

Syngenta Crop Protection AG v. UPL LTD

PGR2023-00017

U.S. Patent No. 11,445,727

Petitioner's Demonstratives

U.S. Patent No. 11,445,727

Ex. 1001

U.S. Patent No. 11,445,727

(12) **United States Patent**
Fabri et al.

(54) **FUNGICIDAL COMBINATIONS**

(71) Applicant: **UPL LTD.** (India) (IN)

(72) Inventors: **Carlos Eduardo Fabri**, São Paulo, SP (BR); **Rajeev Devdas Sheriff**, Maharashtra (IN); **Jaijee Rajnikant Sheriff**, Dahanu (AP); **Vikram Rajnikant Sheriff**, Dahanu (AP)

(73) Assignee: **UPL LTD.**, West Bengal (IN)

(*) Notice: Subject to any disclaimer the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **16047,283**

(22) PCT Filed: **Oct. 30, 2017**

(60) PCT No.: **PCT/IN20170854710**
 (371) (exL),
 (2) Date: **May 3, 2019**

(87) PCT Pub. No.: **WO/2018/083877**

PCT Pub. Date: **Mar. 11, 2018**

(65) **Priority Publication Data**
 US 20190274007 A1 Sep. 12, 2019

(30) **Foreign Application Priority Data**
 Nov. 4, 2016 (IN) 20161037704

INT. CL.
A01N 27/14 (2006.01)
A01N 37/06 (2006.01)
A01N 41/00 (2006.01)
A01N 43/54 (2006.01)
A01N 43/56 (2006.01)
A01N 43/58 (2006.01)
A01N 43/63 (2006.01)
A01N 43/82 (2006.01)
C12C 1/00 (2006.01)
 ——— **A01N 47/14** (2013.01), **A01N 37/06** (2013.01), **A01N 43/54** (2013.01), **A01N 43/56** (2013.01), **A01N 43/58** (2013.01), **A01N 43/63** (2013.01), **A01N 43/82** (2013.01), **A01N 43/92** (2013.01)

(58) **Field of Classification Search**
 CPC: ——— **A01N 27/14**, **A01N 37/06**, **A01N 41/00**, **A01N 43/54**, **A01N 43/56**, **A01N 43/58**, **A01N 43/63**, **A01N 43/82**

See application file for complete search history.

(10) **Patent No.** **US 11,445,727 B2**
 (45) **Date of Patent:** ***Sep. 20, 2022**

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Primary Examiner — Miss Haghshah
 (74) Attorney, Agent, or Firm — Cantor Colburn LLP

(57) **ABSTRACT**
 A combination comprising a difluoromethyl fungicide, a succinate dehydrogenase inhibitor and at least one of ergosterol biosynthesis inhibitor fungicide or a quinone outside inhibitor fungicide.

10 Claims, No Drawings

(12) United States Patent Fabri et al.	(10) Patent No.: US 11,445,727 B2 (45) Date of Patent: *Sep. 20, 2022																																								
(54) FUNGICIDAL COMBINATIONS (71) Applicant: UPL LTD, Haldia (IN) (72) Inventors: Carlos Eduardo Fabri, Sao Paulo -SP (BR); Rajju Devidas Shroff, Maharashtra (IN); Jaidev Rajnikant Shroff, Dubai (AE); Vikram Rajnikant Shroff, Dubai (AE) (73) Assignee: UPL LTD, West Bengal (IN)	(56) References Cited U.S. PATENT DOCUMENTS <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">10,362,782 B2 *</td> <td style="width: 10%;">7/2019</td> <td style="width: 40%;">Oliveira</td> <td style="width: 30%;">A01N 43/653</td> </tr> <tr> <td>10,448,636 B2 *</td> <td>10/2019</td> <td>Oliveira</td> <td>A01N 43/40</td> </tr> <tr> <td>10,537,101 B2 *</td> <td>1/2020</td> <td>Oliveira</td> <td>A01N 43/653</td> </tr> <tr> <td>10,694,744 B2 *</td> <td>6/2020</td> <td>Oliveira</td> <td>A01N 25/00</td> </tr> <tr> <td>10,694,745 B2 *</td> <td>6/2020</td> <td>Oliveira</td> <td>A01N 43/653</td> </tr> <tr> <td>2008/0113979 A1</td> <td>5/2008</td> <td>Foor</td> <td></td> </tr> <tr> <td>2009/0131462 A1</td> <td>5/2009</td> <td>Gewehr et al.</td> <td></td> </tr> <tr> <td>2010/0216640 A1</td> <td>8/2010</td> <td>Tobler et al.</td> <td></td> </tr> <tr> <td>2015/0181870 A1 *</td> <td>7/2015</td> <td>Kemmitt</td> <td>A01N 37/42</td> </tr> <tr> <td></td> <td></td> <td></td> <td style="text-align: right;">514/229.2</td> </tr> </table>	10,362,782 B2 *	7/2019	Oliveira	A01N 43/653	10,448,636 B2 *	10/2019	Oliveira	A01N 43/40	10,537,101 B2 *	1/2020	Oliveira	A01N 43/653	10,694,744 B2 *	6/2020	Oliveira	A01N 25/00	10,694,745 B2 *	6/2020	Oliveira	A01N 43/653	2008/0113979 A1	5/2008	Foor		2009/0131462 A1	5/2009	Gewehr et al.		2010/0216640 A1	8/2010	Tobler et al.		2015/0181870 A1 *	7/2015	Kemmitt	A01N 37/42				514/229.2
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Pet. at 7, 10, 15; Ex. 1001.

Independent Claim 1

1. A fungicidal combination consisting of benzovindiflupyr, mancozeb, and at least another fungicide selected from an ergosterol biosynthesis inhibitor fungicide, and a quinone outside inhibitor fungicide,

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox, pyrisoxazole, triforine, and mixtures thereof; and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxstrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

Claim Construction

Claim Construction – “combination” / “composition”

Petition:

“ordinary and customary meaning” – Claim terms need be construed only to the extent necessary to resolve a potential controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng’g., Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). While Petitioner does not anticipate any controversy, it notes that the claims include the term composition or combination which are used interchangeably in the specification.”

Pet. at 18.

Patent Owner’s Response:

“Each claim refers to a “*fungicidal combination*,” “*combination*,” or “*composition*.” These terms should be construed consistent to mean the recited fungicides are together in a single mixture (e.g., as a pre-mix or tank-mix), distinct from applying one or more of them sequentially.”

POR at 5.

Claim Construction – “combination” / “composition”

Patent Owner's Construction Is Contrary To The Intrinsic Evidence

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Fabri et al.

(10) Patent No.: US 11,445,727 B2
(45) Date of Patent: *Sep. 20, 2022

(54) FUNGICIDAL COMBINATIONS

(71) Applicant: UPL LTD, India (IN)
(72) Inventors: Carlos Eduardo Fabri, Sao Paulo-SP (BR); Rajeev Devidas Shresth, Maharashtra (IN); Jashvee Rajnikant Shresth, India (AE); Vikram Rajnikant Shresth, India (AE)

(73) Assignee: UPL LTD, West Bengal (IN)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.
This patent is subject to a terminal disclaimer.

(21) Appl. No.: 16/047,283

(22) PCT Filed: Oct. 30, 2017

(86) PCT No.: PCT/IB2017/056710

§ 371 (c)(1).

(2) Date: May 3, 2019

(87) PCT Pub. No.: WO/2018/083577

PCT Pub. Date: May 11, 2018

(65) Prior Publication Data

US 2018/0274307 A1 Sep. 12, 2019

(30) Foreign Application Priority Data

Nov. 4, 2016 (IN) 20161037704

(51) Int. Cl.

A01N 47/14 (2006.01)

A01N 47/36 (2006.01)

A01N 47/54 (2006.01)

A01N 47/56 (2006.01)

A01N 47/58 (2006.01)

A01N 47/60 (2006.01)

A01N 47/62 (2006.01)

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A01N 47/66 (2006.01)

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Primary Examiner: Mina Hightshington

(74) Attorney, Agent, or Firm: Cantor Colburn LLP

(57) ABSTRACT

A combination comprising a dithiocarbamate fungicide, a

succinate dithiocarbamate fungicide and at least one of organo-

phosphorus inhibitor fungicide or a quinone outside

inhibitor fungicide.

10 Claims, No Drawings

The composition of the present invention may be applied simultaneously as a tank mix or a formulation or may be applied sequentially. The application may be made to the soil before emergence of the plants, either pre-planting or post-planting. The application may be made as a foliar spray at different timings during crop development, with either one or two applications early or late post-emergence.

Pet. Reply at 3; Ex. 1001, 19:61-67.

Claim Construction – “combination” / “composition”

Patent Owner Misrepresents The Extrinsic Evidence

Declaration of Dr. Phillip M. Brannen:

The '727 Patent further indicates the composition of the Patent may be applied simultaneously as a tank mix or a formulation **or may be applied sequentially.**

Pet. Reply at 3; Ex. 1003, ¶77.

Testimony of Dr. Phillip M. Brannen:

Q. In your view, would a person of ordinary skill in the art consider the claims of the '727 Patent limited to a tank mix?

A. It would **not be limited to a tank mix** because it does actually have a section within it that has to do with sequential application as well..

Pet. Reply at 3; Ex. 2021, 183:9-16.

Claim Construction – “consisting of”

The Parties agree that “consisting of” in the context of the ‘727 claims requires that the claimed fungicidal combination is limited to the fungicides as recited in the claims.

Claim Construction – “consisting of”

“Consisting Of” Does Not Preclude The Use Of Inert Carriers Or Adjuvants

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A01N 47/42 (2006.01)

A01N 47/44 (2006.01)

A01N 47/46 (2006.01)

A01N 47/48 (2006.01)

A01N 47/50 (2006.01)

A01N 47/52 (2006.01)

A01N 47/54 (2006.01)

A01N 47/56 (2006.01)

A01N 47/58 (2006.01)

A01N 47/60 (2006.01)

A01N 47/62 (2006.01)

A01N 47/64 (2006.01)

A01N 47/66 (2006.01)

A01N 47/68 (2006.01)

A01N 47/70 (2006.01)

A01N 47/72 (2006.01)

A01N 47/74 (2006.01)

A01N 47/76 (2006.01)

A01N 47/78 (2006.01)

A01N 47/80 (2006.01)

A01N 47/82 (2006.01)

A01N 47/84 (2006.01)

A01N 47/86 (2006.01)

A01N 47/88 (2006.01)

A01N 47/90 (2006.01)

A01N 47/92 (2006.01)

A01N 47/94 (2006.01)

A01N 47/96 (2006.01)

Claim Construction – “consisting of”

“Consisting Of” Does Not Preclude The Use Of Inert Carriers Or Adjuvants

US 11,445,727 B2

(12) **United States Patent**
Fabri et al.

(10) Patent No.: **US 11,445,727 B2**
(45) Date of Patent: ***Sep. 20, 2022**

(54) **FUNGICIDAL COMBINATIONS**

(71) Applicant: **UPL LTD, India (IN)**

(72) Inventors: **Carlos Eduardo Fabri, Sao Paulo -SP (BR); Rajeev Devidas Shresth, Maharashtra (IN); Jashvee Rajnikant Shresth, Dubai (AE); Vikram Rajnikant Shresth, Dubai (AE)**

(73) Assignee: **UPL LTD, West Bengal (IN)**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. This patent is subject to a terminal disclaimer.

(21) Appl. No.: **16047,283**

(22) PCT Filed: **Oct. 30, 2017**

(86) PCT No.: **PCT/IN2017/056710**
§ 371 (c)(1).
(2) Date: **May 3, 2019**

(87) PCT Pub. No.: **WO2018/083577**
PCT Pub. Date: **May 03, 2018**

(65) **Priority Publication Data**
US 2018/0274307 A1 Sep. 12, 2019

(30) **Foreign Application Priority Data**
Nov. 4, 2016 (IN) 201631037704

(51) **Int. Cl.**
ABIN 47/14 (2006.01)
ABIN 47/36 (2006.01)
ABIN 43/36 (2006.01)
ABIN 43/40 (2006.01)
ABIN 43/54 (2006.01)
ABIN 43/56 (2006.01)
ABIN 43/59 (2006.01)
ABIN 43/63 (2006.01)
ABIN 45/02 (2006.01)

(52) **U.S. Cl.**
CPC **ABIN 47/14** (2013.01); **ABIN 47/36** (2013.01); **ABIN 43/36** (2013.01); **ABIN 43/40** (2013.01); **ABIN 43/54** (2013.01); **ABIN 43/56** (2013.01); **ABIN 43/59** (2013.01); **ABIN 43/63** (2013.01); **ABIN 45/02** (2013.01)

(58) **Field of Classification Search**
CPC **ABIN 47/14**; **ABIN 47/36**; **ABIN 43/36**; **ABIN 43/40**; **ABIN 43/54**; **ABIN 43/56**; **ABIN 43/59**; **ABIN 43/63**; **ABIN 45/02**
See application file for complete search history.

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Primary Examiner - Mina Hightshon
(74) Attorney, Agent, or Firm - Cantor Colburn LLP

ABSTRACT
A combination comprising a dithiocarbamate fungicide, a systemic demethylation fungicide and at least one of registered biocontrol agents or a mixture of registered biocontrol agents.

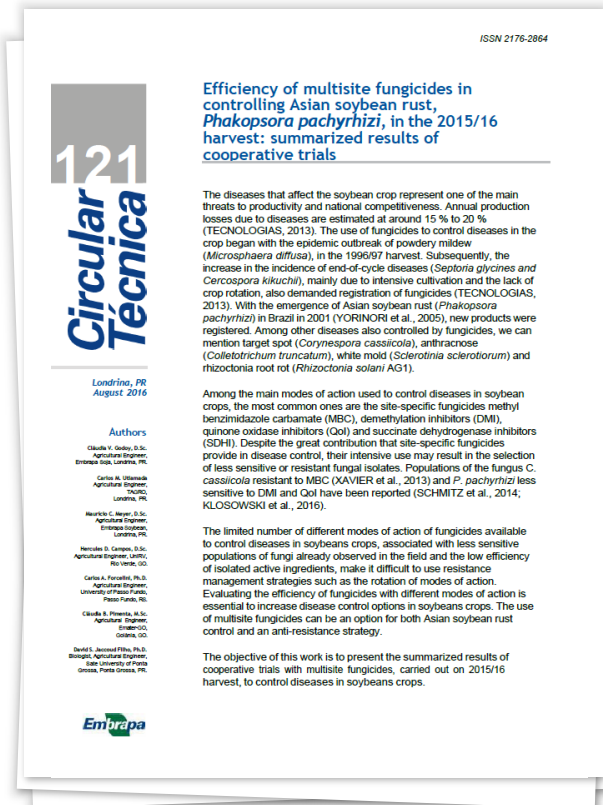
10 Claims, No Drawings

Examples ... used in formulation include ... as a liquid carrier ... petroleum aliphatic hydrocarbons, esters, demethylsulfoxide, acetonitrile and water.

Anticipation by Godoy (Ground 1)

Claims 1, 3-5, 7, 9, 10 Anticipated by Godoy (Ex. 1005)

Efficiency of multisite fungicides in controlling Asian soybean rust, *Phakopsora pachyrhizi*, in the 2015/16 harvest: summarized results of cooperative trials



Londrina, PR
August 2016

Authors

Cláudia V. Godoy, D.Sc.
Agricultural Engineer,
Embrapa Soja, Londrina, PR.

Efficiency of multisite fungicides in controlling Asian soybean rust, *Phakopsora pachyrhizi*, in the 2015/16 harvest: summarized results of cooperative trials

The diseases that affect the soybean crop represent one of the main threats to productivity and national competitiveness. Annual production losses due to diseases are estimated at around 15% to 20% (TECNOLOGIAS, 2013). The use of fungicides to control diseases in the crop began with the epidemic outbreak of powdery mildew (*Microspheera diffusa*), in the 1996/97 harvest. Subsequently, the increase in the incidence of end-of-cycle diseases (*Septoria glycines* and *Cercospora kikuchii*), mainly due to intensive cultivation and the lack of crop rotation, also demanded registration of fungicides (TECNOLOGIAS, 2013). With the emergence of Asian soybean rust (*Phakopsora pachyrhizi*) in Brazil in 2001 (YORINORI et al., 2005), new products were registered. Among other diseases also controlled by fungicides, we can mention target spot (*Corynespora cassicola*), anthracnose (*Colletotrichum truncatum*), white mold (*Sclerotinia sclerotiorum*) and rhizoctonia root rot (*Rhizoctonia solani* AG1).

Among the main modes of action used to control diseases in soybean crops, the most common ones are the site-specific fungicides methyl benzimidazole carbamate (MBC), demethylation inhibitors (DMI), quinone oxidase inhibitors (QOI) and succinate dehydrogenase inhibitors (SDHI). Despite the great contribution that site-specific fungicides provide in disease control, their intensive use may result in the selection of less sensitive or resistant fungal isolates. Populations of the fungus *C. cassicola* resistant to MBC (XAVIER et al., 2013) and *P. pachyrhizi* less sensitive to DMI and QOI have been reported (SCHMITZ et al., 2014; KLOSOWSKI et al., 2016).

The limited number of different modes of action of fungicides available to control diseases in soybean crops, associated with less sensitive populations of fungi already observed in the field and the low efficiency of isolated active ingredients, make it difficult to use resistance management strategies such as the rotation of modes of action. Evaluating the efficiency of fungicides with different modes of action is essential to increase disease control options in soybean crops. The use of multisite fungicides can be an option for both Asian soybean rust control and an anti-resistance strategy.

The objective of this work is to present the summarized results of cooperative trials with multisite fungicides, carried out on 2015/16 harvest, to control diseases in soybean crops.

Table 3. Active ingredients (a.i.), commercial product (C.P.) and dose of fungicides evaluated in associated treatments to control diseases in soybean crops, 2015/16 harvest.

Active ingredient (a.i.)	Dose g a.i. ha ⁻¹	Commercial product (C.P.)	Dose l-kg C.P. ha ⁻¹
1 control	-	Control	-
2 picoxystrobin + cyproconazole ¹	60+24	Aproach ¹ Prima	0.3
3 picoxystrobin + cyproconazole ¹ and copper oxychloride	60+24 and 294	Aproach ¹ Prima and Difere ²	0.3 and 0.5
4 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1080	Aproach ¹ Prima and Previni ¹	0.3 and 1.5
5 picoxystrobin + cyproconazole ¹ and copper oxychloride	60+24 and 280	Aproach ¹ Prima and PNR ²	0.3 and 0.4
6 picoxystrobin + cyproconazole ¹ and mancozeb	60+24 and 1500	Aproach ¹ Prima and Unizeb Gold ²	0.3 and 2.0
7 picoxystrobin + cyproconazole ¹ and copper sulfate	60+24 and 113,85	Aproach ¹ Prima and PNR ²	0.3 and 0.75
8 picoxystrobin + cyproconazole ¹ and propineb	60+24 and 1400	Aproach ¹ Prima and PNR ²	0.3 and 2.0
9 picoxystrobin + cyproconazole ¹ and fluazinam	60+24 and 500	Aproach ¹ Prima and Frownicide ² /Signal ²	0.3 and 1.0
10 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1000	Aproach ¹ Prima and Bravonil 500 ²	0.3 and 2.0
11 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1000	Aproach ¹ Prima and PNR ²	0.3 and 2.0
12 picoxystrobin + cyproconazole ¹ and mancozeb	60+24 and 2000	Aproach ¹ Prima and PNR ²	0.3 and 2.5
13 azoxystrobin + benzovindiflupyr ¹	60+30	Elatus ²	0.2
14 azoxystrobin + benzovindiflupyr ¹ and copper oxychloride	60+30 and 294	Elatus ² and Difere ²	0.2 and 0.5
15 azoxystrobin + benzovindiflupyr ¹ and chlorothalonil	60+30 and 1080	Elatus ² and Previni ¹	0.2 and 1.5
16 azoxystrobin + benzovindiflupyr ¹ and mancozeb	60+30 and 2000	Elatus ² and PNR ²	0.2 and 2.5
17 azoxystrobin + benzovindiflupyr ¹ and mancozeb	60+30 and 2000	Elatus ² and PNR ²	0.2 and 2.5
18 azoxystrobin + benzovindiflupyr ¹ and copper sulfate	60+30 and 113,85	Elatus ² and PNR ²	0.2 and 0.75
19 azoxystrobin + benzovindiflupyr ¹ and propineb	60+30 and 1400	Elatus ² and PNR ²	0.2 and 2.0
20 azoxystrobin + benzovindiflupyr ¹ and fluazinam	60+30 and 500	Elatus ² and Frownicide ² /Signal ²	0.2 and 1.0
21 azoxystrobin + benzovindiflupyr ¹ and mancozeb	60+30 and 2000	Elatus ² and PNR ²	0.2 and 2.5
22 azoxystrobin + benzovindiflupyr ¹ and mancozeb	60+30 and 2000	Elatus ² and PNR ²	0.2 and 2.5
23 azoxystrobin + benzovindiflupyr ¹ and mancozeb	60+30 and 2000	Elatus ² and PNR ²	0.2 and 2.5

¹ Added Nimbus 0,6 L ha⁻¹; ² PNR – Product not registered for the soybean crop, RET III.

Pet. at 20; Ex. 1005, Table 3.

Godoy Disclosure

Table 3. Active ingredients (a.i.), commercial product (C.P.) and dose of fungicides evaluated in associated treatments to control diseases in soybean crops, 2015/16 harvest.

Active ingredient (a.i.)	Dose g a.i. ha ⁻¹	Commercial product (C.P.)	Dose L-kg C.P. ha ⁻¹
1 control	-	Control	-
2 picoxystrobin + cyproconazole ¹	60+24	Aproach ¹ Prima	0.3
3 picoxystrobin + cyproconazole ¹ and copper oxychloride	60+24 and 294	Aproach ¹ Prima and Difere ^a	0.3 and 0.5
4 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1080	Aproach ¹ Prima and Previnil ^a	0.3 and 1.5
5 picoxystrobin + cyproconazole ¹ and copper oxychloride	60+24 and 280	Aproach ¹ Prima and PNR ²	0.3 and 0.4
6 picoxystrobin + cyproconazole ¹ and mancozeb	60+24 and 1500	Aproach ¹ Prima and Unizeb Gold ^a	0.3 and 2.0
7 picoxystrobin + cyproconazole ¹ and copper sulfate	60+24 and 113,85	Aproach ¹ Prima and PNR ²	0.3 and 0.75
8 picoxystrobin + cyproconazole ¹ and propineb	60+24 and 1400	Aproach ¹ Prima and PNR ²	0.3 and 2.0
9 picoxystrobin + cyproconazole ¹ and fluazinam	60+24 and 500	Aproach ¹ Prima and Frownicide ¹ /Zignal ^a	0.3 and 1.0
10 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1000	Aproach ¹ Prima and Bravonil 500 ^a	0.3 and 2.0
11 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1000	Aproach ¹ Prima and PNR ²	0.3 and 2.0
12 picoxystrobin + benzovindiflupyr ¹ and copper oxychloride	60+30 and 294	Elatus ^a and Difere ^a	0.2 and 0.5
13 azoxystrobin + benzovindiflupyr ¹ and copper oxychloride	60+30 and 294	Elatus ^a and Difere ^a	0.2 and 0.5
14 azoxystrobin + benzovindiflupyr ¹ and chlorothalonil	60+30 and 1080	Elatus ^a and Previnil ^a	0.2 and 1.5
15 azoxystrobin + benzovindiflupyr ¹ and copper oxychloride	60+30 and 280	Elatus ^a and PNR ²	0.2 and 0.4
16 azoxystrobin + benzovindiflupyr ¹ and mancozeb	60+30 and 1500	Elatus ^a and Unizeb Gold ^a	0.2 and 2.0
17 azoxystrobin + benzovindiflupyr ¹ and copper sulfate	60+30 and 113,85	Elatus ^a and PNR ²	0.2 and 0.75
18 azoxystrobin + benzovindiflupyr ¹ and propineb	60+30 and 1400	Elatus ^a and PNR ²	0.2 and 2.0
19 azoxystrobin + benzovindiflupyr ¹ and fluazinam	60+30 and 500	Elatus ^a and Frownicide ¹ /Zignal ^a	0.2 and 1.0
20 azoxystrobin + benzovindiflupyr ¹ and chlorothalonil	60+30 and 1000	Elatus ^a and Bravonil 500 ^a	0.2 and 2.0
21 azoxystrobin + benzovindiflupyr ¹ and chlorothalonil	60+30 and 1000	Elatus ^a and PNR ²	0.2 and 2.0
22 azoxystrobin + benzovindiflupyr ¹ and mancozeb	60+30 and 2000	Elatus ^a and PNR ²	0.2 and 2.5

¹ Added Nimbus 0,6 L ha⁻¹; ² PNR – Product not registered for the soybean crop, RET III.

23 azoxystrobin + benzovindiflupyr¹ and mancozeb

Ex. 1005, Table 3

'727 Independent Claim 1

1. A fungicidal combination consisting of benzovindiflupyr, mancozeb, and at least another fungicide selected from an ergosterol biosynthesis inhibitor fungicide, and a quinone outside inhibitor fungicide,

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenoxy, pyrisoxazole, triforine, and mixtures thereof; and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

Pet. at 20; Ex. 1001, 21:40-62 ; Ex. 1005, Table 3.

Godoy – public availability

Declaration of Sylvia Hall-Ellis, PhD

Library(s): Embrapa Soya.

current date: 09/01/2016

Date of last update: 09/22/2016

Title: Efficiency of multisite fungicides in controlling Asian soybean rust, *Phakopsora pachyrhizi*, in the 2015/16 crop year: summarized results of cooperative trials.

Year of publication: 2016

Source/Print: Londrina: Embrapa Soja, 2016.

Subject category: F Plants and Products of Plant Origin

url: <https://ainfo.cnptia.embrapa.br/digital/bitstream/item/147677/1/CT-121.pdf>

Mark: Show Complete Marc

original record: Embrapa Soy (CNPSO)

Pet. at 1; Ex. 1019, ¶¶ 47-49, Att. 1b; Paper 14 at 4.

Supplemental Declaration of Sylvia Hall-Ellis, PhD

[illegible]

Godoy – public availability

Supplemental Declaration of Sylvia Hall-Ellis, PhD

9/1/23, 1:30 PM Infoteca-e: Eficiência de fungicidas multissítios no controle da ferrugem-asiática da soja, *Phakopsora pachyrhizi*, na safra 2016

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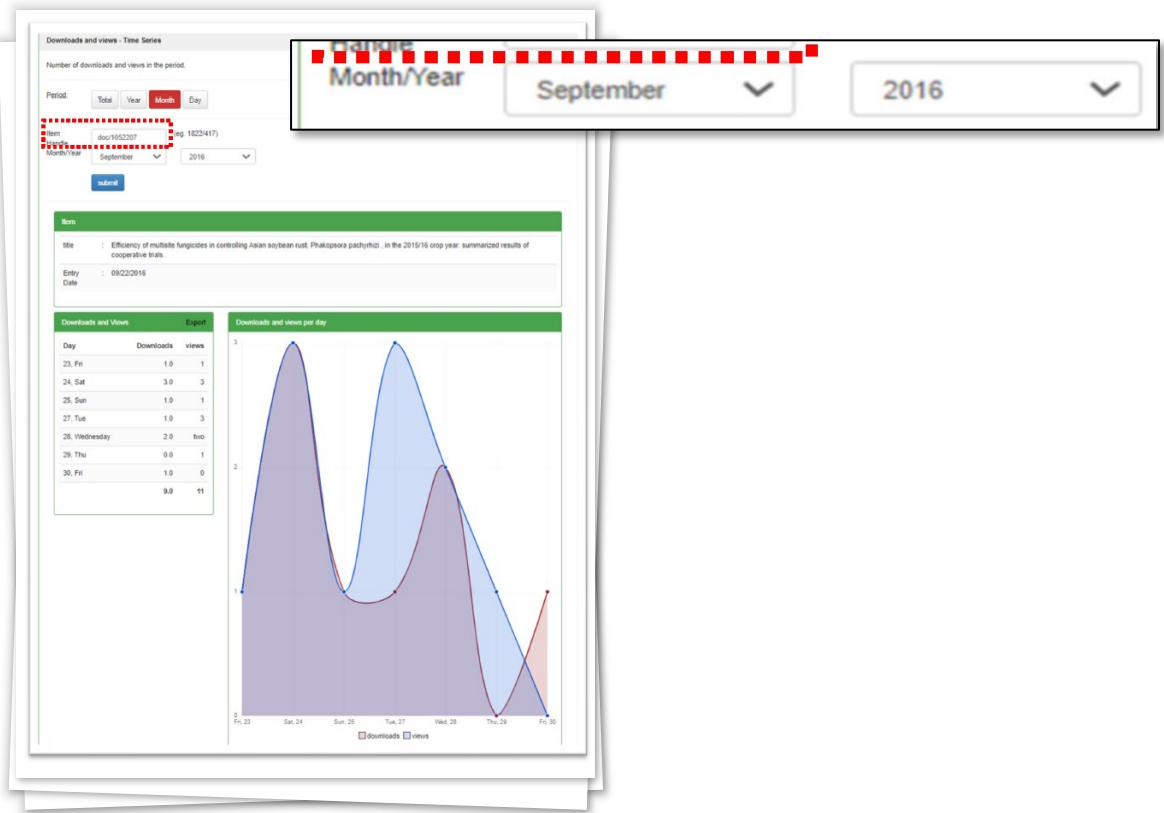
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dc.date.issued	2016
dc.identifier.citation	Londrina: Embrapa Soja, 2016.

Godoy – public availability

Supplemental Declaration of Sylvia Hall-Ellis, PhD

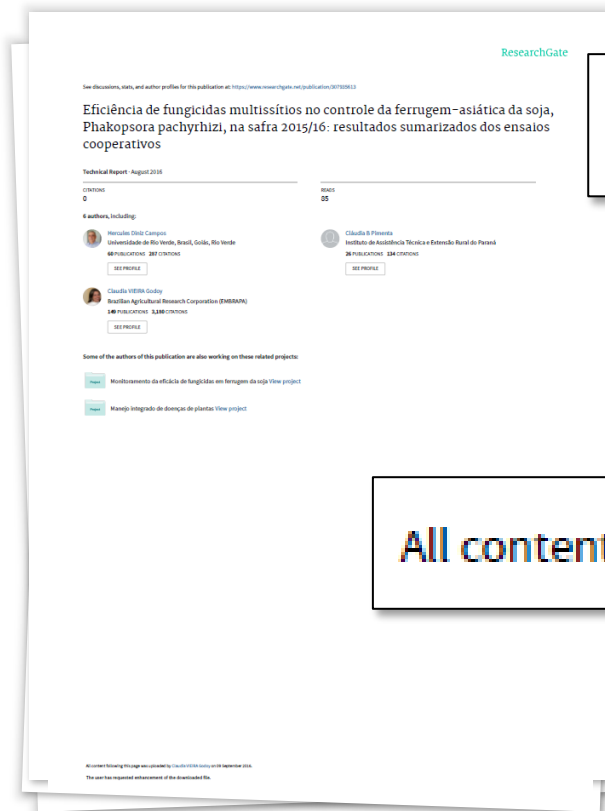


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29, Thu	0.0	1
30, Fri	1.0	0
	9.0	11

Pet. Reply at 13-15; Ex. 1022, ¶¶ 5-7, Att. 1; Paper 14 at 4.

Godoy – public availability

Supplemental Declaration of Sylvia Hall-Ellis, PhD



ResearchGate

All content following this page was uploaded by Claudia VIEIRA Godoy on 09 September 2016.

Godoy – public availability

Patent Owner's Expert Admits ResearchGate Is Publicly Searchable Using Keywords

Q. Are you familiar with ResearchGate?

A. Yes.

Q. What is it?

A. It's basically a service where you can start to search for publications using keywords and things like that, authors.

Q. Did you ever use ResearchGate to review literature as a part of your – as a Professor?

A. Yes, I've so testified.

Q. Okay. That's the circumstance you've just been describing?

A. Through my entire professional career I used search engines as soon as they became available, ResearchGate being one of them.

Ex. 1043, 66:1-67:3-10

Godoy – public availability

Patent Owner's Expert Admits No Expertise

Q. Have you ever indexed or catalogued a publication for a library?

A. No.

Q. Do you have any experience utilizing MARC standards?

A. No.

Q. Do you know what MARC stands for?

A. No.

Ex. 1043, 50:16-22

Q. And you don't consider yourself an expert in indexing or cataloging references for publication, correct?

A. No, I do not.

Q. Would you consider yourself competent to render opinions in that area?

A. No.

Ex. 1043, 51:9-17

Pet. Reply at 14; Paper 48 at 4.

Godoy – public availability

Patent Owner's Expert Admits No Expertise

Q. Okay. Do you know what attachment 3 is?

A. No, not specifically.

Q. So you don't know if there's a sort of technical name for this particular attachment?

A. No, I do not.

Q. And the numerical fields that see on the left, the 001, 005, for example, do you see those?

A. Yes.

Q. Do you know what those numerical fields refer to?

A. No.

Q. Are you familiar with Dublin Core indexing?

A. No.

Q. So you don't know what it's used for, fair?

A. No.

Ex. 1043, 61:15-63:20

Paper 53 at 2.

Godoy – public availability

Patent Owner Previously Admitted Godoy Was Published Before Priority Date

166. Paper 16 was published August 2016. It discusses results from trials done in 2015/16 crop i.e. the first trial which could be conducted full scale after the publication of the present application in India and in the PCT procedure. This paper discusses the role of a multisite fungicide in the soybean control program for the first time. Table 3 of this paper discloses for the first time, after the publication of the present application, regarding the role of copper oxychloride, chlorothalonil, mancozeb, copper sulfate, propineb, and fluazinam in addition to the long known mixture of triazoles and/or strobilurins and/or SDHIs for achieving a superior control of Asian soybean rust.

Ex. 1038 at 151

Pet. Reply at 13.

Godoy – disclosure of tank-mix application

The first protocol was carried out with the isolated multisite fungicides (Table 2) and the second one with the products used in association with the fungicides picoxystrobin + cyproconazole 60 + 24 g a.i. ha⁻¹ (Approach®Prima, DuPont) and azoxystrobin + benzovindiflupyr 60 + 30 g a.i. ha⁻¹ (Elatus®, Syngenta) (Table 3). The associated products protocol was not carried out at location 10 (Deciolândia, MT).

Ex. 1005 at 2.

To apply the products, a knapsack sprayer pressurized with CO₂ and a minimum application volume of 120 L ha⁻¹ was used.

Ex. 1005 at 4.

Pet. at 21; Pet. Reply at 15-16; PO Sur-reply at 6; Ex. 1003, ¶¶ 117-118.



Godoy – disclosure of tank-mix application

POSA Would Understand Godoy To Disclose A Tank Mix

Declaration of Dr. Phillip M. Brannen:

117. For example, Godoy disclosed that the products (e.g., the fungicidal combinations in Table 3, including azoxystrobin, benzovindiflupyr and mancozeb, Treatments 17 and 23) were applied by “a knapsack sprayer” pressurized with CO₂ and a minimum application volume of 120 L ha⁻¹. Godoy (Ex. 1005) at p.4, left column.

118. A person of skill in the art would have understood the description by Godoy (Ex. 1005) to mean that the fungicidal combinations were mixed with water, or another agrochemically acceptable carrier, and applied by a knapsack sprayer to the soybean crops.

Godoy – disclosure of tank-mix application

POSA Would Understand Godoy To Disclose A Tank Mix

Testimony of Dr. Phillip M. Brannen:

Q. Let's assume Claim 1 is limited to a tank mix.

A. Mm-hmm.

Q. Would that affect your opinion – opinions in this case with respect to anticipation?

A. No, it would not, if it's limited to a tank mix, and I think the vast majority of what we're dealing here within this patent and also **in Godoy, as an example, which we reference, is a tank mix, and the work is done with a tank mixes**. And so that is the predominate thing, so it would not affect my opinion of this.

Q. Okay. You said Godoy is a tank mix?

A. **Godoy does utilize tank mixes, yes.**

Godoy – disclosure of tank-mix application

POSA Would Understand Godoy To Disclose A Tank Mix

Testimony of Dr. Phillip M. Brannen:

Q. So if Godoy, in fact, was disclosing sequential application, is there anything you would expect to see that's not in here?

A. If Godoy were to be saying that there's some kind of a sequential application of those products.

Q. Mm-hmm.

A. - then it would be within the materials and methods you would actually be able to read the document and derive that from the materials and methods. There would be somewhere within here it would be stated as to how that is done.

Q. That's not found in Godoy?

A. That is not found within Godoy, and - I'm sorry. Go ahead.

Godoy – disclosure of tank-mix application

POSA Would Understand Godoy To Disclose A Tank Mix

Machado Reference (Ex. 1030):

fungicide resistance, including soybean rust (FRAC 2018). Since 2015, multi-site fungicides, e.g. chlorothalonil, copper oxychloride, and mancozeb, have been recently evaluated in tank mix with commercial premixes to improve SBR control efficacy and reduce the risk of resistance (Godoy et al. 2015, 2016b, 2017, 2018). Chlorothalonil, a

Godoy, C.V., Utiamada, C.M., Meyer, M.C., Campos, H.D., Forcelini, C.A., Pimenta, C.B., Jaccoud Filho, D., Andrade Junior, E.R., Borges, E.P., Siqueri, F.V., Juliatti, F.C., Favero, F., Araújo Júnior, I.P., Nunes Junior, J., Silva, L.H.C.P., Sato, L.N., Volf, M. R., Debortoli, M.P., Martins, M.C., Balardin, R.S., Furlan, S.H., Madalosso, T., Carlin, V.J., Venâncio, W.S., 2016b. Eficiência de fungicidas multissítios no controle da ferrugem-asiática da soja, *Phakopsora pachyrhizi*, na safra 2015/16: resultados sumarizados dos ensaios cooperativos. Circular técnica 121. Embrapa Soja, Londrina, Brazil.



ARTICLE INFO

Keywords:
Phakopsora pachyrhizi
Control agents
Management
Fungicides

ABSTRACT

Soybean rust (SBR), caused by *Phakopsora pachyrhizi*, is controlled with sequential applications of commercial fungicides containing two and, more recently, three site-specific fungicides. However, their efficacy has been reduced due to the development of fungicide resistance in the fungal population; hence the use of multi-site fungicides in tank mixing has been encouraged. In this work, we used data from 45 soybean fungicide trials conducted across eight Brazilian states during three crop seasons (2014/15, 2015/16, and 2017/18) to identify scenarios where the practice of adding multi-site fungicides to commercial premixes was both individual and cost-effective. Premixes of quinone outside inhibitors (QoI) + demethylation inhibitors (DMI) or succinate dehydrogenase inhibitors (SDHI) were applied alone, or tank mixed with multi-site fungicides. These premixes (PQOxoximil + CQPhosomide, PMAxoximil + HXagressol and ADZoximil + RBZoximil) were tank mixed with one of three multi-site fungicides (MANCozeb, COYph, cyclopyrodin, and CQOthalonil). The benefits from tank mixing a multi-site fungicide to be highest for the least effective premix. Improvements in control efficacy (C, percent point; p.p.) and yield response (Y, kg/ha) ranged from 3 to 15 p.p.

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<https://doi.org/10.1016/j.cropro.2021.105939>
Received 16 June 2021; Received in revised form 4 October 2021; Accepted 6 October 2021
Available online 7 October 2021
0261-2194/© 2021 Published by Elsevier Ltd.

SYNGENTA EXHIBIT 1030
Syngenta v. UPL, PGR2023-00017

Godoy – disclosure of tank-mix application

“Association” and “Combination” Are Used Interchangeably

as·so·ci·a·tion \ə-,sō-sē-ˈā-shən, -shē-\ *n* (1535) 1 **a**: the act of associating **b**: the state of being associated: **COMBINATION, RELATIONSHIP**

Ex. 1047 (Merriam-Webster’s Collegiate Dictionary, 10th Edition (1998))

combination (ˌkɒmbɪˈneɪʃən) *n* 1 the act of combining or state of being combined 2 a **union** of separate parts, qualities, etc 3 an alliance of people or parties; group having a common purpose 4 **a** the set of numbers that opens a combination

Ex. 2028 (Collins Dictionary, 11th Edition (2011))

as·sō·ci·ā’tion, *n.* 1. the act of associating; **union** connection of persons.

Ex. 1046 (Webster’s New Twentieth Century Dictionary, 2nd Edition (1975))

Pet. Reply at 16; Ex. 2021, 186:2-187:4.

Godoy – Nimbus

Godoy Discloses Nimbus As Inert Carrier

Table 3. Active ingredients (a.i.), commercial product (C.P.) and dose of fungicides evaluated in associated treatments to control diseases in soybean crops, 2015/16 harvest.

Active ingredient (a.i.)	Dose g a.i. ha ⁻¹	Commercial product (C.P.)
1 control	-	Control
2 picoxystrobin + cyproconazole ¹	60+24	Aproach ¹ Prima
3 picoxystrobin + cyproconazole ¹ and copper oxychloride	60+24 and 294	Aproach ¹ Prima and Difere ²
4 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1080	Aproach ¹ Prima and Previnil ²
5 picoxystrobin + cyproconazole ¹ and copper oxychloride	60+24 and 280	Aproach ¹ Prima and PNR ²
6 picoxystrobin + cyproconazole ¹ and mancozeb	60+24 and 1500	Aproach ¹ Prima and Unizeb
7 picoxystrobin + cyproconazole ¹ and copper sulfate	60+24 and 113,85	Aproach ¹ Prima and PNR ²
8 picoxystrobin + cyproconazole ¹ and propineb	60+24 and 1400	Aproach ¹ Prima and PNR ²
9 picoxystrobin + cyproconazole ¹ and fluazinam	60+24 and 500	Aproach ¹ Prima and Frownicide ² /Zignal ²
10 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1000	Aproach ¹ Prima and Bravonil 500 ²
11 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1000	Aproach ¹ Prima and PNR ²
12 picoxystrobin + cyproconazole ¹ and mancozeb	60+24 and 2000	Aproach ¹ Prima and PNR ²
13 azoxystrobin + benzovindiflupyr ¹	60+30	Elatus ²
14 azoxystrobin + benzovindiflupyr ¹ and copper oxychloride	60+30 and 294	Elatus ² and Difere ²
15 azoxystrobin + benzovindiflupyr ¹ and chlorothalonil	60+30 and 1080	Elatus ² and Previnil ²
16 azoxystrobin + benzovindiflupyr ¹ and copper oxychloride	60+30 and 280	Elatus ² and PNR ²
17 azoxystrobin + benzovindiflupyr ¹ and mancozeb	60+30 and 1500	Elatus ² and Unizeb Gold ²
18 azoxystrobin + benzovindiflupyr ¹ and copper sulfate	60+30 and 113,85	Elatus ² and PNR ²
19 azoxystrobin + benzovindiflupyr ¹ and propineb	60+30 and 1400	Elatus ² and PNR ²
20 azoxystrobin + benzovindiflupyr ¹ and fluazinam	60+30 and 500	Elatus ² and Frownicide ² /Zignal ²
21 azoxystrobin + benzovindiflupyr ¹ and chlorothalonil	60+30 and 1000	Elatus ² and Bravonil 500 ²
22 azoxystrobin + benzovindiflupyr ¹ and chlorothalonil	60+30 and 1000	Elatus ² and PNR ²
23 azoxystrobin + benzovindiflupyr ¹ and mancozeb	60+30 and 2000	Elatus ² and PNR ²

Active ingredient (a.i.)

1 control

2 picoxystrobin + cyproconazole

0.3 and 1.0

0.3 and 2.0

0.3 and 2.0

0.3 and 2.5

0.2

0.2 and 0.5

17 azoxystrobin + benzovindiflupyr¹ and mancozeb

0.2 and 0.75

0.2 and 2.0

0.2 and 1.0

0.2 and 2.0

¹ Added Nimbus 0,6 L ha⁻¹;

¹ Added Nimbus 0,6 L ha⁻¹; ² PNR – Product not registered for the soybean crop, RET III.

Godoy – Nimbus

Godoy Discloses Nimbus As Inert Carrier

Table 3. Active ingredients (a.i.), commercial product (C.P.) and dose of fungicides evaluated in associated treatments to control diseases in soybean crops, 2015/16 harvest.

Active ingredient (a.i.)	Dose g a.i. ha ⁻¹	Commercial product (C.P.)	Dose l-kg C.P. ha ⁻¹
1 control	-	Control	-
2 picoxystrobin + cyproconazole ¹	60+24	Aproach ¹ Prima	0.3
3 picoxystrobin + cyproconazole ¹ and copper oxychloride	60+24 and 294	Aproach ¹ Prima and Difere ⁸	0.3 and 0.5
4 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1080	Aproach ¹ Prima and Previnil ⁸	0.3 and 1.5
5 picoxystrobin + cyproconazole ¹ and copper oxychloride	60+24 and 280	Aproach ¹ Prima and PNR ²	0.3 and 0.4
6 picoxystrobin + cyproconazole ¹ and mancozeb	60+24 and 1500	Aproach ¹ Prima and Unizeb Gold ⁸	0.3 and 2.0
7 picoxystrobin + cyproconazole ¹ and copper sulfate	60+24 and 113,85	Aproach ¹ Prima and PNR ²	0.3 and 0.75
8 picoxystrobin + cyproconazole ¹ and propineb	60+24 and 1400	Aproach ¹ Prima and PNR ²	0.3 and 2.0
9 picoxystrobin + cyproconazole ¹ and fluazinam	60+24 and 500	Aproach ¹ Prima and Frowncide ⁸ /Zignal ⁸	0.3 and 1.0
10 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1000	Aproach ¹ Prima and Bravonil 500 ⁸	0.3 and 2.0
11 picoxystrobin + cyproconazole ¹ and chlorothalonil	60+24 and 1000	Aproach ¹ Prima and PNR ²	0.3 and 2.0
12 picoxystrobin + cyproconazole ¹ and mancozeb	60+24 and 2000	Aproach ¹ Prima and PNR ²	0.3 and 2.5
13 azoxystrobin + benzovindiflupyr ¹	60+30	Elatus ⁸	0.2
14 azoxystrobin + benzovindiflupyr ¹ and copper oxychloride	60+30 and 294	Elatus ⁸ and Difere ⁸	0.2 and 0.5
15 azoxystrobin + benzovindiflupyr ¹ and chlorothalonil	60+30 and 1080	Elatus ⁸ and Previnil ⁸	0.2 and 1.5
16 azoxystrobin + benzovindiflupyr ¹ and copper oxychloride	60+30 and 280	Elatus ⁸ and PNR ²	0.2 and 0.4
17 azoxystrobin + benzovindiflupyr ¹ and mancozeb	60+30 and 1500	Elatus ⁸ and Unizeb Gold ⁸	0.2 and 2.0
18 azoxystrobin + benzovindiflupyr ¹ and copper sulfate	60+30 and 113,85	Elatus ⁸ and PNR ²	0.2 and 0.75
19 azoxystrobin + benzovindiflupyr ¹ and propineb	60+30 and 1400	Elatus ⁸ and PNR ²	0.2 and 2.0
20 azoxystrobin + benzovindiflupyr ¹ and fluazinam	60+30 and 500	Elatus ⁸ and Frowncide ⁸ /Zignal ⁸	0.2 and 1.0
21 azoxystrobin + benzovindiflupyr ¹ and chlorothalonil	60+30 and 1000	Elatus ⁸ and Bravonil 500 ⁸	0.2 and 2.0
22 azoxystrobin + benzovindiflupyr ¹ and chlorothalonil	60+30 and 1000	Elatus ⁸ and PNR ²	0.2 and 2.0
23 azoxystrobin + benzovindiflupyr ¹ and mancozeb	60+30 and 2000	Elatus ⁸ and PNR ²	0.2 and 2.5

¹ Added Nimbus 0,6 L ha⁻¹; ² PNR – Product not registered for the soybean crop, RET III.

Declaration of Dr. Phillip M. Brannen:

³ Nimbus is a mineral oil used to improve spreadability of sprayed droplets applied to leaves of plants in the treatment of soybean rust. See Moura (Ex. 2017, sic); see also Della Vechia (Ex. 1018, sic).

Pet. at 19-20; Pet. Reply at 17; Ex. 1003, ¶110, n.3; Ex. 1005, Table 3.

The '727 Patent Describes Use Of Mineral Oil As An Inert Carrier

In an embodiment, the compositions of the present invention may typically be produced by mixing the actives in the composition with an inert carrier, and adding surfactants and other adjuvants and carriers as needed and formulated into solid, or liquid formulations, including but not limited to wettable powders, granules, dusts, Soluble (liquid) concentrates, suspension concentrates, oil in water emulsion, water in oil emulsion, emulsifiable concentrates, capsule suspensions, ZC formulations, oil dispersions or other known formulation types.

Examples ... used in formulation include ... as a liquid carrier ... petroleum aliphatic hydrocarbons, esters, demethylsulfoxide, acetonitrile and water.

Godoy – Nimbus

The '727 Patent Describes Use Of Mineral Oil As An Inert Carrier

Testimony of Patent Owner's Expert:

Q. Okay. So I think – so a mineral oil is a type of petroleum oil?

A. Yes.

Q. So is mineral oil a petroleum aliphatic hydrocarbon?

A. Is mineral oil an aliphatic hydrocarbon? That's what this sentence says.

Q. Do you have any reason to dispute that?

A. No.

Ex. 1043, 171:11-172:9.

Examples ... used in formulation include ... as a liquid carrier ... petroleum aliphatic hydrocarbons, esters, demethylsulfoxide, acetonitrile and water.

Pet. Reply at 4, 18; Ex. 1043, 171:11-172:9; Ex. 1001, 16:35-50.

Godoy – Nimbus

Nimbus Is Registered In Brazil As Mineral Oil Adjuvant

9. The product NIMBUS® distributed in Brazil by Syngenta or an affiliated company is composed of mineral oil as indicated by Ex. 1028. Exhibit 1028 is a record that is kept in the ordinary and regular course of business at a Syngenta affiliated company and I obtained a copy from such affiliate.

10. NIMBUS® is an adjuvant that can be added to a formulation to improve the spraying characteristics of the formulation. The product NIMBUS® distributed in Brazil by Syngenta does not contain a fungicide.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SYNGENTA CROP PROTECTION AG,
Petitioner,

v.

UPL LTD.,
Patent Owner.

Case PGR2023-00017
Patent 11,445,727 B2

DECLARATION OF RYAN KODY JONES

SYNGENTA EXHIBIT 1023
Syngenta v. UPL, PGR2023-00017

Godoy – Nimbus

Nimbus Has No Fungicidal Effect

thereof and also plasticiser adjuvants. Such a composition may then be added to a conventional spray tank, to be diluted in water along with a separate formulation containing an agrochemical (of course, that formulation could also be a formulation according to the present invention, as described above) prior to spraying. Examples of commercially available tank mix adjuvants include the mineral oil based Nimbus™ and non-ionic wetting agent Activator 90™.

Ex. 1041, ¶ 8.

EXAMPLE 4

[0066] This example demonstrates the lack of impact on uptake of cyproconazole by the styrene maleimide copolymer.

[0067] 4" pots of soya, Williams's variety, were grown in the glasshouse for four weeks until the plants reached the 3-4 trifoliate stage. These plants were tracksprayed with the treatment list below at a rate of 24 g a.i./ha in a water volume of 80 l/ha. All treatments included Nimbus™ at a rate of 600 ml/ha.

Ex. 1041, ¶¶ 66-67.

Pet. Reply at 18; Ex. 1043, 160:15-165:18.

US 20170086454A1

(19) United States
(12) Patent Application Publication (10) Pub. No.: US 2017/0086454 A1
(41) Pub. Date: Mar. 30, 2017

(54) AGROCHEMICAL FORMULATION (30) Foreign Application Priority Data
(71) Applicant: SYNGENTA PARTICIPATIONS AG, Basel (CH) Apr. 28, 2014 (GB) 1407384.5

(72) Inventors: John Henry NETTLETON-HAMMOND, Brookfield, Berkshire (GB); Neil Ross THOMPSON, Brookfield, Berkshire (GB); Erik Armand Wibe STANSSENS, Brookfield (GB)

(73) Assignee: SYNGENTA PARTICIPATIONS AG, Basel (CH)

(21) Appl. No.: 15/062,242
(22) PCT Filed: Apr. 28, 2015
(86) PCT No.: PCT/EP2015/059223
§ 371 (c)(1),
(2) Date: Oct. 6, 2016

(51) Int. Cl. (2006.01) A01N 2504 (2006.01)
(52) U.S. Cl. (2006.01) A01N 2504 (2013.01); A01N 3536 (2013.01)
CPC (2013.01)

(57) ABSTRACT
The present invention relates to a composition comprising an aqueous continuous phase, a first dispersed phase which comprises styrene-maleimide copolymer particles, and a second dispersed phase which is either oil droplets, suspended particles or a separate suspension, and to use of these compositions to control agricultural pests or diseases. It also relates to use of such compositions where retardation is important.



SYNGENTA EXHIBIT 1041
Syngenta v. UPL, PGR2023-00017

Godoy – Nimbus

Nimbus Has No Fungicidal Effect

in incubated test
% rh in a
disease is
appears on
n).

Azoxystrobin

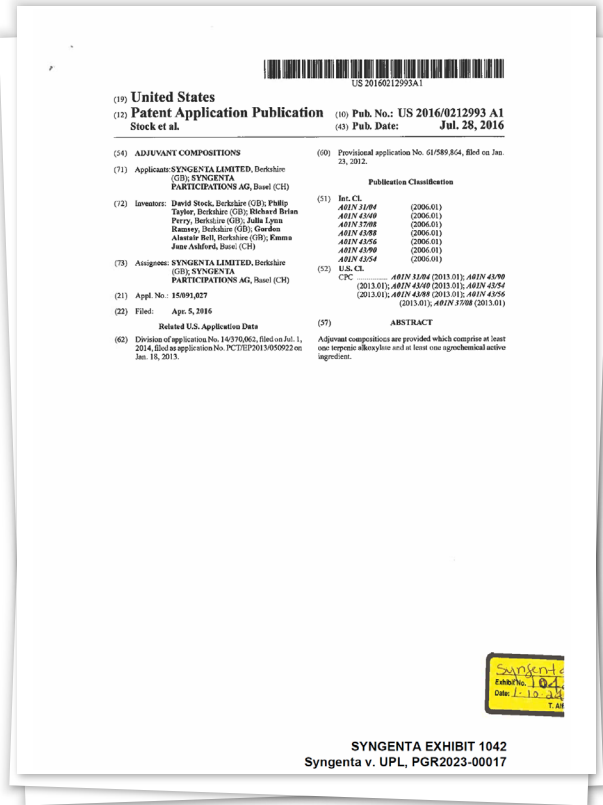
[0041] Results for *Puccinia* preventative test (pr-column) and *Puccinia* curative test (cu-column) on wheat. Visual assessments of control; average of three replicates per treatment. Nimbus commercial adjuvant and methyl oleate are standard adjuvants for comparison.

TABLE 1

Substance	Conc. in ppm ai	Conc. in g ai/ha	Adjuv. Conc. ln %	PUCCTRZ/ ff-pr	PUCCTRZ/ ff-cu
(1) Control					
Water + Isopropanol				0	13
Nopol-5PO-9EO (Rhodoclean MSC)			0.20	0	0
Nopol-5PO-25EO (Rhodoclean 525)			0.20	0	0
Nopol-5PO-7EO (Rhodoclean EFC)			0.20	0	0
Methyl oleate			0.20	0	0
Nimbus			0.20	0	0
Azoxystrobin	800	160			96
(Quadris SC 250)	200	40		99	93
	50	10		90	79
	12.5	2.5		54	79
	3	0.6		0	54
	0.75	0.15		0	
(2)					

Ex. 1042 , ¶ 41, Table 1.

Pet. Reply at 18; Ex. 1043, 160:15-165:18.



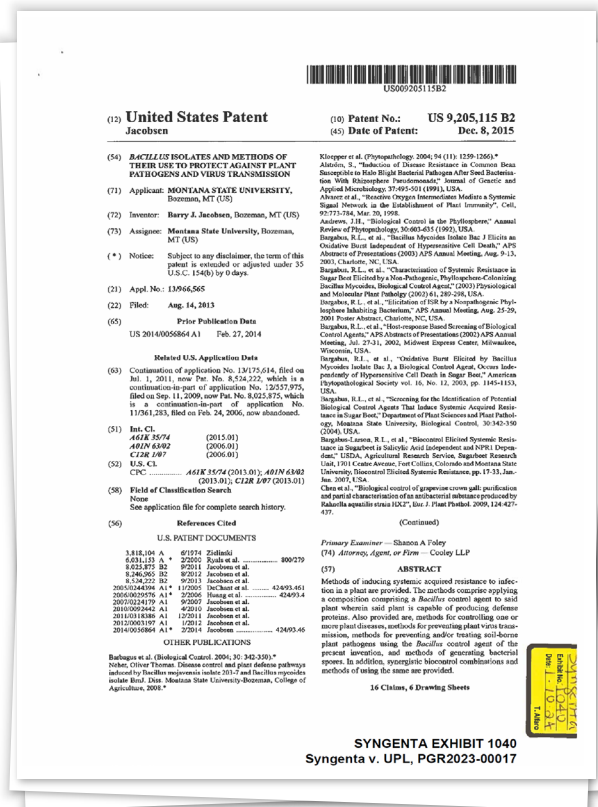
Godoy – Nimbus

Patent Owner's Expert Admits Mineral Oil Is An Inert Carrier

In some embodiments of the present invention, the bacterial spores of the present invention are blended with carriers. Carriers are inert formulation ingredients added to the bacterial spores that may improve the efficacy, recovery, or physical properties of the spores. They can also aid in packaging and administration. The carriers can be added in combination or individually. The carriers are bulking agents, anti-caking agents, protectants, and/or anti-oxidation agents in some embodiments of the present invention. Some examples of useful carriers include sugars (e.g., lactose, trehalose, sucrose), polysaccharides (e.g., starches, maltodextrins, methylcelluloses), salts (e.g., sodium chloride, calcium carbonate, sodium citrate), proteins (e.g., whey protein, peptides, gums), lipids (e.g., lecithin, vegetable oils, mineral oils), and silicates (e.g., clays, amorphous silica, fumed/pre-pipitated silicas, silicate salts). In one embodiment, the carrier

Ex. 1040, 37:14-29.

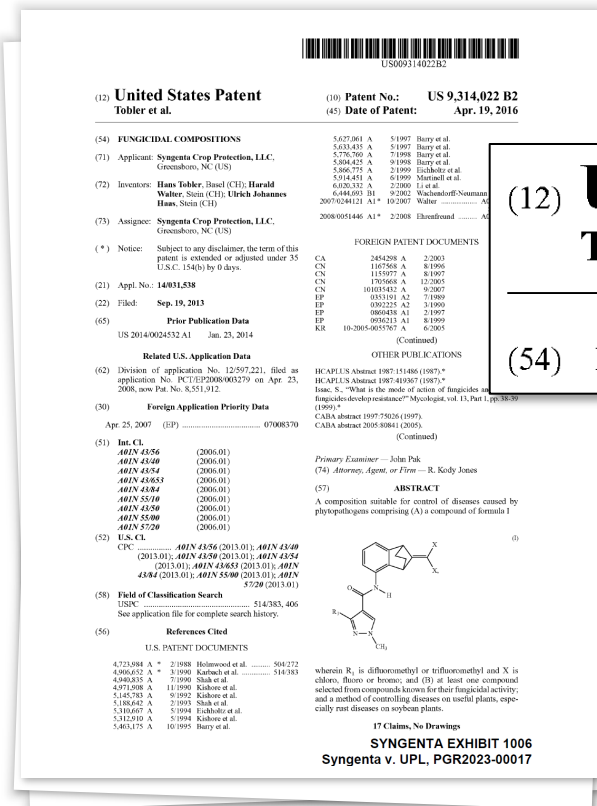
Pet. Reply at 18; Ex. 1043, 155:8-158:21.



Anticipation by Tobler (Ground 2)

Claims 1, 3-10 Anticipated by Tobler (Ex. 1006)

Tobler



(12) **United States Patent**
Tobler et al.

(10) **Patent No.:** **US 9,314,022 B2**
(45) **Date of Patent:** **Apr. 19, 2016**

(54) **FUNGICIDAL COMPOSITIONS**

5,627,061 A 5/1997 Barry et al.
5,633,435 A 5/1997 Barry et al.

Pet. at 27-28; Ex. 1006.

Tobler

Further examples for compositions according to the

present invention which comprise three active ingredients are defined as embodiments E1 and E2:

Embodiment E1:

The term "TX1" means: "the compound selected from the group P"

Dimoxystrobin+TX1, fluoxastrobin

thyl+TX1, metominostrobin+TX1, orysastrobin+TX1, picoxystrobin+TX1, pyraclostrobin+TX1, trifloxystrobin+TX1, a compound of formula B-1.1+TX1,

azaconazole+TX1, bromuconazole

TX1, difenoconazole+TX1, dinico

zole-M+TX1, epoxiconazole+TX1

fluquinconazole+TX1, flusilazole+

hexaconazole+TX1, imazalil+TX1,

ipconazole+TX1, metconazole+TX

oxpoconazole+TX1, pefurazoate+T

prochloraz+TX1, propiconazole+TX1, prothioconazole+

TX1, simeconazole+TX1, tebuconazole+TX1, tetracona-

zole+TX1, triadimefon+TX1, triadimenol+TX1, triflumi-

zole+TX1, triticonazole+TX1, diclobutrazol+TX1,

etaconazole+TX1, furconazole+TX1, furconazole-cis+TX1,

quinconazole+TX1, aldimorph+TX1, dodomorph+TX1, fen-

propimorph+TX1, tridemorph+TX1, fenpropidin+TX1,

spiroxamine+TX1, piperalin+TX1, a compound of formula

B-3.1+TX1, cyprodinil+TX1, mepanipyrim+TX1,

pyrimethanil+TX1, benalaxyl+TX

benomyl+TX1, bitertanol+TX1, b

TX1, carboxin+TX1, carpropamid

TX1, copper+TX1, cyazofamid+TX1, cymoxanil+TX1,

diethofencarb+TX1, dithianon+TX1, famoxadone+TX1,

fenamidone+TX1, fenhexamide+TX1, fenoxycarb+TX1,

fenpiclomil+TX1, fluazinam+TX1, fludioxonil+TX1, flutola-

nil+TX1, folpet+TX1, guazatine+TX1, hymexazole+TX1,

iprodione+TX1, lufenuron+TX1, mancozeb+TX1, metal-

axyl+TX1, mefenoxam+TX1, metrafenone+TX1, nuarimol+

TX1, paclobutrazol+TX1, pencycuron+TX1, penthiopyrad+

TX1, procymidone+TX1, proquinazid+TX1, pyraculon+

Further examples for compositions according to the present invention which comprise three active ingredients are defined as embodiments E1 and E2:

Embodiment E1:

The term "TX1" means: "the compound A-1.1+a compound selected from the group P"

Ex. 1006, 28:6-57.

Group P: Especially Suitable Compounds as Component (B) in the Compositions According to the Invention:

a strobilurin fungicide selected from azoxystrobin (47), dimoxystrobin (226), fluoxastrobin (382), kresoxim-methyl (485), metominostrobin (551), orysastrobin, picoxystrobin (647), pyraclostrobin (690); trifloxystrobin (832), a compound of formula B-1.1

Ex. 1006, 22:61-67.

Pet. at 28; Ex. 1003, ¶¶ 93-94; Ex. 1006, 22:61-67, 28:6-57.

Tobler

Tobler Disclosure

Further examples for compositions according to the present invention which comprise three active ingredients are defined as embodiments E1 and E2:

Ex. 1006, 28:6-9

Embodiment E1:

The term “TX1” means: “the compound A-1.1 + a compound selected from the group P”

Ex. 1006, 28:10-11

mancozeb + TX1 Ex. 1006, 28:40

Group P: Especially Suitable Compounds as Component (B) in the Compositions According to the Invention:

a strobilurin fungicide selected from azoxystrobin (47), dimoxystrobin (226), fluoxastrobin (382), kresoxim-methyl (485), metominostrobin (551), oryastrobin, picoxystrobin (647), pyraclostrobin (690); trifloxystrobin (832), a compound of formula B-1.1

Ex. 1006, 22:61-67

'727 Independent Claim 1

1. A fungicidal combination consisting of benzovindiflupyr, mancozeb, and at least another fungicide selected from an ergosterol biosynthesis inhibitor fungicide, and a quinone outside inhibitor fungicide,

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenoxy, pyrisoxazole, triforine, and mixtures thereof; and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

Pet. at 28; Ex. 1001, 21:40-62.

Tobler

Patent Owner's Expert Admits Tobler Discloses A List

Testimony of Patent Owner's Expert:

Q. Now, focusing on **compound A-1.1** as it's referenced in Tobler, you understand that that compound **is benzovindiflupyr**, correct?

A. **Yes.**

Ex. 1043, 46:4-7.

Q. And then I'd like to ask you a question about Group P. **Tobler provides a list of the members of what defines as Group P**, correct?

A. **That's correct.**

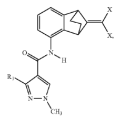
Ex. 1043, 47:12-15.

mancozeb+TX1

Embodiment E1:

The term "TX1" means: "the compound A-1.1+a compound selected from the group P"

401N 5720 (2005.01)
(52) U.S. Cl. (2005.01)
CPC: 401N 4356 (2013.01); 401N 4340 (2013.01); 401N 4350 (2013.01); 401N 4354 (2013.01); 401N 4363 (2013.01); 401N 4384 (2013.01); 401N 5500 (2013.01); 401N 5720 (2013.01)
(58) Field of Classification Search
USPC: 514.383, 406
See application file for complete search history.
(56) References Cited
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4,723,984 A * 2/1988 Holmwood et al. 504,272
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5,310,667 A 5/1994 Eschbitt et al.
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17 Claims, No Drawings
SYNGENTA EXHIBIT 1006
Syngenta v. UPL, PGR2023-00017



Tobler

Patent Owner's Expert Admits Tobler Discloses A List

Testimony of Patent Owner's Expert:

Q. Okay, and just to clarify the question and answer, the group P list as disclosed by Tobler includes azoxystrobin, correct?

A. Yes.

Q. So ciproconazole is one of the members of the group P list in Tobler?

A. That is correct.

Q. As well as azoxystrobin?

A. Yes.

Q. And the group P list also – I’m looking at the bottom of column 22 – the group P list also includes picoxystrobin?

A. I believe in line 66, yes, picoxystrobin.

Pet. Reply at 6-8; Ex. 1043, 48:1-4:21.

(12) **United States Patent**
Tobler et al.

(10) **Patent No.:** US 9,314,022 B2
(45) **Date of Patent:** Apr. 19, 2016

(54)	FUNGICIDAL COMPOSITIONS	5,627,601 A	5/19/97	Bury et al.	
		5,633,435 A	5/19/97	Bury et al.	
(71)	Applicant: Syngenta Crop Protection, LLC, Greensboro, NC (US)	5,776,760 A	7/19/98	Bury et al.	
		5,800,425 A	9/1/98	Bury et al.	
		5,866,775 A	9/1/98	Eichholtz et al.	
		5,914,445 A	6/1/99	Moskowitz et al.	
(72)	Inventors: Hans Huber, Eike (CH); Harald Walter, Stein (CH); Ulrich Johnson Hans, Stein (CH)	6,030,332 A	2/20/00	1 A 1	
		6,440,693 B1	2/20/02	Wachsmuth-Neumann et al.	
		2007/0346112 A1*	10/2/07	Wachsmuth-Neumann et al.	2007-03-56
		2008/0051446 A1*	2/2/08	Ehrenfeld	5142735
(73)	Assignee: Syngenta Crop Protection, LLC				2003-03-32 5144066

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.		CA	2454298 A	2/2003
		CN	1167568 A	8/1996

mancozeb+TX1

Embodiment E1:

The term “TX1” means: “the compound A-1.1+a compound selected from the group P”

(52) *AdIN 5720* (2006.01)
U.S. Cl. *AdIN 43/56* (2013.01); *AdIN 43/40* (2013.01); *AdIN 43/50* (2013.01); *AdIN 43/54* (2013.01); *AdIN 43/557* (2013.01); *AdIN 43/84* (2013.01); *AdIN 43/600* (2013.01); *AdIN*
CPC 

(58) **Field of Classification Search**
USPC 514/383, 406
See application file for complete search history.

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5.312.910 A	51994	Kishore et al.	
10.16.1.665	10.16.1.665		

SYNGENTA EXHIBIT 100
Syngenta v. UPL, PGR2023-0001

4/15/2024

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

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Tobler

Federal Circuit Caselaw Distinguishes Between Prior Art Disclosing A Genus And Prior Art Disclosing A List

Perricone, M.D. v. Medicis Pharmaceutical Corp., 432 F.3d 1368, 1376-1377 (Fed. Cir. 2005)

This court rejects the notion that one of these ingredients cannot anticipate because it appears without special emphasis in a longer list.

While other opinions state that disclosure of a broad genus does not necessarily specifically disclose a species within that genus, *see, e.g., Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1262 (Fed. Cir. 1989), this axiomatic proposition also does not rescue Dr. Perricone's claims. In this case, the prior art does not merely disclose a genus of skin benefit ingredients without disclosing the particular claimed ingredient. Rather Pereira specifically discloses ascorbyl palmitate. That specific disclosure, even in a list, makes this case different from cases involving disclosure of a broad genus without reference to the potentially anticipating species. Thus, these cases do not alter the district court's correct anticipation reasoning.

Tobler

Patent Owner's Reliance On Caselaw Is Misplaced

<i>Wm. Wrigley Jr. Co. v. Cadbury Adams USA LLC</i> , 683 F.3d 1356 (Fed. Cir. 2012)	Quotes dissent, mischaracterizing it as majority opinion
<i>Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co. Ltd.</i> , 851 F.3d 1270 (Fed. Cir. 2017)	Misrepresents holding – case involves neither genus or list
<i>Mylan Pharms. Inc. v. Merck Sharp & Dohme Corp.</i> , 50 F.4 th 147 (Fed. Cir. 2022)	Prior art at issue disclosed only genus
<i>In re Arkley</i> , 455 F.2d 586 (C.C.P.A. 1972)	Quote is incomplete; case involves “<u>picking, choosing, and combining various disclosures not directly related to each other by the teachings of the reference</u>”
<i>Leo Pharm. Prods., Ltd. v. Rea</i> , 726 F.3d 1346 (Fed. Cir. 2013)	Omits “not” before quoted language; not an anticipation case; issue was obviousness where claims required claimed combination be “storage stable and non-aqueous”
<i>FWP IP ApS v. Biogen MA., Inc.</i> , 7 F.App'x 969 (Fed. Cir. 2018)	Written description case
<i>Beckman Coulter, Inc. v. Sirigen II Ltd.</i> , IPR2022-01206, Paper 64 (PTAB Dec. 21, 2023)	Prior art at issue disclosed only genus

POR at 30-33; PO Sur-Reply at 15; Pet. Reply at 10-11.

Obvious over Tobler (Ground 2)

**Claims 1-10 Obvious Over Tobler, optionally in view of
Godoy**

U.S. Patent No. 11,445,727

Independent Claim 1

1. A fungicidal combination consisting of benzovindiflupyr, mancozeb, and at least another fungicide selected from an ergosterol biosynthesis inhibitor fungicide, and a quinone outside inhibitor fungicide,

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenoxy, pyrisoxazole, triforine, and mixtures thereof; and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

Independent Claim 2

1. A fungicidal combination consisting of benzovindiflupyr, mancozeb, and at least another fungicide selected from an ergosterol biosynthesis inhibitor fungicide, and a quinone outside inhibitor fungicide,

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenoxy, pyrisoxazole, triforine, and mixtures thereof; and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

Tobler

disease control is desired. For instance, it may be advantageous in the agricultural practice to combine two or three components (B) with component (A). An example is a composition comprising a compound of formula (I), azoxystrobin and cyproconazole.

Ex. 1006, 28:1-5.

A preferred embodiment of the invention is represented by those compositions which comprise as component (A) a compound of formula (I), wherein R₁ is difluoromethyl. Further preferred compounds of formula (I) are:
3-difluoromethyl-1-methyl-1H-pyrazole-4-carboxylic acid (9-dichloromethylidene-benzonorborene-5-yl)amide
(compound A-1.1) 3-difluoromethyl-1-methyl-1H-pyrazole-

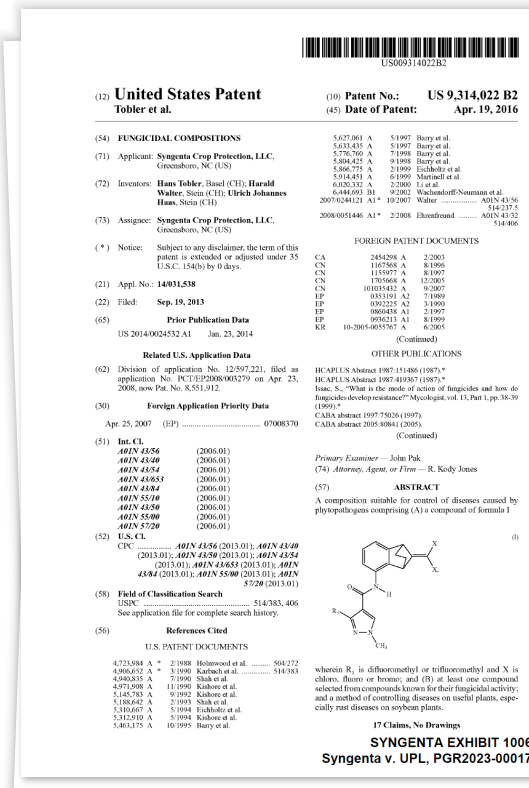
Ex. 1006, 13:5-11.

(B) a compound selected from the group consisting of (B1) a strobilurin fungicide, (B2) anazole fungicide (B3) a morpholine fungicide, (B4) an anilinopyrimidine fungicide, (B5) a fungicide selected from the group consisting of anilazine (878), arsenates, benalaxyl (56), benalaxyl-M, benodanil (896), benomyl (62), benthiavalicarb, benthiavalicarb-isolane (474), kasugamycin (483), mancozeb (496), maneb

Ex. 1006, 8:18-24.

Ex. 1006, 8:51.

Pet. at 34-35; Ex. 1003, ¶¶ 158-160.



Obvious over De Oliveira (Ground 3)

**Claims 1-10 Obvious
over De Oliveira, optionally in view of Wiglesworth,
Tobler, and Godoy**

De Oliveira

In an aspect, the present invention provides an improved method of treating soybean rust infection in a host leguminous plant, wherein the improvement comprises treating the plant at the locus of the infection with a dithiocarbamate fungicide, and concurrently, prior or subsequently to the dithiocarbamate fungicide, with at least another fungicide selected from a demethylation inhibitor, quinone outside inhibitor, succinate dehydrogenase inhibitor, quinone inside inhibitor or combinations thereof.

Ex. 1007 at 7.

rings or chains of sulfur atoms and is preferably elemental sulfur. The dithiocarbamate fungicides of the present invention contain a dithiocarbamate molecular moiety and are selected from amobam, asomate, azithiram, carbamorph, cufraneb, cuprobam, disulfiram, ferbam, metam, nabam, tecoram, thiram, urbacide, ziram, dazomet, etem, milneb, mancopper, mancozeb, maneb, metiram, polycarbamate, propineb and zineb. The

Ex. 1007 at 8.

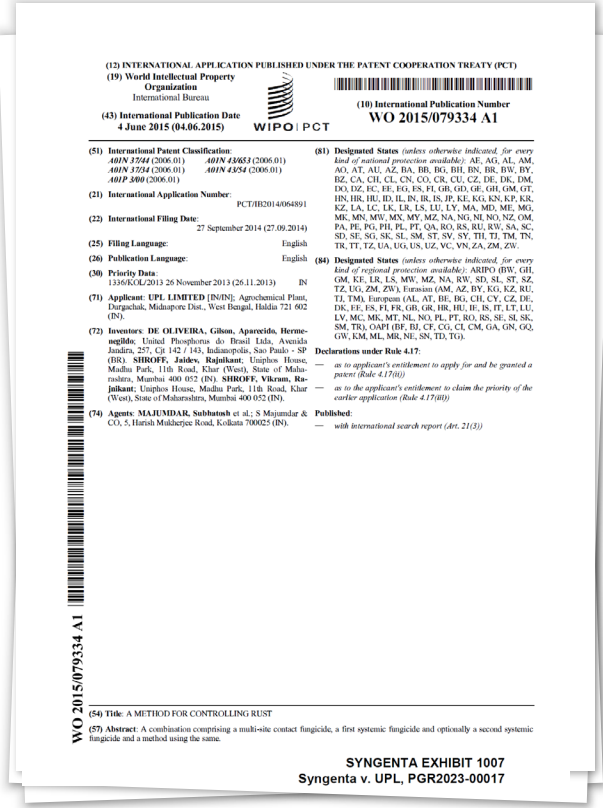
In this embodiment, the preferred DMI inhibitor is preferably a conazole fungicide selected from the group consisting of climbazole, clotrimazole, imazalil, oxpoconazole, prochloraz, prochloraz-manganese, triflumizole, azaconazole, bitertanol, bromuconazole, cyproconazole, diclobutrazol, difenoconazole, diniconazole, diniconazole-M, epoxiconazole, etaconazole

Ex. 1007 at 11.

In another embodiment, the systemic fungicide of the present invention is a succinate dehydrogenase inhibitor fungicide (SDHI). Preferably, the succinate dehydrogenase inhibitor is selected from the group consisting of benodanil, flutolanil, mepronil, fluopyram, fenfuram, carboxin, oxycarboxin, thifluzamide, bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad, sedaxane and boscalid.

Ex. 1007 at 15.

Pet. at 50-51; Ex. 1003, ¶¶ 159, 195-196.



Wiglesworth

Solatenol™ fungicide – a new SDHI fungicide from Syngenta

M. D. WIGLESWORTH (1), A. H. Tally (1)

(1) Syngenta Crop Protection, Greensboro, NC, U.S.A.

Phytopathology 105(Suppl. 2):S2.11

Solatenol™ fungicide is a new broad spectrum foliar fungicide discovered and developed by Syngenta. It is currently registered in Brazil and Paraguay. In the US, Solatenol fungicide (ISO name benzovindiflupyr) registration is expected first quarter 2015. Four products will be launched: Aprovia™ (solo), Aprovia™ Top (plus difenoconazole), Elatus™ (plus azoxystrobin), and Trivapro™ (and co-pack with azoxystrobin and propiconazole). Solatenol is in FRAC Group 7. The very high affinity for succinate dehydrogenase results in its high intrinsic activity. Solatenol's high intrinsic activity combined with strong binding to the plant's wax layer from where it slowly penetrates into

Ex. 1008 at S2.11.

the plant tissue, results in long lasting disease control. Key strengths of Solatenol fungicide include activity on Asian soybean rust (*Phakopsora pachyrhizi*), *Septoria tritici* on wheat, and apple scab (*Venturia inaequalis*). Use rates as low as 30 g ai/ha are extremely efficacious on soybean rust. It also has excellent activity on many leafspots, rusts, powdery mildews, *Rhizoctonia* spp., and *Sclerotium rolfsii*. Elatus will be positioned in peanut where it has shown excellent residual activity of early leafspot (*Cercospora arachidicola*), late leafspot (*Cercosporidium personatum*), peanut rust (*Puccinia arachidis*), and Southern Blight (*Sclerotium rolfsii*). Peanut fungicide programs including Solatenol Fungicide have shown excellent seasonal control of peanut diseases and resulted in improved yield compared to the best disease control programs currently available. Aprovia Top provided excellent powdery mildew and gummy stem blight control in cucurbits. Baseline sensitivity studies are underway to determine specific cross-resistance with other SDHIs currently on the market.

Ex. 1008 at S2.12.



2015 Southern Division Meeting Abstracts

Abstracts presented at the APS Southern Division meeting in Atlanta, Georgia, February 1-2, 2015. The abstracts are arranged alphabetically by the first author's name. Recommended format for citing division meeting abstracts, using the first abstract below as an example, is as follows: Appel, D. N., and Oug, K. L. 2015. The results of survey for citrus greening on the Upper Gulf Coast of Texas. (Abstr.) Phytopathology 105(Suppl. 2):S2.1. <http://dx.doi.org/10.1094/PHYTO-105-4-S2.1>

The results of survey for citrus greening on the Upper Gulf Coast of Texas
D. N. APPEL (1), K. L. Oug (1)
(1) Texas A&M AgriLife Extension Service, College Station, TX, U.S.A.
Phytopathology 105(Suppl. 2):S2.1

Annual citrus surveys have been conducted for *Diuraphis citri*, the Asian Citrus Psyllid (ACP), and citrus greening disease along the Texas Upper Gulf Coast since 2010. The objective is to determine whether any ACPs carry the citrus greening pathogen, *Candidatus Liberibacter asiaticus*. The focus is largely on dwarfed citrus throughout 5 counties in Southeast Texas. Through 2013, 1839 samples were collected, consisting of adults ($n = 657$), nymphs (867), eggs (6), and citrus foliage (811). No samples were positive for the pathogen, as tested with a multiplex, quantitative real-time PCR assay by the Texas Plant Disease Diagnostic Laboratory (TPDDL) in College Station, TX. Two Potential Automatic Suspect Samples (PASS) were forwarded to the USDA-APHIS-PPQ-CPPST Laboratory in Beltsville, MD. The 2012 sample tested inconclusive and the 2013 sample confirmed negative. Although the surveys were not conducted to investigate population dynamics of the ACP, some seasonal trends in psyllid numbers were observed. In contrast, continued ACPs and disease were have been detected by others in the commercial citrus growing region in the Rio Grande Valley (RGV) of South Texas. Continued survey work from the RGV was suspended to have been delivered to nurseries within the survey area. As of November, 2014, the TPDDL has confirmed the presence of infected nursery stock in 10 nurseries in 5 counties. Quantitative and other regulatory actions are in place to contain the disease. These events reinforce the need for continuing survey for pathogen movement into the Upper Gulf Coast landscape.

The effect of oscillating temperatures on the growth rate of *Sclerotium rolfsii*
R. L. BARROCO (1), N. S. Duda (1)
(1) University of Florida, Gainesville, FL, U.S.A.
Phytopathology 105(Suppl. 2):S2.1

Sclerotium rolfsii is a soilborne fungal pathogen that causes significant diseases on a wide variety of crop hosts. Weather-based models for site-specific management of plant diseases typically use microbial growth curves based on models with constant mean temperatures. However, daily changes in temperatures under natural conditions fluctuate over time with variable amounts to maximum ranges. For this study, the growth rates of 23 *S. rolfsii* isolates from peanut, tomato, and pepper were measured under 15, 20, 25, 30, and 35°C mean temperatures that oscillate along a sine wave curve

with a 24-hour cycle and amplitudes of 0, 4, or 8°C. Phaga of hyphae were placed on 2.5% acidified potato dextrose agar, and growth was measured every 12 hours for a duration of 48 hours. Mycelial growth decreased with increasing amplitudes for the mean temperatures of 25, 30, and 35°C. When the amplitudes were 0 or 4°C, optimum mycelial growth rates for all isolates were observed at the 30°C mean temperature. However, optimal mean temperatures for mycelial growth differed among isolates when the amplitude was 8°C. At this amplitude some isolates grew optimally at a mean of 25°C and others at a mean of 30°C. This study indicates that the growth response of *S. rolfsii* to temperature will vary depending on the isolate and range of temperatures which the pathogen is exposed to during a day. The information from this study can be used to improve risk models for diseases caused by this devastating pathogen.

In-furrow application of azoxystrobin for peanut seed and seedling disease management
T. BRENNENMAN (1), B. Rasmussen (1), A. Cullwirth (1)
(1) USDA, Tifton, GA, U.S.A.
Phytopathology 105(Suppl. 2):S2.1

Azoxystrobin (Abound 2.08F) was evaluated as an in-furrow (IF) spray at three different rates with peanut (cv. Tifguard) seed either untreated or treated with Dethyone PD (250 g/kg of seed). Two tests were conducted in 2014, each with 5 replications in a split plot design, with seed treatment as whole plots and IF spray as sub plots. When Dethyone PD was used, the IF spray had no effect on plant stands, growth, diseases or yield in either test. With no treatment applied, all three rates of azoxystrobin (0.5, 0.11 and 0.22 kg/ha) IF more than doubled final plant stand in both tests, and also increased plant growth. These treatments had no effect on stem rot (*Sclerotium rolfsii*) at harvest, but pod yield was increased significantly by all IF treatments in both tests by an average of 1183 and 710 kg/ha, respectively. There were few differences among the three rates of IF spray. While seed treatments alone are usually adequate for a post plant stand and pod yield, an IF spray of azoxystrobin at 0.05-0.11 kg/ha can help protect young plants under more severe disease pressure.

Evaluation of systemic fungicides in pecans and implications for disease management
K. A. BROWN (1), T. B. Brummett (1)
(1) University of Georgia, Tifton, GA, U.S.A.
Phytopathology 105(Suppl. 2):S2.1

Scab (*Asciobotrya effusa*) is a common disease of pecans, especially during wet years, and frequent fungicide sprays are needed to prevent serious losses. Some fungicides used on pecans are known to move systemically in other crops, but little is known about the phloem translocation in pecan tissue. The movement of substances (TEB = Ostar 2.0), azoxystrobin (AZO = Abound 2.08F), a phenylpyrazole (PPZ = Tangarol), and PPZ (Dipep Top 4L), a protectant, was studied by treating lower leaves on a terminal, then sampling non-treated leaves above them on the same stem. Samples were taken 1, 3, and 7 days after fungicide application and bioassayed with *Sclerotium rolfsii* TEB. AZO

The abstracts are published as submitted. They were formatted but not edited at the APS headquarters office.

<http://dx.doi.org/10.1094/PHYTO-105-4-S2.1>

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Vol. 105 (Supplement 2), No. 4, 2015 S2.1
SYNGENTA EXHIBIT 1008
Syngenta v. UPL, PGR2023-00017

Obviousness (Grounds 2 and 3)

No Secondary Considerations of Non-Obviousness

No Secondary Considerations

Patent Owner's Expert Admits No Long-Felt Unmet Need

Q. Okay. And in this paragraph you reference the Oliveira patent application that's Exhibit 1007, correct?

A. I believe so, yes.

Q. And as I read the paragraph, you're saying that Oliveira, Exhibit 1007, illustrates that there's a long-felt but unmet need in the art for controlling soybean rust?

A. Yes.

Q. And you quote Oliveira to support that opinion, correct?

A. Yes.

Q. Do you agree that Oliveira itself, Exhibit 1007, solves the long-felt need that you describe in paragraph 273?

A. It certainly improved over products like sulfur and copper that had been used earlier?

Q. So it both describes the unfelt need and provides a solution to that?

A. Yes.

Ex. 1043, 292:8-293:5

Pet. Reply at 21.

No Secondary Considerations

Purported Unexpected Results Not Commensurate With Scope of Claims

South Alabama Med. Science Foundation v. Gnosis S.P.A., 808 F.3d 823, 827 (Fed. Cir. 2015)

[T]he Board applied the appropriate standard and found that the commercially successful products were not “reasonably commensurate in scope with the claims” and that SAMSF had not provided an “adequate basis to support the conclusion that other embodiments falling within the claim will behave in the same manner.” J.A. 39–40, 84–86, 131–32 (citing *In re Huai–Hung Kao*, 639 F.3d 1057, 1068 (Fed.Cir.2011)).

No Secondary Considerations

Purported Unexpected Results Not Commensurate With Scope of Claims

66. Furthermore, synergy depends on a mixture-by-mixture, ratio, dosage, pathogen and plant. Hence, tests for synergy with mancozeb must be conducted for each pathogen, plant, and chemical combination; synergy is very specific for each system. For example, Koller (Ex. 2015) examined mancozeb for interaction with demethylation inhibitor (DMI) fungicides when resistance had developed, and mancozeb was found to be additive with DMI fungicides for better disease control of apple scab. However, synergy with mancozeb has been reported when using phenylamide fungicides in combination for control of Oomycete pathogens (Gisi, Ex. 1013).

No Secondary Considerations

Patent Owner's Expert Admits His Unexpected Results Analysis Has No Scientific Basis And Is Riddled With Errors

Q. So do you cite in your declaration to any references that support using Colby when there are overlapping modes of action and choosing a ratio less than 1 to apply?

A. In the examples where I took Syngenta's data that was given to me and using the Colby formula, I felt there was synergy and I so state – I said conservatively a Colby ratio of .9 or above I considered to be synergy because we do have overlapping modes of action and **that's just an educated guess** based on my life experiences and working with many of these same fungicides.

Q. Okay. And you don't cite to any references to support that, correct?

A. **I don't believe there are any specific references that say that.**

Ex. 1043, 192:1-18.

Pet. Reply at 23.

No Secondary Considerations

Patent Owner's Expert Admits His Unexpected Results Analysis Has No Scientific Basis And Is Riddled With Errors

Q. All right. Let's look at the work you did on yield. Are you with me? Prior to your work in this case in preparing your declaration have you ever seen or done a synergy analysis for yield?

A. No.

Q. So you're not aware of any example in the scientific literature in which synergy analysis was done for yield?

A. No I'm not.

Ex. 1043, 278:15-279:2

Pet. Reply at 26.

No Secondary Considerations

Patent Owner's Expert Admits His Unexpected Results Analysis Has No Scientific Basis And Is Riddled With Errors

Q. Looking at page 2 of Appendix B for yield, you have average observed values for A1 through A7, right? Do you see that in the first column?

A. That's using the Syngenta averages.

Q. Okay. Let's focus on area 4.

A. Area 4.

Q. The observed values range from 112 to 141, is that fair?

A. Yes, that is the range.

Q. Okay. So if you plug those into Colby, you'd expect to get something higher than that range?

A. That is correct.

Ex. 1043, 290:13-291:3

No Secondary Considerations

Patent Owner's Expert Admits His Unexpected Results Analysis Has No Scientific Basis And Is Riddled With Errors

Q. Okay. On page 3 you have the Colby expected values?

A. Those are Colby expected, yes.

Q. For area 4?

A. Yes.

Q. And those are all – those range from 100 to 102?

A. Yes.

Q. That is less than the observed values for the individual components that you report on page 2, correct?

A. Yes.

Q. So –

A. It's a hundred minus those multiplications, yes.

Q. So something's wrong here, isn't it?

A. **Something is not correct.**

Ex. 1043, 291:4-20

Pet. Reply at 26.

No Secondary Considerations

Patent Owner's Expert Admits His Unexpected Results Analysis Has No Scientific Basis And Is Riddled With Errors

Q. So you've told me – Dr. Jacobsen, I apologize for pressing this point, but you've testified today that at one point you used the simple formula for yield – I'm not done with my question.

A. Okay.

Q. Then you told me you used the complex formula for yield and the simple formula for defoliation. Now you're telling me you used the simple formula – I mean the complex formula for defoliation. So you've gone back and forth and I'm just – I just want to get a straight answer. Which formula did you use for your analysis, if you know? If you're not sure, that's fine.

A. I'm not sure at this point.

Ex. 1043, 287:10-288:2

No Secondary Considerations

Patent Owner's Expert Admits His Unexpected Results Analysis Has No Scientific Basis And Is Riddled With Errors

Q. So Dr. Jacobsen, looking at A8 --

Q. That number is wrong isn't it?

A. I believe it is.

Q. Okay. What about the area – A8, area 3, 23.3, is that correct?

A. A8, area 3, I believe that's incorrect.

Q. A8, area 2, 26.7, is that incorrect?

A. It would appear that it's a different number. It's incorrect I guess.

Q. And then A8, area 1 is also incorrect?

A. That's correct.

Q. And looking at A9 on page 25, all of the values there, area 1 through area 4, those are also incorrect?

A. It would appear so.

Q. And the value for A10, area 4 on page 25, that one's incorrect?

A. That would appear so.

Q. Okay. So that means the table at the top of page 93 is incorrect as well?

A. At least for some of the values, yes.

Q. Sitting here today, can you tell me which numbers on Table D are correct and which ones are incorrect without redoing the math?

A. I would have to go and redo the math.

Q. If we go to the table at the top of page 93 of your declaration, what Colby value ratio do you have there?

A. 1.31.

Q. And that's not correct?

A. It appears so, yes.

Q. So the correct value is less than .9?

A. That's correct.

Q. And so the correct color here would be yellow, not green?

A. That's correct.

Pet. Reply at 24-26; Ex. 1043, 269:13-270:13, 274:19-21, 277:6-19, 278:11-14.

No Secondary Considerations

Patent Owner's Expert Admits His Unexpected Results Analysis Has No Scientific Basis And Is Riddled With Errors

Q. Okay. Were those numbers calculated correctly? We'll get to page 25 in a minute here.

A. A8 - I'm going to be very honest with you, I'm confused right now. Continue. I'm confused right now.

Q. But the value you've entered for A8, area 4 on page 25 is not 46.7, is it?

A. No. There's something wrong with the equation as it's presented. You have to go into the Colby formula. There's something wrong here with this equation that's presented.

A. I believe what is wrong with this is we would have taken - in calculating A8 or any of the combination values, made the multiplication and made the division according to the Colby formula to come up to the 23.3. So the equation that's demonstrated here on page 25 is not correct.

Q. Okay. And the values for A9 on page 24 should also be identical to the values for A9 on page 25?

A. I would think so, yes.

Q. But they're not identical, are they?

A. I'm trying to figure out why. Okay.

A. But to come up with the observed for the com- -- okay. There's something wrong with this equation. Just in my mental state at this moment I can't tell you what it is.

A. And then 20 - A9 - I can't explain to you why these two tables are different.