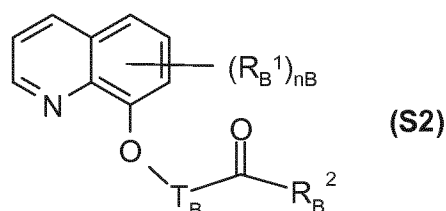


25

- m_A is 0 or 1;
- R_A^2 is OR_A^3 , SR_A^3 or $NR_A^3R_A^4$ or a saturated or unsaturated 3- to 7-membered heterocycle having at least one nitrogen atom and up to 3 heteroatoms, preferably from the group consisting of O and S, which is attached via the nitrogen atom to the carbonyl group in (S1) and which is
- 5 unsubstituted or substituted by radicals from the group consisting of (C₁-C₄)-alkyl, (C₁-C₄)-alkoxy and optionally substituted phenyl, preferably a radical of the formula OR_A^3 , NHR_A^4 or $N(CH_3)_2$, in particular of the formula OR_A^3 ;
- R_A^3 is hydrogen or an unsubstituted or substituted aliphatic hydrocarbon radical having preferably a total of 1 to 18 C-atoms;
- 10 R_A^4 is hydrogen, (C₁-C₆)-alkyl, (C₁-C₆)-alkoxy or substituted or unsubstituted phenyl;
- R_A^5 is H, (C₁-C₈)-alkyl, (C₁-C₈)-haloalkyl, (C₁-C₄)-alkoxy-(C₁-C₈)-alkyl, cyano or $COOR_A^9$ where R_A^9 is hydrogen, (C₁-C₈)-alkyl, (C₁-C₈)-haloalkyl, (C₁-C₄)-alkoxy-(C₁-C₄)-alkyl, (C₁-C₆)-hydroxyalkyl, (C₃-C₁₂)-cycloalkyl or tri-(C₁-C₄)-alkylsilyl;
- R_A^6 , R_A^7 , R_A^8 are identical or different and are hydrogen, (C₁-C₈)-alkyl, (C₁-C₈)-haloalkyl, (C₃-C₁₂)-cycloalkyl or substituted or unsubstituted phenyl;
- 15 preferably:
- a) compounds of the type of the dichlorophenylpyrazoline-3-carboxylic acid (S1^a), preferably compounds such as 1-(2,4-dichlorophenyl)-5-(ethoxycarbonyl)-5-methyl-2-pyrazoline-3-carboxylic acid, ethyl 1-(2,4-dichlorophenyl)-5-(ethoxycarbonyl)-5-methyl-2-pyrazoline-3-carboxylate (S1-1) ("mefenpyr(-diethyl)"), and related compounds, as described in WO-A-91/07874;
- 20 b) derivatives of dichlorophenylpyrazolecarboxylic acid (S1^b), preferably compounds such as ethyl 1-(2,4-dichlorophenyl)-5-methylpyrazole-3-carboxylate (S1-2), ethyl 1-(2,4-dichlorophenyl)-5-isopropylpyrazole-3-carboxylate (S1-3), ethyl
- 25 1-(2,4-dichlorophenyl)-5-(1,1-dimethylethyl)pyrazole-3-carboxylate (S1-4) and related compounds, as described in EP-A-333 131 and EP-A-269 806;
- c) derivatives of 1,5-diphenylpyrazole-3-carboxylic acid (S1^c), preferably compounds such as ethyl 1-(2,4-dichlorophenyl)-5-phenylpyrazole-3-carboxylate (S1-5), methyl
- 30 1-(2-chlorophenyl)-5-phenylpyrazole-3-carboxylate (S1-6) and related compounds, as described, for example, in EP-A-268554;

- d) compounds of the type of the triazolecarboxylic acids (S1^d), preferably compounds such as fenchlorazole(-ethyl), i.e. ethyl 1-(2,4-dichlorophenyl)-5-trichloromethyl-(1H)-1,2,4-triazole-3-carboxylate (S1-7), and related compounds, as described in EP-A-174 562 and EP-A-346 620;
- e) compounds of the type of the 5-benzyl- or 5-phenyl-2-isoxazoline-3-carboxylic acid or the 5,5-diphenyl-2-isoxazoline-3-carboxylic acid (S1^e), preferably compounds such as ethyl 5-(2,4-dichlorobenzyl)-2-isoxazoline-3-carboxylate (S1-8) or ethyl 5-phenyl-2-isoxazoline-3-carboxylate (S1-9) and related compounds, as described in WO-A-91/08202, or 5,5-diphenyl-2-isoxazolinecarboxylic acid (S1-10) or ethyl 5,5-diphenyl-2-isoxazolinecarboxylate (S1-11) ("isoxadifen-ethyl") or n-propyl 5,5-diphenyl-2-isoxazolinecarboxylate (S1-12) or ethyl 5-(4-fluorophenyl)-5-phenyl-2-isoxazoline-3-carboxylate (S1-13), as described in the patent application WO-A-95/07897.

(S2) Quinoline derivatives of the formula (S2)

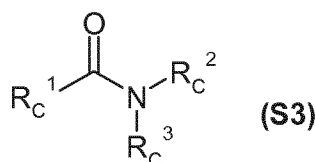


where the symbols and indices have the following meanings:

- 15 R_B^1 is halogen, (C₁-C₄)-alkyl, (C₁-C₄)-alkoxy, nitro or (C₁-C₄)-haloalkyl;
- n_B is a natural number from 0 to 5, preferably from 0 to 3;
- R_B^2 is OR_B^3 , SR_B^3 or $NR_B^3R_B^4$ or a saturated or unsaturated 3- to 7-membered heterocycle having at least one nitrogen atom and up to 3 heteroatoms, preferably from the group consisting of O and S, which is attached via the nitrogen atom to the carbonyl group in (S2) and which is unsubstituted or substituted by radicals from the group consisting of (C₁-C₄)-alkyl, (C₁-C₄)-alkoxy and optionally substituted phenyl, preferably a radical of the formula OR_B^3 , NHR_B^4 or $N(CH_3)_2$, in particular of the formula OR_B^3 ;
- 20 R_B^3 is hydrogen or an unsubstituted or substituted aliphatic hydrocarbon radical having preferably a total of 1 to 18 carbon atoms;
- 25 R_B^4 is hydrogen, (C₁-C₆)-alkyl, (C₁-C₆)-alkoxy or substituted or unsubstituted phenyl;
- T_B is a (C₁- or C₂)-alkanediyl chain which is unsubstituted or substituted by one or two (C₁-C₄)-alkyl radicals or by [(C₁-C₃)-alkoxy]carbonyl;

preferably:

- a) compounds of the type of the 8-quinolinoxyacetic acid (S2^a), preferably
 1-methylhexyl (5-chloro-8-quinolinoxy)acetate (common name "cloquintocet-mexyl" (S2-1),
 1,3-dimethyl-but-1-yl (5-chloro-8-quinolinoxy)acetate (S2-2),
 5 4-allyloxybutyl (5-chloro-8-quinolinoxy)acetate (S2-3),
 1-allyloxyprop-2-yl (5-chloro-8-quinolinoxy)acetate (S2-4),
 ethyl (5-chloro-8-quinolinoxy)acetate (S2-5),
 methyl (5-chloro-8-quinolinoxy)acetate (S2-6),
 allyl (5-chloro-8-quinolinoxy)acetate (S2-7),
 10 2-(2-propylideneiminoxy)-1-ethyl (5-chloro-8-quinolinoxy)acetate (S2-8), 2-oxo-prop-1-yl (5-
 chloro-8-quinolinoxy)acetate (S2-9) and related compounds, as described in EP-A-86 750,
 EP-A-94 349 and EP-A-191 736 or EP-A-0 492 366, and also (5-chloro-8-quinolinoxy)acetic
 acid (S2-10), its hydrates and salts, for example its lithium, sodium, potassium, calcium,
 magnesium, aluminium, iron, ammonium, quaternary ammonium, sulphonium or phosphonium
 15 salts, as described in WO-A-2002/34048;
- b) compounds of the type of the (5-chloro-8-quinolinoxy)malonic acid (S2^b), preferably
 compounds such as diethyl (5-chloro-8-quinolinoxy)malonate, diallyl (5-chloro-8-
 quinolinoxy)malonate, methyl ethyl (5-chloro-8-quinolinoxy)malonate and related compounds,
 as described in EP-A-0 582 198.
- 20 S3) Compounds of the formula (S3)



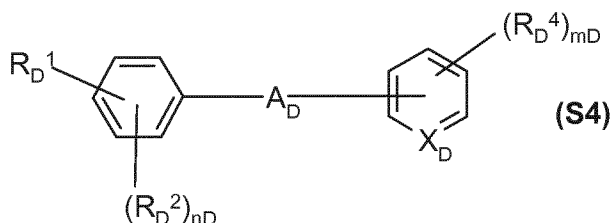
where the symbols and indices have the following meanings:

- R_C¹ is (C₁-C₄)-alkyl, (C₁-C₄)-haloalkyl, (C₂-C₄)-alkenyl, (C₂-C₄)-haloalkenyl, (C₃-C₇)-cycloalkyl,
 preferably dichloromethyl;
- 25 R_C², R_C³ are identical or different and are hydrogen, (C₁-C₄)-alkyl, (C₂-C₄)-alkenyl, (C₂-C₄)-alkynyl, (C₁-
 C₄)-haloalkyl, (C₂-C₄)-haloalkenyl, (C₁-C₄)-alkylcarbamoyl-(C₁-C₄)-alkyl, (C₂-C₄)-
 alkenylcarbamoyl-(C₁-C₄)-alkyl, (C₁-C₄)-alkoxy-(C₁-C₄)-alkyl, dioxolanyl-(C₁-C₄)-alkyl,
 thiazolyl, furyl, furylalkyl, thienyl, piperidyl, substituted or unsubstituted phenyl, or R_C² and
 R_C³ together form a substituted or unsubstituted heterocyclic ring, preferably an oxazolidine,
 30 thiazolidine, piperidine, morpholine, hexahydropyrimidine or benzoxazine ring;

preferably:

- active compounds of the type of the dichloroacetamides which are frequently used as pre-emergence safeners (soil-acting safeners), such as, for example,
- "dichlormid" (N,N-diallyl-2,2-dichloroacetamide) (S3-1),
- 5 "R-29148" (3-dichloroacetyl-2,2,5-trimethyl-1,3-oxazolidine) from Stauffer (S3-2),
- "R-28725" (3-dichloroacetyl-2,2-dimethyl-1,3-oxazolidine) from Stauffer (S3-3),
- "benoxacor" (4-dichloroacetyl-3,4-dihydro-3-methyl-2H-1,4-benzoxazine) (S3-4),
- "PPG-1292" (N-allyl-N-[(1,3-dioxolan-2-yl)methyl]dichloroacetamide) from PPG Industries (S3-5),
- 10 "DKA-24" (N-allyl-N-[(allylaminocarbonyl)methyl]dichloroacetamide) from Sagro-Chem (S3-6),
- "AD-67" or "MON 4660" (3-dichloroacetyl-1-oxa-3-aza-spiro[4,5]decane) from Nitrokemia or Monsanto (S3-7),
- "TI-35" (1-dichloroacetylazepane) from TRI-Chemical RT (S3-8)
- 15 "diclonon" (dicyclonon) or "BAS145138" or "LAB145138" (S3-9) (3-dichloroacetyl-2,5,5-trimethyl-1,3-diazabicyclo[4.3.0]nonane) from BASF,
- "furalazole" or "MON 13900" ((RS)-1-dichloroacetyl-3,3,8a-trimethylperhydropyrrolo[1,2-a]pyrimidin-6-one) (S3-10) and also its (R)-isomer (S3-11).

S4) N-Acylsulphonamides of the formula (S4) and their salts

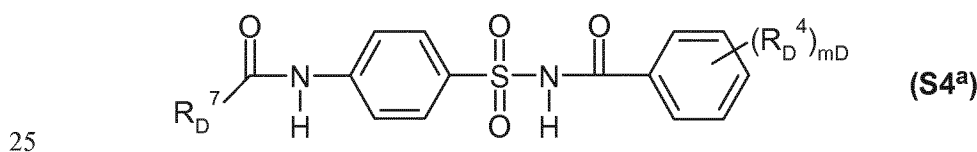


where the symbols and indices have the following meanings:

- A_D is $SO_2-NR_D^3-CO$ or $CO-NR_D^3-SO_2$;
- X_D is CH or N;
- R_D^1 is $CO-NR_D^5R_D^6$ or $NHCO-R_D^7$;
- 25 R_D^2 is halogen, (C₁-C₄)-haloalkyl, (C₁-C₄)-haloalkoxy, nitro, (C₁-C₄)-alkyl, (C₁-C₄)-alkoxy, (C₁-C₄)-alkylsulphonyl, (C₁-C₄)-alkoxycarbonyl or (C₁-C₄)-alkylcarbonyl;
- R_D^3 is hydrogen, (C₁-C₄)-alkyl, (C₂-C₄)-alkenyl or (C₂-C₄)-alkynyl;

- R_D^4 is halogen, nitro, (C₁-C₄)-alkyl, (C₁-C₄)-haloalkyl, (C₁-C₄)-haloalkoxy, (C₃-C₆)-cycloalkyl, phenyl, (C₁-C₄)-alkoxy, cyano, (C₁-C₄)-alkylthio, (C₁-C₄)-alkylsulphiny, (C₁-C₄)-alkylsulphonyl, (C₁-C₄)-alkoxycarbonyl or (C₁-C₄)-alkylcarbonyl;
- 5 R_D^5 is hydrogen, (C₁-C₆)-alkyl, (C₃-C₆)-cycloalkyl, (C₂-C₆)-alkenyl, (C₂-C₆)-alkynyl, (C₅-C₆)-cycloalkenyl, phenyl or 3- to 6-membered heterocyclyl which contains v_D heteroatoms from the group consisting of nitrogen, oxygen and sulphur, where the seven last-mentioned radicals are substituted by v_D substituents from the group consisting of halogen, (C₁-C₆)-alkoxy, (C₁-C₆)-haloalkoxy, (C₁-C₂)-alkylsulphiny, (C₁-C₂)-alkylsulphonyl, (C₃-C₆)-cycloalkyl, (C₁-C₄)-alkoxycarbonyl, (C₁-C₄)-alkylcarbonyl and phenyl and, in the case of cyclic radicals, also (C₁-C₄)-alkyl and (C₁-C₄)-haloalkyl;
- 10 R_D^6 is hydrogen, (C₁-C₆)-alkyl, (C₂-C₆)-alkenyl or (C₂-C₆)-alkynyl, where the three last-mentioned radicals are substituted by v_D radicals from the group consisting of halogen, hydroxy, (C₁-C₄)-alkyl, (C₁-C₄)-alkoxy and (C₁-C₄)-alkylthio, or
- R_D^5 and R_D^6 together with the nitrogen atom carrying them form a pyrrolidinyl or piperidinyl radical;
- 15 R_D^7 is hydrogen, (C₁-C₄)-alkylamino, di-(C₁-C₄)-alkylamino, (C₁-C₆)-alkyl, (C₃-C₆)-cycloalkyl, where the 2 last-mentioned radicals are substituted by v_D substituents from the group consisting of halogen, (C₁-C₄)-alkoxy, halo-(C₁-C₆)-alkoxy and (C₁-C₄)-alkylthio and, in the case of cyclic radicals, also (C₁-C₄)-alkyl and (C₁-C₄)-haloalkyl;
- n_D is 0, 1 or 2;
- 20 m_D is 1 or 2;
- v_D is 0, 1, 2 or 3;

from among these, preference is given to compounds of the type of the N-acylsulphonamides, for example of the formula (S4^a) below, which are known, for example, from WO-A-97/45016



in which

- R_D^7 is (C₁-C₆)-alkyl, (C₃-C₆)-cycloalkyl, where the 2 last-mentioned radicals are substituted by v_D substituents from the group consisting of halogen, (C₁-C₄)-alkoxy, halo-(C₁-C₆)-alkoxy and (C₁-

C₄)-alkylthio and, in the case of cyclic radicals, also (C₁-C₄)-alkyl and (C₁-C₄)-haloalkyl;

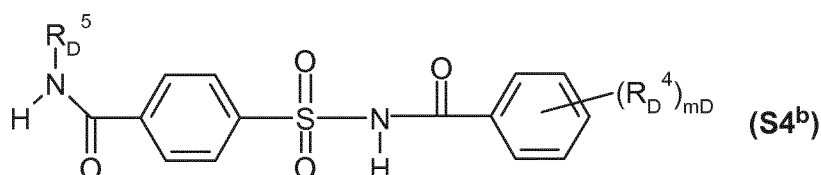
R_D⁴ is halogen, (C₁-C₄)-alkyl, (C₁-C₄)-alkoxy, CF₃;

m_D is 1 or 2;

v_D is 0, 1, 2 or 3;

5 and also

acysulphamoylbenzamides, for example of the formula (S4^b) below, which are known, for example, from WO-A-99/16744,



for example those in which

10 R_D⁵ = cyclopropyl and (R_D⁴) = 2-OMe ("cyprosulphamide", S4-1),

R_D⁵ = cyclopropyl and (R_D⁴) = 5-Cl-2-OMe (S4-2),

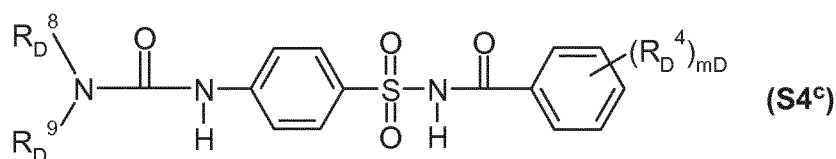
R_D⁵ = ethyl and (R_D⁴) = 2-OMe (S4-3),

R_D⁵ = isopropyl and (R_D⁴) = 5-Cl-2-OMe (S4-4) and

R_D⁵ = isopropyl and (R_D⁴) = 2-OMe (S4-5)

15 and also

compounds of the type of the N-acysulphamoylphenylureas of the formula (S4^c), which are known, for example, from EP-A-365484,



in which

20 R_D⁸ and R_D⁹ independently of one another are hydrogen, (C₁-C₈)-alkyl, (C₃-C₈)-cycloalkyl, (C₃-C₆)-alkenyl, (C₃-C₆)-alkynyl,

R_D^4 is halogen, (C₁-C₄)-alkyl, (C₁-C₄)-alkoxy, CF₃,

m_D is 1 or 2;

for example

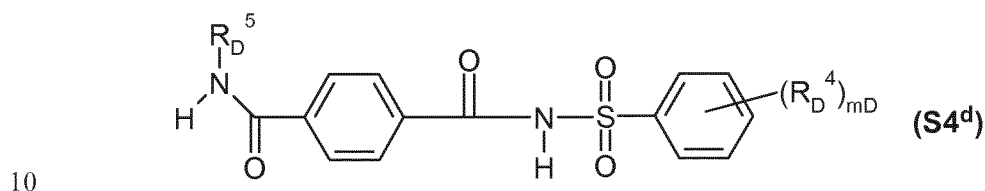
1-[4-(N-2-methoxybenzoylsulphamoyl)phenyl]-3-methylurea,

5 1-[4-(N-2-methoxybenzoylsulphamoyl)phenyl]-3,3-dimethylurea,

1-[4-(N-4,5-dimethylbenzoylsulphamoyl)phenyl]-3-methylurea,

and also

N-phenylsulphonylterephthalamides of the formula (S4^d), which are known, for example, from CN 101838227,



e.g. such compounds in which

R_D^4 is halogen, (C₁-C₄)-alkyl, (C₁-C₄)-alkoxy, CF₃;

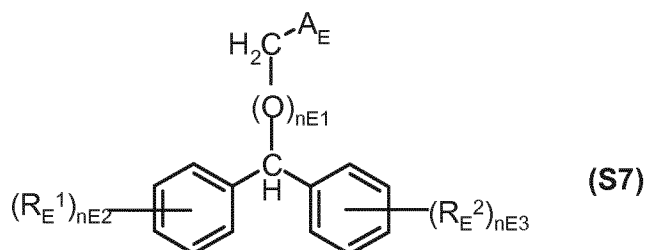
m_D is 1 or 2;

15 R_D^5 is hydrogen, (C₁-C₆)-alkyl, (C₃-C₆)-cycloalkyl, (C₂-C₆)-alkenyl, (C₂-C₆)-alkynyl, (C₅-C₆)-cycloalkenyl.

20 S5) Active compounds from the class of the hydroxyaromatics and aromatic-aliphatic carboxylic acid derivatives (S5), for example ethyl 3,4,5-triacetoxybenzoate, 3,5-dimethoxy-4-hydroxybenzoic acid, 3,5-dihydroxybenzoic acid, 4-hydroxysalicylic acid, 4-fluorosalicylic acid, 2-hydroxycinnamic acid, 2,4-dichlorocinnamic acid, as described in WO-A-2004/084631, WO-A-2005/015994, WO-A-2005/016001.

25 S6) Active compounds from the class of the 1,2-dihydroquinoxalin-2-ones (S6), for example 1-methyl-3-(2-thienyl)-1,2-dihydroquinoxalin-2-one, 1-methyl-3-(2-thienyl)-1,2-dihydroquinoxaline-2-thione, 1-(2-aminoethyl)-3-(2-thienyl)-1,2-dihydroquinoxalin-2-one hydrochloride, 1-(2-methylsulphonylaminoethyl)-3-(2-thienyl)-1,2-dihydroquinoxalin-2-one, as described in WO-A-2005/112630.

S7) Compounds of the formula (S7), as described in WO-A-1998/38856,



where the symbols and indices have the following meanings:

5 R_E^1, R_E^2 independently of one another are halogen, (C₁-C₄)-alkyl, (C₁-C₄)-alkoxy, (C₁-C₄)-haloalkyl, (C₁-C₄)-alkylamino, di-(C₁-C₄)-alkylamino, nitro;

A_E is COOR_E³ or COSR_E⁴

R_E^3, R_E^4 independently of one another are hydrogen, (C₁-C₄)-alkyl, (C₂-C₆)-alkenyl, (C₂-C₄)-alkynyl, cyanoalkyl, (C₁-C₄)-haloalkyl, phenyl, nitrophenyl, benzyl, halobenzyl, pyridinylalkyl or alkylammonium,

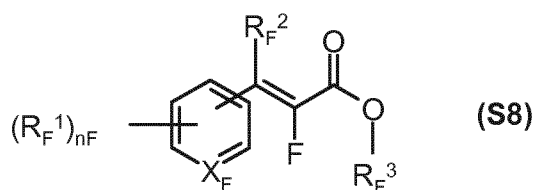
10 n_E^1 is 0 or 1;

n_E^2, n_E^3 independently of one another are 0, 1 or 2,

preferably:

15 diphenylmethoxyacetic acid,
ethyl diphenylmethoxyacetate, diphenylmethoxyacetate,
methyl diphenylmethoxyacetate (CAS Reg. No.: 41858-19-9) (S7-1).

S8) Compounds of the formula (S8), as described in WO-A-98/27049,



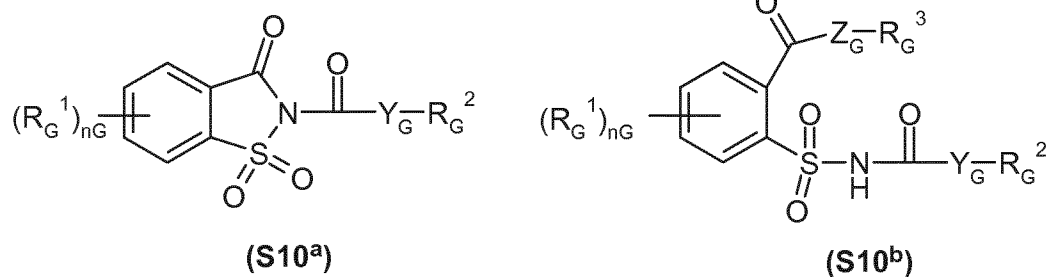
in which

X_F is CH or N,

20 n_F is, if $X_F=N$, an integer from 0 to 4 and

is, if $X_F=CH$, an integer from 0 to 5,

- R_F^1 is halogen, (C₁-C₄)-alkyl, (C₁-C₄)-haloalkyl, (C₁-C₄)-alkoxy, (C₁-C₄)-haloalkoxy, nitro, (C₁-C₄)-alkylthio, (C₁-C₄)-alkylsulphonyl, (C₁-C₄)-alkoxycarbonyl, optionally substituted phenyl, optionally substituted phenoxy,
- R_F^2 is hydrogen or (C₁-C₄)-alkyl,
- 5 R_F^3 is hydrogen, (C₁-C₈)-alkyl, (C₂-C₄)-alkenyl, (C₂-C₄)-alkynyl or aryl, where each of the carbon-containing radicals mentioned above is unsubstituted or substituted by one or more, preferably by up to three, identical or different radicals from the group consisting of halogen and alkoxy; or salts thereof,
- preferably compounds in which
- 10 X_F is CH₃,
- n_F is an integer from 0 to 2,
- R_F^1 is halogen, (C₁-C₄)-alkyl, (C₁-C₄)-haloalkyl, (C₁-C₄)-alkoxy, (C₁-C₄)-haloalkoxy,
- R_F^2 is hydrogen or (C₁-C₄)-alkyl,
- 15 R_F^3 is hydrogen, (C₁-C₈)-alkyl, (C₂-C₄)-alkenyl, (C₂-C₄)-alkynyl or aryl, where each of the carbon-containing radicals mentioned above is unsubstituted or substituted by one or more, preferably by up to three, identical or different radicals from the group consisting of halogen and alkoxy; or salts thereof,
- S9) Active compounds from the class of the 3-(5-tetrazolylcarbonyl)-2-quinolones (S9), for example 1,2-dihydro-4-hydroxy-1-ethyl-3-(5-tetrazolylcarbonyl)-2-quinolone (CAS Reg. No.: 219479-18-2), 1,2-dihydro-4-hydroxy-1-methyl-3-(5-tetrazolylcarbonyl)-2-quinolone (CAS Reg. No.: 95855-00-8), as described in WO-A-1999/000020.
- 20
- S10) Compounds of the formula (S10^a) or (S10^b) as described in WO-A-2007/023719 and WO-A-2007/023764



in which

R_G^1 is halogen, (C₁-C₄)-alkyl, methoxy, nitro, cyano, CF₃, OCF₃

Y_G, Z_G independently of one another are O or S,

5 n_G is an integer from 0 to 4,

R_G^2 is (C₁-C₁₆)-alkyl, (C₂-C₆)-alkenyl, (C₃-C₆)-cycloalkyl, aryl; benzyl, halobenzyl,

R_G^3 is hydrogen or (C₁-C₆)-alkyl.

10 S11) Active compounds of the type of the oxyimino compounds (S11), which are known as seed dressings, such as, for example, "oxabetrinil" ((Z)-1,3-dioxolan-2-ylmethoxyimino(phenyl)acetonitrile) (S11-1), which is known as seed dressing safener for millet against metolachlor damage,

"fluxofenim" (1-(4-chlorophenyl)-2,2,2-trifluoro-1-ethanone O-(1,3-dioxolan-2-ylmethyl)oxime) (S11-2), which is known as seed dressing safener for millet against metolachlor damage, and

15 "cyometrinil" or "CGA-43089" ((Z)-cyanomethoxyimino(phenyl)acetonitrile) (S11-3), which is known as seed dressing safener for millet against metolachlor damage.

S12) Active compounds from the class of the isothiochromanones (S12), such as, for example, methyl [(3-oxo-1H-2-benzothiopyran-4(3H)-ylidene)methoxy]acetate (CAS Reg. No.: 205121-04-6) (S12-1) and related compounds from WO-A-1998/13361.

20 S13) One or more compounds from group (S13):

"naphthalic anhydrid" (1,8-naphthalenedicarboxylic anhydride) (S13-1), which is known as seed dressing safener for corn against thiocarbamate herbicide damage,

"fencloirim" (4,6-dichloro-2-phenylpyrimidine) (S13-2), which is known as safener for pretilachlor in sown rice,

"flurazole" (benzyl 2-chloro-4-trifluoromethyl-1,3-thiazole-5-carboxylate) (S13-3), which is known as seed dressing safener for millet against alachlor and metolachlor damage,

"CL 304415" (CAS Reg. No.: 31541-57-8)

(4-carboxy-3,4-dihydro-2H-1-benzopyran-4-acetic acid) (S13-4) from American Cyanamid, which is known as safener for corn against imidazolinone damage,

"MG 191" (CAS Reg. No.: 96420-72-3) (2-dichloromethyl-2-methyl-1,3-dioxolane) (S13-5) from Nitrokemia, which is known as safener for corn,

"MG 838" (CAS Reg. No.: 133993-74-5)

(2-propenyl 1-oxa-4-azaspiro[4.5]decane-4-carbodithioate) (S13-6) from Nitrokemia,

"disulphoton" (O,O-diethyl S-2-ethylthioethyl phosphorodithioate) (S13-7),

"dietholate" (O,O-diethyl O-phenyl phosphorothioate) (S13-8),

"mephenate" (4-chlorophenyl methylcarbamate) (S13-9).

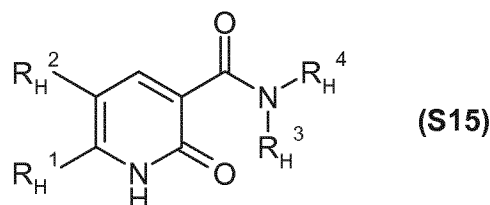
S14) Active compounds which, besides a herbicidal effect against harmful plants, also have a safener effect on crop plants such as rice, such as, for example, "dimepiperate" or "MY-93" (S-1-methyl-1-phenylethyl piperidine-1-carbothioate), which is known as safener for rice against molinate herbicide damage,

"daimuron" or "SK 23" (1-(1-methyl-1-phenylethyl)-3-p-tolylurea), which is known as safener for rice against imazosulphuron herbicide damage,

"cumyluron" = "JC-940" (3-(2-chlorophenylmethyl)-1-(1-methyl-1-phenylethyl)urea, see JP-A-60087254), which is known as safener for rice against some herbicide damage,

"methoxyphenone" or "NK 049" (3,3'-dimethyl-4-methoxybenzophenone), which is known as safener for rice against some herbicide damage,

"CSB" (1-bromo-4-(chloromethylsulphonyl)benzene) from Kumiai, (CAS Reg. No. 54091-06-4), which is known as safener against some herbicide damage in rice.



S15) Compounds of the formula (S15) or its tautomers,

which are known, for example, from WO-A-2008/131861 and WO-A-2008/131860,

in which

5 R_H^1 is (C₁-C₆)-haloalkyl,

R_H^2 is hydrogen or halogen,

R_H^3, R_H^4 independently of one another are hydrogen, (C₁-C₁₆)-alkyl, (C₂-C₁₆)-alkenyl or (C₂-C₁₆)-alkynyl,

10 where each of the 3 last-mentioned radicals is unsubstituted or substituted by one or more radicals from the group consisting of halogen, hydroxy, cyano, (C₁-C₄)-alkoxy, (C₁-C₄)-haloalkoxy, (C₁-C₄)-alkylthio, (C₁-C₄)-alkylamino, di-[(C₁-C₄)-alkyl]-amino, [(C₁-C₄)-alkoxy]-carbonyl, [(C₁-C₄)-haloalkoxy]-carbonyl, unsubstituted or substituted (C₃-C₆)-cycloalkyl, unsubstituted or substituted phenyl, and unsubstituted or substituted heterocyclyl;

15 or (C₃-C₆)-cycloalkyl, (C₄-C₆)-cycloalkenyl, (C₃-C₆)-cycloalkyl which is at one site of the ring condensed with a 4 to 6-membered saturated or unsaturated carbocyclic ring, or (C₄-C₆)-cycloalkenyl which is at one site of the ring condensed with a 4 to 6-membered saturated or unsaturated carbocyclic ring,

20 where each of the 4 last-mentioned radicals is unsubstituted or substituted by one or more radicals from the group consisting of halogen, hydroxy, cyano, (C₁-C₄)-alkyl, (C₁-C₄)-haloalkyl, (C₁-C₄)-alkoxy, (C₁-C₄)-haloalkoxy, (C₁-C₄)-alkylthio, (C₁-C₄)-alkylamino, di-(C₁-C₄)-alkyl]-amino, [(C₁-C₄)-alkoxy]-carbonyl, [(C₁-C₄)-haloalkoxy]-carbonyl, unsubstituted or substituted (C₃-C₆)-cycloalkyl, unsubstituted or substituted phenyl, and unsubstituted or substituted heterocyclyl; or

25 R_H^3 is (C₁-C₄)-alkoxy, (C₂-C₄)-alkenyloxy, (C₂-C₆)-alkynyloxy or (C₂-C₄)-haloalkoxy, and

R_H^4 is hydrogen or (C₁-C₄)-alkyl, or

R_H^3 and R_H^4 together with the directly bound N-atom are a 4 to 8-membered heterocyclic ring, which can contain further hetero ring atoms besides the N-atom, preferably up to two further hetero ring atoms from the group consisting of N, O and S, and which is unsubstituted or substituted by one or more radicals from the group consisting of halogen, cyano, nitro, (C₁-C₄)-alkyl, (C₁-C₄)-haloalkyl, (C₁-C₄)-alkoxy, (C₁-C₄)-haloalkoxy, and (C₁-C₄)-alkylthio.

S16) Active compounds which are primarily used as herbicides, but also have safener effect on crop plants, for example

	(2,4-dichlorophenoxy)acetic acid	(2,4-D),
10	(4-chlorophenoxy)acetic acid,	
	(R,S)-2-(4-chloro-o-tolyloxy)propionic acid	(mecoprop),
	4-(2,4-dichlorophenoxy)butyric acid	(2,4-DB),
	(4-chloro-o-tolyloxy)acetic acid	(MCPA),
	4-(4-chloro-o-tolyloxy)butyric acid,	
15	4-(4-chlorophenoxy)butyric acid,	
	3,6-dichloro-2-methoxybenzoic acid	(dicamba),
	1-(ethoxycarbonyl)ethyl 3,6-dichloro-2-methoxybenzoate (lactidichlor-ethyl).	

being plant growth regulators which may be mentioned are chlorocholine chloride and ethephon.

20 Examples of plant nutrients which may be mentioned are customary inorganic or organic fertilizers for supplying plants with macro- and/or micronutrients.

In a preferred embodiment the present invention relates to the use of a composition comprising A) the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) and B) one or more of the following insecticides:

25 Nicotinnic acetylcholine receptor agonists, preferably Acetamiprid, Dinetofuran, Imidacloprid, Clothianidin, Thiacloprid, Thiamethoxam, Sulfoxaflorand Sodium channel modulators, preferably Cypermethrin, Alpha-Cypermethrin, Lambda-Cyhalothrin, Gamma-Cyhalothrin, Beta-Cyfluthrin, Cyfluthrin, Tefluthrin, Transfluthrin, Deltamethrin, Bifenthrin, Acrinathrin

Acetylcholinesterase inhibitors, preferably Chlorpyrifos, Carbofuran, Acephate, Methiocarb,

30 Thiodicarb, Aldicarb, Profenofos, Fenamiphos, Fosthiazate, Ethoprophos, Phorate Metamoidophos.

Ryanodine receptor modulators, preferably Choranthraniliprole, Cyantraniliprole, Flubendiamide
Chloride channel activator, preferably Abamectin, Emamectin –(benzoate), Milbemectin

Nicotinic acetylcholine receptor allosteric activators, preferably Spinosad, Spinetoram

GABA-gated chloride channel antagonists, preferably Fipronil and Ethiprole

5 Voltage-dependent sodium channel blockers, preferably Indoxacarb, Metaflumizone

Mitochondrial complex I electron transport inhibitors, preferably Tebufenpyrad, Fenpyroximate

Mitochondrial complex II electron transport inhibitors, preferably Cyenopyrafen, Cyflumentofen

Inhibitor of mitochondrial ATP synthase, preferably Diafenthiuron,

Uncoupler of oxidative phosphorylation, preferably Chlofenapyr

10 Inhibitor of chitinbiosynthesis, preferably Lufenuron, Methoxyfenozide, Triflumuron, Buprofezin

Selective homopteran feeding blockers, preferably Pymetrozine, Flonicamid

Additional nematicides, preferably Oxamyl, Fluopyram, Fluensulfone,

Inhibitors of Acetyl CoA carboxylase, preferably Spirotetramate, Spirodiclofen and Spiromesifen

4-[(2,2-difluoroethyl)amino]furan-2(5H)-one - 2-chloro-5-Ethylpyridin (1:1), Flupyradifurone,

15 Pyrifluquinazon, Flomantoquin, Pyflubumide, Cycloxaprid

And

Fumigants.

In another embodiment, the present invention relates to the use of a composition comprising A) the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and
20 (I-B) and B) at least one nematicidal biological control agent.

A further exemplary method of the invention comprises applying the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) in combination with at least one biological control agent - to either soil or a plant (e.g. foliarly) to combat
25 nematode damage and/or increase crop yield.

Nematicidal biological control agents (e.g. as designated under B)) suitable for use in the present invention include nematophagous bacteria and nematophagous fungi.

Nematophagous bacteria useful herein include, but are not limited to, obligate parasitic bacteria, opportunistic parasitic bacteria, rhizobacteria, parasporal Cry protein-forming bacteria, endophytic bacteria and symbiotic bacteria.

In particular embodiments, the biological control agent for a mixture of the compounds of formula (I-A) and (I-B) can be a bacteria species selected from *Actinomycetes* spp, *Agrobacterium* spp., *Arthrobacter* spp., *Alcaligenes* spp., *Aureobacterium* spp., *Azobacter* spp., *Bacillus* spp., for example *Bacillus agri*, *Bacillus aizawai*, *Bacillus albolactis*, *Bacillus amyloliquefaciens*, in particular strain IN973a or strain B3 or strain FZB42, *Bacillus cereus*, in particular strain CNCM I-1562, *Bacillus chitosporus*, *Bacillus circulans*, *Bacillus coagulans*, *Bacillus endoparasiticus*, *Bacillus endorhythmos*, *Bacillus firmus*, in particular strain CNCM 1-1582 (products known as Votivo, Flocter, Bionem), *Bacillus kurstaki*, *Bacillus lacticola*, *Bacillus lactimorbus*, *Bacillus lactis*, *Bacillus laterosporus*, *Bacillus lentimorbus*, *Bacillus licheniformis*, *Bacillus megaterium*, *Bacillus medusa*, *Bacillus metiens*, *Bacillus natto*, *Bacillus nematocida*, *Bacillus nigrificans*, *Bacillus popillae*, *Bacillus pumilus*, in particular strain GB34 or strain QST2808, *Bacillus siamensis*, *Bacillus sphaericus*, *Bacillus* spp., *Bacillus subtilis*, *Bacillus* sp B16; *Bacillus thuringiensis* (including those forming Cry proteins toxic to nematodes and/or nematode larvae such as Cry5, Cry6, Cry12, Cry13, Cry14 and Cry21), *Bacillus thuringiensis israelensis*; *Bacillus thuringiensis kurstaki*; *Bacillus thuringiensis* strain ATCC 55273; *Bacillus thuringiensis* var *aegyptii*; *Bacillus thuringiensis subspec aizawai* in particular strain ABTS-1857; *Bacillus thuringiensis* var *colmeri*; *Bacillus thuringiensis* var *darmstadiensis*; *Bacillus thuringiensis* var *dendrolimus*; *Bacillus thuringiensis* var *galleria*; *Bacillus thuringiensis* var *japonensis*; *Bacillus thuringiensis subspe. morrisoni*; *Bacillus thuringiensis* var *San Diego*; *Bacillus thuringiensis* var *tenebrionis*, in particular strain NB176; *Bacillus uniflagellates*, plus those listed in the category of *Bacillus* Genus in the "Bergey's Manual of Systematic Bacteriology, First Ed. (1986)"; *Beijerinckia* spp., *Brevibacillus* spp., for example *Brevibacillus brevis*, *Brevibacillus laterosporus*, in particular strain G4, *Burkholderia* spp., for example *Burkholderia cepacia*, *Chromobacterium* spp., *Clavibacter* spp., *Clostridium* spp., *Comomonas* spp., *Corynebacterium* spp., for example *Corynebacterium paurometabolu*, *Corynebacterium pauronietabolum*, *Curtobacterium* spp., *Desulforibitio* spp.; *Enterobacter* spp., *Flavobacterium* spp., *Gluconobacter* spp., *Hydrogenophage* spp., *Klebsiella* spp., *Lysobacter enzymogenes*, *Methylobacterium* spp., *Pasteuria* spp., for example *Pasteuria penetrans* (products known as EcoNem), *Pasteuria thornei*, *Pasteuria nishizawae*, in particular strain Pn1 (product known as Soyacyst LF/ST) , *Pasteuria reniformis*, in particular strain Pr3; *Pasteuria ramosa*, *Candidatus Pasteuria usgae* sp. nov., *Pseudomonas* spp., for example *Pseudomonas aeruginosa*, *Pseudomonas aureofaciens*, *Pseudomonas cepacia*, *Pseudomonas chlororaphis*, *Pseudomonas fluorescens*, *Pseudomonas putida*, and *Paenibacillus* spp., for example *Paenibacillus macerans* and *Paenibacillus alvei*, *Phyllobacterium* spp., *Phingobacterium* spp., *Photorhabdus* spp., *Rhizobacteria*, *Rhizobium* spp., *Serratia* spp., *Stenotrophomonas* spp., *Xenorhabdus* spp., *Variovorax* spp.,

In a particularly preferred embodiment, the nematocidal biological control agent for a mixture of the compounds of formula (I-A) and (I-B) is at least one *Bacillus firmus* CNCM 1-1582 spore and/or *Bacillus cereus* strain CNCM 1-1562 spore as disclosed in U.S. Patent No. 6,406,690, which is incorporated herein by reference in its entirety.

- 5 In other preferred embodiments, the bacteria for a mixture of the compounds of formula (I-A) and (I-B) is at least one *B. amyloliquefaciens* IN937a, at least one *Bacillus subtilis* strain designation GB03, or at least one *B. pumilus* strain designation GB34. Combinations of the four species of above-listed bacteria, as well as other spore-forming, root-colonizing bacteria known to exhibit agriculturally beneficial properties are within the scope and spirit of the present invention.
- 10 Particularly preferred embodiments according to the invention are also those compositions that comprise mutants of *B. firmus* CNCM 1-1582 spore and/or *B. cereus* strain CNCM 1-1562 spore. Very particularly preferred are those mutants that have a nematocidal activity.

- The present technology also provides embodiments in which the nematode- antagonistic biocontrol agent includes a nematophagous fungi, such as, but not limited to, ARF18 (Arkansas Fungus 18);
- 15 *Arthrobotrys* spp., for example, *Arthrobotrys oligospora*, *Arthrobotrys superba* and *Arthrobotrys dactyloides*; *Chaetomium* spp., for example, *Chaetomium globosum*; *Cylindrocarpon* spp., for example, *Cylindrocarpon heteronema*; *Dactylaria* spp., for example, *Dactylaria candida*; *Exophiala* spp., for example, *Exophiala jeanselmei* and *Exophiala pisciphila*; *Fusarium* spp., for example *Fusarium solani*; *Gliocladium* spp., for example, *Gliocladium catenulatum*, *Gliocladium roseum* and *Gliocladium virens*;
 - 20 *Harposporium* spp., such as *Harposporium anguillulae*; *Hirsutella* spp., for example, *Hirsutella rhossiliensis*, *Hirsutella minnesotensis* and *Hirsutella thompsonii*, *Lecanicillium* spp., for example, *Lecanicillium lecanii* (= *Verticillium lecanii*); *Meristacrum* spp., for example, *Meristacrum asterospermum*; *Monacrosporium* spp., for example, *Monacrosporium drechsleri*, *Monacrosporium gephyropagum* and *Monacrosporium cionopagum*; *Myrothecium* spp., for example, *Myrothecium verrucaria*, in particular strain AARC0255 (products known as Ditera 90 WG); *Nematoctonus* spp., for
 - 25 example, *Nematoctonus geogenius*, *Nematoctonus leiosporus*; *Neocosmospora* spp., for example, *Neocosmospora vasinfecta*; *Paecilomyces* spp., such as, *Paecilomyces lilacinus* and *Paecilomyces variotii*; *Pochonia* spp., such as *Pochonia chlamydosporia* (= *Verticillium chlamydosporium*; products known as KlamiC); *Stagonospora* spp., for example, *Stagonospora heteroderae* and *Stagonospora*
 - 30 *phaseoli*; *Streptomyces* spp. for example *Streptomyces saraceticus* and *Streptomyces venezuelae*, and vesicular-arbuscular mycorrhizal fungi, *Trichoderma* spp., for example *Trichoderma asperellum*, *Trichoderma brevicompactum*, *Trichoderma harzianum*, *Tsukamurella paurometabola*, *Verticillium chlamydosporium*

Nematodes

The compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) in combination with the biological control agent *Bacillus firmus* strain CNCM I-1582 - or the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) in combination with at least one agrochemically active compound is particularly useful in controlling plant-parasitic nematodes in nematode-resistant plants wherein the nematodes are of the following species:

Aglenchus agricola, *Anguina tritici*, *Aphelenchoides arachidis*, *Aphelenchoides fragaria* and the stem and leaf endoparasites *Aphelenchoides* spp. in general, *Belonolaimus gracilis*, *Belonolaimus longicaudatus*, *Belonolaimus nortoni*, *Bursaphelenchus eremus*, *Bursaphelenchus xylophilus*, *Bursaphelenchus cocophilus* and *Bursaphelenchus* spp. in general, *Cacopaurus pestis*, *Criconemella curvata*, *Criconemella onoensis*, *Criconemella ornata*, *Criconemella rusium*, *Criconemella xenoplax* (= *Mesocriconema xenoplax*) and *Criconemella* spp. in general, *Criconemoides ferniae*, *Criconemoides onoense*, *Criconemoides ornatum* and *Criconemoides* spp. in general, *Ditylenchus destructor*, *Ditylenchus dipsaci*, *Ditylenchus myceliophagus* and the stem and leaf endoparasites *Ditylenchus* spp. in general, *Dolichodorus heterocephalus*, *Globodera pallida* (= *Heterodera pallida*), *Globodera rostochiensis* (potato cyst nematode), *Globodera solanacearum*, *Globodera tabacum*, *Globodera virginia* and the sedentary, cyst forming parasites *Globodera* spp. in general, *Helicotylenchus digonicus*, *Helicotylenchus dihystra*, *Helicotylenchus erythrine*, *Helicotylenchus multicinctus*, *Helicotylenchus nannus*, *Helicotylenchus pseudorobustus* and *Helicotylenchus* spp. in general, *Hemicriconemoides*, *Hemicycliophora arenaria*, *Hemicycliophora nudata*, *Hemicycliophora parvana*, *Heterodera avenae*, *Heterodera cruciferae*, *Heterodera glycines* (soybean cyst nematode), *Heterodera oryzae*, *Heterodera schachtii*, *Heterodera zaeae* and the sedentary, cyst forming parasites *Heterodera* spp. in general, *Hirschmaniella gracilis*, *Hirschmaniella oryzae*, *Hirschmaniella spinicaudata* and the stem and leaf endoparasites *Hirschmaniella* spp. in general, *Hoplolaimus aegyptii*, *Hoplolaimus californicus*, *Hoplolaimus columbus*, *Hoplolaimus galeatus*, *Hoplolaimus indicus*, *Hoplolaimus magnistylus*, *Hoplolaimus pararobustus*, *Longidorus africanus*, *Longidorus breviannulatus*, *Longidorus elongatus*, *Longidorus laevicapitatus*, *Longidorus vineacola* and the ectoparasites *Longidorus* spp. in general, *Meloidogyne acronea*, *Meloidogyne africana*, *Meloidogyne arenaria*, *Meloidogyne arenaria thamesi*, *Meloidogyne artiella*, *Meloidogyne chitwoodi*, *Meloidogyne coffeicola*, *Meloidogyne ethiopica*, *Meloidogyne exigua*, *Meloidogyne fallax*, *Meloidogyne graminicola*, *Meloidogyne graminis*, *Meloidogyne hapla*, *Meloidogyne incognita*, *Meloidogyne incognita acrita*, *Meloidogyne javanica*, *Meloidogyne kikuyensis*, *Meloidogyne minor*, *Meloidogyne naasi*, *Meloidogyne paranaensis*, *Meloidogyne thamesi* and the sedentary parasites *Meloidogyne* spp. in general, *Meloinema* spp., *Nacobbus aberrans*, *Neotylenchus vigissi*, *Paraphelenchus pseudoparietinus*, *Paratrichodorus allius*, *Paratrichodorus lobatus*, *Paratrichodorus minor*, *Paratrichodorus nanus*, *Paratrichodorus porosus*, *Paratrichodorus teres* and *Paratrichodorus* spp. in general, *Paratylenchus hamatus*, *Paratylenchus*

minutus, *Paratylenchus projectus* and *Paratylenchus* spp. in general, *Pratylenchus agilis*, *Pratylenchus alleni*, *Pratylenchus andinus*, *Pratylenchus brachyurus*, *Pratylenchus cerealis*, *Pratylenchus coffeae*, *Pratylenchus crenatus*, *Pratylenchus delattrei*, *Pratylenchus giibbicaudatus*, *Pratylenchus goodeyi*, *Pratylenchus hamatus*, *Pratylenchus hexincisus*, *Pratylenchus loosi*, *Pratylenchus neglectus*,
5 *Pratylenchus penetrans*, *Pratylenchus pratensis*, *Pratylenchus scribneri*, *Pratylenchus teres*, *Pratylenchus thornei*, *Pratylenchus vulnus*, *Pratylenchus zae* and the migratory endoparasites *Pratylenchus* spp. in general, *Pseudohalenchus minutus*, *Psilenchus magnidens*, *Psilenchus tumidus*, *Punctodera chalcoensis*, *Quinisulcius acutus*, *Radopholus citrophilus*, *Radopholus similis*, and the migratory endoparasites *Radopholus* spp. in general, *Rotylenchulus borealis*, *Rotylenchulus parvus*,
10 *Rotylenchulus reniformis* and *Rotylenchulus* spp. in general, *Rotylenchus laurentinus*, *Rotylenchus macrodoratus*, *Rotylenchus robustus*, *Rotylenchus uniformis* and *Rotylenchus* spp. in general, *Scutellonema brachyurum*, *Scutellonema bradys*, *Scutellonema clathricaudatum* and the migratory endoparasites *Scutellonema* spp. in general, *Subanguina radiciola*, *Tetylenchus nicotianae*, *Trichodorus cylindricus*, *Trichodorus minor*, *Trichodorus primitivus*, *Trichodorus proximus*, *Trichodorus similis*,
15 *Trichodorus sparsus* and the ectoparasites *Trichodorus* spp. in general, *Tylenchorhynchus agri*, *Tylenchorhynchus brassicae*, *Tylenchorhynchus clarus*, *Tylenchorhynchus claytoni*, *Tylenchorhynchus digitatus*, *Tylenchorhynchus ebriensis*, *Tylenchorhynchus maximus*, *Tylenchorhynchus nudus*, *Tylenchorhynchus vulgaris* and *Tylenchorhynchus* spp. in general, *Tylenchulus semipenetrans* and the semiparasites *Tylenchulus* spp. in general, *Xiphinema americanum*, *Xiphinema brevicolle*, *Xiphinema dimorphicaudatum*, *Xiphinema index* and the ectoparasites *Xiphinema* spp. in general.
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Examples of nematodes to which a nematocide of the present invention is applicable include, but are not limited to, nematodes of the genus *Meloidogyne* such as the southern root-knot nematode (*Meloidogyne incognita*), Javanese root-knot nematode (*Meloidogyne javanica*), northern root-knot nematode (*Meloidogyne hapla*), and peanut root-knot nematode (*Meloidogyne arenaria*); nematodes of the genus
25 *Ditylenchus* such as the potato rot nematode (*Ditylenchus destructor*) and bulb and stem nematode (*Ditylenchus dipsaci*); nematodes of the genus *Pratylenchus* such as the cob root-lesion nematode (*Pratylenchus penetrans*), chrysanthemum root-lesion nematode (*Pratylenchus fallax*), coffee root-lesion nematode (*Pratylenchus coffeae*), tea root-lesion nematode (*Pratylenchus loosi*), and walnut root-lesion nematode (*Pratylenchus vulnus*); nematodes of the genus *Globodera* such as the golden
30 nematode (*Globodera rostochiensis*) and potato cyst nematode (*Globodera pallida*); nematodes of the genus *Heterodera* such as the soybean cyst nematode (*Heterodera glycines*) and sugar beet cyst nematode (*Heterodera schachtii*); nematodes of the genus *Aphelenchoides* such as the rice white-tip nematode (*Aphelenchoides besseyi*), chrysanthemum foliar nematode (*Aphelenchoides ritzemabosi*), and strawberry nematode (*Aphelenchoides fragariae*); nematodes of the genus *Aphelenchus* such as the
35 mycophagous nematode (*Aphelenchus avenae*); nematodes of the genus *Radopholus* such as the burrowing nematode (*Radopholus similis*); nematodes of the genus *Tylenchulus* such as the citrus nematode (*Tylenchulus semipenetrans*); nematodes of the genus *Rotylenchulus* such as the reniform

nematode (*Rotylenchulus reniformis*); nematodes that occur in trees, such as the pine wood nematode (*Bursaphelenchus xylophilus*), and the like.

Plants for which a nematicide of the present invention can be used are not particularly limited; for example, plants such as cereals (for example, rice, barley, wheat, rye, oat, corn, and the like), beans
5 (soybeans, azuki beans, broad beans, peas, peanuts and the like), fruit trees/fruits (apples, citrus species, pears, grapes, peaches, Japanese apricots, cherries, walnuts, almonds, bananas, strawberries, pineapples and the like), vegetables (cabbage, tomato, spinach, broccoli, lettuce, onion, Welsh onion, pepper and the like), root crops (carrot, potato, sweet potato, radish, lotus root, turnip and the like), industrial crops
10 (cotton, hemp, paper mulberry, mitsumata, rape, beet, hop, sugarcane, sugar beet, olive, rubber, palms, coffee, tobacco, tea and the like), pepos (pumpkin, cucumber, watermelon, melon and the like), pasture plants (orchard grass, sorghum, thimothy, clover, alfalfa and the like), lawn grasses (mascarene grass, bent grass and the like), crops for flavorings etc. (lavender, rosemary, thyme, parsley, pepper, ginger and the like), and flower plants (chrysanthemum, rose, orchids and the like) can be mentioned.

The compound(s) and compositions comprising the compound(s) of the present invention is/are
15 particularly useful in controlling nematodes in coffee belonging to at least one species selected from the group of the phytoparasitic nematodes consisting of *Pratylenchus brachyurus*, *Pratylenchus coffeae*, *Meloidogyne exigua*, *Meloidogyne incognita*, *Meloidogyne coffeicola*, *Helicotylenchus* spp. and also consisting of *Meloidogyne paranaensis*, *Rotylenchus* spp., *Xiphinema* spp., *Tylenchorhynchus* spp., *Scutellonema* spp.

Compound(s) and compositions comprising compound(s) of the present invention is/are particularly
20 useful in controlling nematodes in potato belonging to at least one species selected from the group of the phytoparasitic nematodes consisting of *Pratylenchus brachyurus*, *Pratylenchus pratensis*, *Pratylenchus scribneri*, *Pratylenchus penetrans*, *Pratylenchus coffeae*, *Ditylenchus dipsaci* and also consisting of *Pratylenchus alleni*, *Pratylenchus andinus*, *Pratylenchus cerealis*, *Pratylenchus crenatus*,
25 *Pratylenchus hexincisus*, *Pratylenchus loosi*, *Pratylenchus neglectus*, *Pratylenchus teres*, *Pratylenchus thornei*, *Pratylenchus vulnus*, *Belonolaimus longicaudatus*, *Trichodorus cylindricus*, *Trichodorus primitivus*, *Trichodorus proximus*, *Trichodorus similis*, *Trichodorus sparsus*, *Paratrichodorus minor*, *Paratrichodorus allius*, *Paratrichodorus nanus*, *Paratrichodorus teres*, *Meloidogyne arenaria*, *Meloidogyne fallax*, *Meloidogyne hapla*, *Meloidogyne thamesi*, *Meloidogyne incognita*, *Meloidogyne*
30 *chitwoodi*, *Meloidogyne javanica*, *Nacobbus aberrans*, *Globodera rostochiensis*, *Globodera pallida*, *Ditylenchus destructor*, *Radopholus similis*, *Rotylenchulus reniformis*, *Neotylenchus vigissi*, *Paraphelenchus pseudoparietinus*, *Aphelenchoides fragariae*, *Meloinema* spp.

Compound(s) and compositions comprising the compound(s) of the present invention is/are particularly
35 useful in controlling nematodes in tomato belonging to at least one species selected from the group of the phytoparasitic nematodes consisting of *Meloidogyne arenaria*, *Meloidogyne hapla*, *Meloidogyne*

javanica, *Meloidogyne incognita*, *Pratylenchus penetrans* and also consisting of *Pratylenchus brachyurus*, *Pratylenchus coffeae*, *Pratylenchus scribneri*, *Pratylenchus vulnus*, *Paratrichodorus minor*, *Meloidogyne exigua*, *Nacobbus aberrans*, *Globodera solanacearum*, *Dolichodorus heterocephalus*, *Rotylenchulus reniformis*.

- 5 The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in cucurbits belonging to at least one species selected from the group of the phytoparasitic nematodes consisting of *Meloidogyne arenaria*, *Meloidogyne hapla*, *Meloidogyne javanica*, *Meloidogyne incognita*, *Rotylenchulus reniformis* and also consisting of *Pratylenchus thornei*.
- 10 The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in cotton belonging to at least one species selected from the group of the phytoparasitic nematodes consisting of *Belonolaimus longicaudatus*, *Meloidogyne incognita*, *Hoplolaimus columbus*, *Hoplolaimus galeatus*, *Rotylenchulus reniformis*.

- The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in corn belonging to at least one species selected from the group of the phytoparasitic nematodes, especially consisting of *Belonolaimus longicaudatus*, *Paratrichodorus minor* and also consisting of *Pratylenchus brachyurus*, *Pratylenchus delattrei*, *Pratylenchus hexincisus*, *Pratylenchus penetrans*, *Pratylenchus zaeae*, (*Belonolaimus gracilis*), *Belonolaimus nortoni*, *Longidorus breviannulatus*, *Meloidogyne arenaria*, *Meloidogyne arenaria*
- 15 *thamesi*, *Meloidogyne graminis*, *Meloidogyne incognita*, *Meloidogyne incognita acrita*, *Meloidogyne javanica*, *Meloidogyne naasi*, *Heterodera avenae*, *Heterodera oryzae*, *Heterodera zaeae*, *Punctodera chalcensis*, *Ditylenchus dipsaci*, *Hoplolaimus aegyptii*, *Hoplolaimus magnistylus*, *Hoplolaimus galeatus*, *Hoplolaimus indicus*, *Helicotylenchus digonicus*, *Helicotylenchus dihystra*, *Helicotylenchus pseudorobustus*, *Xiphinema americanum*, *Dolichodorus heterocephalus*, *Criconemella ornata*,
- 20 *Criconemella onoensis*, *Radopholus similis*, *Rotylenchulus borealis*, *Rotylenchulus parvus*, *Tylenchorhynchus agri*, *Tylenchorhynchus clarus*, *Tylenchorhynchus claytoni*, *Tylenchorhynchus maximus*, *Tylenchorhynchus nudus*, *Tylenchorhynchus vulgaris*, *Quinisulcius acutus*, *Paratylenchus minutus*, *Hemicycliophora parvana*, *Aglenchus agricola*, *Anguina tritici*, *Aphelenchoides arachidis*, *Scutellonema brachyurum*, *Subanguina radiciola*.

- 30 The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in soybean belonging to at least one species selected from the group of the phytoparasitic nematodes, especially consisting of *Pratylenchus brachyurus*, *Pratylenchus pratensis*, *Pratylenchus penetrans*, *Pratylenchus scribneri*, *Belonolaimus longicaudatus*, *Heterodera glycines*, *Hoplolaimus columbus* and also consisting of *Pratylenchus coffeae*, *Pratylenchus hexincisus*, *Pratylenchus neglectus*, *Pratylenchus crenatus*, *Pratylenchus allenii*, *Pratylenchus agilis*,
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Pratylenchus zaei, *Pratylenchus vulnus*, (*Belonolaimus gracilis*), *Meloidogyne arenaria*, *Meloidogyne incognita*, *Meloidogyne javanica*, *Meloidogyne hapla*, *Hoplolaimus columbus*, *Hoplolaimus galeatus*, *Rotylenchulus reniformis*.

The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in tobacco belonging to at least one species selected from the group of the phytoparasitic nematodes, especially consisting of *Meloidogyne incognita*, *Meloidogyne javanica* and also consisting of *Pratylenchus brachyurus*, *Pratylenchus pratensis*, *Pratylenchus hexincisus*, *Pratylenchus penetrans*, *Pratylenchus neglectus*, *Pratylenchus crenatus*, *Pratylenchus thornei*, *Pratylenchus vulnus*, *Pratylenchus zaei*, *Longidorus elongatus*, *Paratrichodorus lobatus*, *Trichodorus spp.*, *Meloidogyne arenaria*, *Meloidogyne hapla*, *Globodera tabacum*, *Globodera solanacearum*, *Globodera virginiae*, *Ditylenchus dipsaci*, *Rotylenchus spp.*, *Helicotylenchus spp.*, *Xiphinema americanum*, *Criconebella spp.*, *Rotylenchulus reniformis*, *Tylenchorhynchus claytoni*, *Paratylenchus spp.*, *Tetylenchus nicotianae*.

The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in citrus belonging to at least one species selected from the group of the phytoparasitic nematodes, especially consisting of *Pratylenchus coffeae* and also consisting of *Pratylenchus brachyurus*, *Pratylenchus vulnus*, *Belonolaimus longicaudatus*, *Paratrichodorus minor*, *Paratrichodorus porosus*, *Trichodorus*, *Meloidogyne incognita*, *Meloidogyne incognita acrita*, *Meloidogyne javanica*, *Rotylenchus macrodoratus*, *Xiphinema americanum*, *Xiphinema brevicolle*, *Xiphinema index*, *Criconebella spp.*, *Hemicriconebelloides*, *Radopholus similis* respectively *Radopholus citrophilus*, *Hemicycliophora arenaria*, *Hemicycliophora nudata*, *Tylenchulus semipenetrans*.

The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in banana belonging to at least one species selected from the group of the phytoparasitic nematodes, especially consisting of *Pratylenchus coffeae*, *Radopholus similis* and also consisting of *Pratylenchus giibbicaudatus*, *Pratylenchus loosi*, *Meloidogyne spp.*, *Helicotylenchus multicinctus*, *Helicotylenchus dihystra*, *Rotylenchulus spp.*

The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in pine apple belonging to at least one species selected from the group of the phytoparasitic nematodes, especially consisting of *Pratylenchus zaei*, *Pratylenchus pratensis*, *Pratylenchus brachyurus*, *Pratylenchus goodeyi*, *Meloidogyne spp.*, *Rotylenchulus reniformis* and also consisting of *Longidorus elongatus*, *Longidorus laeviscapitatus*, *Trichodorus primitivus*, *Trichodorus minor*, *Heterodera spp.*, *Ditylenchus myceliophagus*, *Hoplolaimus californicus*, *Hoplolaimus pararobustus*, *Hoplolaimus indicus*, *Helicotylenchus dihystra*, *Helicotylenchus nannus*, *Helicotylenchus multicinctus*, *Helicotylenchus erythrine*, *Xiphinema dimorphicaudatum*, *Radopholus similis*, *Tylenchorhynchus digitatus*, *Tylenchorhynchus ebriensis*, *Paratylenchus minutus*, *Scutellonema*

clathricaudatum, *Scutellonema bradys*, *Psilenchus tumidus*, *Psilenchus magnidens*, *Pseudohalenchus minutus*, *Criconemoides ferniae*, *Criconemoides onoense*, *Criconemoides ornatum*.

The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in grapes belonging to at least one species selected from the group of the phytoparasitic nematodes, especially consisting of *Pratylenchus vulnus*, *Meloidogyne arenaria*, *Meloidogyne incognita*, *Meloidogyne javanica*, *Xiphinema americanum*, *Xiphinema index* and also consisting of *Pratylenchus pratensis*, *Pratylenchus scribneri*, *Pratylenchus neglectus*, *Pratylenchus brachyurus*, *Pratylenchus thornei*, *Tylenchulus semipenetrans*.

The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in tree crops – pome fruits, belonging to at least one species selected from the group of the phytoparasitic nematodes, especially consisting of *Pratylenchus penetrans* and also consisting of *Pratylenchus vulnus*, *Longidorus elongatus*, *Meloidogyne incognita*, *Meloidogyne hapla*.

The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in tree crops – stone fruits, belonging to at least one species selected from the group of the phytoparasitic nematodes, especially consisting of *Pratylenchus penetrans*, *Pratylenchus vulnus*, *Meloidogyne arenaria*, *Meloidogyne hapla*, *Meloidogyne javanica*, *Meloidogyne incognita*, *Criconemella xenoplax* and also consisting of *Pratylenchus brachyurus*, *Pratylenchus coffeae*, *Pratylenchus scribneri*, *Pratylenchus zaei*, *Belonolaimus longicaudatus*, *Helicotylenchus dihystra*, *Xiphinema americanum*, *Criconemella curvata*, *Tylenchorhynchus claytoni*, *Paratylenchus hamatus*, *Paratylenchus projectus*, *Scutellonema brachyurum*, *Hoplolaimus galeatus*.

The compound(s) and compositions comprising the compound(s) of the present invention is/are particularly useful in controlling nematodes in tree crops – nuts, belonging to at least one species selected from the group of the phytoparasitic nematodes, especially consisting of *Trichodorus spp.*, *Criconemella rusium* and also consisting of *Pratylenchus vulnus*, *Paratrichodorus spp.*, *Meloidogyne incognita*, *Helicotylenchus spp.*, *Tylenchorhynchus spp.*, *Cacopaurus pestis*.

Formulations

Suitable extenders and/or surfactants which may be contained in the compositions according to the invention are all formulation auxiliaries which can customarily be used in plant treatment compositions.

In the compositions according to the invention the ratio of the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) to an agrochemically active compound of group (B) can be varied within a relatively wide range. In general, between 0.02 and 2.0

parts by weight, preferably between 0.05 and 1.0 part by weight, of the compound of the formula (I) is employed per part by weight of agrochemically active compound.

When employing the active compounds of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) which can be used according to the invention, the application rates can be varied within a certain range, depending on the type of application. In the treatment of seed, the application rates of active compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) are generally between 10 and 10000 mg per kilogram of seed, preferably between 10 and 300 mg per kilogram of seed. When used in solid formulations, the application rates of active compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) are generally between 20 and 800 mg per kilogram of formulation, preferably between 30 and 700 mg per kilogram of formulation.

According to the invention, carrier is to be understood as meaning a natural or synthetic, organic or inorganic substance which is mixed or combined with the active compounds for better applicability, in particular for application to plants or plant parts or seeds. The carrier, which may be solid or liquid, is generally inert and should be suitable for use in agriculture.

Suitable solid carriers are: for example ammonium salts and natural ground minerals, such as kaolins, clays, talc, chalk, quartz, attapulgite, montmorillonite or diatomaceous earth, and ground synthetic minerals, such as finely divided silica, alumina and natural or synthetic silicates, resins, waxes, solid fertilizers, water, alcohols, especially butanol, organic solvents, mineral oils and vegetable oils, and also derivatives thereof. It is also possible to use mixtures of such carriers. Solid carriers suitable for granules are: for example crushed and fractionated natural minerals, such as calcite, marble, pumice, sepiolite, dolomite, and also synthetic granules of inorganic and organic meals and also granules of organic material, such as sawdust, coconut shells, maize cobs and tobacco stalks. Suitable emulsifiers and/or foam-formers are: for example nonionic and anionic emulsifiers, such as polyoxyethylene fatty acid esters, polyoxyethylene fatty alcohol ethers, for example alkylaryl polyglycol ethers, alkylsulphonates, alkyl sulphates, arylsulphonates, and also protein hydrolysates. Suitable dispersants are: for example lignosulphite waste liquors and methylcellulose.

Suitable liquefied gaseous extenders or carriers are liquids which are gaseous at ambient temperature and under atmospheric pressure, for example aerosol propellants, such as butane, propane, nitrogen and carbon dioxide.

Tackifiers, such as carboxymethylcellulose and natural and synthetic polymers in the form of powders, granules and latices, such as gum arabic, polyvinyl alcohol, polyvinyl acetate, or else natural phospholipids, such as cephalins and lecithins and synthetic phospholipids can be used in the formulations. Other possible additives are mineral and vegetable oils.

If the extender used is water, it is also possible for example, to use organic solvents as auxiliary solvents. Suitable liquid solvents are essentially: aromatic compounds, such as xylene, toluene or alkylnaphthalenes, chlorinated aromatic compounds or chlorinated aliphatic hydrocarbons, such as chlorobenzenes, chloroethylenes or methylene chloride, aliphatic hydrocarbons, such as cyclohexane or paraffins, for example mineral oil fractions, mineral and vegetable oils, alcohols, such as butanol or glycol, and also ethers and esters thereof, ketones, such as acetone, methyl ethyl ketone, methyl isobutyl ketone or cyclohexanone, strongly polar solvents, such as dimethylformamide and dimethyl sulphoxide, and also water.

The compositions according to the invention may comprise additional further components, such as, for example, surfactants. Suitable surfactants are emulsifiers, dispersants or wetting agents having ionic or nonionic properties, or mixtures of these surfactants. Examples of these are salts of polyacrylic acid, salts of lignosulphonic acid, salts of phenolsulphonic acid or naphthalenesulphonic acid, polycondensates of ethylene oxide with fatty alcohols or with fatty acids or with fatty amines, substituted phenols (preferably alkylphenols or arylphenols), salts of sulphosuccinic esters, taurine derivatives (preferably alkyl taurates), phosphoric esters of polyethoxylated alcohols or phenols, fatty esters of polyols, and derivatives of the compounds containing sulphates, sulphonates and phosphates. The presence of a surfactant is required if one of the active compounds and/or one of the inert carriers is insoluble in water and when the application takes place in water. The proportion of surfactants is between 5 and 40 per cent by weight of the composition according to the invention.

It is possible to use colorants such as inorganic pigments, for example iron oxide, titanium oxide, Prussian blue, and organic dyes, such as alizarin dyes, azo dyes and metal phthalocyanine dyes, and trace nutrients, such as salts of iron, manganese, boron, copper, cobalt, molybdenum and zinc.

If appropriate, other additional components may also be present, for example protective colloids, binders, adhesives, thickeners, thixotropic substances, penetrants, stabilizers, sequestering agents, complex formers. In general, the active compounds can be combined with any solid or liquid additive customarily used for formulation purposes.

In general, the compositions according to the invention comprise between 0.05 and 99 per cent by weight of the active compound combination according to the invention, preferably between 10 and 70 per cent by weight, particularly preferably between 20 and 50 per cent by weight, most preferably 25 per cent by weight.

The active compound combinations or compositions according to the invention can be used as such or, depending on their respective physical and/or chemical properties, in the form of their formulations or the use forms prepared therefrom, such as aerosols, capsule suspensions, cold-fogging concentrates, warm-fogging concentrates, encapsulated granules, fine granules, flowable concentrates for the treatment of seed, ready-to-use solutions, dustable powders, emulsifiable concentrates, oil-in-water emulsions, water-in-oil emulsions,

macrogranules, microgranules, oil-dispersible powders, oil-miscible flowable concentrates, oil-miscible liquids, foams, pastes, pesticide-coated seed, suspension concentrates, suspoemulsion concentrates, soluble concentrates, suspensions, wettable powders, soluble powders, dusts and granules, water-soluble granules or tablets, water-soluble powders for the treatment of seed, wettable powders, natural products and synthetic substances impregnated with active compound, and also microencapsulations in polymeric substances and in coating materials for seed, and also ULV cold-fogging and warm-fogging formulations.

The formulations mentioned can be prepared in a manner known per se, for example by mixing the active compounds or the active compound combinations with at least one additive. Suitable additives are all customary formulation auxiliaries, such as, for example, organic solvents, extenders, solvents or diluents, solid carriers and fillers, surfactants (such as adjuvants, emulsifiers, dispersants, protective colloids, wetting agents and tackifiers), dispersants and/or binders or fixatives, preservatives, dyes and pigments, defoamers, inorganic and organic thickeners, water repellents, if appropriate siccatives and UV stabilizers, gibberellins and also water and further processing auxiliaries. Depending on the formulation type to be prepared in each case, further processing steps such as, for example, wet grinding, dry grinding or granulation may be required.

Organic diluents that may be present are all polar and non-polar organic solvents that are customarily used for such purposes. Preferred are ketones, such as methyl isobutyl ketone and cyclohexanone, furthermore amides, such as dimethylformamide and alkanecarboxamides, such as N,N-dimethyldecanamide and N,N-dimethyloctanamide, furthermore cyclic compounds, such as N-methylpyrrolidone, N-octylpyrrolidone, N-dodecylpyrrolidone, N-octylcaprolactam, N-dodecylcaprolactam and butyrolactone, additionally strongly polar solvents, such as dimethyl sulphoxide, furthermore aromatic hydrocarbons, such as xylene, Solvesso™, mineral oils, such as white spirit, petroleum, alkylbenzenes and spindle oil, moreover esters, such as propylene glycol monomethyl ether acetate, dibutyl adipate, hexyl acetate, heptyl acetate, tri-n-butyl citrate and di-n-butyl phthalate, and furthermore alcohols, such as, for example, benzyl alcohol and 1-methoxy-2-propanol.

Solid carriers suitable for granules are: for example crushed and fractionated natural minerals, such as calcite, marble, pumice, sepiolite, dolomite, and also synthetic granules of inorganic and organic meals and also granules of organic material, such as sawdust, coconut shells, maize cobs and tobacco stalks.

Suitable surfactants (adjuvants, emulsifiers, dispersants, protective colloids, wetting agents and tackifiers) are customary ionic and nonionic substances. Examples which may be mentioned are ethoxylated nonylphenols, polyalkylene glycol ethers of straight-chain or branched alcohols, products of reactions of alkylphenols with ethylene oxide and/or propylene oxide, products of reactions of fatty amines with ethylene oxide and/or propylene oxide, furthermore fatty esters, alkylsulphonates, alkyl sulphates, alkyl ether sulphates, alkyl ether phosphates, aryl sulphates, ethoxylated arylalkylphenols, such as, for example, tristyrylphenol ethoxylates, furthermore ethoxylated and propoxylated arylalkylphenols and also sulphated or phosphated arylalkylphenol ethoxylates or ethoxy- and

propoxylates. Mention may furthermore be made of natural and synthetic water-soluble polymers, such as lignosulphonates, gelatine, gum arabic, phospholipids, starch, hydrophobically modified starch and cellulose derivatives, in particular cellulose esters and cellulose ethers, furthermore polyvinyl alcohol, polyvinyl acetate, polyvinylpyrrolidone, polyacrylic acid, polymethacrylic acid and copolymers of (meth)acrylic acid and (meth)acrylic acid esters, and moreover also alkali metal hydroxide-neutralized copolymers of methacrylic acid and methacrylic ester and condensates of optionally substituted naphthalenesulphonic acid salts with formaldehyde.

Suitable solid fillers and carriers are all substances customarily used for this purpose in crop protection compositions. Inorganic particles, such as carbonates, silicates, sulphates and oxides having a mean particle size of from 0.005 to 20 μm , particularly preferably from 0.02 to 10 μm , may be mentioned as being preferred. Examples which may be mentioned are ammonium sulphate, ammonium phosphate, urea, calcium carbonate, calcium sulphate, magnesium sulphate, magnesium oxide, aluminium oxide, silicon dioxide, finely divided silicic acid, silica gels, natural and synthetic silicates and aluminosilicates and vegetable products such as cereal meal, wood powder and cellulose powder.

Suitable colorants that may be present in the seed dressing formulations to be used according to the invention include all colorants customary for such purposes. Use may be made both of pigments, of sparing solubility in water, and of dyes, which are soluble in water. Examples that may be mentioned include the colorants known under the designations Rhodamin B, C.I. Pigment Red 112 and C.I. Solvent Red 1. The colorants used can be inorganic pigments, for example iron oxide, titanium oxide, Prussian Blue, and organic dyes, such as alizarin, azo and metal phthalocyanine dyes, and trace nutrients, such as salts of iron, manganese, boron, copper, cobalt, molybdenum and zinc.

Suitable wetting agents that may be present in the seed dressing formulations to be used according to the invention include all substances which promote wetting and are customary in the formulation of agrochemically active compounds. Preference is given to using alkylnaphthalenesulphonates, such as diisopropyl- or diisobutylnaphthalenesulphonates.

Suitable dispersants and/or emulsifiers that may be present in the seed dressing formulations to be used according to the invention include all nonionic, anionic and cationic dispersants which are customary in the formulation of agrochemically active compounds. Preference is given to using nonionic or anionic dispersants or mixtures of nonionic or anionic dispersants. Particularly suitable nonionic dispersants are ethylene oxide/propylene oxide block polymers, alkylphenol polyglycol ethers, and also tristrylphenol polyglycol ethers and their phosphated or sulphated derivatives. Particularly suitable anionic dispersants are lignosulphonates, polyacrylic acid salts and arylsulphonate/formaldehyde condensates.

Defoamers that may be present in the seed dressing formulations to be used according to the invention include all foam-inhibiting compounds which are customary in the formulation of agrochemically active

compounds. Preference is given to using silicone defoamers, magnesium stearate, silicone emulsions, long-chain alcohols, fatty acids and their salts and also organofluorine compounds and mixtures thereof.

Preservatives that may be present in the seed dressing formulations to be used according to the invention include all compounds which can be used for such purposes in agrochemical compositions.

5 By way of example, mention may be made of dichlorophen and benzyl alcohol hemiformal.

Secondary thickeners that may be present in the seed dressing formulations to be used according to the invention include all compounds which can be used for such purposes in agrochemical compositions. Preference is given to cellulose derivatives, acrylic acid derivatives, polysaccharides, such as xanthan gum or Veegum, modified clays, phyllosilicates, such as attapulgite and bentonite, and also finely divided silicic
10 acids.

Suitable adhesives that may be present in the seed dressing formulations to be used according to the invention include all customary binders which can be used in seed dressings. Polyvinylpyrrolidone, polyvinyl acetate, polyvinyl alcohol and tylose may be mentioned as being preferred.

Suitable gibberellins that may be present in the seed dressing formulations to be used according to the invention are preferably the gibberellins A1, A3 (= gibberellic acid), A4 and A7; particular preference is
15 given to using gibberellic acid. The gibberellins are known (cf. R. Wegler "Chemie der Pflanzenschutz- und Schädlingsbekämpfungsmittel" [Chemistry of Crop Protection Agents and Pesticides], Vol. 2, Springer Verlag, 1970, pp. 401-412).

The formulations generally comprise between 0.1 and 95% by weight of active compound, preferably
20 between 0.5 and 90%.

The active compound combinations according to the invention can be present in commercial formulations and in the use forms prepared from these formulations as a mixture with other active compounds, such as insecticides, attractants, sterilants, bactericides, acaricides, nematocides, fungicides, growth regulators or herbicides. A mixture with fertilizers is also possible.

25 The treatment according to the invention of the plants and plant parts with the active compound combinations or compositions is carried out directly or by action on their surroundings, habitat or storage space using customary treatment methods, for example by dipping, spraying, atomizing, irrigating, evaporating, dusting, fogging, broadcasting, foaming, painting, spreading-on, watering (drenching), drip irrigating and, in the case of propagation material, in particular in the case of seeds,
30 furthermore as a powder for dry seed treatment, a solution for seed treatment, a water-soluble powder for slurry treatment, by incrusting, by coating with one or more coats, etc. Preference is given to application by dipping, spraying, atomizing, irrigating, evaporating, dusting, fogging, broadcasting, foaming, painting, spreading-on, watering (drenching) and drip irrigating.

The application of the formulations is carried out in accordance with customary agricultural practice in a manner adapted to the application forms. Customary applications are, for example, dilution with water and spraying of the resulting spray liquor, application after dilution with oil, direct application without dilution, seed dressing or soil application of carrier granules.

- 5 The active compound content of the application forms prepared from the commercial formulations can vary within wide limits. The active compound concentration of the application forms can be from 0.0000001 up to 95% by weight of active compound, preferably between 0.0001 and 2% by weight.

The compositions according to the invention do not only comprise ready-to-use compositions which can be applied with suitable apparatus to the plant or the seed, but also commercial concentrates which have
10 to be diluted with water prior to use.

Application methods

The treatment according to the invention of the plants and plant parts with The compound of the formula (I, formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) or compositions is carried out directly or by action on their surroundings, habitat or storage space using customary
15 treatment methods, for example by dipping, spraying, atomizing, irrigating, stem injection, in-furrow application, evaporating, dusting, fogging, broadcasting, foaming, painting, spreading-on, watering (drenching), drip irrigating and, in the case of propagation material, in particular in the case of seeds, furthermore as a powder for dry seed treatment, a solution for seed treatment, a water-soluble powder for slurry treatment, by incrusting, by coating with one or more layers, etc. It is furthermore possible to
20 apply the active compounds by the ultra-low volume method, or to inject the active compound preparation or the active compound itself into the soil.

Generally, the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) is applied in a rate of 10 g to 20 kg per ha, preferably 50 g to 10 kg per ha, most preferably 100 g to 5 kg per ha.

- 25 The invention furthermore comprises a method for treating seed. The invention furthermore relates to seed treated according to one of the methods described in the preceding paragraph.

The compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or compositions comprising the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B)- according to the invention are especially suitable
30 for treating seed. A large part of the damage to crop plants caused by harmful organisms is triggered by an infection of the seed during storage or after sowing as well as during and after germination of the plant. This phase is particularly critical since the roots and shoots of the growing plant are particularly

sensitive, and even small damage may result in the death of the plant. Accordingly, there is great interest in protecting the seed and the germinating plant by using appropriate compositions.

The control of nematodes by treating the seed of plants has been known for a long time and is the subject of continuous improvements. However, the treatment of seed entails a series of problems which cannot always
5 be solved in a satisfactory manner. Thus, it is desirable to develop methods for protecting the seed and the germinating plant which dispense with the additional application of crop protection agents after sowing or after the emergence of the plants or which at least considerably reduce additional application. It is furthermore desirable to optimize the amount of active compound employed in such a way as to provide maximum protection for the seed and the germinating plant from attack by nematodes, but without damaging the plant
10 itself by the active compound employed. In particular, methods for the treatment of seed should also take into consideration the intrinsic nematicidal properties of transgenic plants in order to achieve optimum protection of the seed and the germinating plant with a minimum of crop protection agents being employed.

Accordingly, the present invention also relates in particular to a method for protecting seed and germinating plants against attack by nematodes by treating the seed with The compound of the formula
15 (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or a composition comprising the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) according to the invention. The invention also relates to the use of the compositions according to the invention for treating seed for protecting the seed and the germinating plant against nematodes. Furthermore, the invention relates to seed treated with a composition
20 according to the invention for protection against nematodes.

The control of nematodes which damage plants post-emergence is carried out primarily by treating the soil and the above-ground parts of plants with crop protection compositions. Owing to the concerns regarding a possible impact of the crop protection composition on the environment and the health of humans and animals, there are efforts to reduce the amount of active compounds applied.

25 One of the advantages of the present invention is that, because of the particular systemic properties of The compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or a composition comprising the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) according to the invention, treatment of the seed with The compound of the formula (I), formula (I-A), (I-B) or of a mixture of the compounds of formula
30 (I-A) and (I-B) or these compositions not only protects the seed itself, but also the resulting plants after emergence, from nematodes. In this manner, the immediate treatment of the crop at the time of sowing or shortly thereafter can be dispensed with.

The compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or the compositions comprising the compound of the formula (I), formula (I-A), (I-B) or a

mixture of the compounds of formula (I-A) and (I-B) - according to the invention are suitable for protecting seed of vegetables, in particular tomato and cucurbits, potato, corn, soy, cotton, tobacco, coffee, fruits, in particular, citrus fruits, pine apples and bananas, and grapes.

As also described further below, the treatment of transgenic seed with The compound of the formula (I) or compositions according to the invention is of particular importance. This refers to the seed of plants containing at least one heterologous gene which allows the expression of a polypeptide or protein having insecticidal properties. The heterologous gene in transgenic seed can originate, for example, from microorganisms of the species *Bacillus*, *Rhizobium*, *Pseudomonas*, *Serratia*, *Trichoderma*, *Clavibacter*, *Glomus* or *Gliocladium*. Preferably, this heterologous gene is from *Bacillus* sp., the gene product having activity against the European corn borer and/or the Western corn rootworm. Particularly preferably, the heterologous gene originates from *Bacillus thuringiensis*.

In the context of the present invention, the compound of the formula (I), formula (I-A), (I-B) or of a mixture of the compounds of formula (I-A) and (I-B) - or a composition comprising the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - according to the invention are applied on their own or in a suitable formulation to the seed. Preferably, the seed is treated in a state in which it is sufficiently stable so that the treatment does not cause any damage. In general, treatment of the seed may take place at any point in time between harvesting and sowing. Usually, the seed used is separated from the plant and freed from cobs, shells, stalks, coats, hairs or the flesh of the fruits. Thus, it is possible to use, for example, seed which has been harvested, cleaned and dried to a moisture content of less than 15 % by weight. Alternatively, it is also possible to use seed which, after drying, has been treated, for example, with water and then dried again.

When treating the seed, care must generally be taken that the amount of the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or a composition comprising the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - according to the invention applied to the seed and/or the amount of further additives is chosen in such a way that the germination of the seed is not adversely affected, or that the resulting plant is not damaged. This must be borne in mind in particular in the case of active compounds which may have phytotoxic effects at certain application rates.

The compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or a composition comprising the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - according to the invention can be applied directly, that is to say without comprising further components and without having been diluted. In general, it is preferable to apply the compositions to the seed in the form of a suitable formulation. Suitable formulations and methods for the treatment of seed are known to the person skilled in the art and are described, for

example, in the following documents: US 4,272,417 A, US 4,245,432 A, US 4,808,430 A, US 5,876,739 A, US 2003/0176428 A1, WO 2002/080675 A1, WO 2002/028186 A2.

The compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) - or a composition comprising the compound of the formula (I), formula (I-A), (I-B) or of a mixture of the compounds of formula (I-A) and (I-B) - which can be used according to the invention can be converted into customary seed dressing formulations, such as solutions, emulsions, suspensions, powders, foams, slurries or other coating materials for seed, and also ULV formulations.

These formulations are prepared in a known manner by mixing the active compounds or active compound combinations with customary additives, such as, for example, customary extenders and also solvents or diluents, colorants, wetting agents, dispersants, emulsifiers, defoamers, preservatives, secondary thickeners, adhesives, gibberellins and water as well.

Suitable colorants that may be present in the seed dressing formulations which can be used according to the invention include all colorants customary for such purposes. Use may be made both of pigments, of sparing solubility in water, and of dyes, which are soluble in water. Examples that may be mentioned include the colorants known under the designations Rhodamine B, C.I. Pigment Red 112, and C.I. Solvent Red 1.

Suitable wetting agents that may be present in the seed dressing formulations which can be used according to the invention include all substances which promote wetting and are customary in the formulation of active agrochemical substances. With preference it is possible to use alkylnaphthalene-sulphonates, such as diisopropyl- or diisobutylnaphthalene-sulphonates.

Suitable dispersants and/or emulsifiers that may be present in the seed dressing formulations which can be used according to the invention include all nonionic, anionic, and cationic dispersants which are customary in the formulation of active agrochemical substances. With preference, it is possible to use nonionic or anionic dispersants or mixtures of nonionic or anionic dispersants. Particularly suitable nonionic dispersants are ethylene oxide-propylene oxide block polymers, alkylphenol polyglycol ethers, and tristyrylphenol polyglycol ethers, and their phosphated or sulphated derivatives. Particularly suitable anionic dispersants are lignosulphonates, polyacrylic salts, and arylsulphonate-formaldehyde condensates.

Defoamers that may be present in the seed dressing formulations to be used according to the invention include all foam-inhibiting compounds which are customary in the formulation of agrochemically active compounds. Preference is given to using silicone defoamers, magnesium stearate, silicone emulsions, long-chain alcohols, fatty acids and their salts and also organofluorine compounds and mixtures thereof.

Preservatives that may be present in the seed dressing formulations to be used according to the invention include all compounds which can be used for such purposes in agrochemical compositions. By way of example, mention may be made of dichlorophen and benzyl alcohol hemiformal.

5 Secondary thickeners that may be present in the seed dressing formulations to be used according to the invention include all compounds which can be used for such purposes in agrochemical compositions. Preference is given to cellulose derivatives, acrylic acid derivatives, polysaccharides, such as xanthan gum or Veegum, modified clays, phyllosilicates, such as attapulgit and bentonite, and also finely divided silicic acids.

10 Suitable adhesives that may be present in the seed dressing formulations to be used according to the invention include all customary binders which can be used in seed dressings. Polyvinylpyrrolidone, polyvinyl acetate, polyvinyl alcohol and tylose may be mentioned as being preferred.

15 Suitable gibberellins that may be present in the seed dressing formulations to be used according to the invention are preferably the gibberellins A1, A3 (= gibberellic acid), A4 and A7; particular preference is given to using gibberellic acid. The gibberellins are known (cf. R. Wegler "Chemie der Pflanzenschutz- and Schädlingsbekämpfungsmittel" [Chemistry of Crop Protection Agents and Pesticides], Vol. 2, Springer Verlag, 1970, pp. 401-412).

20 The seed dressing formulations which can be used according to the invention may be used directly or after dilution with water beforehand to treat seed of any of a very wide variety of types. The seed dressing formulations which can be used according to the invention or their dilute preparations may also be used to dress seed of transgenic plants. In this context, synergistic effects may also arise in interaction with the substances formed by expression.

25 Suitable mixing equipment for treating seed with the seed dressing formulations which can be used according to the invention or the preparations prepared from them by adding water includes all mixing equipment which can commonly be used for dressing. The specific procedure adopted when dressing comprises introducing the seed into a mixer, adding the particular desired amount of seed dressing formulation, either as it is or following dilution with water beforehand, and carrying out mixing until the formulation is uniformly distributed on the seed. Optionally, a drying operation follows.

30 The nematicidal compositions according to the invention can be used for the curative or protective control of nematodes. Accordingly, the invention also relates to curative and protective methods for controlling nematodes using the the compound of the formula (I), formula (I-A), (I-B) or of a mixture of the compounds of formula (I-A) and (I-B) - and compositions containing the compound of the formula (I), formula (I-A), (I-B) or of a mixture of the compounds of formula (I-A) and (I-B) - according to the invention, which are applied to the seed, the plant or plant parts, the fruit or the soil in which the plants grow. Preference is given to application onto the plant or the plant parts, the fruits or the soil.

The compositions according to the invention for controlling nematodes in crop protection comprise an active, but non-phytotoxic amount of the compounds according to the invention. "Active, but non-phytotoxic amount" shall mean an amount of the composition according to the invention which is sufficient to control or to completely kill the plant disease caused by nematodes, which amount at the same time does not exhibit noteworthy symptoms of phytotoxicity. These application rates generally may be varied in a broader range, which rate depends on several factors, e.g. the nematodes, the plant or crop, the climatic conditions and the ingredients of the composition according to the invention.

The fact that the active compounds, at the concentrations required for the controlling of plant diseases, are well tolerated by plants permits the treatment of aerial plant parts, of vegetative propagation material and seed, and of the soil.

In an exemplary seed treatment method, an aqueous composition comprising the compound of the formula (I), formula (I-A), (I-B) or a mixture of the compounds of formula (I-A) and (I-B) can be applied at a rate to provide in the range of 0,5 g to 10 kg, preferably 0,8 g to 5 kg, most preferably 1 g to 1 kg The compound of the formula (I), formula (I-A), (I-B) or of a mixture of the compounds of formula (I-A) and (I-B) per 100 kg (dt) of seeds. In an exemplary seed treatment method, an aqueous composition comprising the biological control agent, in particular *Bacillus firmus* CNCM I-1582 spore can be applied at a rate to provide in the range of 0,1 g to 20 g, preferably 1 g to 10 g, particularly preferably 2.5 g to 7.5 g., and most preferably approximately 5 g spore per hectare or 100.000 kernels of seed. The above ranges refer to a spore formulation or suspension containing 10^{11} spores/g.

In various embodiments, the biological control agent is added to the seed at a rate of about 1×10^5 to 1×10^8 colony forming units (cfu) per seed, including about 1×10^5 cfu/seed, or about 1×10^6 cfu/seed, or about 1×10^7 cfu/seed, or about 1×10^8 cfu/seed, including about 1×10^5 to 1×10^7 cfu/per seed, about 1×10^5 to 1×10^6 cfu/per seed, about 1×10^6 to 1×10^8 cfu/per seed, about 1×10^6 to 1×10^7 cfu/per seed and about 1×10^7 to 1×10^8 cfu/per seed.

Formula for the efficacy of the combination of two compounds

The expected efficacy of a given combination of two compounds is calculated as follows (see Colby, S.R., „Calculating Synergistic and antagonistic Responses of Herbicide Combinations“, Weeds 15, pp. 20-22, 1967):

If

X is the efficacy expressed in % mortality of the untreated control for test compound A at a concentration of m ppm respectively m g/ha,

Y is the efficacy expressed in % mortality of the untreated control for test compound B at a concentration of n ppm respectively n g/ha,

E is the efficacy expressed in % mortality of the untreated control using the mixture of A and B at m and n ppm respectively m and n g/ha,

$$X \times Y$$

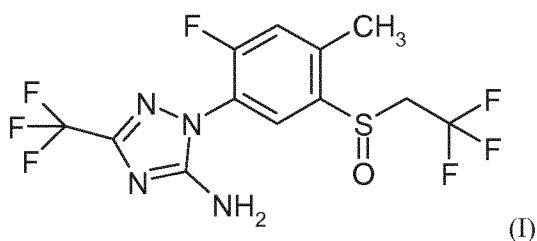
then is $E = X + Y - \frac{X \times Y}{100}$

5 100

If the observed insecticidal efficacy of the combination is higher than the one calculated as „E“, then the combination of the two compounds is more than additive, i.e., there is a synergistic effect.

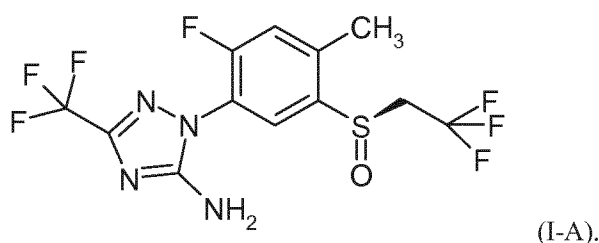
Further embodiments which are preferred as well are mentioned hereafter:

10 A1. Use of the compound of the formula (I)

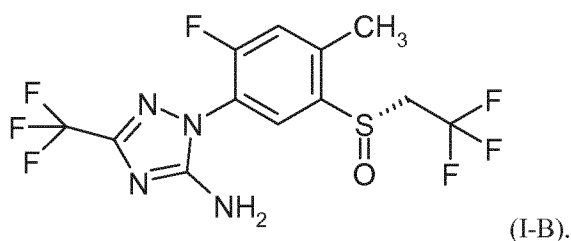


for controlling nematodes in nematode resistant crops and for increasing yield in those crops.

A2. Use according to embodiment A1, whereas the compound of the formula (I) is the compound (I-A)



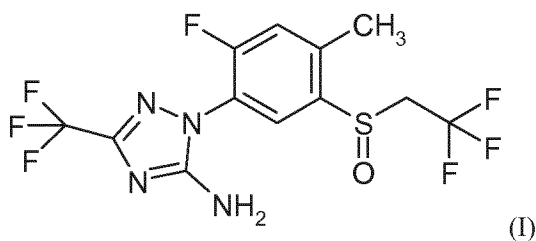
15 A3. Use according to embodiment A1, whereas the compound of the formula (I) is the compound (I-B)



- A4. Use according to any of embodiments A1 to A3, of a mixture of the compounds of the formula (I-A) and (I-B) for controlling nematodes in nematode resistant crops and for increasing yield in those crops.
- 5 A5. Use according to any of embodiments A1 to A4, of a composition comprising the compound of the formula (I), formula (I-A), formula (I-B) or a mixture of the compounds of formula (I-A), (I-B) and at least one further agrochemically active compound and/or at least one nematicidal biological control agent for controlling nematodes in nematode resistant crops and for increasing yield in those crops.
- 10 A6. Use according to any of embodiments A1 to A5, wherein the nematode resistant crops are selected from the group consisting of cereals, beans, fruit trees/fruits, vegetables, root crops, industrial crops, pepos, pasture plants, lawn grasses, crops for flavorings, and flower plants
- A7. A method of controlling nematodes in nematode resistant crops by applying the compound of the formula (I), (I-A), (I-B) or a mixture of the compounds of the formula (I-A) and (I-B) to plants.
- 15 A8. A method of treating seeds for the control of nematodes in the group of crops selected from cereals, beans, fruit trees/fruits, vegetables, root crops, industrial crops, pepos, pasture plants, lawn grasses, crops for flavorings, and flower plants, comprising applying the compound of the formula (I), (I-A), (I-B) or a mixture of the compounds of the formula (I-A) and (I-B) to seeds.
- A9. A method for increasing yield, comprising applying the compound of the formula (I), (I-A), (I-B) or a mixture of the compounds of the formula (I-A) and (I-B) according to any of embodiments A1 to A6 to a plant.
- 20 A10. A method for increasing yield, comprising applying the compound of the formula (I), (I-A), (I-B) or a mixture of the compounds of the formula (I-A) and (I-B) according to any of embodiments A1 to A6 to a seed.

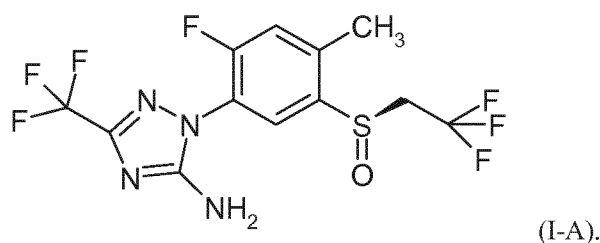
Claims

1. Use of the compound of the formula (I)

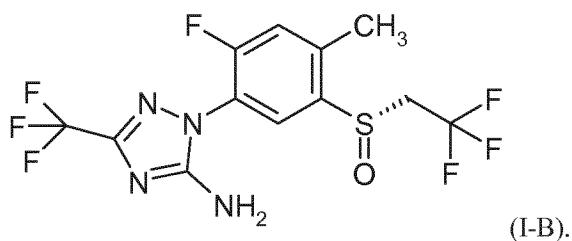


for controlling nematodes in nematode resistant crops and for increasing yield in those crops.

2. Use according to claim 1, whereas the compound of the formula (I) is the compound (I-A)



3. Use according to claim 1, whereas the compound of the formula (I) is the compound (I-B)



4. Use according to any of claims 1 to 3, wherein the compound of the formula (I) is used in form of a mixture of the compounds of the formula (I-A) and (I-B), for controlling nematodes in nematode resistant crops and for increasing yield in those crops.
5. Use according to any of claims 1 to 4, wherein the compound of the formula (I) is used in form of a composition comprising the compound of the formula (I), formula (I-A), formula (I-B) or a mixture of the compounds of formula (I-A), (I-B) and at least one further agrochemically active compound and/or at least one nematicidal biological control agent, for controlling nematodes in nematode resistant crops and for increasing yield in those crops.
6. Use according to any of claims 1 to 5, wherein the nematode resistant crops are selected from the group consisting of cereals, beans, fruit trees/fruits, vegetables, root crops, industrial crops, pepos, pasture plants, lawn grasses, crops for flavorings, and flower plants.

7. A method of controlling nematodes in nematode resistant crops by applying the compound of the formula (I), (I-A), (I-B) or a mixture of the compounds of the formula (I-A) and (I-B) to plants.
8. A method of treating seeds for the control of nematodes in the group of crops selected from cereals, beans, fruit trees/fruits, vegetables, root crops, industrial crops, pepos, pasture plants, lawn grasses, crops for flavorings, and flower plants, comprising applying the compound of the formula (I), (I-A), (I-B) or a mixture of the compounds of the formula (I-A) and (I-B) to seeds.
9. A method for increasing yield, comprising applying the compound of the formula (I), (I-A), (I-B) or a mixture of the compounds of the formula (I-A) and (I-B) according to any of claims 1 to 6 to a plant.
10. A method for increasing yield, comprising applying the compound of the formula (I), (I-A), (I-B) or a mixture of the compounds of the formula (I-A) and (I-B) according to any of claims 1 to 6 to a seed.

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/076012

A. CLASSIFICATION OF SUBJECT MATTER
INV. A01N43/653 A01P5/00
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, WPI 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 2011/152320 A1 (KUMIAI CHEMICAL INDUSTRY CO [JP]; IHARA CHEMICAL IND CO [JP]; TORIYABE)	1-10
Y	8 December 2011 (2011-12-08) paragraphs [0007], [0028], [0031], [0032], [0036] - [0038] test examples 1-4 -& EP 2 578 575 A1 (KUMIAI CHEMICAL INDUSTRY CO [JP]; IHARA CHEMICAL IND CO [JP]) 10 April 2013 (2013-04-10) ----- -/--	1-10



Further documents are listed in the continuation of Box C.



See patent family annex.

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"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

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"&" document member of the same patent family

Date of the actual completion of the international search

14 February 2014

Date of mailing of the international search report

21/02/2014

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Habermann, Jörg

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2013/076012

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Kenneth R Barker ET AL: "DEVELOPING SUSTAINABLE SYSTEMS FOR NEMATODE MANAGEMENT", Annu. Rev. Phytopathol., 1 January 1998 (1998-01-01), pages 165-205, XP055061955, Retrieved from the Internet: URL: http://www.annualreviews.org/doi/pdf/10.1146/annurev.phyto.36.1.165 [retrieved on 2013-05-06] page 168, line 21 - line 32 page 172, line 39 - line 40 -----	1-10
Y	EP 1 803 712 A1 (KUMIAI CHEMICAL INDUSTRY CO [JP]; IHARA CHEMICAL IND CO [JP]) 4 July 2007 (2007-07-04) cited in the application paragraphs [0304], [0345] table 17 example 5; compound 2 -----	1-10
X	EP 2 274 982 A1 (BAYER CROPSCIENCE AG [DE]) 19 January 2011 (2011-01-19) cited in the application	1-10
Y	claim 4 compounds I-4 paragraphs [0042], [0048], [0049] -----	1-10
Y	WO 2011/006646 A1 (BAYER CROPSCIENCE AG [DE]; ANTONS STEFAN [DE]; LUI NORBERT [DE]; MORAD) 20 January 2011 (2011-01-20) cited in the application page 9, line 25 - line 26 claim 9 -----	1-10
Y	WO 2011/006603 A2 (BAYER CROPSCIENCE AG [DE]; ANDERSCH WOLFRAM [DE]; HUNGENBERG HEIKE [DE]) 20 January 2011 (2011-01-20) cited in the application page 1, line 2 - line 5 page 1, line 21 - page 2, line 3 page 18, line 3 - line 6 compounds I-4A examples A-C -----	1-10
Y	Valerie M Williamson: "Plant nematode resistance genes", Current Opinion in Plant Biology, 1 July 1999 (1999-07-01), pages 327-331, XP055061995, Retrieved from the Internet: URL: http://www.ufv.br/dbv/pgfvg/bve684/htmls/pdfs_revisao/estresse/nematoderesist.pdf [retrieved on 2013-05-06] page 329, column 2, line 27 - line 42 -----	1-10
	----- -/--	

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/076012

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Philip A Roberts: "The Future of Nematology: Integration of New and Improved Management Strategies", Journal of Nematology, 1 March 1993 (1993-03-01), pages 383-394, XP055061997, Retrieved from the Internet: URL:http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2619386/pdf/383.pdf [retrieved on 2013-05-06] page 385, column 2, line 24 - page 386, column 1, line 13 -----	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/076012

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
WO 2011152320	A1	08-12-2011	CN	102918030 A		06-02-2013
			EP	2578575 A1		10-04-2013
			KR	20130081654 A		17-07-2013
			US	2013046002 A1		21-02-2013
			WO	2011152320 A1		08-12-2011

EP 2578575	A1	10-04-2013	CN	102918030 A		06-02-2013
			EP	2578575 A1		10-04-2013
			KR	20130081654 A		17-07-2013
			US	2013046002 A1		21-02-2013
			WO	2011152320 A1		08-12-2011

EP 1803712	A1	04-07-2007	AU	2005296529 A1		27-04-2006
			BR	PI0516976 A		30-09-2008
			CA	2581725 A1		27-04-2006
			CN	101039922 A		19-09-2007
			EP	1803712 A1		04-07-2007
			IL	182594 A		30-04-2013
			JP	4970950 B2		11-07-2012
			KR	20070064321 A		20-06-2007
			NZ	553200 A		25-09-2009
			RU	2007118700 A		27-11-2008
			TW	I382020 B		11-01-2013
			US	2009076282 A1		19-03-2009
			WO	2006043635 A1		27-04-2006
			ZA	200702684 A		27-08-2008

EP 2274982	A1	19-01-2011	AU	2010272874 A1		02-02-2012
			CN	102469787 A		23-05-2012
			EP	2274982 A1		19-01-2011
			EP	2453749 A1		23-05-2012
			JP	2012532905 A		20-12-2012
			KR	20120052986 A		24-05-2012
			US	2011053996 A1		03-03-2011
			WO	2011006605 A1		20-01-2011

WO 2011006646	A1	20-01-2011	CN	102471290 A		23-05-2012
			EP	2454242 A1		23-05-2012
			JP	2012532906 A		20-12-2012
			KR	20120037993 A		20-04-2012
			RU	2012105122 A		27-08-2013
			TW	201116517 A		16-05-2011
			US	2011015405 A1		20-01-2011
			US	2013172573 A1		04-07-2013
			WO	2011006646 A1		20-01-2011

WO 2011006603	A2	20-01-2011	AU	2010272872 A1		02-02-2012
			CN	102510721 A		20-06-2012
			CN	103548836 A		05-02-2014
			CO	6491032 A2		31-07-2012
			EP	2453750 A2		23-05-2012
			JP	2012532904 A		20-12-2012
			KR	20120051015 A		21-05-2012
			US	2011166109 A1		07-07-2011
			WO	2011006603 A2		20-01-2011
