The document describes novel active compound combinations comprising genistein of formula (I) and the active compound groups (2) to (24) listed in the description have very good fungicidal properties.
SYNERGISTIC FUNGICIDAL ACTIVE GENISTEIN COMBINATIONS

The present invention relates to novel active compound combinations comprising firstly genistein and secondly further known fungicidally active compounds, which novel active compound combinations are highly suitable for controlling unwanted phytopathogenic fungi.

Genistein of formula (I)

is an isoflavone that is known to have positive effects on the growth of agricultural crops (WO 2005/087005 A1).

It has now been discovered that genistein is also a potent enhancer of the activity of fungicides. This enhancing effect is overadditive. This means that the fungicidal activity of the mixtures of genistein and the fungicides is higher than the sum of the fungicidal activities of the components alone.

Besides Genistein, also salts of genistein can be mixed with active compounds, selected from groups (2) to (24), to give fungicidal mixtures with synergistic activities. Preferably, these are alkali salts of genistein.

The present invention describes compositions that at least comprise:

Genistein and at least one active compound selected from groups (2) to (24) below:

Group (2) Strobilurins of the general formula (II)

in which
A\textsuperscript{1} represents one of the groups

\begin{align*}
\text{H}_3\text{CO}\text{CH}_2\text{C}^\text{\textsuperscript{\textbullet}}\text{-CH}_3 & & \text{H}_3\text{CO}\text{N}=\text{C}^\text{\textsuperscript{\textbullet}}\text{O} & & \text{H}_3\text{CO}\text{N}=\text{C}^\text{\textsuperscript{\textbullet}}\text{N}^\text{\textsuperscript{\textbullet}}\text{CH}_3 & & \text{H}_3\text{CO}\text{N}=\text{C}^\text{\textsuperscript{\textbullet}}\text{O}\text{CH}_3 \\
\end{align*}

A\textsuperscript{2} represents NH or O.

A\textsuperscript{3} represents N or CH.

L represents one of the groups

\begin{align*}
\text{O} & & \text{O} & & \text{O} & & \text{O} \\
\end{align*}

where the bond marked with an asterisk (*) is attached to the phenyl ring.

R\textsuperscript{11} represents phenyl, phenoxy or pyridinyl, each of which is optionally mono- or dissubstituted by identical or different substituents from the group consisting of chlorine, cyano, methyl and trifluoromethyl, or represents 1-(4-chlorophenyl)-pyrazol-3-yl or represents 1,2-propanedione-bis(0-methyloxime)-1-y1.

R\textsuperscript{12} represents hydrogen or fluorine;

\textbf{Group (3) Triazoles of the general formula (IIP)}

\begin{align*}
\text{R}\textsuperscript{13} & & \text{A}\textsuperscript{4} \text{-A}\textsuperscript{5} \text{-A}\textsuperscript{15} \text{-R}\textsuperscript{16} & & \text{Q} & & \text{N} & & \text{N} \\
\text{R}\textsuperscript{13} & & \text{A}\textsuperscript{14} \text{-A}\textsuperscript{5} \text{-A}\textsuperscript{15} \text{-R}\textsuperscript{16} & & \text{Q} & & \text{N} & & \text{N} \\
\end{align*}

in which
Q represents hydrogen or SH,

m represents 0 or 1,

R^{13} represents hydrogen, fluorine, chlorine, phenyl or 4-chlorophenoxy,

R^{14} represents hydrogen or chlorine,

5 A^4 represents a direct bond, -CH\_2-, -(CH\_2)\_2 or -O-,

A^4 furthermore represents \^{*}-CH\_2-CHR^{17} or \^{*}-CH=CR^{17}, where the bond marked with \^{*} is attached to the phenyl ring, in which case R^{15} and R^{17} together represent \^{*}-CH\_2-CH\_2-CH[CH(CH\_3)\_2]- or \^{*}-CH\_2-CH\_2-C(CH\_3)\_2-,

A^5 represents C or Si (silicon),

10 A^4 further represents -N(R^{17})- and A^5 furthermore together with R^{15} and R^{16} represents the group C=N-R^{18}, in which case R^{17} and R^{18} together represent the group

\[
\begin{array}{c}
\text{O} \\
\text{R}^{13}
\end{array}
\]

where the bond marked with \^{*} is attached to R^{17},

R^{15} represents hydrogen, hydroxyl or cyano,

R^{16} represents 1-cyclopropylethyl, 1-chlorocyclopropyl, Ci-G\_1-alkyl, Ci-C\_6-hydroxyalkyl, d - C\_4-alkylcarbonyl, C\_1-C\_2-haloalkoxy-Ci-C\_2-alkyl, trimethylsilyl-C\_1-C\_2-alkyl, monofluorophenyl or phenyl,

R^{15} and R^{16} furthermore together represent -0-CH\_2-CH(R^{38})-O-, -O-CH\_2-CH(R^{18})-CH\_2-, or -O-CH-(2-chlorophenyl)-,

R^{18} represents hydrogen, Ci-C\_4-alkyl or bromine; or

20 Imibenconazole of the formula
Group (4) Sulphenamides of the general formula (FV)

![Chemical structure](image)

in which $R^{19}$ represents hydrogen or methyl;

5 Group (5) Valinamides selected from

5-1 iprovalicarb

5-2 $N'$-[2-(4-{[3-(4-chlorophenyl)-2-propynyl]oxy}-3-methoxyphenyl)ethyl]-$N^2$-(methylsulphonyl)-D-valinamide

5-3 benthiavalicarb
Group (6) Carboxamides of the general formula (V)

\[
\begin{array}{c}
\text{O} \\
\text{X} \text{H} \text{Y} \text{Z}
\end{array}
\]

(V)

in which

\(X\) represents 2-chloro-3-pyridinyl, represents 1-methylpyrazol-4-yl which is substituted in the 3-position by methyl or trifluoromethyl and in the 5-position by hydrogen or chlorine, represents 4-ethyl-2-ethylamino-1,3-thiazol-5-yl, represents 1-methyl-cyclohexyl, represents 2,2-dichloro-1-ethyl-3-methylcyclopropyl, represents 2-fluoro-2-propyl or represents phenyl which is mono- to trisubstituted by identical or different substituents from the group consisting of chlorine, methyl, and trifluoromethyl,

\(X\) furthermore represents 3,4-dichloroisothiazol-5-yl, 5,6-dihydro-2-methyl-1,4-oxathiin-3-yl, 4-methyl-1,2,3-thiadiazol-5-yl, 4,5-dimethyl-2-trimethylsilylthiophen-3-yl, 1-methylpyrrol-3-yl which is substituted in the 4-position by methyl or trifluoromethyl and in the 5-position by hydrogen or chlorine,

\(Y\) represents a direct bond, \(\text{Ci-C}_6\)-alkanediyl (alkylene) which is optionally substituted by chlorine, cyano or oxo or represents thiophenediyl,

\(Y\) furthermore represents \(\text{C}_2\text{-C}_6\)-alkenediyl (alkylene),

\(Z\) represents hydrogen or the group

\[
\begin{array}{c}
\text{R}^{20} \\
\text{R}^{21} \\
\text{R}^{22}
\end{array}
\]

\(Z\) furthermore represents \(\text{Ci-C}_6\)-alkyl,

\(A^6\) represents \(\text{CH}\) or \(\text{N}\),
R²⁰ represents hydrogen, chlorine, phenyl which is optionally mono- or disubstituted by identical or different substituents from the group consisting of chlorine and di(d-C₃-alkyl)aminocarbonyl,

R²⁰ furthermore represents cyano or C₁-C₆-alkyl,

R²¹ represents hydrogen, chlorine, or 1-methylethoxy

R²² represents hydrogen, chlorine, hydroxyl, methyl or trifluoromethyl,

R²² furthermore represents di(C₁-C₃-alkyl)aminocarbonyl,

R²⁰ and R²¹ furthermore together represent *-CH(CH₃)-CH₂-C(CH₃)₂- or *-CH(CH₃)-O-C(CH₃)₂- where the bond marked with * is attached to R²⁰;

Group (6a) Carboxamides of the general formula (Va)

\[
\begin{align*}
\text{A} & \text{N} \text{CH₃} \\
\text{H₃C} & \text{R¹} \text{CH₃}
\end{align*}
\]

(Va)

in which

R¹ represents hydrogen, halogen, Ci-C₃-alkyl or Ci-C₃-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,

A represents one of the radicals A1 to A8 below:

\[
\begin{align*}
\text{A1} & \text{N} \text{R⁴} \\
\text{N} & \text{R²} \\
\text{N} & \text{R₁} \\
\text{R³} & \text{R¹}
\end{align*}
\]

\[
\begin{align*}
\text{A2} & \text{R⁵} \\
\text{A3} & \text{R⁶} \\
\text{A4} & \text{F} \text{R⁸}
\end{align*}
\]
R\(^2\) represents Ci-C\(_3\)-alkyl,

R\(^3\) represents hydrogen, halogen, C\(_1\)-C\(_3\)-alkyl or Ci-C\(_3\)-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,

R\(^4\) represents hydrogen, halogen or Ci-C\(_3\)-alkyl,

R\(^5\) represents halogen, C\(_1\)-C\(_3\)-alkyl or C\(_1\)-C\(_3\)-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,

R\(^6\) represents hydrogen, halogen, Ci-C\(_3\)-alkyl, amino, mono- or di(Ci-C\(_3\)-alkyl)amino,

R\(^7\) represents hydrogen, halogen, Ci-C\(_3\)-alkyl or Ci-C\(_3\)-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,

R\(^8\) represents halogen, C\(_1\)-C\(_3\)-alkyl or Ci-C\(_3\)-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,

R\(^9\) represents halogen, Ci-C\(_3\)-alkyl or C\(_1\)-C\(_3\)-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,

R\(^{10}\) represents hydrogen, halogen, CrdValkyl or Ci-C\(_3\)-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,

**Group (6b) Carboxamides**

(6b-1) Thifluzamide (CII not covered by general formula V)
(6b-2) N-(2-[1,1'-bicyclopropyl]-2-ylphenyl)-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide

with preference of the following two stereoisomers

(6b-2a)  (6b-2b)
Group (7) | Dithiocarbamates selected from

(7-1) | mancozeb
(7-2) | maneb
(7-3) | metiram
(7-4) | propineb
(7-5) | thiram
(7-6) | zineb
(7-7) | ziram

Group (8) | Acylalanines of the general formula (VI)

\[
\begin{align*}
\text{H}_3\text{C} & \quad \text{CO}_2\text{CH}_3 \\
| & \quad | \\
\text{CH}_3 & \quad \text{N} & \quad \text{R}^{23} \\
| & \quad | \\
\text{C} & \quad \text{O} \\
\end{align*}
\]

(VI)

in which

* marks a carbon atom in the R or the S configuration, preferably in the S configuration,

\( \text{R}^{23} \) represents benzyl, furyl or methoxymethyl;

Group (9) | Anilinopyrimidines of the general formula (VII)

\[
\begin{align*}
\text{H} & \quad \text{N} & \quad \text{R}^{24} \\
| & \quad | \\
\text{C} & \quad \text{N} \\
| & \quad | \\
\text{C} & \quad \text{N} \\
\end{align*}
\]

(VII)

in which
R\textsuperscript{24} represents methyl, cyclopropyl or 1-propynyl;

Group (10): Benzimidazoles of the general formula (VHP)

\[
\begin{align*}
\text{N} & \\
\text{R}\textsuperscript{25} & \\
\text{R}\textsuperscript{26} & \\
\text{R}\textsuperscript{27} & \\
\text{N} & \\
\text{R}\textsuperscript{28} & \\
\text{R}\textsuperscript{29} & \\
\text{R}\textsuperscript{30} & \\
\end{align*}
\]

in which

5 \ R\textsuperscript{25} and R\textsuperscript{26} each represent hydrogen or together represent -O-CF\textsubscript{2}-O-,

R\textsuperscript{27} represents hydrogen, C\textsubscript{1}-C\textsubscript{4}-alkylaminocarbonyl or represents 3,5-dimethylisoxazol-4-ylsulphonyl,

R\textsuperscript{28} represents chlorine, methoxycarbonylamino, chlorphenyl, furyl or thiazolyl;

Group (11): Carbamates of the general formula (DO)

\[
\begin{align*}
\text{O} & \\
\text{R}\textsuperscript{29} & \\
\text{O} & \\
\text{N} & \\
\text{R}\textsuperscript{30} & \\
\end{align*}
\]

in which

5 \ R\textsuperscript{29} represents n- or isopropyl, methyl.

R\textsuperscript{30} represents di(CrC\textsubscript{2}-alkyl)amino-C\textsubscript{2}-C\textsubscript{4}-alkyl, diethoxyphenyl, [2-Chloro-5-[(lE)-l-[(6-methyl-2-pyridinyl)methoxy]imino]ethyl]phenyl]nethyl or

15 salts of these compounds being included;

Group (12): Dicarboximides selected from

(12-1) captafol

(12-2) captan
(12-3) folpet

(12-4) iprodione

(12-5) procymidone

(12-6) vinclozolin

Group (13): Guanidines selected from

(13-1) dodine

(13-2) guazatine

(13-3) iminoctadine triacetate

(13-4) iminoctadine tris(albesilate)

Group (14): Imidazoles selected from

(14-1) cyazofamid

(14-2) prochloraz

(14-3) triazoxide

(14-4) pefurazoate

Group (15): Morpholines of the general formula (X)

\[ \begin{array}{c}
\text{O} \\
\text{N} \\
\text{R}^{31} \\
\text{R}^{32} \\
\text{R}^{33}
\end{array} \]

\( (X) \)

in which

\( R^{31} \) and \( R^{32} \) independently of one another represent hydrogen or methyl,
R represents C_i-C_14-alkyl (preferably C_2-C_4-alkyl), C_5-C_6-cycloalkyl (preferably C_6-C_10-cycloalkyl), phenyl-C_1-C_4-alkyl, which may be substituted in the phenyl moiety by halogen or C_1-C_4-alkyl or represents acrylyl which is substituted by chlorophenyl and dimethoxyphenyl;

5 Group (16): Pyroles of the general formula (X): 

\[
\text{\includegraphics{pyrole.png}} 
\]

in which

R represents chlorine or cyano,

R represents chlorine or nitro,

R represents chlorine,

R and R furthermore together represent -O-CF_2-O-;

Group (17): Phosphonates selected from

(17-1) fosetyl-Al

(17-2) phosphonic acid;

Group (18): Phenylethanamides of the general formula (X): 

\[
\text{\includegraphics{phenylethananamide.png}} 
\]

in which
R³⁷ represents unsubstituted or fluorine-, chlorine-, bromine-, methyl- or ethyl-substituted phenyl, 2-naphthyl, 1,2,3,4-tetrahydronaphthyl or indanyl;

Group (19): Fungicides selected from

(19-1) acibenzolar-S-methyl

(19-2) chlorothalonil

(19-3) cymoxanil

(19-4) edifenphos

(19-5) famoxadone

(19-6) fluazinam

(19-7) copper oxychloride

(19-8) copper hydroxide

(19-9) oxadixyl

(19-10) spiroxamine

(19-11) dithianon

(19-12) metrafenone

(19-13) fenamidone

(19-14) 2,3-dibutyl-6-chlorothieno[2,3-d]pyrimidin-4(3H)-one

(19-15) probenazole

(19-16) isoprothiolane

(19-17) kasugamycin
(19-18) phthalide

(19-19) ferimzone

(19-20) tricyclazole

(19-21) N-(4-[(cyclopropylamino)carbonyl]phenyl) sulphonyl)-2-methoxybenzamide

(19-22) 2-(4-chlorophenyl)-N-[2-[3-methoxy-4-(prop-2-yn-yloxy)phenyl]ethyl]-2-(prop-2-yn-yloxy)acetamide

(19-23) Diclomezine of the formula

(19-24) Hymexazole of the formula

(19-25) Iprobenfos of the formula

(19-26) Triflumizole of the formula
Group (20): (Thiourea derivatives selected from

(20-1) pencycuron

(20-2) thiophanate-methyl

(20-3) thiophanate-ethyl

Group (21): Amides of the general formula (XIII)

\[
\begin{align*}
\text{in which} \\
A^7 & \text{ represents a direct bond or } -O-, \\
A^8 & \text{ represents } -\text{C(O)NH- or } -\text{NHC(=0)-}, \\
R^{38} & \text{ represents hydrogen or } C_1 C_4 \text{-alkyl}, \\
R^{39} & \text{ represents } C_i C_6 \text{-alkyl};
\end{align*}
\]
Group (22): Triazolopyrimidines of the general formula (XIV) in which

\[
R^{40} \quad \text{represents } C_1-C_6\text{-alkyl or } C_2-C_6\text{-alkenyl,}
\]

\[
5 \quad R^{41} \quad \text{represents } C_1-C_6\text{-alkyl,}
\]

\[
R^{40} \text{ and } R^{41} \text{ furthermore together represent } C_4-C_5\text{-alkanediyl (alkylene) which is mono- or disubstituted by } C_1-C_6\text{-alkyl,}
\]

\[
R^{42} \quad \text{represents bromine or chlorine,}
\]

\[
R^{43} \text{ and } R^{47} \text{ independently of one another represent hydrogen, fluorine, chlorine or methyl,}
\]

\[
10 \quad R^{44} \text{ and } R^{46} \text{ independently of one another represent hydrogen or fluorine,}
\]

\[
R^{45} \quad \text{represents hydrogen, fluorine or methyl,}
\]

Group (23): Iodochromones of the general formula (XV) in which

\[
15 \quad R^{48} \quad \text{represents } C_1-C_6\text{-alkyl,}
\]

\[
R^{49} \quad \text{represents } C_1 C_6\text{-alkyl, } C_2-C_6\text{-alkenyl or } C_2-C_6\text{-alkynyl;}
\]
Group (24): Biphenylcarboxamides of the general formula (XVD)

\[
\begin{align*}
\text{Het} & \quad \text{N} \\
\text{R}^{50} & \quad \text{O} \\
\end{align*}
\]

(XVI)

in which

\begin{align*}
\text{R}^{50} & \quad \text{represents hydrogen or fluorine,} \\
\text{R}^{51} & \quad \text{represents fluorine, chlorine, bromine, methyl, trifluoromethyl, trifluoromethoxy,} \\
& \quad \text{-CH=O=Me or -C(Me)=O=Me,} \\
\text{R}^{52} & \quad \text{represents hydrogen, fluorine, chlorine, bromine, methyl or trifluoromethyl,} \\
\text{Het} & \quad \text{represents one of the radicals Het1 to Het7 below:} \\
\text{Het1} & \quad \text{Het2} & \quad \text{Het3} & \quad \text{Het4} & \quad \text{Het5} & \quad \text{Het6} & \quad \text{Het7} \\
\text{R}^{51} \quad \text{R}^{55} & \quad \text{R}^{54} & \quad \text{R}^{56} & \quad \text{R}^{57} & \quad \text{R}^{59} & \quad \text{R}^{57} \\
\text{N} & \quad \text{S} & \quad \text{H} & \quad \text{O} & \quad \text{C} & \quad \text{N} & \quad \text{O} \\
\text{CH}_3 & \quad \text{CH}_3 & \quad \text{CH}_3 & \quad \text{CH}_3 & \quad \text{CH}_3 & \quad \text{CH}_3 & \quad \text{CH}_3 \\
\end{align*}

\begin{align*}
\text{R}^{53} & \quad \text{represents iodine, methyl, difluoromethyl or trifluoromethyl,} \\
\text{R}^{54} & \quad \text{represents hydrogen, fluorine, chlorine or methyl,} \\
\text{R}^{55} & \quad \text{represents methyl, difluoromethyl or trifluoromethyl,} \\
\text{R}^{56} & \quad \text{represents chlorine, bromine, iodine, methyl, difluoromethyl or trifluoromethyl,} \\
\text{R}^{57} & \quad \text{represents methyl or trifluoromethyl.} \\
\end{align*}

The formula (II) embraces the following preferred mixing partners of group (2):
(2-1) azoxystrobin (known from EP-A 0 382 375) of the formula

(2-2) fluoxastrobin (known from DE-A 196 02 095) of the formula


(2-4) trifloxystrobin (known from EP-A 0 460 575) of the formula

(2-6) (2£)-2-(methoxyimino)-N-methyl-2-{2-[(£)-(1-[3-(trifluoromethyl)phenyl]ethoxy)imino)methyl]phenyl}ethanamide (known from EP-A 0 596 254) of the formula

(2-7) orysastrobin (known from DE-A 195 39 324) of the formula

(2-8) 5-methoxy-2-methyl-4-(2-[(IE)-1-[3-(trifluoromethyl)phenyl]ethyldien] amino)oxy]-methyl]phenyl)-2,4-dihydro-3H-1,2,4-triazol-3-one (known from WO 98/23155) of the formula

(2-9) kresoxim-methyl (known from EP-A 0 253 213) of the formula
(2-10) dimoxystrobin (known from EP-A 0 398 692) of the formula

(2-11) picoxystrobin (known from EP-A 0 278 595) of the formula

(2-12) pyraclostrobin (known from DE-A 44 23 612) of the formula

(2-13) metominostrobin (known from EP-A 0 398 692) of the formula

The formula (III) embraces the following preferred mixing partners of group (3):
(3-1) azaconazole (known from DE-A 25 51 560) of the formula

(3-2) etaconazole (known from DE-A 25 51 560) of the formula

5 (3-3) propiconazole (known from DE-A 25 51 560) of the formula

(3-4) difenoconazole (known from EP-A 0 112 284) of the formula
(3-5) bromuconazole (known from EP-A 0 258 161) of the formula

(3-6) cyproconazole (known from DE-A 3 406 993) of the formula

(3-7) hexaconazole (known from DE-A 30 42303) of the formula

(3-8) penconazole (known from DE-A 27 35 872) of the formula
myclobutanil (known from EP-A 0 145 294) of the formula

(3-10) tetraconazole (known from EP-A 0 234 242) of the formula

flutriafol (known from EP-A 0 015 756) of the formula

epoxiconazole (known from EP-A 0 196 038) of the formula
(3-13) flusilazole (known from EP-A 0 068 813) of the formula

(3-14) simeconazole (known from EP-A 0 537 957) of the formula

(3-15) prothioconazole (known from WO 96/16048) of the formula

(3-16) fenbuconazole (known from DE-A 3 7 2 1 786) of the formula
(3-17) tebuconazole (known from EP-A 0 040 345) of the formula

(3-18) ipconazole (known from EP-A 0 329 397) of the formula

(3-19) metconazole (known from EP-A 0 329 397) of the formula

(3-20) triticonazole (known from EP-A 0 378 953) of the formula
(3-21) bitertanol (known from DE-A 23 24 010) of the formula

\[
\text{O} \quad \text{O} \quad \text{OH} \\
\text{N} \quad \text{N} \quad \text{C}(\text{CH}_3)_3
\]

(3-22) triadimenol (known from DE-A 23 24 010) of the formula

\[
\text{Cl} \quad \text{OH} \\
\text{N} \quad \text{N} \quad \text{C}(\text{CH}_3)_3
\]

(3-23) triadimefon (known from DE-A 22 01 063) of the formula

\[
\text{Cl} \quad \text{O} \\
\text{N} \quad \text{N} \quad \text{C}(\text{CH}_3)_3
\]

(3-24) fluquinconazole (known from EP-A 0 183 458) of the formula

\[
\text{Cl} \quad \text{Cl} \quad \text{O} \\
\text{N} \quad \text{N} \quad \text{F}
\]

(3-25) quinconazole (known from EP-A 0 183 458) of the formula

\[
\text{Cl} \quad \text{Cl} \quad \text{O} \\
\text{N} \quad \text{N} \quad 
\]
(3-26) Diclobutrazole of the formula

![Diclobutrazole structure]

(3-27) Diniconazole of the formula

![Diniconazole structure]

5 The formula (FV) embraces the following preferred mixing partners of group (4):

(4-1) dichlofluanid (known from DE-A 1193498) of the formula

![Dichlofluanid structure]

(4-2) tolylfluanid (known from DE-A 1193498) of the formula

![Tolylfluanid structure]

10 Preferred mixing partners of group (5) are
(5-1) iprovalicarb (known from DE-A 40 26 966) of the formula

(5-3) bentiavalicarb (known from WO 96/04252) of the formula

5 The formula (V) embraces the following preferred mixing partners of group (6):

(6-1) 2-chloro-N-(1,1,3-trimethylindan-4-yl)nicotinamide (known from EP-A 0256 503) of the formula

(6-2) boscalid (known from DE-A 195 31 813) of the formula
(6-3) furametpyr (known from EP-A 0315502) of the formula

\[
\begin{array}{c}
\text{H}_3\text{C}\\\text{N}\\\text{Cl}\\\text{N}\\\text{CH}_3
\end{array}
\]

(6-4) N-(3-p-tolylthiophen-2-yl)-l-methyl-3-trifluoromethyl-lH-pyrazole-4-carboxamide

(known from EP-A 0737682) of the formula

\[
\begin{array}{c}
\text{F}_3\text{C}\\\text{N}\\\text{CH}_3
\end{array}
\]

(6-5) ethaboxam (known from EP-A 0639574) of the formula

\[
\begin{array}{c}
\text{Et}\\\text{N}\\\text{Et}
\end{array}
\]

(6-6) fenhexamid (known from EP-A 0339418) of the formula

\[
\begin{array}{c}
\text{H}\\\text{OH}\\\text{Cl}\\\text{Cl}
\end{array}
\]
(6-7) carpropamid (known from EP-A 0 341 475) of the formula

(6-8) 2-chloro-4-(2-fluoro-2-methylpropionylamino)-N,N-dimethylbenzamide

(known from EP-A 0 600 629) of the formula

(6-9) picobenzamid (known from WO 99/4247) of the formula

(6-10) zoxamide (known from EP-A 0 604 019) of the formula

(6-11) 3,4-dichloro-N-(2-cyanophenyl)isothiazole-5-carboxamide (Isothianil) (known from WO 99/24413) of the formula
(6-12) Carboxin (known from US 3,249,499) of the formula

(6-13) Tiadinil (known from US 6,616,054) of the formula

(6-14) Penthiopyrad (known from EP-A 0 737 682) of the formula

(6-15) Silthiofam (known from WO 96/1 863 1) of the formula

(6-16) N-[2-(1.3-dimethylbutyl)phenyl]-1-methyl-4-(trifluoromethyl)-1 \textit{H}-pyrrole-3-carboxamide (known from WO 02/38542) of the formula
N-{2-[3-chloro-5-(trifluoromethyl)pyridin-2-yl]ethyl}-2-(trifluoromethyl)benzamide
(known from WO040 16088)

(flutolanil of the formula

N-(2-[l,l'-bicyclopropyl]-2-ylphenyl)-3-(difluoromethyl)-l-methyl-lH-pyrazole-4-carboxamide

The formula (Va) embraces the following preferred mixing partners of group (6a):

R¹ represents hydrogen, fluorine, chlorine, methyl, ethyl, n-, isopropyl, monofluoromethyl,
difluoromethyl, trifluoromethyl, monochloromethyl, dichloromethyl or trichloromethyl,

A represents one of the radicals A1 to A5 below:

R² represents methyl, ethyl, n- or isopropyl,

R³ represents iodine, methyl, difluoromethyl or trifluoromethyl,

R⁴ represents hydrogen, fluorine, chlorine or methyl,
R\(^5\) represents chlorine, bromine, iodine, methyl, difluoromethyl or trifluoromethyl,

R\(^6\) represents hydrogen, chlorine, methyl, amino or dimethylamino,

R\(^7\) represents methyl, difluoromethyl or trifluoromethyl,

R\(^8\) represents bromine or methyl,

R\(^9\) represents methyl or trifluoromethyl.

Particular preference is given to carboxamides of the formula (Va) in which

R\(^1\) represents hydrogen, fluorine, chlorine, methyl, ethyl or trifluoromethyl,

A represents one of the radicals A1 or A2 below:

\[\begin{align*}
    &R^3\quad A1 \\
    &\quad \quad \quad N \\
    &\quad \quad \quad R^2 \\
\end{align*}\]

\[\begin{align*}
    &A2 \\
    &\quad \quad \quad R^5
\end{align*}\]

R\(^2\) represents methyl or isopropyl,

R\(^3\) represents methyl, difluoromethyl or trifluoromethyl,

R\(^4\) represents hydrogen or fluorine,

R\(^5\) represents iodine, difluoromethyl or trifluoromethyl.
Very particular preference is given to carboxamides of the formula (Va) in which

\[ R^1 \] represents hydrogen or methyl,

\[ A \] represents one of the radicals A1 or A2 below:

\[ R^2 \] represents methyl,

\[ R^3 \] represents methyl,

\[ R^4 \] represents fluorine,

\[ R^5 \] represents iodine or trifluoromethyl.

Very particular preference is given to using, in mixtures, compounds of the formula (Va)

\[ \text{(Va-1)} \]

in which \[ R^1, R^2, R^3 \text{ and } R^4 \] are as defined above.

Very particular preference is given to using, in mixtures, compounds of the formula (Vb)

\[ \text{(Va-2)} \]
in which \( R^1 \) and \( R^5 \) are as defined above.

The formula \( (Va) \) embraces in particular the following preferred mixing partners of group \((6a)\):

(6a-1) \( \text{Val-} \) \( N\text{-}[2-(1,3\text{-dimethylbutyl})\text{phenyl}]1,3\text{-dimethyl-1}\text{H-pyrazole-4-carboxamide} \)

(6a-2) \( N\text{-}[2-(1,3\text{-dimethylbutyl})\text{phenyl}]5\text{-fluoro-1,3\text{-dimethyl-1H-pyrazole-4-carboxamide}} \)

(6a-l) \( \text{Val-l-} \) \( N\text{-}[2-(1,3\text{-dimethylbutyl})\text{phenyl}]1,3\text{-dimethyl-1H-pyrazole-4-carboxamide} \)

(6a-3) \( N\text{-}[2-(1,3\text{-dimethylbutyl})\text{phenyl}]5\text{-chloro-1,3\text{-dimethyl-1H-pyrazole-4-carboxamide}} \)

(6a-2) \( N\text{-}[2-(1,3\text{-dimethylbutyl})\text{phenyl}]5\text{-fluoro-1,3\text{-dimethyl-1H-pyrazole-4-carboxamide}} \)

(6a-4) \( 3\text{-}(\text{difluoromethyl})\text{-}\text{N-}[2-(1,3\text{-dimethylbutyl})\text{phenyl}]1\text{-methyl-1H-pyrazole-4-carboxamide} \)

(6a-5) \( 3\text{-}(\text{trifluoromethyl})\text{-}\text{N-}[2-(1,3\text{-dimethylbutyl})\text{phenyl}]5\text{-fluoro-1-methyl-1H-pyrazole-4-carboxamide} \)

(6a-6) \( 3\text{-}(\text{trifluoromethyl})\text{-}\text{N-}[2-(1,3\text{-dimethylbutyl})\text{phenyl}]5\text{-chloro-1-methyl-1H-pyrazole-4-carboxamide} \)

(6a-7) \( 1,3\text{-dimethyl-N-}[2-(1,3,3\text{-trimethylbutyl})\text{phenyl}]1\text{H-pyrazole-4-carboxamide} \)

(6a-8) \( 5\text{-fluoro-1,3\text{-dimethyl-N-}[2-(1,3,3\text{-trimethylbutyl})\text{phenyl}]1\text{H-pyrazole-4-carboxamide} \)

(6a-9) \( 3\text{-}(\text{difluoromethyl})\text{-1-methyl-}\text{N-}[2-(1,3,3\text{-trimethylbutyl})\text{phenyl}]1\text{H-pyrazole-4-carboxamide} \)

(6a-10) \( 3\text{-}(\text{trifluoromethyl})\text{1-6H-pyrazole-4-carboxamide} \)
(6a-11) 3-(trifluoromethyl)-5-fluoro-1-methyl-N-[2-(1,3,3-trimethylbutyl)phenyl]-H-pyrazole-4-carboxamide (known from DE-A 103 03 589)

(6a-12) 3-(trifluoromethyl)-5-chloro-1-methyl-N-[2-(1,3,3-trimethylbutyl)phenyl]-H-pyrazole-4-carboxamide (known from JP-A 10-251240)

The formula (Vb) embraces in particular the following preferred mixing partners of group (6a):

(6a-13) N-[2-(1,3-dimethylbutyl)phenyl]-2-iodobenzamide

(known from DE-A 102 29 595)

(6a-14) 2-iodo-N-[2-(1,3,3-trimethylbutyl)phenyl]benzamide

(known from DE-A 102 29 595)

(6a-15) N-[2-(1,3-dimethylbutyl)phenyl]-2-(trifluoromethyl)benzamide

(known from DE-A 102 29 595)

(6a-16) 2-(trifluoromethyl)-N-[2-(1,3,3-trimethylbutyl)phenyl]benzamide

(known from DE-A 102 29 595)

Preferred mixing partners of group (7) are

(7-1) mancozeb (known from DE-A 12 34 704) having the IUPAC name manganese ethylenebis(dithiocarbamate) (polymeric) complex with zinc salt

(7-2) maneb (known from US 2,504,404) of the formula

(7-3) metiram (known from DE-A 10 76 434) having the IUPAC name
zinc ammoniate ethylenebis(dithiocarbamate)-poly(ethylenethiuram disulphide)

(7-4) propineb (known from GB 935 981) of the formula

(7-5) ihiram (known from US 1,9/2,96 1) of the formula

(7-6) zineb (known from DE-A 10 81 446) of the formula

(7-7) ziram (known from US 2,588,428) of the formula

10 The formula (VI) embraces the following preferred mixing partners of group (8):

(8-1) benalaxyl (known from DE-A 29 03 612) of the formula
(8-2) furalaxyl (known from DE-A 25 13 732) of the formula

(8-3) metalaxyl (known from DE-A 25 15 091) of the formula

(8-4) metalaxyl-M (known from WO 96/01 559) of the formula

(8-5) benalaxyl-M of the formula

The formula (VII) embraces the following preferred mixing partners of group (9):
(9-1) cyprodinil (known from EP-A 0 310 550) of the formula

(9-2) mepanipyrim (known from EP-A 0 270 111) of the formula

(9-3) pyrimethanil (known from DD 151 404) of the formula

The formula (VIII) embraces the following preferred mixing partners of group (10):

(10-1) 6-chloro-5-[(3,5-dimethylisoxazol-4-yl)sulphonyl]-2,2-difluoro-5H-[1,3]dioxolo[4,5-f]-benzimidazole (known from WO 97/06171) of the formula
(10-2) benomyl (known from US 3,631,176) of the formula

(10-3) carbendazim (known from US 3,010,968) of the formula

5 (10-4) chlorfenazole of the formula

(10-5) furberidazole (known from DE-A 12 09 799) of the formula

(10-6) thiabendazole (known from US 3,206,468) of the formula

The formula (IX) embraces the following preferred mixing partners of group (11):

(11-1) diethofencarb (known from EP-A 0 078 663) of the formula
(11-2) propamocarb (known from US 3,513,241) of the formula

\[
\begin{align*}
\text{H}_3\text{C} & \text{O} & \text{N} & \text{CH}_3 \\
\text{O} & \text{N} & \text{CH}_3
\end{align*}
\]

(11-3) propamocarb-hydrochloride (known from US 3,513,241) of the formula

\[
\begin{align*}
\text{H}_3\text{C} & \text{O} & \text{N} & \text{CH}_3 \\
\text{O} & \text{N} & \text{CH}_3 & \text{HCl}
\end{align*}
\]

(11-4) propamocarb-fosetyl of the formula

\[
\begin{align*}
\text{H}_3\text{C} & \text{O} & \text{N} & \text{CH}_3 \\
\text{O} & \text{N} & \text{CH}_3 & \text{H}_3\text{C} \text{O} \text{PO}_{4}^{-}
\end{align*}
\]

(11-5) pyribencarb of the formula

Preferred mixing partners of group (12) are

(12-1) captafol (known from US 3,178,447) of the formula

\[
\begin{align*}
\text{N} & \text{S} & \text{CCl}_2 \text{CHCl}_2 \\
\text{N} & \text{S} & \text{CCl}_2 \text{CHCl}_2
\end{align*}
\]
(12-2) captan (known from US 2,553,770) of the formula

(12-3) folpet (known from US 2,553,770) of the formula

(12-4) iprodione (known from DE-A 2149923) of the formula

(12-5) procymidone (known from DE-A 2012656) of the formula

(12-6) vinclozolin (known from DE-A 2207576) of the formula
Preferred mixing partners of group (13) are

(13-1) dodine (known from GB 1103989) of the formula

(13-2) guazatine (known from GB 1114155)

(13-3) iminoctadine triacetate (known from EP-A 0155509) of the formula

Preferred mixing partners of group (14) are

(14-1) cyazofamid (known from EP-A 0298196) of the formula

(14-2) prochloraz (known from DE-A 2429523) of the formula
(14-3) triazoxide (known from DE-A 28 02 488) of the formula

(14-4) pefurazoate (known from EP-A 0248086) of the formula

5 The formula (X) embraces the following preferred mixing partners of group (15):

(15-1) aldimorph (known from DD 140 041) of the formula

(15-2) tridemorph (known from GB 988 630) of the formula

(15-3) dodemorph (known from DE-A 25 432 79) of the formula
(15-4) fenpropimorph (known from DE-A 26 56 747) of the formula

\[
\begin{align*}
\text{H}_3\text{C} & \text{N} \\
\text{O} & \\
\text{CH}_3 & \\
\text{CH}_3 & \\
\text{H}_3\text{C} & \text{CH}_3
\end{align*}
\]

(15-5) dimethomorph (known from EP-A 0 219 756) of the formula

\[
\begin{align*}
\text{O} & \\
\text{N} & \\
\text{O} & \\
\text{O} & \\
\text{C} & \\
\text{Me} & \\
\text{Me} & \\
\text{Cl} & \\
\text{Cl} & \\
\text{Cl} & \\
\text{Cl} & \\
\end{align*}
\]

The formula (XI) embraces the following preferred mixing partners of group (16):

(16-1) fenpiclonil (known from EP-A 0 236 272) of the formula

\[
\begin{align*}
\text{C} & \\
\text{C} & \\
\text{C} & \\
\text{Cl} & \\
\text{Cl} & \\
\end{align*}
\]

(16-2) fludioxonil (known from EP-A 0 206 999) of the formula

\[
\begin{align*}
\text{N} & \\
\text{F} & \\
\text{F} & \\
\text{O} & \\
\end{align*}
\]

(16-3) pyrrolnitrin (known from JP 65-25876) of the formula
Preferred mixing partners of group (17) are

(17-1) fosetyl-Al (known from DE-A 24 56 627) of the formula

(17-2) phosphonic acid (known chemical) of the formula

The formula (XII) embraces the following preferred mixing partners of group (18) which are known from WO 96/23793 and can in each case be present as E or Z isomers. Accordingly, compounds of the formula (XII) can be present as a mixture of different isomers or else in the form of a single isomer. Preference is given to compounds of the formula (XII) in the form of their E isomers:

(18-1) the compound 2-(2,3-dihydro-1H-inden-5-yl)-N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)acetamide of the formula

(18-2) the compound N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)-2-(5,6,7,8-tetrahydro-naphthalen-2-yl)acetamide of the formula
(18-3) the compound 2-(4-chlorophenyl)-N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)-acetamide of the formula

(18-4) the compound 2-(4-bromophenyl)-N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)-acetamide of the formula

(18-5) the compound 2-(4-methylphenyl)-N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)-acetamide of the formula
(18-6) the compound 2-(4-ethylphenyl)-N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)-acetamide of the formula

Preferred mixing partners of group (19) are

5  (19-1) acibenzolar-S-methyl (known from EP-A 03 13 5 12) of the formula

(19-2) chlorothalonil (known from US 3,290,353) of the formula

(19-3) cymoxanil (known from DE-A 23 12 956) of the formula

10  (19-4) edifenphos (known from DE-A 14 93 736) of the formula
(19-5) famoxadone (known from EP-A 0393 911) of the formula

(19-6) fluazinam (known from EP-A 0031 257) of the formula

(19-7) copper oxychloride

(19-9) oxadixyl (known from DE-A 30 30 026) of the formula

(19-10) spiroxamine (known from DE-A 37 35 555) of the formula

(19-11) dithianon (known from JP-A 44-29464) of the formula
(19-12) metrafenone (known from EP-A 0 897 904) of the formula

(19-13) fenamidone (known from EP-A 0 629 616) of the formula

(19-14) 2,3-dibutyl-6-chlorothieno[2,3-d]pyrimidin-4(3H)one (known from WO 99/14202) of the formula

(19-15) probenazole (known from US 3,629,428) of the formula

(19-16) isoprothiolane (known from US 3,856,814) of the formula
(19-17) kasugamycin (known from GB 1 094 567) of the formula

(19-18) phthalide (known from JP-A 57-55844) of the formula

(19-19) ferimzone (known from EP-A 0 019 450) of the formula

(19-20) tricyclazole (known from DE-A 22 50 077) of the formula

(19-21) N-([4-[(cyclopropylamino)carbonyl]phenyl]sulphonyl)-2-methoxybenzamide of the formula

(19-22) 2-(4-chlorophenyl)-N- [2-[3-methoxy-4-(prop-2 yn-1-yloxy)phenyl]ethyl] -2-(prop-2-yn-1-yloxy)acetamide (known from WO 01/87822) of the formula
Preferred mixing partners of group (20) are

(20-1) pencycuron (known from DE-A 27 32 257) of the formula

(20-2) thiophanate-methyl (known from DE-A 18 06 123) of the formula

(20-3) thiophanate-ethyl (known from DE-A 18 06 123) of the formula

Preferred mixing partners of group (21) are

(21-1) fenoxanil (known from EP-A 0 262 393) of the formula
(21-2) diclocymet (known from JP-A 7-206608) of the formula

Preferred mixing partners of group (22) are

(22-1) 5-chloro-N-[f/5J-2,2,2-trifluoro-1-methylethyl]-6-(2,4,6-trifluorophenyl)[1,2,4]triazolo-
[1,5-a]pyrimidine-7-amine (known from US 5,986,135) of the formula

(22-2) 5-chloro-N-[1R\textsuperscript{1},2-dimethylpropyl]-6-(2,4,6-trifluorophenyl)[1,2,4]triazolo[1,5-a]-
pyrimidine-7-amine (known from WO 02/38565) of the formula
(22-3) 5-chloro-6-(2-chloro-6-fluorophenyl)-7-(4-methylpiperidin-1-yl)[1,2,4]triazolo[1,5-a]-pyrimidine (known from US 5,593,996) of the formula

(22-4) 5-chloro-6-(2,4,6-trifluorophenyl)-7-(4-methylpiperidin-1-yl)[1,2,4]triazolo[1,5-a]pyrimidine (known from DE-A 101 24 208) of the formula

Preferred mixing partners of group (23) are

(23-1) 2-butoxy-6-iodo-3-propylbenzopyran-4-one (known from WO 03/014103) of the formula

(23-2) 2-ethoxy-6-iodo-3-propylbenzopyran-4-one (known from WO 03/014103) of the formula
(23-3) 6-iodo-2-propoxy-3-propylbenzopyran-4-one (known from WO 03/014103) of the formula

\[
\begin{align*}
\text{I} & \quad \text{O} \\
\text{O} & \quad \text{O} \\
\text{CH}_3 & \quad \text{CH}_3
\end{align*}
\]

(23-4) 2-but-2-ynloxy-6-iodo-3-propylbenzopyran-4-one (known from WO 03/014103) of the formula

\[
\begin{align*}
\text{I} & \quad \text{O} \\
\text{O} & \quad \text{CH}_3 \\
\text{CH}_3 & \quad \text{CH}_3
\end{align*}
\]

5

(23-5) 6-iodo-2-(1-methylbutoxy)-3-propylbenzopyran-4-one (known from WO 03/014103) of the formula

\[
\begin{align*}
\text{I} & \quad \text{O} \\
\text{O} & \quad \text{CH}_3 \\
\text{CH}_3 & \quad \text{CH}_3 \\
\text{CH}_3 & \quad \text{CH}_3
\end{align*}
\]

(23-6) 2-but-3-enyloxy-6-iodobenzopyran-4-one (known from WO 03/014103) of the formula

\[
\begin{align*}
\text{I} & \quad \text{O} \\
\text{O} & \quad \text{CH}_3 \\
\text{CH}_3 & \quad \text{CH}_2
\end{align*}
\]

10

(23-7) 3-butyl-6-iodo-2-isopropoxybenzopyran-4-one (known from WO 03/014103) of the formula

\[
\begin{align*}
\text{I} & \quad \text{O} \\
\text{O} & \quad \text{CH}_3 \\
\text{CH}_3 & \quad \text{CH}_3
\end{align*}
\]
Preferred mixing partners of group (24) are

(24-1) \( N-(3',4'-\text{dichloro}-5\text{-fluoro}-1,1'-\text{biphenyl}-2-\text{yl})-3\text{-}(\text{difluoromethyl})-1\text{-methyl}-1\text{H}\text{-pyrazole-4-carboxamide} \) (known from WO 03/070705) of the formula

\[
\begin{align*}
\text{F}_2\text{H} & \text{C} \\
\text{N} & \text{N} \\
\text{O} & \text{F} \\
\text{H}_3\text{C} & \text{Cl} \quad \text{Cl}
\end{align*}
\]

(24-2) \( 3\text{-}(\text{difluoromethyl})-N\text{-}\{3'\text{-fluoro}-4'\text{-}[\text{(E)-(methoxyimino)methyl}]1,1'-\text{biphenyl}-2\text{-yl}\}-1\text{-methyl}-1\text{H}\text{-pyrazole-4-carboxamide} \) (known from WO 02/08197) of the formula

\[
\begin{align*}
\text{F}_2\text{H} & \text{C} \\
\text{N} & \text{N} \\
\text{O} & \text{F} \\
\text{CH}_3 & \text{N} \quad \text{OMe}
\end{align*}
\]

(24-3) \( 3\text{-}(\text{trifluoromethyl})-N\text{-}\{3'\text{-fluoro}-4'\text{-}[\text{(E)-(methoxyimino)methyl}]1,1'-\text{biphenyl}-2\text{-yl}\}-1\text{-methyl}-1\text{H}\text{-pyrazole-4-carboxamide} \) (known from WO 02/08197) of the formula

\[
\begin{align*}
\text{F}_3\text{C} & \text{O} \\
\text{N} & \text{N} \\
\text{CH}_3 & \text{OMe}
\end{align*}
\]

(24-4) \( N-(3',4'-\text{dichloro}-1,1'\text{-biphenyl}-2-\text{yl})\text{-}5\text{-fluoro}-1,3\text{-dimethyl}-1\text{H}\text{-pyrazole-4-carboxamide} \) (known from WO 00/14701) of the formula

\[
\begin{align*}
\text{F}_3\text{C} & \text{O} \\
\text{N} & \text{N} \\
\text{CH}_3 & \text{OMe}
\end{align*}
\]
(24-5) \( N\)-(4'-chloro-3'-fluoro-1,1'-biphenyl-2-yl)-2-methyl-1,3-thiazole-5-carboxamide (known from WO 03/066609) of the formula

\[
\begin{align*}
\text{\text{H}} & \text{C} \text{O} \text{N} \\
\text{F} & \text{I} \text{Cl} \text{Cl}
\end{align*}
\]

(24-6) \( N\)-(4'-chloro-1,1'-biphenyl-2-yl)-4-(difluoromethyl)-2-methyl-1,3-thiazole-5-carboxamide (known from WO 03/066610) of the formula

\[
\begin{align*}
\text{F}_2\text{C} & \text{O} \text{N} \\
\text{Cl} & \text{F}
\end{align*}
\]

(24-7) \( N\)-(4'-bromo-1,1'-biphenyl-2-yl)-4-(difluoromethyl)-2-methyl-1,3-thiazole-5-carboxamide (known from WO 03/066610) of the formula

\[
\begin{align*}
\text{F}_2\text{HC} & \text{O} \text{N} \\
\text{Cl} & \text{Br}
\end{align*}
\]
(24-8) 4-(difluoromethyl)-2-methyl-N-[4'-(trifluoromethyl)-1,1'-biphenyl-2-yl]-1,3-thiazole-5-carboxamide (known from WO 03/066610) of the formula

![](image)

Compound (6-7), carproamid, has three asymmetrically substituted carbon atoms. Accordingly, compound (6-7) can be present as a mixture of different isomers or else in the form of a single component. Particular preference is given to the compounds

(1S,3i?)-2,2-dichloro-N-[(l/?)-1-(4-chlorophenyl)ethyl]-l-ethyl-3-methylcyclopropanecarboxamide of the formula

![](image) and

(1i?,35)-2,2-dichloro-N-[(li?)]-l-(4-chlorophenyl)ethyl]-l-ethyl-3-methylcyclopropanecarboxamide of the formula

![](image)

Particularly preferred mixing partners are the following active compounds:

(2-1) azoxystrobin

(2-2) fluoxastrobibn

(2-3) (2£)-2-(2-[[6-(3-chloro-2-methylphenoxy)-5-fluoro-4-pyrimidinyl]oxy]phenyl)-2-(methoxyimino)-N-methylethanamide
(2-4) trifloxystrobin

(2-5) (2E)-2-(methoxyimino)-N-methyl-2-{2-{[(IE)-1-[3-(trifluoromethyl)phenyl]ethylden}amino]oxy[methyl]phenyl}ethanamide

(2-6) (2E)-2-(methoxyimino)-N-methyl-2-{2-[2-[(£)-{1-[3-(trifluoromethyl)phenyl]ethoxy}imino)methyl]phenyl}ethanamide

(2-8) 5-methoxy-2-methyl-4-{2-{[(IE)-1-[3-(trifluoromethyl)phenyl]ethylden}amino]oxy[methyl]phenyl}-2,4-dihydro-3H-1,2,4-triazol-3-one

(2-11) picoxystrobin

(2-9) kresoxim-methyl

(2-10) dimoxystrobin

(2-12) pyraclostrobin

(2-13) metominostrobin

(3-3) propiconazole

(3-4) difenoconazole

(3-6) cyproconazole

(3-7) hexaconazole

(3-8) penconazole

(3-9) myclobutanil

(3-10) tetraconazole

(3-12) epoxiconazole

(3-13) flusilazole
prothioconazole
fenbuconazole
tebuconazole
metconazole
bitertanol
triadimenol
triadimefon
fluquinconazole
dichlofluanid
tolyfluanid
iprovalicarb
benthiavalicarb
boscalid
ethaboxam
fenhexamid
carproamid
2-chloro-4-[(2-fluoro-2-methylpropanoyl)amino]-N,N'-dimethylbenzamide
picobenzamid
zoxamide
3,4-dichloro-N-(2-cyanophenyl)isothiazole-5-carboxamide
(6-14) penthiopyrad

(6-16) \( N-fZ^l^-\text{dimethylbuty}^\text{pheny}^-l\text{-methyl}^-\text{fluoromethy}O^-l\text{H-pyrrole}^-S\text{-carboxamide} \)

(6-17) \( N-[2-[3\text{-chloro}-5\text{-}(\text{trifluoromethyl})\text{pyridin}-2\text{-yl}]\text{ethyl}^-2\text{-(trifluoromethyl)}\text{benzamide} \)

(6a-2) \( N-[2-[1,3\text{-dimethylbutyl}]\text{phenyl}^-5\text{-fluoro}-1,3\text{-dimethyl}^-1\text{H-pyrazole}^-4\text{-carboxamide} \)

(6b-2) \( N-[2-[1,1\text{-bicyclopropyl}]^-2\text{ylphenyl}^-3\text{-(difluoromethyl)}^-1\text{methyl}^-1\text{H-pyrazole}^-4\text{-carboxamide} \)

(7-1) mancozeb

(7-2) maneb

(7-4) propineb

(7-5) thiram

(7-6) zineb

(8-1) benalaxyl

(8-2) furalexyl

(8-3) metalaxyl

(8-4) metalaxyl-M

(8-5) benalaxyl-M

(9-1) cyprodinil

(9-2) mepanipyrim

(9-3) pyrimethanil
(10-1) 6-chloro-5-[3,5-dimethylisoxazol-4-yl)sulphonyl]-2,2-difluoro-5H-[1,3]dioxolo[4,5-f]-benzimidazole

(10-3) carbendazim

(11-1) diethofencarb

5 (11-2) propamocarb

(11-3) propamocarb-hydrochloride

(11-4) propamocarb-fosetyl

(12-2) captan

(12-3) folpet

10 (12-4) iprodione

(12-5) procymidine

15 (13-1) dodine

(13-2) guazatine

(13-3) iminoctadine triacetate

(14-1) cyazofamid

(14-2) prochloraz

(14-3) triazoxide

(15-5) dimethomorph

(15-4) fenpropimo φ h

20 (16-2) fludioxonil
fosetyl-Al
phosphonic acid
acibenzolar-S-methyl
chlorothalonil
cymoxanil
famoxadone
fluazinam
oxadixyl
spiroxamine
copper oxychloride
fenamidone
2-(4-chlorophenyl)-N-{2-[3-methoxy-4-(prop-2-yn-1-yl)oxy]phenyl}ethyl}-2-(prop-2-yn-1-yl)oxy)acetamide
pencycuron
thiophanate-methyl
5-chloro-N-[175>2,2,2-trifluoro-1-methylethyl]-6-(2,4,6-trifluorophenyl)[1,2,4]-triazolof1,5-a]pyrimidine-7-amine
S-chloro-N-tfy^-l^-dimethylpropyll-o^-o-trifluorophenyOtl^-Jtriazolotl^-a]-pyrimidine-7-amine
5-chloro-6-(2,4,6-trifluorophenyl)-7-(4-methylpiperidin-1-yl)[1,2,4]triazolo[1,5-a]pyrimidine
(23-1) 2-butoxy-6-iodo-3-propylbenzopyran-4-one

(23-2) 2-ethoxy-6-iodo-3-propylbenzopyran-4-one

(23-3) 6-iodo-2-propoxy-3-propylbenzopyran-4-one

(24-1) N-(3',4'-dichloro-5-fluoro-1,1'-biphenyl-2-yl)-3-(difluoromethyl)-1-methyl-1$H$-pyrazole-4-carboxamide

(24-3) 3-(trifluoromethyl)-N-{3'-fluoro-4'[[(R)-(methoxyimino)methyl]-1,1'-biphenyl-2-yl]-1-methyl-1$H$-pyrazole-4-carboxamide

(24-7) N-(4'-bromo-1,1'-biphenyl-2-yl)-4-(difluoromethyl)-2-methyl-1,3-thiazole-5-carboxamide.

Very particularly preferred mixing partners are the following active compounds:

(2-2) fluoxastrobine

(2-4) trifloxystrobine

(2-3) (2£0-2-(2-[[6-(3-chloro-2-methylphenoxy)-5-fluoro-4-pyrimidinyl]oxy]phenyl)-2-(methoxyimino)-N-methylethanamide

(3-15) prothioconazole

(3-17) tebuconazole

(3-21) bitertanol

(3-22) triadimenol

(3-24) fluquinconazole

(4-1) dichlofluanid

(4-2) tolylfluanid

(5-1) iprovalicarb
(6-6) fenhexamid

(6-9) picobenzamid

(6-7) carpropamid

(6-14) penthiopyrad

(5) (6-17) N-{2-[3-chloro-5-(trifluoromethyl)pyridin-2-yl]ethyl}-2-(trifluoromethyl)benzamide

(6a-2) N-[2-(1,3-dimethylbutyl)phenyl]-5-fluoro-1,3-dimethyl-1 H-pyrazole-4-carboxamide

(pyflufen)

(6b-2) N-(2-[1,1-bicyclopropyl]-2-ylphenyl)-3-(difluoromethyl)-1-methyl-1 H-pyrazole-4-carboxamide

10 (7-4) propineb

(8-4) metalaxyl-M

(8-5) benalaxyl-M

(9-3) pyrimethanil

(10-3) carbendazim

15 (11-4) propamocarb-fosetyl

(12-4) iprodione

(14-2) prochloraz

(14-3) triazoxide

(16-2) fludioxonil

20 (19-10) spiroxamine
Preferred active compound combinations comprising two groups of active compounds and in each case at least genistein of the formula (I) and at least one active compound of the given group (2) to (24) are described below. These combinations are the active compound combinations A to U.

In addition to genistein of the formula (I), the active compound combinations A also comprise a strobilurin of the formula (II) (group 2)

![Chemical Structure](image)

in which $A^1$, L and $R^{11}$ are as defined above.

Preferred are active compound combinations A in which the strobilurin of the formula (II) (group 2) is selected from the list below:

1. azoxystrobin
2. fluoxastrobin
3. trifloxystrobin
4. (2-5) $2$-(methoxyimino)-$N$-methyl-$2$-$[\{(L^1)^{-}-\{3$-(trifluoromethyl)phenyl\}-ethyliden\}amino]$\{\{O\}$-methyl$\}$phenyl$\}$ethanamide
Particularly preferred are active compound combinations A in which the strobilurin of the formula (II) (group 2) is selected from the list below:

(2-1) azoxystrobin

(2-2) fluoxastrobin

(2-3) (2E)-2-(2-[6-(3-chloro-2-methylphenoxy)-5-fluoro-4-pyrimidinyl]oxy)phenyl)-2-(methoxyimino)-N-methylethanamide

(2-4) trifloxystrobin

(2-12) pyraclostrobin

(2-9) kresoxim-methyl

(2-10) dimoxystrobin

(2-11) picoxystrobin
Emphasis is given to the active compound combinations A listed in Table 1 below:

Table 1: Active compound combinations A

<table>
<thead>
<tr>
<th>No.</th>
<th>Strobilurin of the formula (II)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-1</td>
<td>genistein (2-2) fluoxastrobin</td>
</tr>
<tr>
<td>A-2</td>
<td>genistein (2-3) (2E)-2-(2-[[6-(3-chloro-2-methylphenoxy)-5-fluoro-4-pyrimidinyl]oxy]phenyl)-2-(methoxyimino)-N-methylethanamide</td>
</tr>
<tr>
<td>A-3</td>
<td>genistein (2-4) trifloxastrobin</td>
</tr>
<tr>
<td>A-4</td>
<td>genistein (2-1) azoxystrobin</td>
</tr>
<tr>
<td>A-5</td>
<td>genistein (2-12) pyraclostrobin</td>
</tr>
<tr>
<td>A-6</td>
<td>genistein (2-9) kresoxim-methyl</td>
</tr>
<tr>
<td>A-7</td>
<td>genistein (2-10) dimoxystrobin</td>
</tr>
<tr>
<td>A-8</td>
<td>genistein (2-11) picoxystrobin</td>
</tr>
<tr>
<td>A-9</td>
<td>genistein (2-13) metominostrobin</td>
</tr>
</tbody>
</table>
In addition to genistein of the formula (I), the active compound combinations B also comprise a triazole of the formula (HT) (group 3)

\[
\begin{align*}
R^{14} & \quad R^{15} & \quad A^4 & \quad A^5 & \quad R^{16} & \quad R^{17} \\
& \quad \quad \quad \quad (CH_2)_m \\
Q & \quad N & \quad N
\end{align*}
\]

(III)

in which Q, m, R^{14}, R^{15}, A^4, A^5, R^{16} and R^{17} are as defined above.

Preference is given to active compound combinations B in which the triazole of the formula (HI) (group 3) is selected from the list below:

(3-1) azaconazole
(3-2) etaconazole
(3-3) propiconazole
(3-4) difenoconazole
(3-5) bromuconazole
(3-6) cyproconazole
(3-7) hexaconazole
(3-8) penconazole
(3-9) myclobutanil
(3-10) tetraconazole
(3-11) flutriafol
(3-12) epoxiconazole
Particular preference is given to active compound combinations B in which the triazole of the formula (EI) (group 3) is selected from the list below:

(3-3) propiconazole
(3-6) cyproconazole
(3-15) prothioconazole
(3-17) tebuconazole
(3-21) bitertanol
(3-4) difenoconazole

(3-7) hexaconazole

(3-19) metconazole

(3-22) triadimenol

(3-24) fluquinconazole

Emphasis is given to the active compound combinations B listed in Table 2 below:

Table 2: Active compound combinations B

<table>
<thead>
<tr>
<th>No.</th>
<th>Triazole of the formula (III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-1</td>
<td>genistein (3-3) propiconazole</td>
</tr>
<tr>
<td>B-2</td>
<td>genistein (3-6) cyproconazole</td>
</tr>
<tr>
<td>B-3</td>
<td>genistein (3-15) prothioconazole</td>
</tr>
<tr>
<td>B-4</td>
<td>genistein (3-17) tebuconazole</td>
</tr>
<tr>
<td>B-1</td>
<td>genistein (3-21) bitertanol</td>
</tr>
<tr>
<td>B-2</td>
<td>genistein (3-4) difenoconazole</td>
</tr>
<tr>
<td>B-3</td>
<td>genistein (3-7) hexaconazole</td>
</tr>
<tr>
<td>B-4</td>
<td>genistein (3-19) metconazole</td>
</tr>
<tr>
<td>B-5</td>
<td>genistein (3-22) triadimenol</td>
</tr>
<tr>
<td>B-6</td>
<td>genistein (3-24) fluquinconazole</td>
</tr>
<tr>
<td>B-7</td>
<td>genistein (3-4) difenoconazole</td>
</tr>
<tr>
<td>B-8</td>
<td>genistein (3-7) hexaconazole</td>
</tr>
<tr>
<td>B-9</td>
<td>genistein (3-19) metconazole</td>
</tr>
<tr>
<td>B-10</td>
<td>genistein (3-22) triadimenol</td>
</tr>
</tbody>
</table>
In addition to genistein of the formula (I), the active compound combinations C also comprise a sulphenamide of the formula (IV) (group 4) in which R₁⁹ is as defined above.

Preference is given to active compound combinations C in which the sulphenamide of the formula (IV) (group 4) is selected from the list below:

(4-1) dichlofluanid

(4-2) tolylfluanid

Emphasis is given to the active compound combinations C listed in Table 3 below:

**Table 3: Active compound combinations C**

<table>
<thead>
<tr>
<th>No.</th>
<th>Sulphenamide of the formula (IV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C-1</td>
<td>genistein (4-1) dichlofluanid</td>
</tr>
<tr>
<td>C-2</td>
<td>genistein (4-2) tolylfluanid</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations D also comprise a valinamide (group 5) selected from

(5-1) iprovalicarb

(5-2) \( N^1-[2-(4-\{[3-(4-chlorophenyl)-2-propynyl]oxy\}-3-methoxyphenyl)ethyl]-N^2-(methyl-sulphonyl)-D-valinamide \)

(5-3) bentiavalicarb
Preference is given to active compound combinations D in which the valinamide (group 5) is selected from the list below:

(5-1) iprovalicarb

(5-3) benthiavalicarb

Emphasis is given to the active compound combinations D listed in Table 4 below:

Table 4: Active compound combinations D

<table>
<thead>
<tr>
<th>No.</th>
<th>Valinamide</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-1</td>
<td>genistein</td>
</tr>
<tr>
<td></td>
<td>(5-1) iprovalicarb</td>
</tr>
<tr>
<td>D-2</td>
<td>genistein</td>
</tr>
<tr>
<td></td>
<td>(5-3) benthiavalicarb</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations E also comprise a carboxamide of the formula (V) (group 6)

![Chemical Structure](V)

in which X, Y and Z are as defined above.

Preference is given to active compound combinations E in which the carboxamide of the formula (V) (group 6) is selected from the list below:

(6-1) 2-chloro-N-(1,1,3-trimethylindan-4-yl)nicotinamide

(6-2) boscalid

(6-3) furametpyr

(6-4) N-(3-p-tolylthiophen-2-yl)-1-methyl-3-trifluoromethyl-1H-pyrazole-4-carboxamide

(6-5) ethaboxam
fenhexamid

carpropamid

2-chloro-4-(2-fluoro-2-methylpropionylamino)-N,N-dimethylbenzamide

picobenzamid

zoxamide

3,4-dichloro-N-(2-cyanophenyl)isothiazole-5-carboxamide

carboxin

tiadinil

tentiopyrad

silthiofam

N-[2-(1,3-dimethylbutyl)phenyl]-1-methyl-4-(trifluoromethyl)-1H-pyrrole-3-carboxamide

N-[2-[3-chloro-5-(trifluoromethyl)pyridin-2-yl]ethyl]-2-(trifluoromethyl)benzamide

N-[2-[1,3-dimethylbutyl]phenyl]-5-fluoro-1,3-dimethyl-1H-pyrazole-4-carboxamiide

N-(2-[I, l'-bicyclopropyl]-2-ylphenyl)-3-(difluoromethyl)-1-methyl-1H-pyrazole-4-carboxamide

Particular preference is given to active compound combinations E in which the carboxamide of the formula (V) (group 6) is selected from the list below:

boscalid

ethaboxam

fenhexamid
(6-7) carpropamid

(6-8) 2-chloro-4-(2-fluoro-2-methyl-propionylamino)-N,N-dimethylbenzamide

(6-9) picobenzamid

(6-10) zoxamide

(6-11) 3,4-dichloro-N-(2-cyanophenyl)isothiazole-5-carboxamide

(6-14) pentylipyrad

(6-16) N-[2-[1,3-dimethylbutyl]phenyl]-l-methyl-4-(trifluoromethyl)-l Η-pyrrole-3-carboxamide

Very particular preference is given to active compound combinations E in which the carboxamide of the formula (V) (group 6) is selected from the list below:

(6-2) boscalid

(6-6) fenhexamid

(6-7) carpropamid

(6-9) picobenzamid

(6-14) pentylipyrad

(6-17) N-[2-[3-chloro-5-(trifluoromethyl)pyridin-2-yl]ethyl]-2-(trifluoromethyl)benzamide

(6a-2) N-[2-(1,3-dimethylbutyl)phenyl]-5-fluoro-1,3-dimethyl-1Η-pyrazole-4-carboxamide

(pyflufen)

(6b-2) N-(2-[1',2'-bicyclopropyl]-2-ylphenyl)-3-(difluoromethyl)-1-methyl-1Η-pyrazole-4-carboxamide

Emphasis is given to the active compound combinations E listed in Table 5 below:
Table 5: Active compound combinations E

<table>
<thead>
<tr>
<th>No.</th>
<th>Carboxamide of the formula (V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1</td>
<td>genistein (6-2) boscalid</td>
</tr>
<tr>
<td>E-2</td>
<td>genistein (6a-2) pyflufen</td>
</tr>
<tr>
<td>E-3</td>
<td>genistein (6b-2) pyflufen</td>
</tr>
<tr>
<td>E-4</td>
<td>genistein (6-9) picobenzamid</td>
</tr>
<tr>
<td>E-5</td>
<td>genistein (6-14) pentiopyrad</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations F also comprise a dithiocarbamate (group 7) selected from:

5  (7-1) mancozeb
   (7-2) maneb
   (7-3) metiram
   (7-4) propineb
   (7-5) thiram

10 (7-6) zineb
    (7-7) ziram

Preference is given to active compound combinations F in which the dithiocarbamate (group 7) is selected from the list below:

(7-1) mancozeb
(7-2) maneb
Particular preference is given to active compound combinations $F$ in which the dithiocarbamate (group 7) is selected from the list below:

1. mancozeb
2. propineb

Emphasis is given to the active compound combinations $F$ listed in Table 6 below:

Table 6: Active compound combinations $F$

<table>
<thead>
<tr>
<th>No.</th>
<th>Dithiocarbamate</th>
</tr>
</thead>
<tbody>
<tr>
<td>$F$-1</td>
<td>genistein</td>
</tr>
<tr>
<td>$F$-2</td>
<td>genistein</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations $G$ also comprise an acylalanine of the formula (VI) (group 8)

![Diagram](image)

(VI)

in which * and $R^{23}$ are as defined above.

Preference is given to active compound combinations $G$ in which the acylalanine of the formula (VI) (group 8) is selected from the list below:

1. benalaxyl
(8-2) furalaxyl

(8-3) metalaxyl

(8-4) metalaxyl-M

(8-5) benalaxyl-M

5 Particular preference is given to active compound combinations G in which the acylalanine of the formula (VT) (group 8) is selected from the list below:

(8-3) metalaxyl

(8-4) metalaxyl-M

(8-5) benalaxyl-M

10 Emphasis is given to the active compound combinations G listed in Table 7 below:

Table 7: Active compound combinations G

<table>
<thead>
<tr>
<th>No.</th>
<th>Acylalanine of the formula (VI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G-1</td>
<td>genistein (8-3) metalaxyl</td>
</tr>
<tr>
<td>G-2</td>
<td>genistein (8-4) metalaxyl-M</td>
</tr>
<tr>
<td>G-3</td>
<td>genistein (8-5) benalaxyl-M</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations H also comprise an anilinopyrimidine (group 9) selected from

(9-1) cyprodinil

(9-2) mepanipyrim

(9-3) pyrimethanil
Emphasis is given to the active compound combinations H listed in Table 8 below:

Table 8: Active compound combinations H

<table>
<thead>
<tr>
<th>No.</th>
<th>Anilinopyrimidine</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-1</td>
<td>genistein (9-1) cyprodimil</td>
</tr>
<tr>
<td>H-2</td>
<td>genistein (9-2) mepanipyrim</td>
</tr>
<tr>
<td>H-3</td>
<td>genistein (9-3) pyrimethanil</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations I also comprise a benzimidazole of the formula (VIQ) (group 10)

\[
\text{(VIII)}
\]

in which \( R^{25}, R^{26}, R^{27} \) and \( R^{28} \) are as defined above.

Preference is given to active compound combinations I in which the benzimidazole of the formula (VII) (group 10) is selected from the list below:

- (10-1) 6-chloro-5-[(3,5-dimethylisoxazol-4-yl)sulphonyl]-2,2-difluoro-5H-[1,3]dioxolo[4,5-f]-benzimidazole
- (10-2) benomyl
- (10-3) carbendazim
- (10-4) chlorfenazole
- (10-5) fuberidazole
- (10-6) thiabendazole
Particular preference is given to active compound combinations I in which the benzimidazole of the formula (Vm) (group 10) is:

(10-3) carbendazim

Emphasis is given to the active compound combinations I listed in Table 9 below:

Table 9: Active compound combinations I

<table>
<thead>
<tr>
<th>No.</th>
<th>Benimidazole of the formula (VIII)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-1</td>
<td>genistein (10-3) carbendazim</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations J also comprise a carbamate (group 11) of the formula (IX)

\[
\begin{align*}
&\text{R}^{29} \quad \text{O} \\
&\text{N} \quad \text{R}^{30} \\
\end{align*}
\]

(IX)

in which \(\text{R}^{29}\) and \(\text{R}^{30}\) are as defined above.

Preference is given to active compound combinations J in which the carbamate (group 11) is selected from the list below:

(11-1) diethofencarb

(11-2) propamocarb

(11-3) propamocarb-hydrochloride

(11-4) propamocarb-fosetyl

Emphasis is given to the active compound combinations J listed in Table 10 below:
Table 10: Active compound combinations J

<table>
<thead>
<tr>
<th>No.</th>
<th>Carbamate of the formula (IX)</th>
</tr>
</thead>
<tbody>
<tr>
<td>J-1</td>
<td>genistein (11-2) propamocarb</td>
</tr>
<tr>
<td>J-2</td>
<td>genistein (11-3) propamocarb-hydrochloride</td>
</tr>
<tr>
<td>J-3</td>
<td>genistein (11-4) propamocarb-fosetyl</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations K also comprise a dicarboximide (group 12) selected from:

(12-1) captafol

(12-2) captan

(12-3) folpet

(12-4) iprodione

(12-5) procymidone

(12-6) vinclozolin

Preference is given to active compound combinations K in which the dicarboximide (group 12) is selected from the list below:

(12-2) captan

(12-3) folpet

(12-4) iprodione
Emphasis is given to the active compound combinations K listed in Table 11 below:

Table 11: Active compound combinations K

<table>
<thead>
<tr>
<th>No.</th>
<th>Dicarboximide</th>
</tr>
</thead>
<tbody>
<tr>
<td>K-1</td>
<td>genistein (12-2) captan</td>
</tr>
<tr>
<td>K-2</td>
<td>genistein (12-3) folpet</td>
</tr>
<tr>
<td>K-3</td>
<td>genistein (12-4) iprodione</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations L also comprise a guanidine (group 13) selected from:

5 (13-1) dodine
(13-2) guazatine
(13-3) iminoctadine triacetate
(13-4) iminoctadine tris(albesilate)

Preference is given to active compound combinations L in which the guanidine (group 13) is selected from the list below:

10 (13-1) dodine
(13-2) guazatine
Emphasis is given to the active compound combinations L listed in Table 12 below:

**Table 12: Active compound combinations L**

<table>
<thead>
<tr>
<th>No.</th>
<th>Guanidine</th>
</tr>
</thead>
<tbody>
<tr>
<td>L-1</td>
<td>genistein</td>
</tr>
<tr>
<td>L-2</td>
<td>genistein</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations M also comprise an imidazole (group 14) selected from:

- (14-1) cyazofamid
- (14-2) prochloraz
- (14-3) triazoxide
- (14-4) pefurazoate

Preference is given to active compound combinations M in which the imidazole (group 14) is selected from the list below:

- (14-2) prochloraz
- (14-3) triazoxide
Emphasis is given to the active compound combinations M listed in Table 13 below:

Table 13: Active compound combinations M

<table>
<thead>
<tr>
<th>No.</th>
<th>Imidazole</th>
</tr>
</thead>
<tbody>
<tr>
<td>M-1</td>
<td>genistein (14-2) prochloraz</td>
</tr>
<tr>
<td>M-2</td>
<td>genistein (14-3) triazoxide</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations N also comprise a morpholine (group 15) of the formula (X)

\[
\begin{array}{c}
\text{R}^{32} \\
\text{O} \\
\text{R}^{31} \\
\text{N}^{33}
\end{array}
\]

(X)

in which \(R^{31}, R^{32}\) and \(R^{33}\) are as defined above.

Preference is given to active compound combinations N in which the morpholine (group 15) of the formula (X) is selected from the list below:

(15-1) aldimorph
(15-2) tridemorph
(15-3) dodemorph
(15-4) fenpropimorph
(15-5) dimethomorph

Particular preference is given to active compound combinations N in which the morpholine (group 15) of the formula (X) is selected from the list below:

(15-4) fenpropimorph
Emphasis is given to the active compound combinations N listed in Table 14 below:

Table 14: Active compound combinations N

<table>
<thead>
<tr>
<th>No.</th>
<th>Morpholine of the formula (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N-1</td>
<td>genistein</td>
</tr>
<tr>
<td></td>
<td>(15-4) fenpropimorph</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations O also comprise a pyrrole (group 16) of the formula (XI)

![Chemical Structure](XI)

in which \( R^{34}, R^{35} \) and \( R^{36} \) are as defined above.

Preference is given to active compound combinations O in which the pyrrole (group 16) of the formula (XI) is selected from the list below:

- (16-1) fenpiclonil
- (16-2) fludioxonil
- (16-3) pyrrolnitrin

Particular preference is given to active compound combinations O in which the pyrrole (group 16) of the formula (XI) is selected from the list below:

- (16-2) fludioxonil
Emphasis is given to the active compound combinations O listed in Table 15 below:

Table 15: Active compound combinations O

<table>
<thead>
<tr>
<th>No.</th>
<th>Pyrrole of the formula (XI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>O-1</td>
<td>genistein</td>
</tr>
<tr>
<td></td>
<td>(16-2) fludioxonil</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations P also comprise a phosphonate (group 17) selected from:

5. (17-1) fosetyl-Al

(17-2) phosphonic acid

Emphasis is given to the active compound combinations P listed in Table 16 below:

Table 16: Active compound combinations P

<table>
<thead>
<tr>
<th>No.</th>
<th>Phosphonate</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-1</td>
<td>genistein</td>
</tr>
<tr>
<td></td>
<td>(17-1) fosetyl-Al</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations Q also comprise a fungicide (group 19) selected from:

10. (19-1) acibenzolar-S-methyl

(19-2) chlorothalonil

(19-3) cymoxanil

(19-4) edifenphos

15. (19-5) famoxadone
(19-6) fluazinam

(19-7) copper oxychloride

(19-8) copper hydroxide

(19-9) oxadixyl

(19-10) spiroxamine

(19-11) dithianon

(19-12) metrafenone

(19-13) fenamidone

(19-14) 2,3-dibutyl-6-chlorothieno[2,3-d]pyrimidin-4(3H)-one

(19-15) probenazole

(19-16) isoprothiolane

(19-17) kasugamycin

(19-18) phthalide

(19-19) ferimzone

(19-20) tricyclazole

(19-21) N- ( {4-[(cyclopropylamino)carbonyl]phenyl} sulphonyl) -2-methoxybenzamide

(19-22) 2-(4-chlorophenyl)-N- {2-[3-methoxy-4-(prop-2-yn-1-yl)oxy]phenyl}ethy l} -2-(prop-2-yn-1-yl)oxy)acetamide

Preference is given to active compound combinations Q in which the fungicide (group 19) is selected from the list below:
Particular preference is given to active compound combinations in which the fungicide (group 19) is selected from the following list:

(19-2) chlorothalonil
(19-7) copper oxychloride
(19-10) spiroxamine
(19-21) N-(4-[(cyclopropylamino)carbonyl]phenyl) sulphonyl)-2-methoxybenzamide
Emphasis is given to the active compound combinations Q listed in Table 17 below:

Table 17: Active compound combinations Q

<table>
<thead>
<tr>
<th>No.</th>
<th>Fungicide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q-1</td>
<td>genistein (19-2) chlorothalonil</td>
</tr>
<tr>
<td>Q-2</td>
<td>genistein (19-7) copper oxychloride</td>
</tr>
<tr>
<td>Q-3</td>
<td>genistein (19-10) spiroxamine</td>
</tr>
<tr>
<td>Q-4</td>
<td>genistein (19-21) N-((4-[(cyclopropylamino)carbonyl]phenyl) sulphonyl)-2-methoxybenzamide</td>
</tr>
<tr>
<td>Q-5</td>
<td>genistein (19-22) 2-(4-chlorophenyl)-N-{2-[3-methoxy-4-(prop-2-yn-1-yloxy)phenyl]ethyl}-2-(prop-2-yn-1-yloxy)acetamide</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (7), the active compound combinations R also comprise a (thio)urea derivative (group 20) selected from:

5  (20-1) pencycuron

(20-2) thiophanate-methyl

(20-3) thiophanate-ethyl

Preference is given to active compound combinations R in which the (thio)urea derivative (group 20) is selected from the list below:

10 (20-1) pencycuron

(20-2) thiophanate-methyl
Emphasis is given to the active compound combinations R listed in Table 18 below:

Table 18: Active compound combinations R

<table>
<thead>
<tr>
<th>No.</th>
<th>(Thio)urea derivative</th>
</tr>
</thead>
<tbody>
<tr>
<td>R-1</td>
<td>genistein (20-1) pencycuron</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations S also comprise a triazolopyrimidine (group 22) of the formula (XIV)

\[
\begin{array}{cccccccc}
R_4^0 & R_4^1 & R_4^2 & R_4^3 & R_4^4 & R_4^5 & R_4^6 & R_4^7 \\
\end{array}
\]

(XIV)

in which \( R_4^0, R_4^1, R_4^2, R_4^3, R_4^4, R_4^5, R_4^6 \) and \( R_4^7 \) are as defined above.

Preference is given to active compound combinations S in which the triazolopyrimidine (group 22) of the formula (XIV) is selected from the list below:

(22-1) 5-chloro-N\(^{\wedge/5>2,2,2\text{-trifluoro-l-methylethyl}}\]-6-(2,4,6-trifluorophenyl)[l,2,4]triazolo-[1,5-a]pyrimidine-7-amine

(22-2) 5-chloro-N\(^{[(7i?>1,2\text{-dimethylpropyl}}]6-(2,4,6\text{-trifluorophenyl})[l,2,4]\text{triazolo[1,5-a]-pyrimidine-7-amine}

(22-3) 5-chloro-6-(2-chloro-6-fluorophenyl)-7-(4-methylpiperidin-l-y1)[1,2,4]triazolo[1,5-a]-pyrimidine

(22-4) 5-chloro-6-(2,4,6-trifluorophenyl)-7-(4-methylpiperidin-l-y1)[1,2,4]triazolo[1,5-a]pyrimidine

Particular preference is given to active compound combinations S in which the triazolopyrimidine (group 22) of the formula (XIV) is selected from the list below:
(22-1) S-chloro-N-\((\mathcal{I}S)\)-2,2,2-trifluoro-1-methylethyl]-o-(2,4,6-trifluorophenyl)[1,2,4]triazolo[1,5-a]pyrimidine-7-amine

(22-2) 5-chloro-N-\((\mathcal{I}R)\)-1,2-dimethylpropyl]-6-(2,4,6-trifluorophenyl)[1,2,4]triazolo[1,5-a]pyrimidine-7-amine

(22-4) 5-chloro-6-(2,4,6-trifluorophenyl)-7-(4-methylpiperidin-1-yl)[1,2,4]triazolo[1,5-a]pyrimidine

Emphasis is given to the active compound combinations S listed in Table 19 below:

<table>
<thead>
<tr>
<th>No.</th>
<th>Triazolopyrimidine of the formula (XIV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>genistein (22-1) S-chloro-N-((\mathcal{I}S))-2,2,2-trifluoro-1-methylethyl]-o-(2,4,6-trifluorophenyl)[1,2,4]triazolo[1,5-a]pyrimidine-7-amine</td>
</tr>
<tr>
<td>S-2</td>
<td>genistein (22-2) 5-chloro-N-((\mathcal{I}R))-1,2-dimethylpropyl]-6-(2,4,6-trifluorophenyl)[1,2,4]triazolo[1,5-a]pyrimidine-7-amine</td>
</tr>
<tr>
<td>S-3</td>
<td>genistein (22-4) 5-chloro-6-(2,4,6-trifluorophenyl)-7-(4-methylpiperidin-1-yl)[1,2,4]triazolo[1,5-a]pyrimidine</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations T also comprise an iodochromone (group 23) of the formula (XV)

\[
\text{(XV)}
\]

in which \(R^{48}\) and \(R^{49}\) are as defined above.

Preference is given to active compound combinations T in which the iodochromone (group 23) of the formula (XV) is selected from the list below:

(23-1) 2-butoxy-6-iodo-3-propylbenzopyran-4-one
2-ethoxy-6-iodo-3-propylbenzopyran-4-one

6-iodo-2-propoxy-3-propylbenzopyran-4-one

2-but-2-ynyloxy-6-iodo-3-propylbenzopyran-4-one

6-iodo-2-(1-methylbutoxy)-3-propylbenzopyran-4-one

2-but-3-enyloxy-6-iodobenzopyran-4-one

3-butyl-6-iodo-2-isopropoxybenzopyran-4-one

Particular preference is given to active compound combinations T in which the iodochromone (group 23) of the formula (XV) is selected from the list below:

2-butoxy-6-iodo-3-propylbenzopyran-4-one

2-ethoxy-6-iodo-3-propylbenzopyran-4-one

Emphasis is given to the active compound combinations T listed in Table 20 below:

**Table 20: Active compound combinations T**

<table>
<thead>
<tr>
<th>No.</th>
<th>Iodochromone of the formula (XV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T-1</td>
<td>genistein (23-1) 2-butoxy-6-iodo-3-propyl-benzopyran-4-one</td>
</tr>
<tr>
<td>T-2</td>
<td>genistein (23-2) 2-ethoxy-6-iodo-3-propyl-benzopyran-4-one</td>
</tr>
</tbody>
</table>
In addition to genistein of the formula (I), the active compound combinations U also comprise a biphenylcarboxamide (group 24) of the formula (XVI)

![Diagram](image)

(XVI)

in which $R^{50}$, $R^{51}$, $R^{52}$ and Het are as defined above.

Preference is given to active compound combinations U in which the biphenylcarboxamide (group 24) of the formula (XVI) is selected from the list below:

- (24-1) $N$-$(3',4'$-dichloro-5-fluoro-1',l'-biphenyl-2-yl)-3-(difluoromethyl)-1-methyl-1$-$H$-pyrazole-4-carboxamide
- (24-2) 3-(difluoromethyl)-$N$-{$3'$-fluoro-4'-$[(E)$-(methoxyimino)methyl]$-1',l'$-biphenyl-2-yl}$-1$-methyl-1$-$H$-pyrazole-4-carboxamide
- (24-3) 3-(trifluoromethyl)-$N$-{$3'$-fluoro-4'-$[(E)$-(methoxyimino)methyl]$-1',l'$-biphenyl-2-yl}$-1$-methyl-1$-$H$-pyrazole-4-carboxamide
- (24-4) $\wedge(S^{<})$-dichloro-1,l'-biphenyl-3$\wedge$-yO-S-fluoro-1$\wedge$-dimethyl-1 $H$-pyrazole$\wedge$-carboxamide
- (24-5) $N$-$(4'$-chloro-3$^1$-fluoro-1,l'-biphenyl-2-yl)-2-methyl-4-(trifluoromethyl)-1,3-thiazole-5-carboxamide
- (24-6) $N$-$(4'$-chloro-1,l'-biphenyl-2-yl)-4-(difluoromethyl)-2-methyl-1,3-thiazole-5-carboxamide
- (24-7) $N$-$(4'$-bromo-1,l'-biphenyl-2-yl)-4-(difluoromethyl)-2-methyl-1,3-thiazole-5-carboxamide
- (24-8) 4-(difluoromethyl)-2-methyl-$N$-[$4'$-(trifluoromethyl)-1,l'-biphenyl-2-yl]-1,3-thiazole-5-carboxamide.

Particular preference is given to active compound combinations U in which the biphenylcarboxamide (group 24) of the formula (XVI) is selected from the list below:
(24-1) \( N -(3',4'-\text{dichloro-5-fluoro-1},1'-\text{biphenyl-2-yl})-3-(\text{difluoromethyl})-1\text{-methyl-1}\text{H-pyrazole-4-carboxamide} \)

(24-3) \( S^\text{trifluoromethyl}N^\text{f^-methoxyimino}^-\text{ethylj-1',biphenyl^-y1}]^-\text{1}-\text{methyl-1H-pyrazole-4-carboxamide} \)

(24-7) \( N-(4'-\text{bromo-1},1'-\text{biphenyl-2-yl})-4-(\text{difluoromethyl})-2\text{-methyl-1,3-thiazole-5-carboxamide} \)

Emphasis is given to the active compound combinations \( U \) listed in Table 21 below:

<table>
<thead>
<tr>
<th>No.</th>
<th>Biphenylcarboxamide of the formula (XVI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U-1</td>
<td>( (24-1) \text{N-(3',4'-dichloro-5-fluoro-1},1'-\text{biphenyl-2-yl})-3-(\text{difluoromethyl})-1\text{-methyl-1H-pyrazole-4-carboxamide} )</td>
</tr>
<tr>
<td>U-2</td>
<td>( (24-3) \text{3-(trifluoromethyl)-N-[3'-fluoro-4'-(E)-(methoxyimino)methyl]}^-\text{1',biphenyl-2-yl}]^-1\text{-methyl-1H-pyrazole-4-carboxamide} )</td>
</tr>
<tr>
<td>U-3</td>
<td>( (24-7) \text{N-(4'-bromo-1},1'-\text{biphenyl-2-yl})-4-(\text{difluoromethyl})-2\text{-methyl-1,3-thiazole-5-carboxamide} )</td>
</tr>
</tbody>
</table>

In addition to genistein of the formula (I), the active compound combinations according to the invention comprise at least one active compound from the compounds of groups (2) to (24). In addition, they may also comprise further fungicidally active additives.

If the active compounds in the active compound combinations according to the invention are present in certain weight ratios, the synergistic effect is particularly pronounced. However, the weight ratios of the active compounds in the active compound combinations can be varied within a relatively wide range. In general, the active compound combinations according to the invention comprise active genistein and a mixing partner from one of the groups (2) to (24) in the mixing ratios listed in an exemplary manner in Table 22 below.

The mixing ratios are based on ratios by weight. The ratio is to be understood as active compound genistein of the formula (I): mixing partner.
Table 22: Mixing ratios

<table>
<thead>
<tr>
<th>Mixing partner</th>
<th>Preferred mixing ratio</th>
<th>Particularly preferred mixing ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (2): strobilurins</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (3): triazoles except for (3-15)</td>
<td>50 : 1 to 1 : 50</td>
<td>20 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(3-15): prothioconazole</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (4): sulphenamides</td>
<td>1 : 1 to 1 : 150</td>
<td>1 : 1 to 1 : 100</td>
</tr>
<tr>
<td>Group (5): valinamides</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (6): carboxamides</td>
<td>50 : 1 to 1 : 50</td>
<td>20 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (7): dithiocarbamates</td>
<td>1 : 1 to 1 : 150</td>
<td>1 : 1 to 1 : 100</td>
</tr>
<tr>
<td>Group (8): acylalanines</td>
<td>10 : 1 to 1 : 150</td>
<td>5 : 1 to 1 : 100</td>
</tr>
<tr>
<td>Group (9): anilinopyrimidines</td>
<td>5 : 1 to 1 : 50</td>
<td>1 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (10): benzimidazoles</td>
<td>10 : 1 to 1 : 50</td>
<td>5 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (11): carbamates except for (11-1)</td>
<td>1 : 1 to 1 : 150</td>
<td>1 : 1 to 1 : 100</td>
</tr>
<tr>
<td>(11-1): diethofencarb</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (12): (12-1)/(12-2)/(12-3)</td>
<td>1 : 1 to 1 : 150</td>
<td>1 : 5 to 1 : 100</td>
</tr>
<tr>
<td>Group (12): (12-4)/(12-5)/(12-6)</td>
<td>5 : 1 to 1 : 50</td>
<td>1 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (13): guanidines</td>
<td>100 : 1 to 1 : 150</td>
<td>20 : 1 to 1 : 100</td>
</tr>
<tr>
<td>Group (14): imidazoles</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (15): morpholines</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (16): pyrroles</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (17): phosphonates</td>
<td>10 : 1 to 1 : 150</td>
<td>1 : 1 to 1 : 100</td>
</tr>
<tr>
<td>Group (18): phenylethanamides</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
</tbody>
</table>
Table 22: Mixing ratios

<table>
<thead>
<tr>
<th>Mixing partner</th>
<th>Preferred mixing ratio</th>
<th>Particularly preferred mixing ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>(19-1): acibenzolar-S-methyl</td>
<td>50 : 1 to 1 : 50</td>
<td>20 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(19-2): chlorothalonil</td>
<td>1 : 1 to 1 : 150</td>
<td>1 : 1 to 1 : 100</td>
</tr>
<tr>
<td>(19-3): cymoxanil</td>
<td>10 : 1 to 1 : 50</td>
<td>5 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(19-4): edifenphos</td>
<td>10 : 1 to 1 : 50</td>
<td>5 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(19-5): famoxadone</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(19-6): fluazinam</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(19-7): copper oxychloride</td>
<td>1 : 1 to 1 : 150</td>
<td>1 : 5 to 1 : 100</td>
</tr>
<tr>
<td>(19-8): copper hydroxide</td>
<td>1 : 1 to 1 : 150</td>
<td>1 : 5 to 1 : 100</td>
</tr>
<tr>
<td>(19-9): oxadixyl</td>
<td>10 : 1 to 1 : 150</td>
<td>5 : 1 to 1 : 100</td>
</tr>
<tr>
<td>(19-10): spiroxamine</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(19-11): dithianon</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(19-12): metrafenone</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(19-13): fenamidone</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(19-14): 2,3-dibutyl-6-chlorothieno-</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>[2,3-d]pyrimidin-4(3H)one</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(19-15): probenazole</td>
<td>10 : 1 to 1 : 150</td>
<td>5 : 1 to 1 : 100</td>
</tr>
<tr>
<td>(19-16): isoprothiolane</td>
<td>10 : 1 to 1 : 150</td>
<td>5 : 1 to 1 : 100</td>
</tr>
<tr>
<td>(19-17): kasugamycin</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(19-18): phthalide</td>
<td>10 : 1 to 1 : 150</td>
<td>5 : 1 to 1 : 100</td>
</tr>
<tr>
<td>(19-19): ferimzone</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>(19-20): tricyclazole</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
</tbody>
</table>
Table 22: Mixing ratios

<table>
<thead>
<tr>
<th>Mixing partner</th>
<th>Preferred mixing ratio</th>
<th>Particularly preferred mixing ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>(19-21): N-({4-[(cyclopropylamino)-carbonyl]phenyl)sulphonyl)-2-methoxybenzamide</td>
<td>10 : 1 to 1 : 150</td>
<td>5 : 1 to 1 : 100</td>
</tr>
<tr>
<td>(19-22) 2-(4-chlorophenyl)-N-{2-[3-methoxy-4-(prop-2-yn-1-yloxy)phenyl]ethyl}-2-(prop-2-yn-1-yloxy)-acetamide</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (20): (thio)urea derivatives</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (21): amides</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (22): triazolopyrimidines</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (23): iodochromones</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
<tr>
<td>Group (24): biphenylcarboxamides</td>
<td>50 : 1 to 1 : 50</td>
<td>10 : 1 to 1 : 20</td>
</tr>
</tbody>
</table>

Further preferred mixing ratios are:

Table 22a:

<table>
<thead>
<tr>
<th>Mixing partner</th>
<th>Preferred mixing ratio</th>
<th>Particularly preferred mixing ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (2): strobilurins</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (3): triazoles except for (3-15)</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>(3-15): prothioconazole</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (4): sulphenamides</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (5): valinamides</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
</tbody>
</table>
Table 22a:

<table>
<thead>
<tr>
<th>Mixing partner</th>
<th>Preferred mixing ratio</th>
<th>Particularly preferred mixing ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group (6): carboxamides</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (7): dithiocarbamates</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (8): acylalanines</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (9): anilinopyrimidines</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (10): benzimidazoles</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (11): carbamates except for (11-1)</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>(11-1): diethofencarb</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (12): (12-1)/(12-2)/(12-3)</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 5 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (12): (12^)/(12-5)/(12-6)</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (13): guanidines</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (14): imidazoles</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (15): morpholines</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (16): pyrroles</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (17): phosphonates</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Group (18): phenylethanamides</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>(19-1): acibenzolar-S-methyl</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>(19-2): chlorothalonil</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>(19-3): cymoxanil</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>(19-4): edifenphos</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>(19-5): famoxadone</td>
<td>10 : 1 to 1 : 10^{14}</td>
<td>1 : 1 to 1 : 10^{9}</td>
</tr>
<tr>
<td>Mixing partner</td>
<td>Preferred mixing ratio</td>
<td>Particularly preferred mixing ratio</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>(19-6): fluazinam</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-7): copper oxychloride</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 5 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-8): copper hydroxide</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 5 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-9): oxadixyi</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-10): spiroxamine</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-11): dithianon</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-12): metrafenone</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-13): fenamidone</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-14): 2,3-dibutyl-6-chlorothieno-</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>[2,3-d]pyrimidin-4(3H)one</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-15): probenazole</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-16): isoprothiolane</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-17): kasugamycin</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-18): phthalide</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-19): ferimzone</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-20): tricyclazole</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>(19-21): N-(4-[(cyclopropylamino)-</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>carboxyliphenyl] sulphonyl)-2-</td>
<td>10 : 1 to 1 : 10^4</td>
<td>1 : 1 to 1 : 10^9</td>
</tr>
<tr>
<td>methoxybenzamide</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
In each case, the mixing ratio is to be chosen such that a synergistic mixture is obtained. The mixing ratios between the compound of the formula (I) and a compound of one of the groups (2) to (24) may also vary between the individual compounds of a group.

The active compound combinations according to the invention have very good fungicidal properties and are suitable for controlling phytopathogenic fungi, such as Plasmodiophoromycetes, Oomycetes, Chytridiomycetes, Zygomycetes, Ascomycetes, Basidiomycetes, Deuteromycetes, etc.

The active compound combinations according to the invention are particularly suitable for controlling seed and soil-borne pathogens.

Some pathogens causing fungal diseases which come under the generic names listed above may be mentioned by way of example, but not by way of limitation:

Powdery Mildew Diseases such as

Blumeria diseases caused for example by Blumeria graminis

Podosphaera diseases caused for example by Podosphaera leucotricha
Sphaerotheca diseases caused for example by Sphaerotheca fuliginea

Uncinula diseases caused for example by Uncinula nectar

Rust Diseases such as

Gymnosporangium diseases caused for example by Gymnosporangium sabinae

Hemileia diseases caused for example by Hemileia vastatrix

Phakopsora diseases caused for example by Phakopsora pachyrhizi and Phakopsora meibomiae

Puccinia diseases caused for example by Puccinia recondita;

Uromyces diseases caused for example by Uromyces appendicular^ 

Oomycete Diseases such as

Bremia diseases caused for example by Bremia lactucae

Peronospora diseases caused for example by Peronospora pisi and Peronospora brassicae

Phytophthora diseases caused for example by Phytophthora infestans

Plasmopara diseases caused for example by Plasmopara viticola

Pseudoperonospora diseases caused for example by Pseudoperonospora humuli and Pseudoperonospora cubensis

Pythium diseases caused for example by Pythium ultimum

Leafspot, Leaf blotch and Leaf Blight Diseases such as

Alternaria diseases caused for example by Alternaria solani

Cercospora diseases caused for example by Cercospora beticola

Cladosporium diseases caused for example by Cladosporium cucumerinum

Cochliobolus diseases caused for example by Cochliobolus sativus

(Conidiaform: Drechslera, Syn: Helminthosporium);

Colletotrichum diseases caused for example by Colletotrichum lindemuthianum
Cycloconium diseases caused for example by Cycloconium oleaginum

Diaporthe diseases caused for example by Diaporthe cirri

Elsinoe diseases caused for example by Elsinoe fawcettii

Gloeosporium diseases caused for example by Gloeosporium laeticolor

Glomerella diseases caused for example by Glomerella cingulata

Guignardia diseases caused for example by Guignardia bidwellii

Leptosphaeria diseases caused for example by Leptosphaeria maculans

Magnaporthe diseases caused for example by Magnaporthe grisea

Mycosphaerella diseases caused for example by Mycosphaerella graminicola and Mycosphaerella fijiensis

Phaeosphaeria diseases caused for example by Phaeosphaeria nodorum

Pyrenophora diseases caused for example by Pyrenophora teres

Ramularia- diseases caused for example by Ramularia collo-cygni

Rhynchosporium diseases caused for example by Rhynchosporium secalis

Septoria diseases caused for example by Septoria apii;

Typhula diseases caused for example by Thyphula incarnata

Venruria diseases caused for example by Venturia inaequalis

Root- and Stem Diseases such as

Corticium diseases caused for example by Corticium graminearum

Fusarium diseases caused for example by Fusarium oxysporum

Gaeumannomyces diseases caused for example by Gaeumannomyces graminis

Rhizoctonia diseases caused for example by Rhizoctonia solani

Tapesia diseases caused for example by Tapesia acuformis
Thielaviopsis diseases caused for example by Thielaviopsis basicola

Ear and Panicle Diseases including Maize cob such as

Alternaria diseases caused for example by Alternaria spp.

Aspergillus diseases caused for example by Aspergillus flavus

Cladosporium diseases caused for example by Cladosporium cladosporioides

Claviceps diseases caused for example by Claviceps purpurea

Fusarium diseases caused for example by Fusarium culmorum

Gibberella diseases caused for example by Gibberella zeae

Monographella diseases caused for example by Monographella nivalis

Smut- and Bunt Diseases such as

Sphacelotheca diseases caused for example by Sphacelotheca reiliana

Tilletia diseases caused for example by Tilletia caries

Urocystis diseases Urocystis occulta

Ustilago diseases caused for example by Ustilago nuda;

Fruit Rot and Mould Diseases such as

Aspergillus diseases caused for example by Aspergillus flavus

Botrytis diseases caused for example by Botrytis cinerea

Penicillium diseases caused for example by Penicillium expansum and Penicillium purpurogenum

Sclerotinia diseases caused for example by Sclerotinia sclerotiorum;

Verticillium diseases caused for example by Verticillium alboatrum

Seed- and Soilborne Decay, Mould, Wilt, Rot and Damping-off diseases

Alternaria diseases caused for example by Alternaria brassicicola

Aphanomyces diseases caused for example by Aphanomyces euteiches
Ascochyta diseases caused for example by Ascochyta lentis

Aspergillus diseases caused for example by Aspergillus flavus

Cladosporium diseases caused for example by Cladosporium herbarum

Cochliobolus diseases caused for example by Cochliobolus sativus

(Conidiaform: Drechslera, Bipolaris Syn: Helminthosporium);

Colletotrichum diseases caused for example by Colletotrichum coccodes;

Fusarium diseases caused for example by Fusarium culmorum;

Gibberella diseases caused for example by Gibberella zeae;

Macrophomina diseases caused for example by Macrophomina phaseolina

Monographella diseases caused for example by Monographella nivalis;

Penicillium diseases caused for example by Penicillium expansum

Phoma diseases caused for example by Phoma lingam

Phomopsis diseases caused for example by Phomopsis sojae;

Phytophthora diseases caused for example by Phytophthora cactorum;

Pyrenophora diseases caused for example by Pyrenophora graminea

Pyricularia diseases caused for example by Pyricularia oryzae;

Pythium diseases caused for example by Pythium ultimum;

Rhizoctonia diseases caused for example by Rhizoctonia solani;

Rhizopus diseases caused for example by Rhizopus oryzae

Sclerotium diseases caused for example by Sclerotium rolfsii;

Septoria diseases caused for example by Septoria nodorum;

Typhula diseases caused for example by Typhula incarnata;

Verticillium diseases caused for example by Verticillium dahliae
Canker, Broom and Dieback Diseases such as

Nectria diseases caused for example by Nectria galligena

Blight Diseases such as

Monilinia diseases caused for example by Monilinia laxa

Leaf Blister or Leaf Curl Diseases including deformation of blooms and fruits such as

Taphrina diseases caused for example by Taphrina deformans

Decline Diseases of Wooden Plants such as

Esca disease caused for example by Phaeomoniella clamydosa and Phaeoacremonium aleophilum and Fomitiporia mediterranea

Diseases of Flowers and Seeds such as

Botrytis diseases caused for example by Botrytis cinerea

Diseases of Tubers such as

Rhizoctonia diseases caused for example by Rhizoctonia solani

Helminthosporium diseases caused for example by Helminthosporium solani

Diseases caused by Bacterial Organisms such as

Xanthomonas species for example Xanthomonas campestris pv. Oryzae

Pseudomonas species for example Pseudomonas syringae pv. Lachrymans

Erwinia species for example Erwinia amylovora

The compounds related to this invention are preferably used to control the following soybean diseases:

Fungal Diseases of the Foliage, Upper Stems, Pods and Seeds for example

Alternaria leaf spot (Alternaria spec, atrans tenuissima), Anthracnose (Colletotrichum gloeosporoides dematium var. truncatum), Brown spot (Septoria glycines), Cercospora leaf spot and blight (Cercospora kikuchii), Choanephora leaf blight (Choanephora infundibulifera trispora
(Syn.), Dactuliophora leaf spot (Dactuliophora glycines), Downy Mildew (Peronospora manshurica), Drechslera blight (Drechslera glycines), Frogeye Leaf spot (Cercospora sojina), Leptosphaerulina Leaf Spot (Leptosphaerulina trifolii), Phyllostica Leaf Spot (Phyllosticta sojaecola), Pod and Stem Blight (Phomopsis sojae), Powdery Mildew (Microsphaera diffusa), Pyrenochaeta Leaf Spot (Pyrenochaeta glycines), Rhizoctonia Aerial, Foliage, and Web Blight (Rhizoctonia solani), Rust (Phakopsora pachyrhizi, Phakopsora meibomiae), Scab (Sphaceloma glycines), Stemphylium Leaf Blight (Stemphylium botryosum), Target Spot (Corynespora cassiicola)

Fungal Disease of the Roots and Lower Stems for example

Black Root Rot (Calonectria crotalariae), Charcoal Rot (Macrophomina phaseolina), Fusarium Blight or Wilt, Root Rot, and Pod and Collar Rot (Fusarium oxysporum, Fusarium orthoceras, Fusarium semitectum, Fusarium equiseti), Mycoleptodiscus Root Rot (Mycoleptodiscus terrestris), Neocosmospora (Neocosmospora vasinfecta), Pod and Stem Blight (Diaporthe phaseolorum), Stem Canker (Diaporthe phaseolorum var. caulivora), Phytophthora Rot (Phytophthora megasperma), Brown Stem Rot (Phialophora gregata), Pythium Rot (Pythium aphanidermatum, Pythium irregulare, Pythium debaryanum, Pythium myriotylum, Pythium ultimum), Rhizoctonia Root Rot, Stem Decay, and Damping-Off (Rhizoctonia solani), Sclerotinia Stem Decay (Sclerotinia sclerotiorum), Sclerotinia Southern Blight (Sclerotinia rolfsii), Thielaviopsis Root Rot (Thielaviopsis basicola).

The fact that the active compound combinations are well tolerated by plants at the concentrations required for controlling plant diseases permits a treatment of entire plants (above-ground parts of plants and roots), of propagation stock and seed, and of the soil. The active compound combinations according to the invention can be used for foliar application or else as seed dressings.

The fact that the active compounds which can be used are well tolerated by plants at the concentrations required for controlling plant diseases permits a treatment of the seed. Accordingly, the active compounds according to the invention can be used as seed dressings.

A large part of the damage to crop plants which is caused by phytopathogenic fungi 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. Protecting the seed and the germinating plant by the use of suitable compositions is therefore of particularly great interest.

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

These compositions include not only compositions which are ready to be applied to the plant or seed to be treated by means of a suitable device, such as a spraying or dusting device, but also concentrated commercial compositions which must be diluted before application to the crop.

The control of phytopathogenic fungi by treating the seeds of plants has been known for a long time and is subject-matter of continuous improvements. However, the treatment of seed frequently entails a series of problems which cannot always 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 where additional applications are at least reduced. 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 phytopathogenic fungi, 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 fungicidal 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.

The present invention therefore in particular also relates to a method for the protection of seed and germinating plants from attack by phytopathogenic fungi, by treating the seed with a composition according to the invention.

The invention likewise relates to the use of the compositions according to the invention for the treatment of seed for protecting the seed and the germinating plant from phytopathogenic fungi.

Furthermore, the invention relates to seed which has been treated with a composition according to the invention so as to afford protection from phytopathogenic fungi.

One of the advantages of the present invention is that the particular systemic properties of the compositions according to the invention mean that treatment of the seed with these compositions not only protects the seed itself, but also the resulting plants after emergence, from
phytopathogenic fungi. In this manner, the immediate treatment of the crop at the time of sowing or shortly thereafter can be dispensed with.

Furthermore, it must be considered as advantageous that the mixtures according to the invention can also be employed in particular in transgenic seed.

The method of treatment according to the present invention is useful to treat propagation material such as tubers or rhizomes, but also seeds, seedlings or seedlings pricking out and plants or plants pricking out. This method of treatment can also be useful to treat the overground parts of the plant such as trunks, stems or stalks, leaves, flowers and fruits of the concerned plant.

Plants that can be protected by the method according to the invention can be legumes or non-leguminous plants.

Among the plants that can be protected by the method according to the present invention, mention may be made of cotton; flax; vine; fruit or vegetable crops such as Rosaceae sp. (for instance pip fruit such as apples and pears, but also stone fruit such as apricots, almonds and peaches), Ribesioiidae sp., Juglandaceae sp., Betulaceae sp., Anacardiaceae sp., Fagaceae sp., Moraceae sp., Oleaceae sp., Actinidaceae sp., Lauraceae sp., Musaceae sp. (for instance banana trees and plantins), Rubiaceae sp., Theaceae sp., Sterculicineae sp., Rutaceae sp. (for instance lemons, oranges and grapefruit); Solanaceae sp. (for instance tomatoes), Liliaceae sp., Asteraceae sp. (for instance lettuces), Umbelliferae sp., Cruciferae sp., Chenopodiaceae sp., Cucurbitaceae sp., Papilionaceae sp. (for instance peas), Rosaceae sp. (for instance strawberries); major crops such as Graminaceae sp. (for instance maize, lawn or cereals such as wheat, rice, barley and triticale), Asteraceae sp. (for instance sunflower), Cruciferae sp. (for instance colza), Fabaceae sp. (for instance peanuts), Papilionaceae sp. (for instance soybean), Solanaceae sp. (for instance potatoes), Chenopodiaceae sp. (for instance beetroots); horticultural and forest crops; as well as genetically modified homologues of these crops.

Among the legumes, mention may be made of soybean, pea, horse bean, groundnut, bean, lupin, alfalfa or clover.

In the context of the present invention, the composition according to the invention is applied to the seed either alone or in a suitable formulation. Preferably, the seed is treated in a state which is stable enough to avoid damage during treatment. In general, the seed may be treated at any point in time between harvest and sowing. The seed usually used has been separated from the plant and freed from cobs, shells, stalks, coats, hairs or the flesh of the fruits. Thus, for example, it is
possible to use seed which has been harvested, cleaned and dried to a moisture content of below 15% by weight. Alternatively, it is also possible to use seed which, after drying, has, for example, been treated with water and then dried again.

When treating the seed, care must generally be taken that the amount of the composition 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 compositions 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 composition to the seed in the form of a suitable formulation. Suitable formulations and methods for the treatment of seed are known to the skilled worker 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 active compound combinations according to the invention are also suitable for increasing the yield of crops. In addition, they show reduced toxicity and are well tolerated by plants.

According to the invention, it is possible to treat all plants and parts of plants. Plants are to be understood here as meaning all plants and plant populations, such as desired and undesired wild plants or crop plants (including naturally occurring crop plants). Crop plants can be plants which can be obtained by conventional breeding and optimization methods or by biotechnological and genetic engineering methods or combinations of these methods, including the transgenic plants and including plant cultivars which can or cannot be protected by plant breeders’ certificates. Parts of plants are to be understood as meaning all above-ground and below-ground parts and organs of plants, such as shoot, leaf, flower and root, examples which may be mentioned being leaves, needles, stems, trunks, flowers, fruit-bodies, fruits and seeds and also roots, tubers and rhizomes. Parts of plants also include harvested material and vegetative and generative propagation material, for example seedlings, tubers, rhizomes, cuttings and seeds.

The treatment of the plants and parts of plants according to the invention with the active compounds is carried out directly or by action on their environment, habitat or storage area according to customary treatment methods, for example by dipping, spraying, evaporating, atomizing, broadcasting, brushing-on and, in the case of propagation material, in particular in the case of seeds, furthermore by one- or multilayer coating.
As already mentioned above, it is possible to treat all plants and their parts according to the invention. In a preferred embodiment, wild plant species and plant cultivars, or those obtained by conventional biological breeding, such as crossing or protoplast fusion, and parts thereof, are treated. In a further preferred embodiment, transgenic plants and plant cultivars obtained by genetic engineering, if appropriate in combination with conventional methods (Genetically Modified Organisms), and parts thereof, are treated. The term "parts" or "parts of plants" or "plant parts" has been explained above.

Particularly preferably, plants of the plant cultivars which are in each case commercially available or in use are treated according to the invention.

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 substances and compositions which can be used according to the invention, better plant growth, increased tolerance to high or low temperatures, increased tolerance to drought or to water or soil salt content, increased flowering performance, easier harvesting, accelerated maturation, higher harvest yields, better quality and/or a higher nutritional value of the harvested products, better storage stability and/or processability of the harvested products are possible which exceed the effects which were actually to be expected.

The transgenic plants or plant cultivars (i.e. those obtained by genetic engineering) which are preferably to be treated according to the invention include all plants which, in the genetic modification, received genetic material which imparted particularly advantageous useful properties ("traits") to these plants. Examples of such properties are better plant growth, increased tolerance to high or low temperatures, increased tolerance to drought or to water or soil salt content, increased flowering performance, easier harvesting, accelerated maturation, higher harvest yields, better quality and/or a higher nutritional value of the harvested products, better storage stability and/or processability of the harvested products. Further and particularly emphasized examples of such properties are a better defence of the plants against animal and microbial pests, such as against insects, mites, phytopathogenic fungi, bacteria and/or viruses, and also increased tolerance of the plants to certain herbicidally active compounds. Examples of transgenic plants which may be mentioned are the important crop plants, such as cereals (wheat, rice), maize, soya beans, potatoes, cotton, oilseed rape and also fruit plants (with the fruits apples, pears, citrus fruits and grapes), and particular emphasis is given to maize, soya beans, potatoes, cotton and oilseed rape. Traits that are emphasized are in particular increased defence of the plants against insects, by toxins formed in the plants, in particular those formed in the plants by the genetic material from Bacillus
thuringiensis (for example by the genes CryIA(a), CryIA(b), CryIA(c), CryllA, CrylllA, CryIIIB2, Cry9c, Cry2Ab, Cry3Bb and CryIF and also combinations thereof) (hereinbelow referred to as "Bt plants"). Traits that are furthermore particularly emphasized are the increased tolerance of the plants to certain herbicidally active compounds, for example imidazolinones, sulphonylureas, glyphosate or phosphinotricin (for example the "PAT" gene). The genes which impart the desired traits in question can also be present in combination with one another in the transgenic plants. Examples of "Bt plants" which may be mentioned are maize varieties, cotton varieties, soya bean varieties and potato varieties which are sold under the trade names YIELD GARD® (for example maize, cotton, soya beans), KnockOut® (for example maize), StarLink® (for example maize), Bollgard® (cotton), Nucotin® (cotton) and NewLeai® (potato). Examples of herbicide-tolerant plants which may be mentioned are maize varieties, cotton varieties and soya bean varieties which are sold under the trade names Roundup Ready® (tolerance to glyphosate, for example maize, cotton, soya bean), Liberty Link® (tolerance to phosphinotricin, for example oilseed rape), MI® (tolerance to imidazolinones) and STS® (tolerance to sulphonylureas, for example maize). Herbicide-resistant plants (plants bred in a conventional manner for herbicide tolerance) which may be mentioned also include the varieties sold under the name Clearfield® (for example maize). Of course, these statements also apply to plant cultivars which have these genetic traits or genetic traits still to be developed, and which will be developed and/or marketed in the future.

Depending on their particular physical and/or chemical properties, the active compound combinations according to the invention can be converted into the customary formulations, such as solutions, emulsions, suspensions, powders, dusts, foams, pastes, soluble powders, granules, aerosols, suspesoemulsion concentrates, natural and synthetic materials impregnated with active compound and microencapsulations in polymeric substances and in coating compositions for seeds, and ULV cool and warm fogging formulations.

These formulations are produced in a known manner, for example by mixing the active compounds or active compound combinations with extenders, that is liquid solvents, liquefied gases under pressure, and/or solid carriers, optionally with the use of surfactants, that is emulsifiers and/or dispersants, and/or foam formers.

If the extender used is water, it is also possible to employ, for example, organic solvents as auxiliary solvents. Essentially, suitable liquid solvents are: aromatics such as xylene, toluene or alkyl-naphthalenes, chlorinated aromatics or chlorinated aliphatic hydrocarbons such as chlorobenzenes, chloroethylenes or methylene chloride, aliphatic hydrocarbons such as cyclohexane or paraffins, for example petroleum fractions, mineral and vegetable oils, alcohols such as butanol or glycol and their ethers and esters, ketones such as acetone, methyl ethyl ketone, methyl isobutyl ketone or cyclohexanone, strongly polar solvents such as dimethylformamide or dimethyl sulphoxide, or else water.
Liquefied gaseous extenders or carriers are to be understood as meaning liquids which are gaseous at standard temperature and under atmospheric pressure, for example aerosol propellants such as butane, propane, nitrogen and carbon dioxide.

Suitable solid carriers are: for example ammonium salts and ground natural minerals such as kaolins, clays, talc, chalk, quartz, attapulgite, montmorillonite or diatomaceous earth, and ground synthetic minerals such as finely divided silica, alumina and silicates. Suitable solid carriers for granules are: for example crushed and fractionated natural rocks such as calcite, pumice, marble, sepiolite and dolomite, or else synthetic granules of inorganic and organic meals, and 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, or else protein hydrolysates. Suitable dispersants are: for example lignosulphite waste liquors and methylcellulose.

Tackifiers such as carboxymethylcellulose, natural and synthetic polymers in the form of powders, granules or latices, such as gum arabic, polyvinyl alcohol and 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.

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

The formulations for controlling unwanted phytopathogenic fungi generally comprise between 0,0000000000001 (10^-14) and 95 per cent by weight of active compound, preferably between 0,000000001 (10^-9) and 90%.

The active compound combinations according to the invention can be used as such, in the form of their formulations or as the use forms prepared therefrom, such as ready-to-use solutions, emulsifiable concentrates, emulsions, suspensions, wettable powders, soluble powders, dusts and granules. They are used in a customary manner, for example by watering (drenching), drip irrigation, spraying, atomizing, broadcasting, dusting, foaming, spreading-on, and as a powder for dry seed treatment, a solution for seed treatment, a water-soluble powder for seed treatment, a water-soluble powder for slurry treatment, or by encrusting.
The active compound combinations according to the invention can, in commercial formulations and in the use forms prepared from these formulations, be present as a mixture with other active compounds, such as insecticides, attractants, sterilants, bactericides, acaricides, nematicides, fungicides, growth regulators or herbicides.

When using the active compound combinations according to the invention, the application rates can be varied within a relatively wide range, depending on the kind of application. In the treatment of parts of plants, the application rates of active compound combination are generally between $10^{-6}$ g and 10 000 g/ha, preferably between $10^{-4}$ g and 1000 g/ha and more preferably between 10 g/lQQQ g/ha. In the treatment of seeds, the application rates of active compound combination are generally between $10^{-6}$ g and 50 g per kilogram of seed, preferably between $10^{-4}$ g and 10 g per kilogram of seed and more preferably between 0.01 g and 10 g per kg of seed. In the treatment of the soil, the application rates of active compound combination are generally between $10^{-6}$ g and 10 000 g/ha, preferably between $10^{-4}$ g and 5000 g/ha and more preferably between 1 g and 5000 g/ha.

The active compound combinations can be used as such, in the form of concentrates or in the form of generally customary formulations, such as powders, granules, solutions, suspensions, emulsions or pastes.

The formulations mentioned can be prepared in a manner known per se, for example by mixing the active compounds with at least one solvent or diluent, emulsifier, dispersant and/or binder or fixative, water repellent, if desired desiccants and UV stabilizers, and, if desired, colorants and pigments and other processing auxiliaries.

The inventive method for the protection of seeds and plants, arising from these seeds, against fungal diseases comprises a procedure in which the seed is treated at the same time with genistein of formula (I) and at least one fungicide selected from groups (2) to (24). It further comprises a method in which the seed is treated with genistein of formula (I) and at least one fungicide selected from groups (2) to (24) separately.

The invention also comprises a seed, which has been treated with genistein of formula (I) and at least one fungicide selected from groups (2) to (24) at the same time. The invention also comprises a seed, which has been treated with genistein of formula (I) and at least one fungicide selected from groups (2) to (24) separately. For such a seed, the active ingredients, can be applied in separate layers. These layers can optionally be separated by one or more additional layers that may or may not contain active ingredients.
A mixture with other known active compounds, such as insecticides, herbicides, or with fertilizers and growth regulators, safeners and/or semiochemicals is also possible.

The good fungicidal activity of the active compound combinations according to the invention is evident from the example below. While the individual active compounds exhibit weaknesses with regard to the fungicidal activity, the combinations have an activity which exceeds a simple addition of activities.

A synergistic effect of fungicides is always present when the fungicidal activity of the active compound combinations exceeds the total of the activities of the active compounds when applied individually.

The expected activity for a given combination of two active compounds can be calculated as follows (cf. Colby, S.R., "Calculating Synergistic and Antagonistic Responses of Herbicide Combinations", Weeds 15, pages 20-22, 1967):

If

\[ X \] is the efficacy, when applying the active compound A at a rate of application of active compound of \( m \) g/ha,

\[ Y \] is the efficacy, when applying the active compound B at a rate of application of active compound of \( n \) g/ha,

\[ E \] is the expected efficacy, when applying the active compounds A and B at rates of application of active compound of \( m \) and \( n \) g/ha,

\[ E = X + Y - \frac{XY}{100} \]

The degree of efficacy, expressed in % is denoted. 0% means an efficacy which corresponds to that of the control while an efficacy of 100% means that no disease is observed.

If the actual fungicidal activity exceeds the calculated value, then the activity of the combination is superadditive, i.e. a synergistic effect exists. In this case, the efficacy which was actually observed must be greater than the value for the expected efficacy (E) calculated from the abovementioned formula.

The invention is illustrated by the following examples.
The invention is illustrated by the following example.

**Exemple**

*A) Rhizoctonia solani*-Test (in vitro) / Microtest

The microtest was performed in liquid medium with potato-dextrose broth (PDB) using microtitre plates.

The active compound is applied as the technical active substance dissolved in methanol.

A mycelium suspension of *Rhizoctonia solani* was used for inoculation. After 5 days of incubation by darkness under shaking (10 Hz), the optical density in each cavity was evaluated with the aid of a microtitre plate reader.

0% means an efficacy which corresponds to that of the control, while an efficacy of 100% means that no fungal growth is observed.

The table below clearly shows that the observed activity of the active compound combination according to the invention is greater than the calculated activity, i.e. a synergistic effect is present.

**Table A**

*Rhizoctonia solani*-Test (in vitro) / Microtest

<table>
<thead>
<tr>
<th>Active compound</th>
<th>Rate of application of active compound in ppm</th>
<th>Efficacy in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyflufen (6a-2)</td>
<td>0.3</td>
<td>51</td>
</tr>
<tr>
<td>Genistein</td>
<td>0.00003</td>
<td>18</td>
</tr>
</tbody>
</table>
## Inventive Compound combination:

<table>
<thead>
<tr>
<th>Ratio of the mixture</th>
<th>Rate of application of active compound in ppm</th>
<th>Actual Efficacy (%)</th>
<th>Expected value, calculated using Colby's formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>10000:1</td>
<td>0.3 + 0.00003</td>
<td>68</td>
<td>60</td>
</tr>
<tr>
<td>Pyflufen + Genistein</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Bi. Gibberella zeae - Test (in vitro) / Microtest**

The microtest was performed in liquid medium with potato-dextrose broth (PDB) using microtitre plates.

The active compound is applied as the technical active substance dissolved in methanol.

A spore suspension of *Gibberella zeae* was used for inoculation. After 5 days of incubation by darkness under shaking (10 Hrz), the optical density in each cavity was evaluated with the aid of a microtitre plate reader.

0% means an efficacy which corresponds to that of the control, while an efficacy of 100% means that no fungal growth is observed.

The table below clearly shows that the observed activity of the active compound combination according to the invention is greater than the calculated activity, i.e. a synergistic effect is present.

**Table B**

<table>
<thead>
<tr>
<th>Active compound Known:</th>
<th>Rate of application of active compound in ppm</th>
<th>Efficacy in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metalaxyl</td>
<td>0.003</td>
<td>24</td>
</tr>
<tr>
<td>Genistein</td>
<td>0.0000003</td>
<td>10</td>
</tr>
</tbody>
</table>
Inventive Compound combination:

<table>
<thead>
<tr>
<th>Ratio of the mixture</th>
<th>Rate of application of active compound in ppm</th>
<th>Actual Efficacy (%)</th>
<th>Expected value, calculated using Colby’s formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metalaxyl + Genistein</td>
<td>10000:1</td>
<td>0.003 + 0.0000003</td>
<td>52 32</td>
</tr>
</tbody>
</table>
**O** _Rhizoctonia solani_ -Test (in vitro) / Microtest

The microtest was performed in liquid medium with potato-dextrose broth (PDB) using microtitre plates.

The active compound is applied as the technical active substance dissolved in methanol.

A mycelium suspension of _Rhizoctonia solani_ was used for inoculation. After 3 days of incubation by darkness under shaking (10 Hrz), the optical density in each cavity was evaluated with the aid of a microtitre plate reader.

0% means an efficacy which corresponds to that of the control, while an efficacy of 100% means that no fungal growth is observed.

The table below clearly shows that the observed activity of the active compound combination according to the invention is greater than the calculated activity, i.e. a synergistic effect is present.

**Table C**

_Rhizoctonia solani_ -Test (in vitro) / Microtest

<table>
<thead>
<tr>
<th>Active compound Known:</th>
<th>Rate of application of active compound in ppm</th>
<th>Efficacy in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metalaxyl</td>
<td>0.01</td>
<td>37</td>
</tr>
<tr>
<td>Genistein</td>
<td>0.000001</td>
<td>40</td>
</tr>
</tbody>
</table>
### Inventive Compound combination:

<table>
<thead>
<tr>
<th>Ratio of the mixture</th>
<th>Rate of application of active compound in ppm</th>
<th>Actual Efficacy (%)</th>
<th>Expected value, calculated using Colby’s formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metalaxyl + Genistein</td>
<td>10000:1</td>
<td>0.01+ 0.000001</td>
<td>95 62</td>
</tr>
</tbody>
</table>
The microtest was performed in liquid medium with potato-dextrose broth (PDB) using microtitre plates.

The active compound is applied as the technical active substance dissolved in methanol.

A mycelium suspension of Coriolus versicolor was used for inoculation. After 3 days of incubation by darkness under shaking (10 Hrz), the optical density in each cavity was evaluated with the aid of a microtitre plate reader.

0% means an efficacy which corresponds to that of the control, while an efficacy of 100% means that no fungal growth is observed.

The table below clearly shows that the observed activity of the active compound combination according to the invention is greater than the calculated activity, i.e. a synergistic effect is present.

### Table D

**Coriolus versicolor -Test (in vitro) / Microtest**

<table>
<thead>
<tr>
<th>Active compound Known:</th>
<th>Rate of application of active compound in ppm</th>
<th>Efficacy in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prothioconazole</td>
<td>0.1 ppm</td>
<td>80</td>
</tr>
<tr>
<td>Genistein</td>
<td>0.00001 ppm</td>
<td>26</td>
</tr>
</tbody>
</table>
Inventive Compound combination:

<table>
<thead>
<tr>
<th>Ratio of the mixture</th>
<th>Rate of application of active compound in ppm</th>
<th>Actual Efficacy (%)</th>
<th>Expected value, calculated using Colby's formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prothioconazole + Genistein</td>
<td>10000:1</td>
<td>0.1 + 0.00001</td>
<td>91</td>
</tr>
</tbody>
</table>
Botrytis cinerea -Test (in vitro) / Microtest

The microtest was performed in liquid medium with potato-dextrose broth (PDB) using microtitre plates.

The active compound is applied as the technical active substance dissolved in methanol.

A spore suspension of Botrytis cinerea was used for inoculation. After 5 days of incubation by darkness under shaking (10 Hrz), the optical density in each cavity was evaluated with the aid of a microtitre plate reader.

0% means an efficacy which corresponds to that of the control, while an efficacy of 100% means that no fungal growth is observed.

The table below clearly shows that the observed activity of the active compound combination according to the invention is greater than the calculated activity, i.e. a synergistic effect is present.

Table E

<table>
<thead>
<tr>
<th>Active compound Known:</th>
<th>Rate of application of active compound in ppm</th>
<th>Efficacy in %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trifloxystrobin</td>
<td>0.03</td>
<td>6</td>
</tr>
<tr>
<td>Genistein</td>
<td>0.000003</td>
<td>2</td>
</tr>
</tbody>
</table>
Inventive Compound combination:

<table>
<thead>
<tr>
<th>Ratio of the mixture</th>
<th>Rate of application of active compound inppm</th>
<th>Actual Efficacy (%)</th>
<th>Expected value, calculated using Colby's formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trifloxystrobin + Genistein</td>
<td>10000:1</td>
<td>0.03 + 0.000003</td>
<td>19</td>
</tr>
</tbody>
</table>
1. Active compound combinations, comprising genistein of formula (I)

\[
\text{(I)}
\]

and at least one active compound selected from groups (2) to (24) below:

**Group (2) Strobilurins of the general formula (II)**

\[
\text{(II)}
\]

in which

- \( A^1 \) represents one of the groups

\[
\begin{align*}
\text{H}_3\text{CO} & \quad \text{A}^2 - \text{CH}_3 \\
\text{H}_3\text{CO} & \quad \text{N} - \text{C} - \text{O} \\
\text{H}_3\text{CO} & \quad \text{N} - \text{C} - \text{O} \\
\text{H}_3\text{CO} & \quad \text{N} - \text{C} - \text{O}
\end{align*}
\]

- \( A^2 \) represents NH or O,

- \( A^3 \) represents N or CH,

- \( L \) represents one of the groups
where the bond marked with an asterisk (*) is attached to the phenyl ring,

R\textsuperscript{11} represents phenyl, phenoxy or pyridinyl, each of which is optionally mono- or disubstituted by identical or different substituents from the group consisting of chlorine, cyano, methyl and trifluoromethyl, or represents l-(4-chlorophenyl)-pyrazol-3-yl or represents 1,2-propanedione-bis(O-methyloxime)-l-yl,

R\textsuperscript{12} represents hydrogen or fluorine;

Group (3) **Triazoles of the general formula** (HT)

\[
\begin{align*}
R^{13} & \text{ represents hydrogen, fluorine, chlorine, phenyl or 4-chlorophenoxy,} \\
R^{14} & \text{ represents hydrogen or chlorine,} \\
A^{4} & \text{ represents a direct bond, } -\text{CH}_2-, -\text{(CH}_2)_2- \text{ or } -\text{O}-, \\
A^{4} & \text{ furthermore represents } *\text{-CH}_2\text{-CH}_3- \text{ or } *\text{-CH=CR}_1^\text{17}-, \text{ where the bond marked with } * \text{ is attached to the phenyl ring, in which case } R^{15} \text{ and } R^{17} \text{ together represent } -\text{CH}_2\text{-CH}_2\text{-CH[CH(CH}_3)_2]-} \text{ or } -\text{CH}_2\text{-CH}_2\text{-C(CH}_3)_2;-. \\
A^{5} & \text{ represents C or Si (silicon),} \\
A^{4} & \text{ further represents } -\text{N(R}_1^\text{17})- \text{ and } A^{5} \text{ furthermore together with } R^{15} \text{ and } R^{16} \text{ represents the group } \text{C=NH}_2- \text{, in which case } R^{17} \text{ and } R^{18} \text{ together represent the group}
\end{align*}
\]
where the bond marked with * is attached to R^{17}.

R^{15} \text{ represents hydrogen, hydroxyl or cyano,}

R^{16} \text{ represents 1-cyclopropylethyl, 1-chlorocyclopropyl, C}_4\text{-alkyl, C}_1\text{-C}_6\text{-hydroxyalkyl, C}_4\text{-alkylcarbonyl, C}_2\text{-haloalkoxy-C}_2\text{-alkyl, trimethylsilyl-C}_2\text{-alkyl, monofluorophenyl or phenyl,}

R^{15} \text{ and R}^{16} \text{ furthermore together represent } -0-\text{CH}_2\text{-CH(R}^{18}\text{-O-}, -0-\text{CH}_2\text{-CH(R}^{18}\text{-CH}_2\text{), or -O-CH-(2-chlorophenyl)-},

R^{18} \text{ represents hydrogen, C}_4\text{-alkyl or bromine;}

\text{Group (4) Sulphenamides of the general formula (IV)}

\text{in which R}^{19} \text{ represents hydrogen or methyl;}

\text{Group (5) Valinamides selected from}

(5-1) iprovalicarb

(5-2) N'[2-(4-{[3-(4-chlorophenyl)-2-propynyl]oxy}-3-methoxyphenyl)ethyl]-N^2-(methylsulphonyl)-D-valinamide

(5-3) benthiavalicarb,
Group (6) Carboxamides of the general formula (V)

\[ \text{X}^\text{a} \text{Y} \text{Z} \]

(V)

in which

X represents 2-chloro-3-pyridinyl, represents 1-methylpyrazol-4-yl which is substituted in the 3-position by methyl or trifluoromethyl and in the 5-position by hydrogen or chlorine, represents 4-ethyl-2-ethylamino-1,3-thiazol-5-yl, represents 1-methyl-cyclohexyl, represents 2,2-dichloro-1-ethyl-3-methylcyclopropyl, represents 2-fluoro-2-propyl or represents phenyl which is mono- to trisubstituted by identical or different substituents from the group consisting of chlorine, methyl, and trifluoromethyl.

X furthermore represents 3,4-dichloroisothiazol-5-yl, 5,6-dihydro-2-methyl-1,4-oxathiin-3-yl, 4-methyl-1,2,3-thiadiazol-5-yl, 4,5-dimethyl-2-trimethylsilylthiophen-3-yl, 1-methylpyrrol-3-yl which is substituted in the 4-position by methyl or trifluoromethyl and in the 5-position by hydrogen or chlorine.

Y represents a direct bond, \( C_1 \) \( C_6 \)-alkanediyl (alkylene) which is optionally substituted by chlorine, cyano or oxo or represents thiophenediyl,

Y furthermore represents \( C_1 \) \( C_6 \)-alkenediyl (alkenylene),

Z represents hydrogen or the group

\[ \text{A}^\text{a} \]

Z furthermore represents \( C_1 \) \( C_6 \)-alkyl,

\( A^6 \) represents CH or N,
R\textsuperscript{20} represents hydrogen, chlorine, phenyl which is optionally mono- or disubstituted by identical or different substituents from the group consisting of chlorine and di(C\textsubscript{1} C\textsubscript{3}-alkyl)aminocarbonyl,

R\textsuperscript{20} furthermore represents cyano or d-C\textsubscript{6}-alkyl,

R\textsuperscript{21} represents hydrogen, chlorine, or 1-methylethoxy

R\textsuperscript{22} represents hydrogen, chlorine, hydroxyl, methyl or trifluoromethyl,

R\textsuperscript{22} furthermore represents di(C\textsubscript{1} C\textsubscript{3}-alkyl)aminocarbonyl,

R\textsuperscript{20} and R\textsuperscript{21} furthermore together represent \( \text{*-CH(CH}_3\text{-CH}_2\text{-C(CH}_3\text{)}_2 \) or \( \text{*-CH(CH}_3\text{-O-C(CH}_3\text{)}_2 \) where the bond marked with * is attached to R\textsuperscript{20};

or the general formula (Va)

![Diagram](Va)

in which

R\textsuperscript{1} represents hydrogen, halogen, CVCa-alkyl or Ci-C\textsubscript{3}-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,
A represents one of the radicals A1 to A8 below:

\[ \begin{align*}
R^2 & \text{ represents } C_r C_3\text{-alkyl,} \\
R^3 & \text{ represents hydrogen, halogen, } C_i C_3\text{-alkyl or } C_i C_3\text{-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,} \\
R^4 & \text{ represents hydrogen, halogen or } C_i C_3\text{-alkyl,} \\
R^5 & \text{ represents halogen, } C_r C_3\text{-alkyl or } C_i C_3\text{-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,} \\
R^6 & \text{ represents hydrogen, halogen, } C_i C_3\text{-alkyl, amino, mono- or di}(C_r C_3\text{-alkyl})amino, \\
R^7 & \text{ represents hydrogen, halogen, } C_i C_3\text{-alkyl or } C_r C_3\text{-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,} \\
R^8 & \text{ represents halogen, } C_i C_3\text{-alkyl or } C_i C_3\text{-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,} \\
R^9 & \text{ represents halogen, } C_i C_3\text{-alkyl or CVQ-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,}
\end{align*} \]
R\textsuperscript{10} represents hydrogen, halogen, Ci-C\textsubscript{3}-alkyl or Ci-C\textsubscript{3}-haloalkyl having 1 to 7 fluorine, chlorine and/or bromine atoms,

\textbf{Group (7)} Dithiocarbamates selected from

(7-1) mancozeb

(7-2) maneb

(7-3) metiram

(7-4) propineb

(7-5) thiram

(7-6) zineb

(7-7) ziram

\textbf{Group (8)} Acylalanines of the general formula (VI)

\begin{center}
\includegraphics[width=0.5\textwidth]{formula.png}
\end{center}

in which

* marks a carbon atom in the R or the S configuration, preferably in the S configuration,

\(R^{23}\) represents benzyl, furyl or methoxymethyl;
Group (9): Anilinopyrimidines of the general formula (VII)

\[
\begin{array}{c}
\text{N} \\
\text{R}^{24} \\
\text{CH}_3
\end{array}
\]

(VII)

In which

R\text{24} represents methyl, cyclopropyl or 1-propynyl;

Group (10): Benzimidazoles of the general formula (VIII)

\[
\begin{array}{c}
\text{R}^{25} \\
\text{R}^{27} \\
\text{R}^{26}
\end{array}
\]

(VIII)

In which

R\text{25} and R\text{26} each represent hydrogen or together represent \(-0\text{-CF}_2\text{-O}\),

R\text{27} represents hydrogen, C\text{1-4}-alkylaminocarbonyl or represents 3,5-dimethylisoxazol-4-ylsulphonyl,

R\text{28} represents chlorine, methoxycarbonylamino, chlorophenyl, furyl or thiazolyl;

Group (11): Carbamates of the general formula (IX)

\[
\begin{array}{c}
\text{R}^{29} \\
\text{R}^{30}
\end{array}
\]

(IX)

In which

R\text{29} represents n- or isopropyl,

R\text{30} represents di(C\text{i-C}_2-alkyl)amino-C\text{2-4}-alkyl or diethoxyphenyl,
salts of these compounds being included;

**Group (12):** Dicarboximides selected from

(12-1) captafol

(12-2) captan

(12-3) folpet

(12-4) iprodione

(12-5) procymidone

(12-6) vinclozolin

**Group (13):** Guanidines selected from

(13-1) dodine

(13-2) guazatine

(13-3) iminoctadine triacetate

(13-4) iminoctadine tris(albesilate)

**Group (14):** Imidazoles selected from

(14-1) cyazofamid

(14-2) prochloraz

(14-3) triazoxide

(14-4) pefurazoate
Group (15): Morpholines of the general formula (X)

\[ \begin{array}{c}
\text{O} \\
\text{N} \text{R}^{33} \\
\text{O} \\
\text{R}^{31} \\
\text{R}^{32}
\end{array} \quad (X) \]

in which

R\textsuperscript{31} and R\textsuperscript{32} independently of one another represent hydrogen or methyl,

R\textsuperscript{33} represents Ci-C\textsubscript{i}\textsubscript{4}-alkyl (preferably C\textsubscript{i}2-C\textsubscript{i}4-alkyl), C\textsubscript{5}-Ci\textsubscript{2}-cycloalkyl (preferably C\textsubscript{i}o-C\textsubscript{2}-cycloalkyl), phenyl-C\textsubscript{1}-C\textsubscript{4}-alkyl, which may be substituted in the phenyl moiety by halogen or C\textsubscript{r}C\textsubscript{4}-alkyl or represents acrylyl which is substituted by chlorophenyl and dimethoxyphenyl;

Group (16): Pyroroles of the general formula (XI)

\[ \begin{array}{c}
\text{HN} \\
\text{R}^{34} \\
\text{R}^{35} \\
\text{R}^{36}
\end{array} \quad (XI) \]

in which

R\textsuperscript{34} represents chlorine or cyano,

R\textsuperscript{35} represents chlorine or nitro,

R\textsuperscript{36} represents chlorine,

R\textsuperscript{35} and R\textsuperscript{36} furthermore together represent -Q-CF\textsubscript{2}-O-;

Group (17): Phosphonates selected from

(17-1) fosetyl-Al
(17-2) phosphonic acid;

Group (18): Phenylethanamides of the general formula (XID

\[
\begin{align*}
R^{37} & \quad \text{in which} \\
& R^{37} \text{ represents unsubstituted or fluorine-, chlorine-, bromine-, methyl- or ethyl-} \\
& \text{substituted phenyl, 2-naphthyl, 1,2,3,4-tetrahydronaphthyl or indanyl;} \\
\end{align*}
\]

Group (19): Fungicides selected from

(19-1) acibenzolar-S-methyl

(19-2) chlorothalonil

(19-3) cymoxanil

(19-4) edifenphos

(19-5) famoxadone

(19-6) fluazinam

(19-7) copper oxychloride

(19-8) copper hydroxide

(19-9) oxadixyl

(19-10) spiroxamine

(19-11) dithianon
(19-12) metrafenone

(19-13) fenamidone

(19-14) 2,3-dibutyl-6-chlorothieno[2,3-d]pyrimidin-4(3H)-one

(19-15) probenazole

(19-16) isoprothiolane

(19-17) kasugamycin

(19-18) phthalide

(19-19) ferimzone

(19-20) tricyclazole

(19-21) N-(4-[(cyclopropylamino)carbonyl]phenyl)sulphonyl)-2-methoxybenzamide

(19-22) 2-(4-chlorophenyl)-N-{2-[3-methoxy-4-(prop-2-yn-1-yloxy)phenyl]ethyl}-2-(prop-2-yn-1-yloxy)acetamide

(19-23) Diclomezine

(19-24) Hymexazole

(19-25) Iprobenfos

(19-26) Triflumizole

**Group (20): (Thio)urea derivatives selected from**

(20-1) pencycuron

(20-2) thiophanate-methyl

(20-3) thiophanate-ethyl
Group (21): Amides of the general formula (XIII)

\[
\text{\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{fig1}
\caption{(XIII)}
\end{figure}}
\]

in which

\begin{align*}
A^7 & \quad \text{represents a direct bond or -O-}, \\
A^8 & \quad \text{represents -C(=O)NH- or -NHC(=O)-}, \\
R^{38} & \quad \text{represents hydrogen or C}_4\text{-alkyl}, \\
R^{39} & \quad \text{represents C}_6\text{-alkyl};
\end{align*}

Group (22): Triazolopyrimidines of the general formula (XIV)

\[
\text{\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{fig2}
\caption{(XIV)}
\end{figure}}
\]

in which

\begin{align*}
R^{40} & \quad \text{represents C}_6\text{-alkyl or C}_2\text{-alkenyl}, \\
R^{41} & \quad \text{represents C}_6\text{-alkyl}, \\
R^{40} \text{ and } R^{41} & \quad \text{furthermore together represent C}_4\text{-C}_5\text{-alkanediyl (alkylene) which is mono- or disubstituted by C}_6\text{-alkyl}, \\
R^{42} & \quad \text{represents bromine or chlorine}, \\
R^{43} \text{ and } R^{47} & \quad \text{independently of one another represent hydrogen, fluorine, chlorine or methyl,}
\end{align*}
R^{44} and R^{46} independently of one another represent hydrogen or fluorine,

R^{45} represents hydrogen, fluorine or methyl,

**Group (23): Iodochromones of the general formula (XV)**

![Chemical structure](image)

in which

R^{48} represents C_{1}-C_{6}-alkyl,

R^{49} represents C_{1}-C_{6}-alkyl, C_{2}-C_{6}-alkenyl or C_{2}-C_{6}-alkynyl;

**Group (24): Biphenylcarboxamides of the general formula (XVD)**

![Chemical structure](image)

in which

R^{50} represents hydrogen or fluorine,

R^{51} represents fluorine, chlorine, bromine, methyl, trifluoromethyl, trifluoromethoxy, -CH=N-OMe or -C(Me)=N-OMe,

R^{52} represents hydrogen, fluorine, chlorine, bromine, methyl or trifluoromethyl,
Het represents one of the radicals Het\(1\) to Het\(7\) below:

\[
\begin{align*}
\text{Het}\quad &\text{Het2}\quad \text{Het3}\quad \text{Het4}
\end{align*}
\]

\[
\begin{align*}
\text{Het5}\quad &\text{Het6}\quad \text{Het7}
\end{align*}
\]

\(R^{53}\) represents iodine, methyl, difluoromethyl or trifluoromethyl,
\(R^{54}\) represents hydrogen, fluorine, chlorine or methyl,
\(R^{55}\) represents methyl, difluoromethyl or trifluoromethyl,
\(R^{56}\) represents chlorine, bromine, iodine, methyl, difluoromethyl or trifluoromethyl,
\(R^{57}\) represents methyl or trifluoromethyl,

Active compound combinations according to Claim 1, where the active compounds of groups (2) to (24) are selected from the list below:

(2-1) azoxystrobin
(2-2) fluoxastrobin
(2-3) (2\(\text{E}\))-2-(2-\(\text{H}\)-[6-(3-chloro-2-methylphenoxy)-5-fluoro-4-pyrimidinyl]oxy} phenyl)-2-(methoxyimino)-\(N\)-methylethanamide
(2-4) trifloxystrobin
(2-5) \((2\E)-2-(\text{methoxyimino})-N\text{-methyl}-2-(2-\{[(\E)-1-[3-(\text{trifluoromethyl})\text{-phenyl}]\text{ethyliden}}\text{amino)}\text{oxy[methyl]}\text{phenyl}]}\text{ethanamide}

(2-6) \((2\E)-2-(\text{methoxyimino})-N\text{-methyl}-2-\{2-\{([\E]-1-[3-(\text{trifluoromethyl})\text{phenyl}]\text{-ethoxy}}\text{imino)methyl}[phenyl]\text{ethanamide}

5

(2-7) orysastrobin

(2-8) 5-methoxy-2-methyl-4-(2-\{[(\E)-1-[3-(\text{trifluoromethyl})\text{phenyl}]\text{ethyliden}}\text{amino)}\text{oxy[methyl]}\text{phenyl]}-2,4-dihydro-3H-1,2,4-triazol-3-one

(2-9) kresoxim-methyl

(2-10) dimoxystrobin

10

(2-11) picoxystrobin

(2-12) pyraclostrobin

(2-13) metominostrobin

(3-1) azaconazole

(3-2) etaconazole

15

(3-3) propiconazole

(3-4) difenoconazole

(3-5) bromuconazole

(3-6) cyproconazole

(3-7) hexaconazole

20

(3-8) penconazole

(3-9) myclobutanil
(3-10) tetraconazole
(3-11) flutriafol
(3-12) epoxiconazole
(3-13) flusilazole
(3-14) simeconazole
(3-15) prothioconazole
(3-16) fenbuconazole
(3-17) tebuconazole
(3-18) ipconazole
(3-19) metconazole
(3-20) triticonazole
(3-21) bitertanol
(3-22) triadimenol
(3-23) triadimefon
(3-24) fluquinconazole
(3-25) quinconazole
(4-1) dichlofluanid
(4-2) tolylfluanid
(5-1) iprovalicarb
(5-3) benthiavlicarb
(6-1) 2-chloro-N-(1,1,3-trimethylindan-4-yl)nicotinamide

(6-2) boscalid

(6-3) furametpyr

(6-4) N-(3-p-tolylthiophen-2-yl)-l-methyl-3-trifluoromethyl-lH-pyrazole-4-carboxamide

(6-5) ethaboxam

(6-6) fenhexamid

(6-7) carpropamid

(6-8) 2-chloro-4-(2-fluoro-2-methylpropionylamino)-N,N-dimethylbenzamide

(6-9) picobenzamid

(6-10) zoxamide

(6-11) 3,4-dichloro-N-(2-cyanophenyl)isothiazole-5-carboxamide

(6-12) carboxin

(6-13) tiadinil

(6-14) penthiopyrad

(6-15) silthiofam

(6-16) N-[2-(1,3-dimethylbutyl)phenyl]-l-methyl-4-(trifluoromethyl)-lH-pyrrrole-3-carboxamide

(6-17) N-{2-[3-chloro-5-(trifluoromethyl)pyridin-2-yl]ethyl}-2-(trifluoromethyl)benzamide

(6a-8) 5-fluoro-l,3-dimethyl- N-[2-(1,3,3-trimethylbutyl)phenyl]-l H-pyrazole-4-carboxamide
(6a-2) \(N\)-[pyflufen-2-(1,3-dimethylbutyl)phenyl]-5-fluoro-1,3-dimethyl-1 \(H\)-pyrazole-4-carboxamide

(6a-16) \(N\)-[2-(1,3-dimethylbutyl)phenyl]-2-(trifluoromethyl)benzamide

(6a-13) \(N\)-[2-(1,3-dimethylbutyl)phenyl]-2-iodobenzamide

(6b-2) \(N\)-[2-[1,r-bicyclopropyl]-2-ylphenyl]-3-(difluoromethyl)-1-methyl-1 \(H\)-pyrazole-4-carboxamide

(7-1) mancozeb

(7-2) maneb

(7-3) metiram

(7-4) propineb

(7-5) thiram

(7-6) zineb

(7-7) ziram

(8-1) benalaxyl

(8-2) furalaxyl

(8-3) metalaxyl

(8-4) metalaxyl-M

(8-5) benalaxyl-M

(9-1) cyprodinil

(9-2) mepanipyrim
(9-3) pyrimethanil

(10-1) 6-chloro-5-[(3,5-dimethylisoxazol-4-yl)sulphonyl]-2,2-difluoro-5H-[1,3]dioxolo[4,5-f]benzimidazole

(10-2) benomyl

5 (10-3) carbendazim

(10-4) chlorfenazole

(10-5) fuberidazole

(10-6) thiabendazole

(11-1) diethofencarb

10 (11-2) propamocarb

(11-3) propamocarb-hydrochloride

(11-4) propamocarb-fosetyl

(12-1) captafol

(12-2) captan

15 (12-3) folpet

(12-4) iprodione

(12-5) procymidone

(12-6) vinclozolin

(13-1) dodine

20 (13-2) guazatine
(13-3) iminoctadine triacetate

(14-1) cyazofamid

(14-2) prochloraz

(14-3) triazoxide

(14-4) pefirazoate

(15-1) aldimorph

(15-2) tridemorph

(15-3) dodemorph

(15-4) fenpropimorph

(15-5) dimethomorph

(16-1) fenpiclonil

(16-2) fludioxonil

(16-3) pyrrolnitrin

(17-1) fosetyl-Al

(17-2) phosphonic acid

(18-1) 2-(2,3-dihydro-1H-inden-5-yl)-N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)acetamide

(18-2) N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)-2-(5,6,7,8-tetrahydro-naphthalen-2-yl)acetamide

(18-3) 2-(4-chlorophenyl)-N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)acetamide
(18-4) 2-(4-bromophenyl)-N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)acetamide

(18-5) 2-(4-methylphenyl)-N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)acetamide

(18-6) 2-(4-ethylphenyl)-N-[2-(3,4-dimethoxyphenyl)ethyl]-2-(methoxyimino)acetamide

(19-1) acibenzolar-S-methyl

(19-2) chlorothalonil

(19-3) cymoxanil

(19-4) edifenphos

(19-5) famoxadone

(19-6) fluazinam

(19-7) copper oxychloride

(19-9) oxadixyl

(19-10) spiroxamine

(19-11) dithianon

(19-12) metrafenone

(19-13) fenamidone

(19-14) 2,3-dibutyl-6-chlorothieno[2,3-d]pyrimidin-4(3H)-one

(19-15) probenazole

(19-16) isoprothiolane

(19-17) kasugamycin
(19-18) phthalide

(19-19) ferimzone

(19-20) tricyclazole

(19-21) N-(4-[(cyclopropylamino)carbonyl]phenyl)sulphonyl)-2-methoxybenzamide

(19-22) 2-(4-chlorophenyl)-N-2-[3-methoxy-4-(prop-2-yn-1-yloxy)phenyl]ethyl-2-(prop-2-yn-1-yloxy)acetamide

(20-1) pencycuron

(20-2) thiophanate-methyl

(20-3) thiophanate-ethyl

(21-1) fenoxanil

(21-2) diclocymet

(22-1) 5-chloro-N-[f75>2,2,2-trifluoro-l-methylethyl]-6-(2,4,6-trifluorophenyl)[1,2,4]triazolo[1,5-a]pyrimidine-7-amine

(22-2) 5-chloro-N-[f7i>1,2-dimethylpropyl]-6-(2,4,6-trifluorophenyl)[1,2,4]triazolo[1,5-a]pyrimidine-7-amine

(22-3) 5-chloro-6-(2-chloro-6-fluorophenyl)-7-(4-methylpiperidin-1-yl)[1,2,4]triazolo[1,5-a]pyrimidine

(22-4) 5-chloro-6-(2,4,6-trifluorophenyl)-7-(4-methylpiperidin-1-yl)[1,2,4]triazolo[1,5-a]pyrimidine

(23-1) 2-butoxy-6-iodo-3-propylbenzopyran-4-one

(23-2) 2-ethoxy-6-iodo-3-propylbenzopyran-4-one

(23-3) 6-iodo-2-propoxy-3-propylbenzopyran-4-one
3. Use of active compound combinations according to Claim 1 or Claim 2 for controlling unwanted phytopathogenic fungi.
4. Use of active compound combinations according to Claim 1 or Claim 2 for treating plants, plant parts, or plant propagation material.

5. Use of active Compound Combinations according to claim 1 or 2 for treating seed.

6. Use of active compound combinations according to Claim 4 or 5 for treating transgenic plants.

7. Use of active compound combinations according to any of Claims 4 to 6 for treating seed of transgenic plants.

8. Seed that has been treated with genistein and a fungicide selected from groups (2) to (24), according to Claim 1 or 2, either simultaneously or separately.

9. Method for controlling unwanted phytopathogenic fungi, characterized in that active compound combinations according to Claim 1 or 2 are applied to the unwanted phytopathogenic fungi and/or their habitat and/or seed.

10. Process for preparing fungicidal compositions, characterized in that active compound combinations according to Claim 1 or 2 are mixed with extenders and/or surfactants.

11. Method according to claim 9, characterized in that a seed is incubated or coated with, genistein and a fungicide selected from groups (2) to (24), at the same time.
12. Method according to claim 9, characterized in that a seed is incubated or coated with, genistein and a fungicide selected from groups (2) to (24), separately, optionally with at least one further separation layer between active ingredient layers.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61K45/06

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)
A61K

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 practical, search terms used)
EPO-Internal, WPI Data, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>WO 2008/086948 A (SYNGENTA PARTICIPATIONS AG [CH]; WEISS MARTIN [CH]; BRANDL FRANZ [CH]) 24 July 2008 (2008-07-24) the whole document</td>
<td>1-12</td>
</tr>
<tr>
<td>A</td>
<td>WO 2005/087005 A (AGRIBIOTICS INC [CA]; MCIVER JOHN [CA]; CHEN CHUNQUAN [CA]; SCHULTZ BI) 22 September 2005 (2005-09-22) cited in the application the whole document</td>
<td>1-12</td>
</tr>
</tbody>
</table>

D

Further documents are listed in the continuation of Box C.

X See patent family annex.

' A' document defining the general state of the art which is not considered to be of particular relevance
'B' earlier document but published on or after the international filing date
'C' document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
'D' document referring to an oral disclosure, use, exhibition or other means
'E' document published prior to the international filing date but later than the priority date claimed

Date of the actual completion of the international search 21 November 2008

Date of mailing of the international search report 01/12/2008

Name and mailing address of the ISA/Authorized officer

European Patent Office, P.B. 581 @Patentlaan 2 NL - 2280 HV RUISWALD
Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016

Engl. Brigitte
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td>UO 2008086948 A</td>
<td>24-07-2008</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>WO 2008092580 A</td>
<td>07-08-2008</td>
<td>NONE</td>
<td></td>
</tr>
<tr>
<td>WO 2005087005 A</td>
<td>22-09-2005</td>
<td>AU 2005220607 A1</td>
<td>22-09-2005</td>
</tr>
</tbody>
</table>

For: PCT/IB/219 (patent family annex) (April 2005)