

UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT TRIAL AND APPEAL BOARD

Inari Agriculture, Inc.
v.
Corteva Agriscience LLC

IPR2024-01014

U.S. Patent No. 8,901,378

CORTEVA'S TRIAL DEMONSTRATIVES

August 26, 2025

Timeline of Key Evidence

Q. You've indicated that "TC1507/Herculex I was available **starting in the 2003 growing season,**" correct?

A. Yes.

EX2003 (Silverstone Tr.), 46:16-19

Q. Sometime **in late 2003**, grain . . . that possessed TC1507 would have been accessible without restrictions for use, correct?

A. That is correct. . . .

EX2003 (Silverstone Tr.), 52:13-17

April 6, 2004

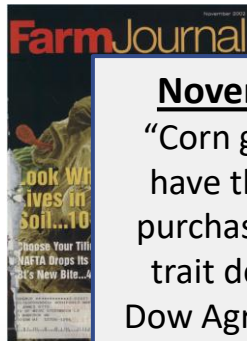
"Growers were pleased with the overall performance of Herculex I" used **during 2003**, its first season of **commercial availability**.

EX2004

2002

2003

2004



November 2002

"Corn growers now have the option of purchasing a new Bt trait developed by Dow AgroSciences . . . Herculex I . . ."

EX1047

May 2, 2003

Provisional Application
No. 60/467,772 Filed
EX1005



February 2003

"This year, the new generation Bt trait Herculex I will be in farm fields."

EX1048

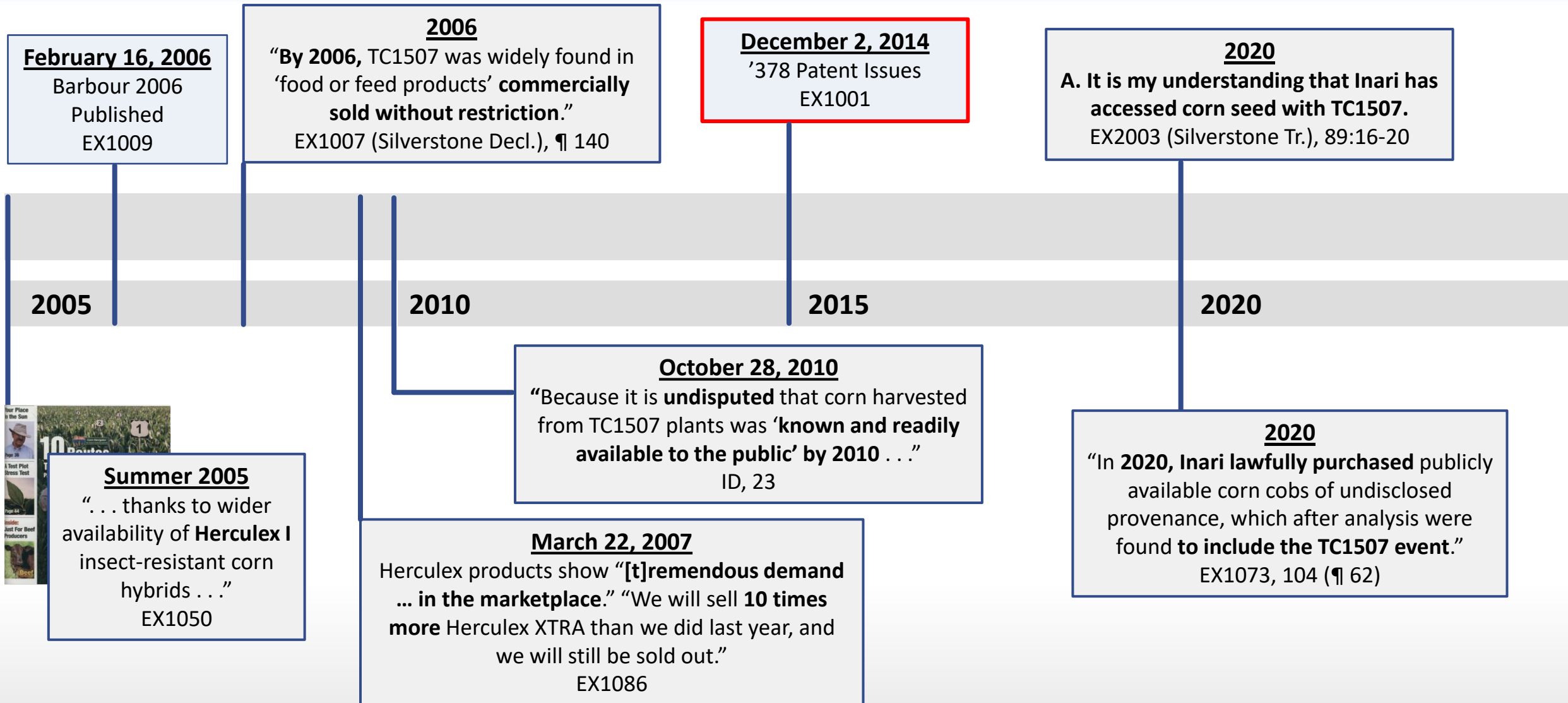
April 30, 2004

Application
No. 10/837,105 Filed
EX1006

"By Barbour's publication date, the TC1507 event had been commercialized under Patent Owner's 'Herculex' trademark and **widely planted** in the United States over the **course of three growing seasons (i.e., 2003, 2004, and 2005).**"

EX1007 (Silverstone Decl.), ¶ 131

Timeline of Key Evidence



The '378 Patent

 US008901378B2																																																												
(12) United States Patent Barbour et al.	(10) Patent No.: US 8,901,378 B2 (45) Date of Patent: *Dec. 2, 2014																																																											
(54) CORN EVENT TC1507 AND METHODS FOR DETECTION THEREOF																																																												
(75) Inventors: Eric Barbour , Johnston, IA (US); James Wayne Bing , Ankeny, IA (US); Guy A. Cardineau , Tempe, AZ (US); Robert F. Cressman, Jr. , Wilmington, DE (US); Manju Gupta , Carmel, IN (US); Mary E. Hartnett Locke , Mickleton, NJ (US); David Houdred , Ankeny, IA (US); Joseph W. Kraschall , Clive, IA (US); Michael G. Koziel , Raleigh, NC (US); Terry EuClaire Meyer , Urbandsale, IA (US); Daniel Moeftelbeck , Granger, IA (US); Kenneth Edwin Narva , Carlsbad, CA (US); Wlas Nirunskiviri , Auburn, WA (US); Stephen W. Ritchie , Omaha, NE (US); Marjorie L. Rudert , Boone, IA (US); Craig D. Sanders , Bear, DE (US); Alhua Shao , Johnston, IA (US); Steven Jeffrey Stelman , San Diego, CA (US); David S. Stucker , Johnston, IA (US); Laura Ann Taglianti , Zionsville, IN (US); William M. Van Zante , Urbandsale, IA (US)																																																												
(73) Assignee: Pioneer Hi-Bred International, Inc. , Johnston, IA (US)																																																												
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(h) by 1071 days. This patent is subject to a terminal disclaimer.																																																												
(21) Appl. No.: 12/914,271																																																												
(22) Filed: Oct. 28, 2010																																																												
(65) Prior Publication Data US 2011/0099662 A1 Apr. 28, 2011																																																												
Related U.S. Application Data (60) Division of application No. 12/333,044, filed on Mar. 13, 2009, now Pat. No. 7,989,607, which is a continuation of application No. 11/774,236, filed on Jul. 6, 2007, now Pat. No. 7,514,544, which is a division of application No. 10/837,105, filed on Apr. 30, 2004, now Pat. No. 7,288,643. (60) Provisional application No. 60/467,772, filed on May 2, 2003.																																																												
(51) Int. Cl. A01H 1/00 (2006.01) C12N 15/82 (2006.01) C12Q 1/68 (2006.01) U.S. Cl. CPC C12N 15/8277 (2013.01); C12Q 1/6895																																																												
(52) Field of Classification Search None See application file for complete search history.																																																												
References Cited U.S. PATENT DOCUMENTS <table border="0"> <tr> <td>5,474,796 A</td> <td>12/1995</td> <td>Beemster</td> <td></td> </tr> <tr> <td>5,877,012 A *</td> <td>3/1999</td> <td>Estruch et al.</td> <td>435/252.3</td> </tr> <tr> <td>6,166,302 A *</td> <td>12/2000</td> <td>Merlo et al.</td> <td>800/320.1</td> </tr> <tr> <td>6,646,184 B2</td> <td>11/2003</td> <td>Hohn et al.</td> <td></td> </tr> <tr> <td>6,713,289 B2</td> <td>3/2004</td> <td>Levine</td> <td></td> </tr> <tr> <td>6,825,400 B2</td> <td>11/2004</td> <td>Bahr et al.</td> <td></td> </tr> <tr> <td>7,288,643 B2 *</td> <td>10/2007</td> <td>Barbour et al.</td> <td>536/23.1</td> </tr> <tr> <td>7,417,132 B2 *</td> <td>8/2008</td> <td>Barbour et al.</td> <td>536/23.1</td> </tr> <tr> <td>7,435,807 B1 *</td> <td>10/2008</td> <td>Barbour et al.</td> <td>536/23.1</td> </tr> <tr> <td>7,449,564 B2 *</td> <td>11/2008</td> <td>Barbour et al.</td> <td>536/23.1</td> </tr> <tr> <td>7,514,544 B2 *</td> <td>4/2009</td> <td>Barbour et al.</td> <td>536/23.1</td> </tr> <tr> <td>7,989,607 B2 *</td> <td>8/2011</td> <td>Barbour et al.</td> <td>536/23.1</td> </tr> <tr> <td>2001/0055519 A1</td> <td>12/2001</td> <td>Fedor et al.</td> <td></td> </tr> <tr> <td>2002/0177526 A1 *</td> <td>11/2002</td> <td>Chen et al.</td> <td>504/100</td> </tr> </table> FOREIGN PATENT DOCUMENTS <table border="0"> <tr> <td>WO</td> <td>WO 2004/011601</td> <td>2/2004</td> </tr> </table> OTHER PUBLICATIONS Cornejo et al 1993 Plant Molecular Biology 23: 567-581. Spencer et al 1992, Plant Molecular Biology 18: 201-210. Anonymous: "DAS-01507-1 (TC 1507)", Internet Article, Online Oct. 17, 2002. Internet: aphis.com.dbase.php?action=showspend&date=TC1507&data=TC1507&format=long retrieved on 1/4/2005. Anonymous: "Skov-og Naturstyrelsen" Internet Article, Online 12/11/2000, Denmark. Internet: us.dk/afborgaden/boerger/a%2010%20indhold.htm retrieved on Jan. 6, 2005. Database EMBL: "Online! Nov. 18, 2002, "Mus musculus chromosome 5 clone rp23-426c16 strain C57BL/6J, complete sequence," retrieved from EMBL Database accession No. AC084071. New England Biolabs 1988-99 Catalog (NEB Catalog). Printout from aphis.com.dbase/decdocs/94-225-004.pdf . Printout from epa.gov/edgester/EPA-IMPACT/2001/August-Dry-14/20307.htm . Printout from aphis.com.dbase/decdocs/02122001.pdf . Stargene ("Gene Characterization Kits" 1988). * cited by examiner Primary Examiner — David H Kruse (74) Attorney, Agent, or Firm — Ballard Spahr LLP		5,474,796 A	12/1995	Beemster		5,877,012 A *	3/1999	Estruch et al.	435/252.3	6,166,302 A *	12/2000	Merlo et al.	800/320.1	6,646,184 B2	11/2003	Hohn et al.		6,713,289 B2	3/2004	Levine		6,825,400 B2	11/2004	Bahr et al.		7,288,643 B2 *	10/2007	Barbour et al.	536/23.1	7,417,132 B2 *	8/2008	Barbour et al.	536/23.1	7,435,807 B1 *	10/2008	Barbour et al.	536/23.1	7,449,564 B2 *	11/2008	Barbour et al.	536/23.1	7,514,544 B2 *	4/2009	Barbour et al.	536/23.1	7,989,607 B2 *	8/2011	Barbour et al.	536/23.1	2001/0055519 A1	12/2001	Fedor et al.		2002/0177526 A1 *	11/2002	Chen et al.	504/100	WO	WO 2004/011601	2/2004
5,474,796 A	12/1995	Beemster																																																										
5,877,012 A *	3/1999	Estruch et al.	435/252.3																																																									
6,166,302 A *	12/2000	Merlo et al.	800/320.1																																																									
6,646,184 B2	11/2003	Hohn et al.																																																										
6,713,289 B2	3/2004	Levine																																																										
6,825,400 B2	11/2004	Bahr et al.																																																										
7,288,643 B2 *	10/2007	Barbour et al.	536/23.1																																																									
7,417,132 B2 *	8/2008	Barbour et al.	536/23.1																																																									
7,435,807 B1 *	10/2008	Barbour et al.	536/23.1																																																									
7,449,564 B2 *	11/2008	Barbour et al.	536/23.1																																																									
7,514,544 B2 *	4/2009	Barbour et al.	536/23.1																																																									
7,989,607 B2 *	8/2011	Barbour et al.	536/23.1																																																									
2001/0055519 A1	12/2001	Fedor et al.																																																										
2002/0177526 A1 *	11/2002	Chen et al.	504/100																																																									
WO	WO 2004/011601	2/2004																																																										
ABSTRACT The invention provides DNA compositions that relate to transgenic insect resistant maize plants. Also provided are assays for detecting the presence of the maize TC1507 event based on the DNA sequence of the recombinant construct inserted into the maize genome and the DNA sequences flanking the insertion site. Kits and conditions useful in conducting the assays are provided.																																																												
8 Claims, 1 Drawing Sheet																																																												
Inari Exhibit 1001 Inari v. Corteva																																																												

What is claimed is:

1. A corn plant comprising a DNA construct, said DNA construct comprising a first and a second expression cassette, wherein said first expression cassette in operable linkage comprises

- (a) a maize ubiquitin promoter;
- (b) a 5' untranslated exon of a maize ubiquitin gene;
- (c) a maize ubiquitin intron;
- (d) a Cry1F encoding DNA molecule; and
- (e) a 3' ORF25 transcriptional terminator; and said second

expression cassette comprising in operable linkage

- (i) a CaMV 35S promoter;
- (ii) a pat encoding DNA molecule; and
- (iii) a 3' transcriptional terminator from (CaMV) 35S comprising the nucleic acid sequence of positions 5843 to 6032 of SEQ ID NO: 25;

and wherein the first and second expression cassettes are flanked by SEQ ID NO: 26 at the 5' end and SEQ ID NO: 27 at the 3' end.

2. The corn plant of claim 1, wherein the corn plant is a seed.

EX1001, Claim 1.

The '378 Patent Claims the Benefit of Its April 30, 2004 Application

US008901378B2

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

(10) **Patent No.:** **US 8,901,378 B2**
(45) **Date of Patent:** ***Dec. 2, 2014**

(54) **CORN EVENT TC1507 AND METHODS FOR DETECTION THEREOF**

(75) **Inventors:** **Eric Barbour**, Johnston, IA (US); **James Wayne Bing**, Ankeny, IA (US); **Guy A. Cardineau**, Tempe, AZ (US); **Robert F. Cressman, Jr.**, Wilmington, DE (US); **Manju Gupta**, Carmel, IN (US); **Mary E. Hartnett Locke**, Mickleton, NJ (US); **David Hondred**, Ankeny, IA (US); **Joseph W. Kerschall**, Clive, IA (US); **Michael G. Koziel**, Raleigh, NC (US); **Terry EuClaire Meyer**, Urbandsale, IA (US); **Daniel Moellenbeck**, Granger, IA (US); **Kenneth Edwin Narva**, Carlisle, CA (US); **Wlas Nirunskiviri**, Auburn, WA (US); **Stephen W. Ritchie**, Omaha, NE (US); **Marjorie L. Rudert**, Boone, IA (US); **Craig D. Sanders**, Bear, DE (US); **Aihua Shao**, Johnston, IA (US); **Steven Jeffrey Stelman**, San Diego, CA (US); **David S. Stucker**, Johnston, IA (US); **Laura Ann Tagliani**, Zionsville, IN (US); **William M. Van Zante**, Urbandsale, IA (US)

(73) **Assignee:** **Pioneer Hi-Bred International, Inc.**, Johnston, IA (US)

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(h) by 1071 days.
This patent is subject to a terminal disclaimer.

(21) **Appl. No.:** **12/914,271**

(22) **Filed:** **Oct. 28, 2010**

(65) **Prior Publication Data**
US 2011/0099662 A1 Apr. 28, 2011

Related U.S. Application Data

(60) Division of application No. 12/333,044, filed on Mar. 13, 2009, now Pat. No. 7,989,607, which is a continuation of application No. 11/774,236, filed on Jul. 6, 2007, now Pat. No. 7,514,544, which is a division of application No. 10/837,105, filed on Apr. 30, 2004, now Pat. No. 7,288,643.

(60) Provisional application No. 60/467,772, filed on May 2, 2003.

(51) **Int. Cl.**
A01H 1/00 (2006.01)
C12N 15/82 (2006.01)
C12Q 1/68 (2006.01)
U.S. CL.
CPC **C12N 15/8277** (2013.01); **C12Q 1/6895**

(2013.01); **C12Q 1/686** (2013.01); **C12N 15/8286** (2013.01); **T10S 435/975** (2013.01)
USPC **800/302**; **800/265**; **435/975**

(58) **Field of Classification Search**
None
See application file for complete search history.

(56) **References Cited**
U.S. PATENT DOCUMENTS
5,474,796 A 12/1995 Beemster
5,877,012 A * 3/1999 Estruch et al. 435/252.3
6,166,302 A * 12/2000 Merlo et al. 800/320.1
6,646,184 B2 11/2003 Holm et al.
6,713,259 B2 3/2004 Levine
6,825,400 B2 11/2004 Bahr et al.
7,288,643 B2 * 10/2007 Barbour et al. 536/23.1
7,417,132 B2 * 8/2008 Barbour et al. 536/23.1
7,435,807 B1 * 10/2008 Barbour et al. 536/23.1
7,449,564 B2 * 11/2008 Barbour et al. 536/23.1
7,514,544 B2 * 4/2009 Barbour et al. 536/23.1
7,989,607 B2 * 8/2011 Barbour et al. 536/23.1
2001/0053519 A1 12/2001 Fedor et al.
2002/0177526 A1 * 12/2002 Chen et al. 504/100

FOREIGN PATENT DOCUMENTS
WO WO 2004/011601 2/2004

OTHER PUBLICATIONS
Cornejo et al 1993 Plant Molecular Biology 23: 567-581.
Spencer et al 1992, Plant Molecular Biology 18: 201-210.
Anonymous: "DAS-01507-1 (TC 1507)", Internet Article, Online Oct. 17, 2002, Internet: aphis.com/databases/plantaction/slowspread&date=TC1507&data=TC1507&format=long retrieved on 1/4/2005.
Anonymous: "Skor--og Naturskyddet" Internet Article, Online 12/11/2000, Denmark, Internet: us.dk/afborgede/boetinger/a%2010%20indhold.htm retrieved on Jan. 6, 2005.
Database EMBL: "Online! Nov. 18, 2002, "Mus musculus chromosome 5 clone rp23-426c16 strain C57BL/6J, complete sequence," retrieved from EMBL Database accession No. AC084071.
New England Biolabs 1988/99 Catalog (NEB Catalog).
Printout from aphis.com/databases/plantaction/slowspread&date=TC1507&data=TC1507&format=long 5/4-225-004.pdf.
Printout from epa.gov/edgester/EPA-IMPACT/2001/August-Dry-14/20307.htm.
Printout from aphis.com/databases/plantaction/slowspread&date=TC1507&data=TC1507&format=long 5/4-225-004.pdf.
Stagene ("Gene Characterization Kits" 1988).

* cited by examiner

Primary Examiner — David H Kruse
(74) **Attorney, Agent, or Firm** — Ballard Spahr LLP

(57) **ABSTRACT**
The invention provides DNA compositions that relate to transgenic insect resistant maize plants. Also provided are assays for detecting the presence of the maize TC1507 event based on the DNA sequence of the recombinant construct inserted into the maize genome and the DNA sequences flanking the insertion site. Kits and conditions useful in conducting the assays are provided.

8 Claims, 1 Drawing Sheet

Inari Exhibit 1001
Inari v. Corteva

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

(10) **Patent No.:** **US 8,901,378 B2**
(45) **Date of Patent:** ***Dec. 2, 2014**

(54) **CORN EVENT TC1507 AND METHODS FOR DETECTION THEREOF**

(21) **Appl. No.:** **12/914,271**

(22) **Filed:** **Oct. 28, 2010**

(65) **Prior Publication Data**
US 2011/0099662 A1 Apr. 28, 2011

Related U.S. Application Data

(60) Division of application No. 12/333,044, filed on Mar. 13, 2009, now Pat. No. 7,989,607, which is a continuation of application No. 11/774,236, filed on Jul. 6, 2007, now Pat. No. 7,514,544, which is a division of application No. 10/837,105, filed on Apr. 30, 2004, now Pat. No. 7,288,643.

(60) Provisional application No. 60/467,772, filed on May 2, 2003.

EX1001, Cover.

Barbour 2006 (EX1009) is Merely the Published April 2004 Application

(19) United States
(12) Patent Application Publication
Barbour et al.

(10) Pub. No.: US 2006/0037095 A9
(48) Pub. Date: Feb. 16, 2006
CORRECTED PUBLICATION

(54) CORN EVENT TC1507 AND METHODS FOR DETECTION THEREOF

(75) Inventors: Eric Barbour, Johnston, IA (US); James Wayne Bing, Ankeny, IA (US); Guy A. Cardneau, Tempe, AZ (US); Robert E. Cressman JR., Wilmington, DE (US); Manjiv Gupta, Carmel, IN (US); Mary E. Hartnett Locke, Middleton, NJ (US); David Houdred, Ankeny, IA (US); Joseph W. Kuschall, Clive, IA (US); Michael G. Koziel, Raleigh, NC (US); Terry EuClaire Meyer, Urbandale, IA (US); Daniel Muehlenbeck, Granger, IA (US); Kenneth Edwin Narva, Carlsbad, CA (US); Wilas Nirunsuksiri, Auburn, WA (US); Steven W. Ritchie, Omaha, NE (US); Marjorie L. Rudert, Boone, IA (US); Craig D. Sanders, Bear, DE (US); Aihua Shao, Johnston, IA (US); Steven Jeffrey Stelman, San Diego, CA (US); David S. Stucker, Johnston, IA (US); Laura Ann Tugiani, Zionsville, IN (US); William M. Van Zante, Urbandale, IA (US)

Correspondence Address:
PIONEER HI-BRED INTERNATIONAL, INC.
7250 N.W. 62ND AVENUE
P.O. BOX 552
JOHNSTON, IA 50131-0552 (US)

(73) Assignees: Dow AgroSciences LLC, E.I. duPont de Nemours and Company, Pioneer Hi-Bred International, Inc.

(21) Appl. No.: 10/837,105
(22) Filed: Apr. 30, 2004

Prior Publication Data
(15) Correction of US 2005/0039226 A1 Feb. 17, 2005 See Claims 15, 20, and 23
(65) US 2005/0039226 A1 Feb. 17, 2005

Related U.S. Application Data
(60) Provisional application No. 60/467,772, filed on May 2, 2003.

Publication Classification
(51) Int. Cl.
A01H 1/00 (2006.01)
C12N 15/82 (2006.01)
A01H 5/00 (2006.01)
C12Q 1/68 (2006.01)
C07H 21/04 (2006.01)
(52) U.S. Cl. 800/278; 800/320.1; 536/23.2; 435/6

(57) ABSTRACT
The invention provides DNA compositions that relate to transgenic insect resistant maize plants. Also provided are assays for detecting the presence of the maize TC1507 event based on the DNA sequence of the recombinant construct inserted into the maize genome and the DNA sequences flanking the insertion site. Kits and conditions useful in conducting the assays are provided.

(10) Pub. No.: US 2006/0037095 A9
(48) Pub. Date: Feb. 16, 2006
CORRECTED PUBLICATION

(21) Appl. No.: 10/837,105
(22) Filed: Apr. 30, 2004

EX1009, Cover.

This includes Barbour—a U.S. patent publication corresponding to the April 2004 application. Barbour describes the TC1507 event and discloses the

Dr. Silverstone's Testimony

Pet., 5.

114. Barbour (EX1009)—a patent publication corresponding to Patent Owner's April 2004 Application—discloses the claimed TC1507 event and

EX1007 (Silverstone Decl.), ¶ 114.



“It is also undisputed that Barbour, the sole alleged prior art, is the published 2004 application.”

Paper 15 (ID), 9 (emphasis added) (citations omitted).

With a TC1507 Corn Seed in Hand, a POSA Would Have Been Able to Practice the Claimed Invention

Dr. Silverstone's Testimony

Q. And if you have the TC1507 seed in 2003, as we discussed is possible, you could plant that seed and grow another TC1507 plant, right?

A. **Yes. If you already have the seed, you could reproduce another plant with TC1507.**

EX2003 (Silverstone Tr.), 38:18-38:22.

Q. The plant that you grew from a seed that possesses the TC1507 event, could you make another corn plant?

A. **If you grow the seed and allow it to set seed, you could produce more seeds that have the TC1507 event.**

EX2003 (Silverstone Tr.), 11:24-12:8.

Q. ... If you had taken the accessibility of the TC1507 event into account in 2003, and you had a corn seed in hand with the TC1507 event and the application as it was filed in 2004, in your opinion would a person of ordinary skill in the art have been able to produce another TC1507 corn plant?

A. **So assuming -- if a person were able to obtain TC1507 corn grain and had that in hand ... they would have been able to reproduce a TC1507 event.**

EX2003 (Silverstone Tr.), 57:15-58:2.

Q. ... In 2003, one could test a corn plant to determine whether there was a TC1507 event if he had the information in the Exhibit 1009; is that correct?

A. **Yes. If they had the information in Exhibit 1009, they would be able to test the plant.**

EX2003 (Silverstone Tr.), 33:24-34:6.

Dr. Silverstone Admits That a POSA Would Have Been Able to Perform the Method of Claims 3-7 With Access to a TC1507 Seed

Dr. Silverstone's Testimony

- Q. ... So if you had a TC1507 seed and you wanted to breed it into a new line, how would you do that?
- A. I would -- well, I would grow the [TC1507] plant up, and then I could use it as either for -- as a pollen donor, so to take the pollen from the TC1507 plant and put that on to the silks of the plant you want to breed with, or you can do the reverse and use pollen from another plant on to the TC1507 plant.
- ***
- Q. ... If you -- if you knew the sequence of the TC1507 insert in 2003, is there a way that you could sequence the DNA in a plant and know if that TC1507 insert matches up?
- ...
- A. Then, yes, you would be able to design detection tools for the TC1507 event.
- Q. And confirm whether a plant has the TC1507 event or not, correct?
- A. And then you can use those tools to confirm the presence of TC1507 in a plant or not.

EX2003 (Silverstone Tr.), 14:11-20, 26:22-27:12.

'378 Patent, Claims 3-7

3. A method of producing an insect resistant corn plant comprising:
- (a) breeding with an insect resistant corn plant comprising in its genome DNA the DNA construct of claim 1 and
 - (b) selecting a progeny of (a) by analyzing the genome of the progeny for the presence of the DNA construct of claim 1.
4. The method of claim 3, wherein breeding comprises crossing the insect resistant corn plant of (a) with a second plant.
5. The method of claim 3, wherein the insect resistant corn plant of (a) is the pollen parent for the crossing.
6. The method of claim 4, wherein the second plant is the pollen parent for the crossing.
7. The method of claim 3, wherein the progeny comprises the insect resistance of the insect resistant corn plant of (a).

EX1001, Claims 3-7.

The Deposit Rules

A Deposit is Not Required Unless Access to Such Material is Necessary to Satisfy § 112



2404 Need or Opportunity to Make a Deposit [R-08.2012]

37 CFR 1.802 Need or opportunity to make a deposit.

(a) Where an invention is, or relies on, a biological material, the disclosure may include reference to a deposit of such biological material.

(b) Biological material need not be deposited unless access to such material is necessary for the satisfaction of the statutory requirements for patentability under 35 U.S.C. 112. If a deposit is necessary, it shall be acceptable if made in accordance with these regulations. Biological material need not be deposited, *inter alia*, if it is known and readily available to the public or can be made or isolated without undue experimentation. Once deposited in a depository complying with these regulations, a biological material will be considered to be readily available even though some requirement of law or regulation of the United States or of the country in which the depository institution is located permits access to the material only under conditions imposed for safety, public health or similar reasons.

(c) The reference to a biological material in a specification disclosure or the actual deposit of such material by an applicant or patent owner does not create any presumption that such material is necessary to satisfy 35 U.S.C. 112 or that deposit in accordance with these regulations is or was required.

37 C.F.R. § 1.802; MPEP § 2404.

The Office Did Not Require a Deposit During Prosecution

DETAILED ACTION

Claim Rejections - 35 USC § 112

5. Claims 1-17 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, because the specification, while being enabling for a corn plant comprising SEQ ID NO: 24 and methods of using same, does not reasonably provide enablement for any plant comprising the recited DNA construct in instant claim 1 or any insect resistant corn plant comprising any one of SEQ ID NOs 45-57. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

EX1002, 161-163.

Office Action Summary	Application No. 12/914,271	Applicant(s) BARBOUR ET AL.	
	Examiner DAVID H. KRUSE	Art Unit 1638	AIA (First Inventor to File) Status No

4. The rejection of the claims under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the enablement requirement is withdrawn in view of Applicant's amendments to the claims.

EX1002, 187-188.

- During prosecution, the Examiner rejected the then-pending claims for, *inter alia*, failing to comply with the written description and enablement requirements under 35 U.S.C. § 112.
- After the applicant amended claim 1, the Examiner withdrew the § 112 rejection.
- As part of examination, the Examiner was required to consider whether a deposit was needed for § 112 (*see* 37 C.F.R. § 1.809(a)) and did not require any such deposit.

No Deposit is Required if “Known and Readily Available”



2404 Need or Opportunity to Make a Deposit [R-08.2012]

37 CFR 1.802 Need or opportunity to make a deposit.

(a) Where an invention is, or relies on, a biological material, the disclosure may include reference to a deposit of such biological material.

(b) Biological material need not be deposited unless access to such material is necessary for the satisfaction of the statutory requirements for patentability under 35 U.S.C. 112. If a deposit is necessary, it shall be acceptable if made in accordance with these regulations. Biological material need not be deposited, *inter alia*, if it is known and readily available to the public or can be made or isolated without undue experimentation. Once deposited in a depository complying with these regulations, a biological material will be considered to be readily available even though some requirement of law or regulation of the United States or of the country in which the depository institution is located permits access to the material only under conditions imposed for safety, public health or similar reasons.

(c) The reference to a biological material in a specification disclosure or the actual deposit of such material by an applicant or patent owner does not create any presumption that such material is necessary to satisfy 35 U.S.C. 112 or that deposit in accordance with these regulations is or was required.

37 C.F.R. § 1.802; MPEP § 2404.



“Although inventions involving microorganisms or other living cells often can be enabled by a deposit, a deposit is not always necessary to satisfy the enablement requirement.”

In re Wands, 858 F.2d 731, 736 (Fed. Cir. 1988).

No Deposit is Required if “Known and Readily Available”



“An applicant can show that a biological material is ‘known and readily available’ and thus enabled under § 112 without the need for a deposit.”

In re Lundak, 773 F.2d 1216, 1220-22 (Fed. Cir. 1985).



“No problem exists when the microorganisms used are known and readily available to the public.”

Feldman v. Aunstrup, 517 F.2d 1351, 1354 (CCPA 1975).



“We do not view *Argoudelis* to establish deposition of a microorganism as the only way to satisfy the enablement requirement of the first paragraph of 35 U.S.C. 112.”

Ex parte Hata, 6 U.S.P.Q.2d 1652, 1654 (BPAI 1987).

Examination of the Relevant Factors Weighs in Favor of Finding TC1507 Seed Was “Known and Readily Available”



2404.01 Biological Material That Is Known and Readily Available to the Public [R-07.2015]

There are many factors that may be used as indicia that a biological material is known and readily available to the public. Relevant factors include commercial availability, references to the biological material in printed publications, declarations of accessibility by those working in the field, evidence of predictable isolation techniques, or an existing deposit made in accordance with these rules. Each factor alone may or may not be sufficient to demonstrate that the biological material is known and readily available. Those applicants that rely on evidence of accessibility other than a deposit take the risk that the patent may no longer be enforceable if the biological material necessary to satisfy the requirements of 35 U.S.C. 112 ceases to be accessible.

MPEP § 2404.01.

**TC1507 Corn and Corn Seed Was “Known and Readily Available”
to the Public by April 2004**

There is No Dispute That TC1507 is Commercialized as “Herculex I”



By Barbour’s publication date, TC1507 corn had been commercialized under PO’s “Herculex” trademark for three growing seasons—2003, 2004, and 2005. PO admitted to the EPO that “Herculex 1” corresponded to TC1507 and had been “commercialised for the first time in 2003.” EX1003, 542 (“TC1507

Pet., 49-50.

Dr. Silverstone’s Testimony

132. Multiple reports and articles taught that “Herculex 1” reflected the TC1507 Event. *E.g.*, EX1011, 1128 (USDA report: “corn event TC1507 (Herculex™)”; EX1032; EX1034, 104; EX1035, 936; EX1036, 1347; EX1037.

EX1007 (Silverstone Decl.), ¶ 132.

Dr. Silverstone, a Person of Ordinary Skill in the Art, Knew of TC1507

Dr. Silverstone's Testimony

...

A: In 2003 and I am a POSA . . .

Q. When's the first time you heard of the TC1507 event?

A. I don't remember. But the name, the -- Herculex and TC1507 was commonly discussed in the early 2000s . . .

EX2003 (Silverstone Tr.), 16:8-12, 65:1-6.

19. Before the 2003-2007 time frame, my level of skill in the art was at least that of one of ordinary skill. I am qualified to provide opinions concerning what one of ordinary skill would have known and understood at that time, and my analysis and conclusions herein are from the perspective of one of ordinary skill as of that date.

EX1007 (Silverstone Decl.), ¶ 19.

The Examiner Was Aware of Herculex I

Because it Was Included in Search Strings During Prosecution

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	46	Ory\$3 and ORF25	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	OFF	2014/04/07 12:37
S1	6	((("7288643") or ("7514544") or ("7989607")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2013/11/15 13:01
S2	130	corn and (TC1507 or PHI8999A)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	OFF	2013/11/15 13:13
S3	326	corn and (Herculex or HX1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	OFF	2013/11/15 13:18

EX1002, 194.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	6	((("7288643") or ("7514544") or ("7989607")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2013/11/15 13:01
S2	130	corn and (TC1507 or PHI8999A)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	OFF	2013/11/15 13:13
S3	326	corn and (Herculex or HX1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	OFF	2013/11/15 13:18

EX1002, 244.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	6	((("7288643") or ("7514544") or ("7989607")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2013/11/15 13:01
L2	130	corn and (TC1507 or PHI8999A)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	OFF	2013/11/15 13:13
L3	326	corn and (Herculex or HX1)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT	OR	OFF	2013/11/15 13:18

EX1002, 173.

12914271

(FILE 'HOME' ENTERED AT 13:30:22 ON 15 NOV 2013)

FILE 'AGRICOLA, CAPLUS, EMBASE, CABA, BIOSIS' ENTERED AT 13:30:30 ON 15 NOV 2013

L1 132 S CORN AND (TC1507 OR PHI8999A OR HERCULEX OR HX1)
L2 77 DUP REM L1 (55 DUPLICATES REMOVED)

=>

EX1002, 171.

Petitioner Admits TC1507 Seed Was Known and Commercialized in 2003

Here, PO had commercialized TC1507 starting in 2003—years before Barbour’s February 2006 publication. *See infra* §VI.2.a. POSAs could have used

Pet., 49.

By Barbour’s publication date, TC1507 corn had been commercialized under PO’s “Herculex” trademark for three growing seasons—2003, 2004, and 2005. PO admitted to the EPO that “Herculex 1” corresponded to TC1507 and had been “commercialised for the first time in 2003.” EX1003, 542 (“TC1507 (Herculex 1) maize of this invention was sold by both Pioneer/Du Pont and Dow in 2003.”)

Pet., 49.

Petitioner's Expert Admits TC1507 Seed Was Known and Commercialized in 2003

Dr. Silverstone's Testimony

133. Reports abounded in the agricultural trade press that TC1507/Herculex I was available starting in the 2003 growing season and continuing on to the 2004 and 2005 growing seasons. E.g., EX1047 (November 2002 article noting that “[c]orn growers now have the option of purchasing” Patent Owner’s “Herculex I”); EX1048 (February 2003 noting that Patent Owner’s “Herculex I...seed type is slated to be available in farm fields in 2003”); EX1049, 8 (identifying “TC1507” among the “seed products available for the 2004 planting season”); EX1050 (Summer 2005 article noting “wider availability of Herculex I insect-resistant corn hybrids”).

EX1007 (Silverstone Decl.), ¶ 133.

Petitioner Admits That TC1507 Corn Was Harvested in 2003

The Board need not even address this issue, however, as corn harvested from TC1507 plants continued to express the TC1507 event and was indisputably commercially available following the 2003, 2004, and 2005 growing seasons. Silverstone, ¶¶134-134. Such corn was sold as a commodity—without any contractual restrictions:

Pet., 52.

Evidence Shows TC1507 Corn Seed Was Accessible by April 2004

PETITION FOR INTER PARTES REVIEW UNDER 35 U.S.C. §§ 311-319 AND 37 C.F.R. § 42.1 et seq

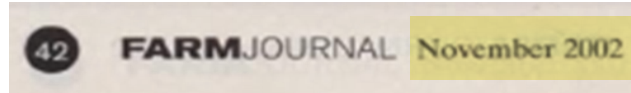
By Barbour's publication date, TC1507 corn had been commercialized under PO's "Herculex" trademark for three growing seasons—2003, 2004, and 2005. PO admitted to the EPO that "Herculex 1" corresponded to TC1507 and had been "commercialised for the first time in 2003." EX1003, 542 ("TC1507 (Herculex 1) maize of this invention was sold by both Pioneer/Du Pont and Dow in 2003."); *see also* EX1011, 1127 (USDA report that PO had "commercialized" Herculex in FY2003"); EX1040, 30 (February 2004 PO SEC filing referencing "strong growth" in "new products" such as "Herculex I insect protection"); EX1041, 33 (February 2005 PO SEC filing stating that "sales" of "HERCULEX I....continued to grow"); EX1042, 34 (February 2006 PO SEC filing stating that

Pet., 49-50.

Consistent with these reports and PO's admission, a third-party patent application filed in April 2003 noted that PO had commercialized Herculex I. EX1038, ¶119; *see also* EX1039, 119:11 (June 2005 PCT filed by another third party noting that Herculex I was "commercially available"). Similar reports abounded in the agricultural trade press. *E.g.*, EX1047 (11/02 article noting that "[c]orn growers" had "option of purchasing" PO's "Herculex I"); EX1048, (2/2003 article noting availability of "Herculex I"); EX1049, 8 (identifying "TC1507" among the "seed products available for the 2004 planting season");

Pet., 50.

November 2002 - Farm Journal Article (EX1047)



Corn growers now have the option of purchasing a new Bt trait developed by Dow AgroSciences LLC and Pioneer Hi-Bred International Inc., a DuPont company. Branded as **Her-culex I**, the trait expresses in corn the Cry 1F protein, which is toxic to black cutworm, fall armyworm, southwestern corn borer and European corn borer. At press time, Monsanto is expecting to receive full registration of its new YieldGard Rootworm product this fall. The new product uses the Bt

Inari Exhibit 1047
Inari v. Corteva

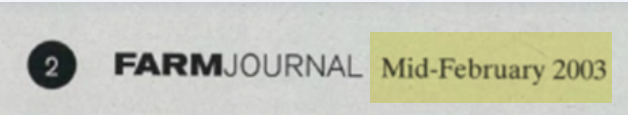
EX1047, 42.

Dr. Silverstone's Testimony

- Q. So is it your understanding that this farm journal, the Magazine of American Agriculture, was available in November of 2002?
- A. That's the date of the journal, yes. So I would assume it was available.
- Q. The library stamp says November 2002, right?
- A. Oh, yes. Thanks for reminding me. The library stamp says they received it November 2002.

EX2003 (Silverstone Tr.), 39:6-40:15.

February 2003 - Farm Journal Article (EX1048)



New Product Line Schedule			
	2003	2004	2005-06
European corn borer resistance			New trait from Syngenta
Broad lepidopteran control (corn borer + others)	Herculex I from Dow AgroSciences and Pioneer Hi-Bred includes the LibertyLink trait from Bayer CropScience—on time		New trait from Syngenta

As if a cog in the biotechnology machine has become unstuck, several companies expect new traits to arrive in the next few years. This year, the new generation Bt trait Herculex I will be in farm fields. Developed by Dow AgroSciences and Pioneer Hi-Bred, it goes beyond European corn borer resistance to add black cutworm and fall armyworm resistance. It also includes the LibertyLink trait.

Dr. Silverstone’s Testimony

133. Reports abounded in the agricultural trade press that TC1507/Herculex I was available starting in the 2003 growing season and continuing on to the 2004 and 2005 growing seasons. E.g., EX1047 (November 2002 article noting that “[c]orn growers now have the option of purchasing” Patent Owner’s “Herculex I”); EX1048 (February 2003 noting that Patent Owner’s “Herculex I...seed type is slated to be available in farm fields in 2003”); EX1049,

EX2007 (Silverstone Decl.), ¶ 133.

EX1048, 4.

Dr. Silverstone Testified a POSA Would Have Read These Publications

Dr. Silverstone's Testimony

Q. Who would read this?

A. Who would read -- **who would read this magazine?**

Q. Right.

A. **So it would be read by people working in agriculture, for example, farmers, as well as researchers, perhaps, industry, people working for companies that support agriculture.**

Q. Would a person of ordinary skill in the art, as you've defined it in your declaration, be somebody who would read that type of document?

A. **As I defined a POSA, they would read this type of -- yes.**

EX2003 (Silverstone Tr.), 39:6-40:10, 40:20-41:8.

2003 - European Patent App. No. 04751097.9 (EX1003)

J A • K E M P

BY ONLINE FILING

The European Patent Office
Bayerstrasse 34
(entrance via Zollstrasse 3)
80335 Munich
Germany

16 October 2014

Dear Sirs

European Patent Application No. 04751097.9
DOW AGROSCIENCES LLC *et al.*
Our Ref: N96314-EP AXB/KKT/mqr

I refer to the replacement Summons to Oral Proceeding dated 25 August 2014, appointing Oral Proceedings on 28 November 2014. Reference is also made to the Examining Division's Communication dated 14 August 2014, reporting my telephone discussion with the Examiner on 11 August and certain information found by the Examining Division regarding the commercialisation of TC1507 maize of this invention. There was then a further Communication dated 21 August, in relation to which I am grateful to the Examining Division for rescheduling the Oral Proceedings originally appointed for 10 September 2014.

When the Examining Division has had the chance to consider these comments, please could the Primary Examiner telephone me to let me know the Division's thoughts as to whether or not Oral Proceedings are still necessary, and to outline any further information that may be required.

As the Examining Division will appreciate, it is unlikely that we will be able to address satisfactorily questions of fact at Oral Proceedings unless these are put to us in writing beforehand. However, in fact I believe that the information that we have been able to gather so far will be sufficient that the Examining Division can cancel the Oral Proceedings and allow the Application for grant.

BACKGROUND

On behalf of the Applicants, I am now in a position to provide further comments on the factual and legal situation surrounding the commercialisation of products of this invention in the United States in 2003.

PATENT ATTORNEYS • TRADE MARK ATTORNEYS
LONDON • OXFORD • MUNICH

14 South Square, Gray's Inn, London WC1R 5JJ
T +44 20 3077 8600 F +44 20 7242 8932
mail@jakemp.com www.jakemp.com

A list of our partners is available at our principal place of business at the address above. Regulated by IPREG.

EX1003 - Page 541

Pioneer is a subsidiary of Du Pont and the invention arises as a collaboration between Pioneer/Du Pont and Dow. TC1507 (Herculex 1) maize of this invention was sold by both Pioneer/Du Pont and Dow in 2003. The priority date of this Application is 2 May 2003.

EX1003, 541-542.

In response, PO acknowledged that “TC1507 maize of this invention is the maize known as Herculex 1” and further that TC1507 had been “commercialised for the first time in 2003.” EX1003, 542. PO asserted that it could not determine

Pet., 17.

For The Year Ended December 31, 2003 - Dow's SEC Form 10-K (EX1040)

10-K | a2128941z10-k.htm 10-K
[QuickLinks](#) -- Click here to rapidly navigate through this document

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

Annual Report Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

FOR THE YEAR ENDED December 31, 2003

Commission file number 1-3433

THE DOW CHEMICAL COMPANY

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

38-1285128
(I.R.S. Employer Identification No.)

2030 DOW CENTER, MIDLAND, MICHIGAN 48674
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: 989-636-1000

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, par value \$2.50 per share	Common Stock registered on the New York, Chicago Stock Exchanges
Debentures, 6.85%, final maturity 2013	Debentures registered on the New York Stock Exchange

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and, if so, state the reason therefor. Indicate by check mark whether the registrant has submitted to the SEC an annual report on Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is an accelerated filer (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of voting stock held by non-affiliates as of June 30, 2003 (based upon the closing price of \$30.00 per common share as quoted on the New York Stock Exchange), is approximately \$28.1 billion. For purposes of this computation, it is assumed that the shares of voting stock held by Directors, Officers and the Dow Employees' Pension Plan Trust and the Retirement Program for Employees of Union Carbide Corporation and its Participating Subsidiary Companies would be deemed to be stock held by affiliates. Non-affiliated common stock outstanding at June 30, 2003 numbered 908,360,401 shares. Total common stock outstanding at February 13, 2004 numbered 931,857,666.

Documents Incorporated by Reference

EX1040 - Page 1

Inari Exhibit 1040
Inari v. Corteva

UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

Annual Report Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

FOR THE YEAR ENDED December 31, 2003

Commission file number 1-3433

THE DOW CHEMICAL COMPANY

(Exact name of registrant as specified in its charter)

AGRICULTURAL SCIENCES

Agricultural Sciences sales were a record \$3.0 billion in 2003, compared with \$2.7 billion in 2002 and \$2.6 billion in 2001. Prices, including the favorable impact of currency, improved 7 percent versus 2002, while volume grew 4 percent. Significant price improvements were reported in Latin America, due to improved economic conditions, and in Europe, primarily due to the favorable impact of currency. Several factors contributed to the improvement in volume. New products, including florasulam herbicide, HERCULEX I insect protection, spinosad insect control products and gamma-cyhalothrin insecticide showed strong growth.

EX1040, 1, 30.

2004 – “Detection of GM Maize by Multiplex PCR Method” Article (EX1056)

J. Microbiol. Biotechnol. (2004), 14(6), 1150–1156



Detection of Genetically Modified Maize by Multiplex PCR Method

HEO, MUN-SEOK, JAE-HWAN KIM, SUN-HEE PARK¹, GUN-JO WOO¹, AND HAE-YEONG KIM*

¹Institute of Life Sciences and Resources and Department of Food Science and Biotechnology, Kyung Hee University, Suwon 449-701, Korea
²Division of Food Microbiology, Korea Food and Drug Administration, Seoul 122-704 Korea

Received: October 13, 2003

Accepted: February 23, 2004

Abstract The GMO (Genetically Modified Organism) labeling system on raw materials has been in Korea since March 2001, and genetically modified organisms (GMOs)-derived foods since July 2001. Therefore, we designed a multiplex PCR method to ascertain the validity of the labeling system and to monitor the status of circulation for genetically modified maize (GM Maize). Five lines of GM Maize (GA21, TC1507, Mon810, NK603, and Bt176) were used, and specific primer pairs were designed to detect each line. Using this method, the different lines of GM Maize were monitored from raw products and processed foods in Korean market. Some of the maize processed foods and raw materials were shown to contain more than one foreign gene. This method was found to be effective for detecting five different GM Maize in a single reaction.

Key words: Genetically modified maize, multiplex PCR

World agriculture has progressed more efficiently and productively to feed the world population. One of the agricultural progresses is genetically modified organisms (GMOs). GMOs have been developed by biotechnology and characterized by insect resistance, herbicide tolerance, improved hypotonicity, and nutritional value in crop. Recently, various GMO species have been circulated on the market, with different events approved in different countries. In Korea, the safety assessments of five different events (GA21, TC1507, Mon810, NK603, and Bt176) among genetically modified maize (GM Maize) were recently approved by Korea Food and Drug Administration (KFDA). Also, some lines of GM Maize are yet to be authorized from KFDA. In response to growing consumer concerns, the GMO labeling system has been enforced in raw material since March 2001, and in GMO-derived foods since July

2001. The labeling system is based on the detection of inserted genes or proteins expressed from inserted genes. Thus, the success of the labeling system is dependent upon the efficiency with which GM-derived material can be detected. Consequently, the development of a practical detection method is required to confirm the validity of labeling system and to monitor the status of circulation for GMO. The method of polymerase chain reaction (PCR) that detects specific genes, and immunological method that use specific proteins, were used for monitoring GMO worldwide [2, 19, 22, 23]. The PCR method has been found to be more sensitive than the protein-based method for the detection of GMO in raw materials and processed foods [21]. Also, with the increasing number of GMOs that are being developed for food applications, the ability to detect various GMOs with high detectability and low experimental time and cost becomes an important feature of any detection methods. Multiplex PCR has adequate sensitivity to simultaneously detect various GMOs in a single reaction, without loss of specificity. The detection method for GMOs by using single or duplex PCR was reported [10, 20], however, the detection method of multiplex PCR for a GMO was not yet developed in Korea.

Therefore, in the present study, the multiplex PCR was designed to efficiently monitor five different lines of GM Maize in a single reaction, and designed primer sets were validated by sequencing of the PCR products.

MATERIALS AND METHODS

Samples

Grains of five references of GM Maize (herbicide tolerant GA21 and NK603 from Monsanto, insect resistant Mon810 from Monsanto, insect and herbicide resistant TC1507 from Mycogen, and Bt176 from Syngenta Seeds) were provided by KFDA. As a negative control, non-GM Maize

Received: October 13, 2003

Accepted: February 23, 2004

Abstract The GMO (Genetically Modified Organism) labeling system on raw materials has been in Korea since March 2001, and genetically modified organisms (GMOs)-derived foods since July 2001. Therefore, we designed a multiplex PCR method to ascertain the validity of the labeling system and to monitor the status of circulation for genetically modified maize (GM Maize). Five lines of GM Maize (GA21, TC1507, Mon810, NK603, and Bt176) were used, and specific primer pairs were designed to detect each line. Using this method, the different lines of GM Maize were monitored from raw products and processed foods in Korean market. Some of the maize processed foods and raw materials were shown to contain more than one foreign gene. This method was found to be effective for detecting five different GM Maize in a single reaction.

EX1056, Abstract.

Samples

Grains of five references of GM Maize (herbicide tolerant GA21 and NK603 from Monsanto, insect resistant Mon810 from Monsanto, insect and herbicide resistant TC1507 from Mycogen, and Bt176 from Syngenta Seeds) were provided by KFDA. As a negative control, non-GM Maize

Inari Exhibit 1056
Inari v. Corteva

EX1056, 1150.

2004 – Indiana Crop Adviser Conference (EX1049)

Proceedings of Indiana Crop Adviser Conference 2004

EVENT	CHARACTERISTICS	PRODUCT REGISTRANT TRADE NAMES	U.S. APPROVAL	JAPAN APPROVAL	EU APPROVAL
Bt11	Corn borer resistance Glufosinate herbicide tolerance	Syngenta YieldGard, Liberty Link	Yes	Yes	Yes
Bt176	Cry1Ab corn borer resistance	Syngenta Knockout, Mycogen NatureGuard	Yes	Yes	Yes
TC1507	Corn borer, black cutworm and armyworm resistance Glufosinate herbicide tolerance	DowAgrosciences Pioneer Hi-Bred Herculex I	Yes	Yes	No
Mon810	Cry1Ab corn borer resistance	DEKALB YieldGard	Yes	Yes	Yes

Table 1. A list of biotech seed products available for the 2004 planting season. This list was taken from the National Corn Growers Association Web site on biotechnology (http://lepton.marz.com/ncga/search_hybrids/know_where.asp). The list may not contain all corn biotechnology products currently available.

EX1049, 1, 8.

For The Fiscal Year Ended December 31, 2004 - Dow's SEC Form 10-K (EX1041)

10-K 1 a2151917z10-k.htm 10-K
[Quick Links](#) - Click here to rapidly navigate through this document

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

Annual Report Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

FOR THE FISCAL YEAR ENDED December 31, 2004

Commission file number 1-3433

THE DOW CHEMICAL COMPANY
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

38-1285128
(I.R.S. Employer Identification No.)

2000 DOW CENTER, MIDLAND, MICHIGAN 48674
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: 989-636-1000

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, par value \$2.50 per share	Common Stock registered on the New York, Chicago and Pacific Stock Exchanges
Debentures, 6.85%, final maturity 2013	Debentures registered on the New York Stock Exchange

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15 (d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been filing requirements for the past 90 days. Yes [X] No []

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form amendment to this Form 10-K. [X]

Indicate by check mark whether the registrant is an accelerated filer (as defined in Rule 12b-2 of the Act). Yes [X] No []

The aggregate market value of voting stock held by non-affiliates as of June 30, 2004 (based upon the closing price of \$40.70 per share quoted on the New York Stock Exchange), was approximately \$37.8 billion. For purposes of this computation, it is assumed that the stock held by Directors, Officers, the Dow Employees' Pension Plan Trust, and the Retirement Program for Employees of Union Carbide and its Participating Subsidiary Companies would be deemed to be stock held by affiliates. Non-affiliated common stock outstanding was 929,444,379 shares.

Total common stock outstanding at January 31, 2005 was 953,570,755 shares.

Documents Incorporated by Reference

Part III: Proxy Statement for the Annual Meeting of Stockholders to be held on May 12, 2005.

EX1041 - Page 1

Inari Exhibit 1041
Inari v. Corteva

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

Annual Report Pursuant to Section 13 or 15(d) of the
Securities Exchange Act of 1934

FOR THE FISCAL YEAR ENDED December 31, 2004

Commission file number 1-3433

THE DOW CHEMICAL COMPANY
(Exact name of registrant as specified in its charter)

AGRICULTURAL SCIENCES

Sales for Agricultural Sciences were a record \$3.4 billion in 2004, compared with \$3.0 billion in 2003 and \$2.7 billion in 2002. Volume grew 9 percent versus 2003, while prices improved by 3 percent, primarily due to the favorable impact of currency in Europe. Favorable farm commodity prices resulted in increased demand for crop protection chemicals, both for increased acreage planted and for improved yields on existing acreage. Sales for newer products, including florasulam herbicide, HERCULEX I insect protection traits, and gamma cyhalothrin insecticide, continued to grow. Growth in the insecticide portfolio was led by spinosad insect control products, particularly in India, and chlorpyrifos sold into West Africa

EX1041, 1, 33.

Evidence Confirms TC1507 Availability in the 2003 Growing Season (EX2004)

Mycogen Seeds hybrids with Herculex I earn high marks with corn growers

Indianapolis, Indiana

April 6, 2004

A recent survey revealed 93 percent of the farmers surveyed, who planted hybrids containing Herculex I Insect Protection last year, say the technology met or exceeded their expectations. This past year, Mycogen Seeds offered growers 11 hybrids with Herculex™ I Insect Protection.

Growers were pleased with the overall performance of Herculex I, citing protection against European corn borer, black cutworm and western bean cutworm as a positive attribute.

"Growers told us that they chose hybrids protected by Herculex I because of its spectrum of insect protection and their desire for higher yields," says David Borgmeier, Marketing Specialist at Mycogen Seeds. "This research shows they believe they made the right decision."

Dow AgroSciences conducted the survey interviewing producers in key corn-producing states who tried Herculex™ I on their farms during 2003, its first season of commercial availability.

"Herculex I is offered in our top corn hybrids, and fewer potential feeding pests help ensure those hybrids reach their full genetic potential. Growers don't have to sacrifice quality or yield for built-in protection against key corn pests," says Ben Kaehler, National Sales Manager with Mycogen Seeds.

Herculex I hybrids are tolerant to over-the-top application of Liberty® herbicide. "With resistance concerns increasing, more farmers are placing greater importance on managing their herbicide options," says Borgmeier.

Most growers surveyed said they definitely plan to use Herculex I again during the 2004 growing season. "Broad-spectrum insect protection and the proof of performance they saw in their own fields were the main reasons cited by growers who are planning to plant Herculex I again this season," says Borgmeier

Petitioner Admits That TC1507 Corn Was Available in Commodity Channels in 2003

The Board need not even address this issue, however, as corn *harvested* from TC1507 plants continued to express the TC1507 event and was indisputably commercially available following the 2003, 2004, and 2005 growing seasons. Silverstone, ¶¶134-134. Such corn was sold as a commodity—without any contractual restrictions:

Pet., 52.

Dr. Silverstone Admits That TC1507 Corn Was Available in Commodity Channels in 2003

Dr. Silverstone's Testimony

143. By way of example, a POSA seeking access to TC1507 (as disclosed in Barbour) could have obtained commercially available bulk corn following the 2003, 2004, or 2005 growing seasons and then planted the kernels in test rows using glufosinate as a selection agent—much like Barbour itself discloses in connection with the identification of the TC1507 event itself. EX1009, ¶85. To the extent that corn plants grew from the kernels despite the presence of the herbicide, it would have indicated the presence of the PAT gene incorporated into TC1507 along with several other transgenic corn products commercially available at the time. A POSA could have then harvested ears from the corn plants and used commercially available test methods to determine whether the corn harvested from particular ears reflected the TC1507 event or some other transgenic event.

EX1007 (Silverstone Decl.), ¶ 143.

Dr. Silverstone's Testimony

Q. And at the time when you filed, signed your declaration, in fact, you -- your opinion is that you could have obtained commercially available bulk corn following the 2003, 2004, 2005 growing seasons, correct?

A. That is correct.

EX2003 (Silverstone Tr.), 59:9-14.

Dr. Silverstone Admits That TC1507 Corn Was Available in Commodity Channels in 2003

Dr. Silverstone's Testimony

Q. And as we discussed earlier, that the end of the growing season in 2003, sometime in the fall, some of that crop would have been expected to be sold immediately, correct?

A. **Yes. Some of that crop would have gone into the commodity system.**

Q. Sometime in late 2003, grain in the commodity system that possessed TC1507 would have been accessible without restrictions for use, correct?

A. **That is correct. There would be grain -- there would be TC1507 grain in the commodity system that would not have restrictions on use.**

Q. In 2003?

A. **In 2000 -- late 2003.**

EX2003 (Silverstone Tr.), 51:16-21, 52:13-21.

Evidence Confirmed Availability by April 2004 Before Institution



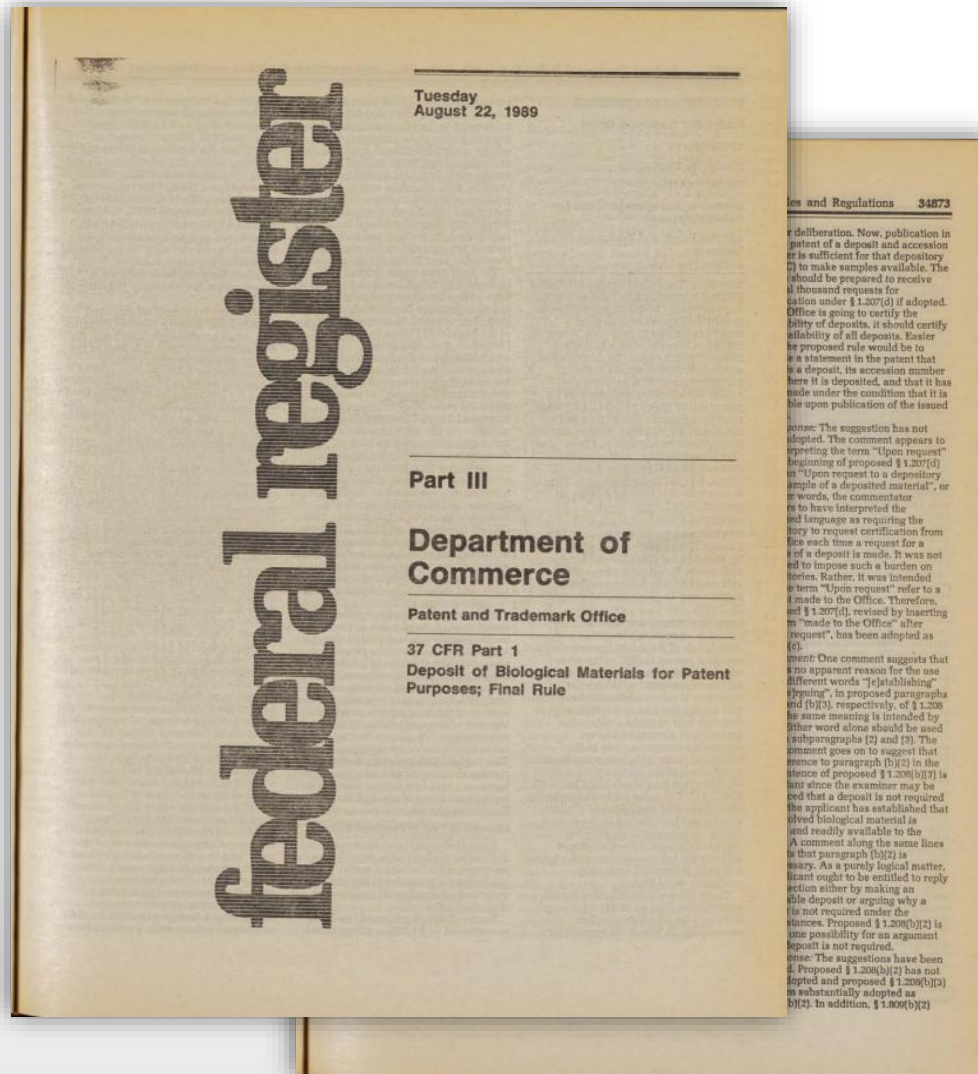
“Although the Petition does not provide a precise date within 2003 that TC1507 became publicly available, the Petition implies that it was by autumn of 2003 and certainly before the end of 2003.”

“[Patent Owner’s] Preliminary Response identifies multiple admissions by Petitioner and its declarant that TC1507 was known and readily publicly available in 2003, and thus, prior to April 2004.”

ID (dissent), 2-3.

Public Accessibility for the Purposes of § 112 Does Not Mean Unrestricted Use

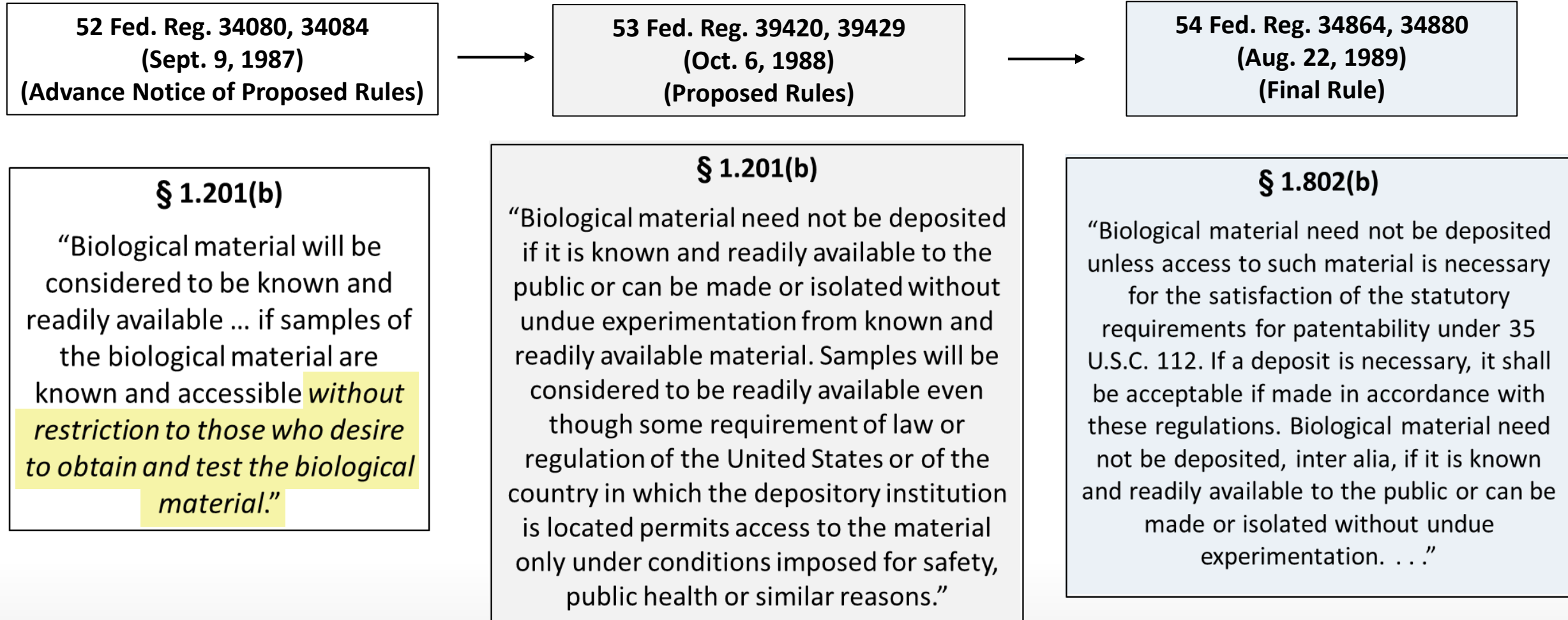
History of Rulemaking for Biological Deposits



“The suggestion that a requesting party agree to comply with 35 U.S.C. 271 as a condition precedent to obtaining a sample of deposited biological material is interpreted as an agreement not to infringe a corresponding valid patent, something which a requesting party is already bound not to do under law.”

54 Fed. Reg. 34864, 34873 (Aug. 22, 1989) (Final Rule).

History of Rule § 1.802(b)



Utility Patents Have No Exemptions for Research or Saving Seed



“Utility patent holders receive greater rights of exclusion than holders of a PVP certificate. Most notably, there are no **exemptions for research or saving seed under a utility patent.**”

J.E.M. Ag Supply, Inc. v. Pioneer Hi-Bred International, Inc., 534 U.S. 124, 143 (2001).

Restrictions on Use Fall Within Scope of Patent's Exclusionary Grant



"The restrictions in the Technology Agreement are within the scope of the patent grant . . ."

Monsanto Co. v. McFarling, 302 F.3d 1291, 1297-99 (Fed. Cir. 2002).



"In this case, the single use restriction does fall within the patent grant."

Monsanto Co. v. Scruggs, 249 F. Supp. 2d 746, 757 (N.D. Miss. 2001).

Accord Pioneer Hi-Bred Int'l v. Ottawa Plant Food, Inc., 283 F. Supp. 2d 1018, 1024-25 (N.D. Iowa 2003).

Patent Owner's TUA Does Not Undercut the Ready Availability of TC1507 Corn Seed

Dr. Silverstone's Testimony

Q. Okay. What in your mind does the term "readily available" mean?

A. To me, readily available to the public means that I, as a private person, could go order something or acquire something without much work.

Q. Could a member of the public purchase seeds from a company like Corteva?

A. My understanding -- once again, I haven't worked for Corteva or its parent company. But my understanding is that to purchase seeds of Event TC1507, you have to sign a technology use agreement.

Q. And in your mind, how does that affect whether something is readily available or not?

A. It means there are restrictions on the use of the material.

Q. So you could get the material, right?

A. Yes.

EX2003 (Silverstone Tr.), 66:7-24.

Inari Accessed TC1507 Corn Seed

Dr. Silverstone's Testimony

Q. Are you aware of whether Inari has been able to access corn seeds containing TC1507?

A. **I know that the lawsuit is over Inari's access to corn seeds that contain TC1507, but I don't know any of the details of the lawsuit.**

Q. Okay. Putting the lawsuit aside, do you know whether Inari has been able to access corn seeds with TC1507?

A. **It is my understanding that Inari has accessed corn seed with TC1507.**

EX2003 (Silverstone Tr.), 89:11-20.

62. In 2020, Inari lawfully purchased publicly available corn cobs of undisclosed provenance, which after analysis were found to include the TC1507 event. Inari was neither asked nor required to sign, and did not sign, any contract purporting to restrict the use Inari could make of the purchased corn cobs. The patents covering the TC1507 event, including the '378 Patent,

EX1073, 104 (¶ 62).

64. In a series of communications with Corteva, including videoconferences and correspondence, between September 2021 and December 2022, Inari explained to Corteva that (i) Inari had obtained seeds containing the DP4114 event from ATCC; (ii) Inari had obtained publicly available commodity grain not subject to any contractual restrictions containing the TC1507 event; (iii) Inari believed the patent covering TC1507 was invalid for failure to make a

EX1073, 105 (¶ 64).

MTA Identifies Potential IP Rights

Case 1:23-cv-01059-JSA Document 19-3 Filed 11/06/23 Page 2 of 2 PageID #: 241

MATERIAL TRANSFER AGREEMENT ("MTA")
Last updated: November 15, 2011



IMPORTANT! PLEASE READ CAREFULLY BEFORE SUBMITTING AN ORDER. THIS IS A CONTRACT.

This Material Transfer Agreement ("MTA") is between the Inari Agriculture N.V./S.A., a For Profit type organization, having its principal place of business at Industriepark 7A, 9052 BELGIUM ("Purchaser") and the American Type Culture Collection, a District of Columbia not-for-profit corporation, having its principal place of business at 10801 University Boulevard, Manassas, VA 20110-2209 ("ATCC"). Purchaser must have an approved, current ATCC account to place an order. This MTA is effective as of the last date of execution by the parties and governs the purchase and use of all Biological Materials under the terms and conditions set forth below.

TERMS AND CONDITIONS

Definitions

"ATCC Material" means any materials acquired from ATCC by Purchaser as described on an ATCC Sales Order.

"ATCC Sales Order" means an order submitted for ATCC Material in a form and format as determined by ATCC from time to time.

"Biological Material(s)" means any ATCC Material, any Progeny, any Unmodified Derivatives and any of the foregoing materials contained or incorporated in Modifications.

"CAR" means ATCC's Customer Acceptance of Responsibility for Potentially Highly Pathogenic Biological Materials Form.

"Commercial Use" means the sale, license, lease, export, transfer or other distribution of the Biological Materials to a person or entity not party to this MTA for financial gain or other commercial purposes and/or the use of the Biological Material: (a) to provide a service to a person or entity not party to this MTA for financial gain; (b) to produce or manufacture products for general sale or products for use in the manufacture of products ultimately intended for general sale; or (c) in connection with proficiency testing service(s), including but not limited to, providing the service of determining laboratory performance by means of comparing and evaluating calibrations or tests on the same or similar items or materials in accordance with predetermined conditions.

"Contributor(s)" means any organization(s), entity(ies) and/or individual(s) providing technology and/or patent rights related to the ATCC Material, or original material to ATCC for deposit.

"CRO" means a third-party entity performing research under contract for Purchaser.

"Industry Sponsored Academic Research" means research sponsored by a for-profit organization carried out at a non-profit organization and by the non-profit organization's employees.

"Investigator" means the individual principal scientist or researcher, who is referenced on the applicable ATCC Sales Order, employed or retained by Purchaser and using the Biological Material(s) and for whom the related ATCC Material was obtained by Purchaser, as well as his or her individual assistants for receipt of ATCC Material as employed or retained by Purchaser and referenced on the applicable ATCC Sales Order. For the avoidance of doubt, Investigator specifically does NOT include any multi-user biological material core facility or repository or any individual employed or retained thereby (in a capacity including the use of the Biological Material). ATCC Material may not be transferred to any multi-user biological material core facility or repository or any such individual.

"Modification(s)" means any substance that contains and/or incorporates a significant or substantial portion of ATCC Material, its Progeny or Unmodified Derivatives. By way of non-limiting example, Modifications include ATCC Material that has been transfected with a reporter gene, induced pluripotent stem cells and mesenchymal stem cells that were derived from ATCC Material.

"Progeny" means an unmodified descendant from ATCC Material, such as virus from virus, cell from cell, or organism from organism.

"Purchaser(s)" means the organization purchasing and receiving ATCC Material pursuant to the ATCC Sales Order and this MTA.

"Transferee" means an employee or contractor that is a principal scientist or researcher at another organization or at Purchaser's organization. For the avoidance of doubt, Transferee specifically does NOT include any multi-user biological material core facilities or repositories to allow for the creation and provision of standardized reference materials derived from Biological Materials.

"Trademarks" means all trade name, trademark and service mark rights, whether registered or not, now owned or hereafter acquired, and the entire goodwill of the business of ATCC connected with and symbolized by such marks, including, without limitation, ATCC®, ATCC catalog marks, and ATCC Licensed Derivative®.

"Unmodified Derivative(s)" means substances created by Purchaser which constitute an unmodified functional subunit or product expressed by ATCC Material. By way of non-limiting example, Unmodified Derivatives include: purified or fractionated subsets of the ATCC Material; proteins expressed by DNA/RNA supplied by ATCC or monoclonal antibodies secreted by a hybridoma cell line.

Scope of Use

ATCC Material and Progeny: ATCC Material and Progeny may only be used by Purchaser's Investigator for research purposes and only in Investigator's laboratory.

Modifications and Unmodified Derivatives: Purchaser's Investigator may make, use and transfer Modifications and Unmodified Derivatives only as follows:

Page 1 of 4



Corteva Exhibit 2007, Page 1 of 4
Inari v. Corteva - IPR2024-01014

MATERIAL TRANSFER AGREEMENT ("MTA")
Last updated: November 15, 2011



IMPORTANT! PLEASE READ CAREFULLY BEFORE SUBMITTING AN ORDER. THIS IS A CONTRACT.

This Material Transfer Agreement ("MTA") is between the Inari Agriculture N.V./S.A., a For Profit type organization, having its principal place of business at Industriepark 7A, 9052 BELGIUM ("Purchaser") and the American Type Culture Collection, a District of Columbia not-for-profit corporation, having its principal place of business at 10801 University Boulevard, Manassas, VA 20110-2209 ("ATCC"). Purchaser must have an approved, current ATCC account to place an order. This MTA is effective as of the last date of execution by the parties and governs the purchase and use of all Biological Materials under the terms and conditions set forth below.

TERMS AND CONDITIONS

EX2007, 1.

"Purchaser shall have the sole responsibility for obtaining any intellectual property licenses necessitated by its possession and **use** of the Biological Materials."

EX2007, 2 (emphasis added).

Dr. Silverstone Did Not Consider MTA Restrictions

Dr. Silverstone's Testimony

Q. Did you consider any agreement from, for example, the ATCC regarding the use of biological samples that one obtains from a depository?

A. **I did not take into account any restrictions on samples that ATC[C] provides.**

Q. . . . Have you ever looked at any agreement from ATCC that identify any restrictions on biological materials?

A. **No, I've not looked at any agreements from ATCC.**

EX2003 (Silverstone Tr.), 71:19-23, 72:12-17.

Petitioner's Delaware Lawsuit is Not Inconsistent with the "Known and Readily Available" Standard



"[T]he rules [37 C.F.R. § 1.808] do not require that Corteva give the world a blanket license to its invention just because it deposited the seeds. The public is entitled to **availability** of the deposits — not to exploit them in any way. A restriction on commercial use is entirely consistent with the Patent Office's rules."

Corteva Agriscience LLC v. Inari Agric., Inc., 743 F. Supp. 3d 603, 619 (D. Del. 2024) (emphasis added).

**TC1507 Corn and Corn Seed Was “Known and Readily Available”
to the Public Before the Issuance of the '378 Patent**

Board Agreed TC1507 Corn Was “Known and Readily Available” by Issuance



“Because it is undisputed that corn harvested from TC1507 plants was ‘known and readily available to the public’ by 2010, we see no error on this record with the examiner’s assessment of the enablement issue that was previously considered during prosecution.”

ID, 23 (emphasis added).

February 2005 – Validation Report from European Commission (EX1054)



Event-specific method for the quantitation of maize line TC1507 using real-time PCR

Validation Report

Biotechnology & GMOs Unit
Institute for Health and Consumer Protection
DG Joint Research Centre

15 February 2005

Executive Summary

The JRC as Community Reference Laboratory (CRL) for the GM Food and Feed (see Regulation EC 1829/2003), in collaboration with the European Network of GMO Laboratories (ENGL), has carried out a collaborative study to assess the performance of a quantitative event-specific method to detect and quantify the TC1507 transformation event in maize flour (also known as HerculexTM I, unique identifier DAS-01507-1). The collaborative trial was conducted according to internationally accepted guidelines.

Pioneer Hi-Bred International provided the method-specific reagents and samples (genomic DNA extracted from the 0% and 100% event TC1507 maize), whereas the JRC prepared the validation samples (calibration samples and blind samples at unknown GM percentage). The trial involved fourteen laboratories from ten European Countries and Switzerland.

The results of the collaborative trial fully met ENGL's performance requirements and the scientific understanding about satisfactory method performance. Therefore, the JRC as Community Reference Laboratory considers the method validated as fit for the purpose of regulatory compliance.

The results of the collaborative study are publicly available under <http://amo-crl.jrc.it/>. The method will also be submitted to CEN, the European Standardisation body, to be considered as international standard.

Inari Exhibit 1054
Inari v. Corteva

Biotechnology & GMOs Unit Institute for Health and Consumer Protection DG Joint Research Centre

15 February 2005

Document Approval

Name / Function	Date	Signature
Marco Mazzara Sector Head	16/02/2005	Signed
Stephane Cordeil Quality Manager	16/02/2005	Signed
Guy Van den Eede B&GMOs Unit Head	16/02/2005	Signed

3. Materials

For the validation of the quantitative event-specific method, DNA was extracted by the applicant from non-GM maize kernels (Pioneer Brand Number X1083A NULL) and from 100% TC1507 hybrid kernels (Pioneer Brand Number 38P04-DAS-01507-1).

Samples containing mixtures of 0% and 100% TC1507 maize genomic DNA at different GMO concentrations were prepared by the JRC.

EX1054, 1/11, 2/11, 5/11.

2005 - PCT Application No. PCT/EP2005/006688 (EX1039)

WO 2005/123722

PCT/EP2005/006688

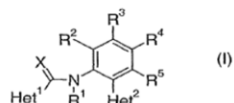
- 1 -

HETEROCYCLIC CARBOXAMIDES WITH MICROBIOCIDAL ACTIVITY

The present invention relates to novel carboxamide derivatives as active ingredients which have microbiocidal activity, in particular fungicidal activity. The invention also relates to preparation of these active ingredients, to novel heterocyclic derivatives used as intermediates in the preparation of these active ingredients, to preparation of these novel intermediates, to agrochemical compositions which comprise at least one of the novel active ingredients, to preparation of these compositions and to use of the active ingredients or compositions in agriculture or horticulture for controlling or preventing infestation of plants by phytopathogenic microorganisms, preferably fungi.

Fungicidally active carboxamide derivatives are disclosed for example in JP2001302605.

The present invention provides a compound of formula (I):



where Het¹ and Het² are each, independently, a 5- or 6-membered heterocyclic ring containing one to three heteroatoms, each independently selected from oxygen, nitrogen and sulphur; Het¹ being substituted by one, two or three groups R¹ and Het² being substituted by R⁶ and being optionally substituted by one, two or three groups R²; R¹ is hydrogen, formyl, CO-C₁₋₄ alkyl, COO-C₁₋₄ alkyl, C₁₋₄ alkoxy(C₁₋₄)alkylene, CO-C₁₋₄ alkylenoxy(C₁₋₄)alkyl, propargyl or allenyl; R², R³, R⁴ and R⁵ are each, independently, hydrogen, halogen, methyl or CF₃; R⁶ is (Z)_mC=C(Y¹), (Z)_mC(Y¹)=C(Y²)(Y³) or tri(C₁₋₄)alkylsilyl; each R¹ or each R² is, independently, halogen, C₁₋₃ alkyl, C₁₋₃ haloalkyl, C₁₋₃ alkoxy(C₁₋₃)alkylene or cyano; X is O or S; Y¹, Y² and Y³ are each, independently, hydrogen, halogen, C₁₋₆ alkyl [optionally substituted by one or more substituents each independently selected from halogen, hydroxy, C₁₋₄ alkoxy, C₁₋₄ haloalkoxy, C₁₋₄ alkylthio, C₁₋₄ haloalkylthio, C₁₋₄ alkylamino,

Inari Exhibit 1039
Inari v. Corteva

WO 2005/123722

PCT/EP2005/006688

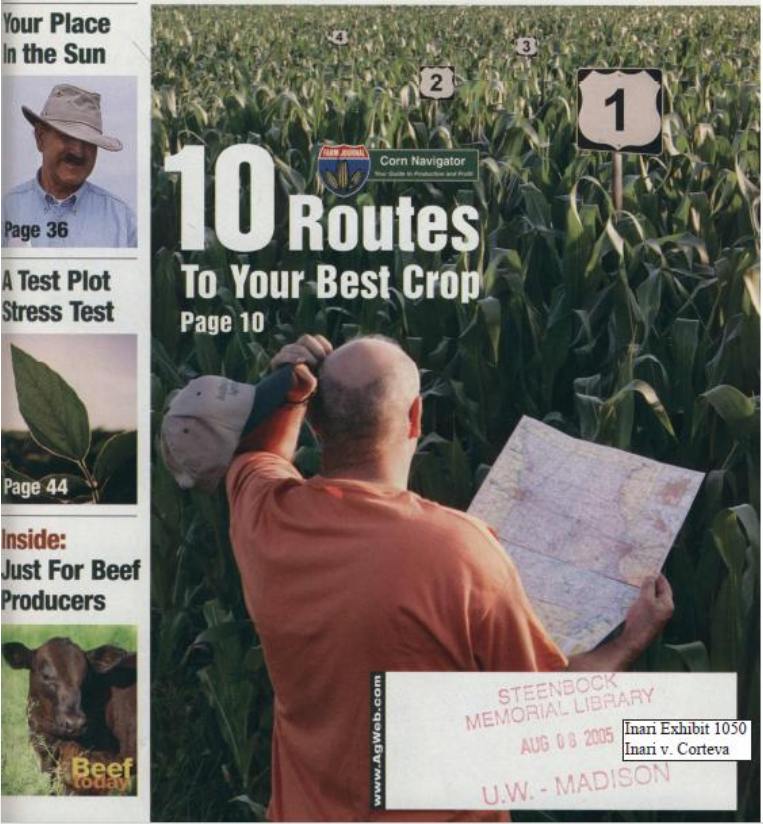
- 1 -

HETEROCYCLIC CARBOXAMIDES WITH MICROBIOCIDAL ACTIVITY

The term "useful plants" is to be understood as including also useful plants that have been rendered tolerant to herbicides like bromoxynil or classes of herbicides (such as, for example, HPPD inhibitors, ALS inhibitors, for example primisulfuron, prosulfuron and trifloxysulfuron, EPSPS (5-enol-pyrovyl-shikimate-3-phosphate-synthase) inhibitors, GS (glutamine synthetase) inhibitors) as a result of conventional methods of breeding or genetic engineering. An example of a crop that has been rendered tolerant to imidazolinones, e.g. imazamox, by conventional methods of breeding (mutagenesis) is Clearfield® summer rape (Canola). Examples of crops that have been rendered tolerant to herbicides or classes of herbicides by genetic engineering methods include glyphosate- and glufosinate-resistant maize varieties commercially available under the trade names RoundupReady®, Herculex I® and LibertyLink®.

EX1039, Cover Page, 119:1-11.

Summer 2005 – Farm Journal Article (EX1050)



Liberty herbicide tolerance is also on the rise, thanks to wider availability of **Herculex I** insect-resistant corn hybrids and Syngenta licensing Agrisure CB to more seed companies. Both traits come standard with resistance to Liberty.

EX1050, 19.

Corn Trait Options for 2006	
Herbicide (H) Resistant	
Agrisure GT	
Liberty Link	
Roundup Ready	
Roundup Ready 2	
Corn Borer (CB) Resistant	
Agrisure CB**	
Herculex I**	
YieldGard Corn Borer	
Corn Rootworm (CRW) Resistant	
Herculex RW* **	
YieldGard Rootworm	
CB+CRW Resistant	
Herculex XTRA* *	
YieldGard Plus	

EX1050, 19.

For The Fiscal Year Ended 2005 - Dow's SEC Form 10-K (EX1042)

10-K 1 a2167550z10-k.htm 10-K
[QuickLinks](#) -- Click here to rapidly navigate through this document

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended **DECEMBER 31, 2005**

Commission file number: 1-3433

THE DOW CHEMICAL COMPANY
(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

38-1285128
(I.R.S. Employer Identification No.)

2030 DOW CENTER, MIDLAND, MICHIGAN 48674
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: 989-636-1000

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, par value \$2.50 per shares	Common Stock registered on the New York Chicago and Pacific Stock Exchanges
Debentures, 6.85%, final maturity 2013	Debentures registered on the New York Stock Exchange

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and, if so, state the reason therefor, to the best of the registrant's knowledge, in definitive proxy or information statements incorporated by reference in this Form 10-K or any amendment to this Form 10-K.

EX1042 - Page 1

Inari v. Corteva

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended **DECEMBER 31, 2005**

Commission file number: 1-3433

THE DOW CHEMICAL COMPANY
(Exact name of registrant as specified in its charter)

Agricultural Sciences Outlook for 2006

Agricultural Sciences sales and operational results for 2006 are expected to be similar to those achieved in 2005. The expected return of insect pressure to more normal levels should be favorable for insecticide demand. Sales of penoxsulam and aminopyralid herbicides are expected to rapidly ramp up and new formulations of cereal herbicides are showing good growth potential. Growth in these products is expected to mitigate a decline in some of the Company's mature product lines, which may be impacted by increasing use of new technologies for crop protection.

Growth is also anticipated in seeds and insect resistant traits, as the Company continues to introduce new products. In corn, the anticipated launch of **HERCULEX™ RW** and **HERCULEX™ XTRA** will complement the growing sales of **HERCULEX™ I** insect protection for corn. Cotton seed sales are expected to strengthen with a ramp-up in the launch of **WIDESTRIKE™** insect protection for cotton. The growing demand for heart-healthy oils will likely result in an increase in acres planted with **NEXERA™** seed for **NATREON™** canola oil, as well as increased sunflower acreage. On January 18, 2006, the Company and Monsanto Company announced a global business agreement that establishes cooperative

EX1042, 1, 43.

2005 - USDA Budget Summary Report (EX1011)

Y 4.AP 6/1:AG 8/2006/PT.1 A

AGRICULTURE, RURAL DEVELOPMENT, FOOD
AND DRUG ADMINISTRATION, AND RELATED
AGENCIES APPROPRIATIONS FOR 2006

UNIVERSITY OF MINNESOTA
GOVERNMENT PUBLICATIONS LIBRARY

JUN 2 1 2005

U.S. DEPOSITORY PROPERTY
U.S.G.P.O.D-295

HEARINGS
BEFORE A
SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES
ONE HUNDRED NINTH CONGRESS
FIRST SESSION

SUBCOMMITTEE ON AGRICULTURE, RURAL DEVELOPMENT, FOOD AND
DRUG ADMINISTRATION, AND RELATED AGENCIES

HENRY BONILLA, Texas, Chairman

JACK KINGSTON, Georgia
TOM LATHAM, Iowa
JO ANNE EMERSON, Missouri
VIRGIL H. GOODE, JR., Virginia
RAY LAHOOD, Illinois
JOHN T. DOOLITTLE, California
RODNEY ALEXANDER, Louisiana

ROSA L. DELATITO, Connecticut
MAURICE D. RINCHIEY, New York
SAM FARR, California
ALLEN BOYD, Florida
MARCY KAPTUR, Ohio

NOTE: Under Committee Rules, Mr. Lewis, as Chairman of the Full Committee, and Mr. Oby, as Ranking
Minority Member of the Full Committee, are authorized to sit as Members of all Subcommittees.

MARTIN P. DELIGADU, MAUREEN BOUGHAN, LESLIE BARRACK, and JOANNE L. PIERCE,
Staff Assistants

PART 1A
FY 2006 JUSTIFICATIONS OF THE BUDGET ESTIMATES
USDA VOLUME 1

	Page
Budget Summary	1
Explanatory Notes	131
Office of the Secretary	136
Office of Inspector General	457
Agricultural Research Service	499
Cooperative State Research, Education, and Extension Service	627
Food Safety and Inspection Service	840
Animal and Plant Health Inspection Service	886
Agricultural Marketing Service	1016
Grain Inspection, Packers and Stockyards Administration	1093

Printed for the use of the Committee on Appropriations

Google

In FY 2004, GIPSA continued to offer the USDA/GIPSA Proficiency Program to organizations testing for biotechnology-derived grains and oil seeds on a global basis. In FY 2004, the USDA/GIPSA Proficiency Program was expanded to include two new corn biotechnology events commercialized in FY 2003: Herculex™ produced by DowAgroSciences and YieldGard™ Rootworm produced by Monsanto. In FY 2004, participation in the USDA/GIPSA Proficiency Program increased to more than one hundred organizations with more than 70% of the participants in the Program from outside the U.S. The program promotes global harmonization for grain testing and reporting requirements which will help minimize non-tariff trade barriers for U.S. grain.

EX1011, 1127.

2006 – TC1507 Article (EX1036)

LA PAZ ET AL.: JOURNAL OF AOAC INTERNATIONAL VOL. 89, NO. 5, 2006 1347

FOOD COMPOSITION AND ADDITIVES

Interlaboratory Transfer of a Real-Time Polymerase Chain Reaction Assay for Quantitative Detection of Genetically Modified Maize Event TC-1507

JOSÉ-LEIS LA PAZ and NORA GARCÍA-MUNZ

Institut de Biologia Molecular de Barcelona, Departament de Genètica Molecular, Consorci CSIC-IRTA, Jordi Girona 18-26, 08034 Barcelona, Spain

ANNA NADAL

Universitat de Girona, Institut de Tecnologia Agroalimentària (INTEA), EPS (Edif.1), Campus Montilivi, 17071 Girona

TERESA ESTEVE and PÈRE PUIGDOMÈNECH

Institut de Biologia Molecular de Barcelona, Departament de Genètica Molecular, Consorci CSIC-IRTA, Jordi Girona 18-26, 08034 Barcelona, Spain

MARIA PLA¹

Institut de Biologia Molecular de Barcelona, Departament de Genètica Molecular, Consorci CSIC-IRTA, Jordi Girona 18-26, 08034 Barcelona, Spain

Universitat de Girona, Institut de Tecnologia Agroalimentària (INTEA), EPS (Edif.1), Campus Montilivi, 17071 Girona

A real-time polymerase chain reaction (QPCR) assay was developed for quantitative detection of a genetically modified (GM) maize event TC-1507 and modification to conventional PCR for qualitative purposes. Sequences 5'-flanking TC-1507 full-length insert were characterized and showed multiple rearrangements involving insert and maize chloroplast fragments. The event specificity of the TC-1507 assays was based on the detection of transgene and plant rearranged sequences found to 5' flank the insertion site. They were fully specific and exhibited a limit of detection below 10 target copies, allowing consistent detection of 0.1% GM levels. The QPCR was highly linear and efficient and proved adequate for quantification of GM contents, aiming at the fulfillment of legal requirements established in the European Union (i.e., compulsory labeling of TC-1507 levels >0.9%). It satisfactorily determined TC-1507 contents on different matrixes and was successfully transferred to a different laboratory.

During the past decade, the development of biotechnology has revolutionized agriculture, e.g., by the introduction of genetically modified organisms (GMOs) with characteristics of interest. The GMOs have been extensively cultivated, reaching 81 million hectares in 2004; in the case of maize, GM varieties cover more than 23% of maize acreage (1), and their derived products have reached the

global marketplace. As a consequence, some countries have established labeling and coexistence regulations (2–4) that require the development of adequate detection methods.

Policies for labeling GMO foods differ among countries. As an example, in the European Union (EU), three categories of GMOs are allowed: (1) those that are not intended for human consumption, (2) those that are EU-approved varieties and 0.5% for non-approved varieties with positive EU risk assessment (2). The most accepted detection methods rely on polymerase chain reaction (PCR) and real-time PCR (QPCR) techniques (5–7), and are based on specific detection or quantification of transgenic sequences. Screening methods pursue the amplification of sequences found in many different GMOs like the *35S* promoter (8) and the nopaline synthase (NOS) terminator. Unambiguous detection of a GMO event can be achieved by amplifying edge fragments containing sequences of origins that have been rearranged as a result of a transformation event, i.e., sequences from the transgene construct and those at the insertion point at the genome host, such as MON810 maize (10, 11); Bt176 maize (12); Roundup Ready Soybean (13–15); Bt11 maize (16); NK603 (17); and T25 (18) maize.

The transgenic maize line TC-1507 (Herculex ITM from Mycogen, Dow AgroSciences, Pioneer, Dupont), genetically engineered by biolistic transformation and containing 2 transgenes, *cry1Fa2* and *pat*. The delta endotoxin *cry1Fa2* confers maize resistance to European corn borer (*Pyrausta nubilalis*) and other lepidopteran pests. The phosphinothricin-N-acetyltransferase (PAT) makes the maize tolerant to phosphinothricin herbicides such as Basta[®], Liberty[®], and Finale[®]. The transformed *cry1Fa2* gene was derived from *Bacillus thuringiensis* with some modifications. Its transcription was directed by the promoter and a

A real-time polymerase chain reaction (QPCR) assay was developed for quantitative detection of a genetically modified (GM) maize event TC-1507 and modification to conventional PCR for qualitative purposes. Sequences 5'-flanking TC-1507 full-length insert were characterized and showed multiple rearrangements involving insert and maize chloroplast fragments. The event specificity of the TC-1507 assays was based on the detection of transgene and plant rearranged sequences found to 5' flank the insertion site. They were fully specific and exhibited a limit of detection below 10 target copies, allowing consistent detection of 0.1% GM levels. The QPCR was highly linear and efficient and proved adequate for quantification of GM contents, aiming at the fulfillment of legal requirements established in the European Union (i.e., compulsory labeling of TC-1507 levels >0.9%). It satisfactorily determined TC-1507 contents on different matrixes and was successfully transferred to a different laboratory.

Received February 3, 2006. Accepted by SG March 29, 2006.

¹ Author to whom correspondence should be addressed; e-mail: maria.pla@udg.es

The transgenic maize line TC-1507 (Herculex ITM from Mycogen, Dow AgroSciences, Pioneer, Dupont) was genetically engineered by biolistic transformation and harbors 2 transgenes, *cry1Fa2* and *pat*. The delta endotoxin Cry1F

Experimental

Plant Material

Powdered certified reference material (CRM) of maize 1507, Bt176, Bt11, MON810, GA21, NK603, and CBH-351 maize and Roundup Ready[®] (GTS40-3-2) soybean were obtained from the Institute for Reference Materials and Measurements (IRMM; Geel, Belgium) and commercialized by Fluka (Buchs, Switzerland). Seed powder of maize Bt10

EX1036, 1347-48.

EX1036, 1347.

Inari Exhibit 1036
Inari v. Corteva

Received February 3, 2006. Accepted by SG March 29, 2006.
¹ Author to whom correspondence should be addressed; e-mail: maria.pla@udg.es

2007 – DuPont at BB&T Conference (EX1086)

DuPont at BB&T Capital Markets Manufacturing and Materials Conference...

NewsRoom

3/22/07 Fin. Disclosure Wire 12:35:00

FD Wire
Copyright © 2007 CCBN, Inc. and FDCH e-Media, Inc.

March 22, 2007

March 22, 2007

DuPont at BB&T Capital Markets Manufacturing and Materials Conference 2007 - Final

DuPont at BB&T Capital Markets Manufacturing and Materials Conference

FRANK MITSCH, ANALYST, BB&T CAPITAL MARKETS: Good morning. All of the introducing today have the same disclosure. That is that BB&T intends to solicit investment bank months, or something to that effect.

Good morning. I'm Frank Mitsch, the chemicals analyst here BB&T. It is an honor for me to be at the conference. The next speaker is a frontrunner to be the next CEO of DuPont. Among the speakers, that, when Tom took over the role as the Chief Technology Officer of DuPont it was clear to me

In my career, I worked at one point with Best Laboratories, and I was involved in market development with their research department and also working closely with the marketplace, sales and marketing and how could research address that. At Best Laboratories, I often times would look at their research on: I'd go to the marketplace, realize the marketplace had no intention of ever using that product after hearing that from me, made the decision to continue on with the research and development had to say as to what the market was saying.

When Tom took over the role at the time, he started using words like Stage-Gate approach. When I heard that, my eyes lit up. Not many people's eyes would light up off of that; I did because I realized that he intended to make research and development a much more productive part of the firm than what it had been up until that point.

In addition to being the Chief Technology Officer at DuPont, Tom is a member of the office of the Chief Executive. He is celebrating his 30th birthday today. He is an Ohio native and has degrees from Princeton and Cambridge.

With Tom today is Carl The Truth Lukach. I have not had an opportunity to meet him here from DuPont as well. Tom, we're looking forward to your comments.

TOM CONNELLY, EVP, CHIEF INNOVATION OFFICER, E.I. DUPONT: Thank you, Frank. For those many kind words, unexpected but certainly appreciated throughout my talk; and that is the importance of being market focused. This opportunity to share the DuPont approach to creating value for our

As we begin, let me draw your attention to the precautionary statement we are making today. But then let me move quickly to my core message for today.

First, the DuPont growth strategies are working. Our productivity efforts are gaining traction. We carry innovation momentum into 2007, and we will carry it beyond 2007. I will illustrate this with several examples throughout the talk. But first, let me tee up a couple of the key metrics that we look at in our businesses.

WESTLAW © 2025 Thomson Reuters. No claim to original U.S. Government Works.

1

Inari Exhibit 1086
Inari v. Corteva
IPR2024-01014

Now let's take a look of some of the most exciting traits we have in the pipeline. First up is the Herculex products codeveloped by DuPont. You can see on the left our European corn borer product. DuPont is first to market with a second-generation product with better efficacy versus corn rootworm and broader spectrum of insect control, picking up Western bean cutworm, black cutworm, and various pests. Tremendous demand for this product in the marketplace. It is doing extremely well.

We saw this in our trials. Last year the leading research universities saw it in their trials, and the marketplace has responded very strongly. Now we're ramping up these products as fast as we can. We will sell 10 times more Herculex XTRA than we did last year, and we will still be sold out. It will be next year before we have full availability of these products, and these products in stacks. But great impact from the Herculex franchise.

EX1086, 1, 4 (condensed spacing in original).

**There is No Relevant Distinction Between Enablement
for the Purposes of § 112 and § 102**

Petitioner's Cases Are Inapposite

Case Name	Was There Biological Material?	Deposit Implicated?	Was a Distinction Between §§ 102/112 Discussed?
<i>Ex parte Thomson</i>	YES	YES	NO
<i>Ex parte DeCastro</i>	YES	YES	NO
<i>In re Elsner</i>	YES	NO	NO
<i>Ex parte Meilland</i>	YES	NO	NO
<i>Ex parte Boeder</i>	YES	NO	NO
<i>Ex parte Tickner</i>	YES	NO	NO
<i>Ex parte Grandics</i>	YES	NO	NO
<i>In re Howarth</i>	NO	NO	NO
<i>In re Wyer</i>	NO	NO	NO
<i>White Consolidated Indus.</i>	NO	NO	NO
<i>US Endodontics</i>	NO	NO	NO
<i>Konda</i>	NO	NO	NO
<i>Daiichi Sankyo</i>	NO	NO	NO