

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

MONSANTO COMPANY and MONSANTO)
TECHNOLOGY LLC,)
)
Plaintiffs,)

v.)

SYNGENTA SEEDS, INC.,)
SYNGENTA BIOTECHNOLOGY, INC.,)
et al.)
)
Defendants.)

DEKALB GENETICS CORPORATION,)
)
Plaintiff,)

v.)

SYNGENTA SEEDS, INC.,)
SYNGENTA BIOTECHNOLOGY, INC.,)
et al.)
)
Defendants.)

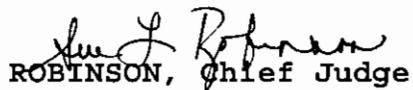
Civ. No. 04-305-SLR
(lead case)

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MEMORANDUM OPINION

Dated: May 10, 2006
Wilmington, Delaware


ROBINSON, Chief Judge

I. INTRODUCTION

On May 12, 2004, Monsanto Company, together with Monsanto Technology LLC, sued Syngenta Seeds, Inc., Syngenta Biotechnology Inc., Golden Harvest Seeds, Inc. Garwood Seed Co., Golden Seed Company, LLC (collectively called defendants) in this court for infringement of U.S. Patent No. 4,940,835 (the "'835 patent") issued to Shah et al.. On July 27, 2004, DeKalb Genetics Corporation, a wholly owned subsidiary of Monsanto Company, sued Syngenta in the Northern District of Illinois, alleging that Syngenta had infringed U.S. Patent Nos. 5,538,880 (the "'880 patent") and 6,013,863 (the "'863 patent") issued to Lundquist et al. (collectively referred to as the "Lundquist patents"). Both actions charged defendants with patent infringement in the use of GA21 corn, which is a genetically modified corn tolerant to the herbicide glyphosate. The Illinois district court granted defendants' motion to transfer the action to this court. (D.I. 92) This court consolidated the two actions on August 23, 2005.¹ (D.I. 111) Before the court are defendants' two motions for summary judgment of noninfringement of the Lundquist patents and nonenablement of the '835 patent. (D.I. 208, 213)

II. BACKGROUND

The product at issue in this case, GA21 corn, is a

¹Monsanto Company, Monsanto Technology LLC and DeKalb Genetics Corporation are collectively referred to as "plaintiffs."

transgenic corn product that is tolerant to the herbicide glyphosate. (D.I. 209) The original GA21 transformation event resulted from a collaboration between Rhone-Poulenc Argo, S.A. ("RPA") and DeKalb in which RPA provided the gene construct that was incorporated by DeKalb into the transformed corn plant. (Id. at 5) To transform the corn cells with the RPA construct, DeKalb employed the three-step "bombardment" method of claim 1 of the Lundquist patents. (Id. at 5-7) According to plaintiff DeKalb, steps (i)-(iii) of claim 1 in the Lundquist patents were performed on July 15, 1993, July 27, 1993 and February 25, 1994, respectively. (Id. at 8) Plaintiff DeKalb asserts that after the issuance of the patents, defendants performed steps using the GA21 corn product that infringe the asserted claims. Plaintiff DeKalb asserts infringement of claims 5 and 6 of the '863 patent and claims 4-9 of the '880 patent.

III. STANDARD OF REVIEW

A court shall grant summary judgment only if "the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(c). The moving party bears the burden of proving that no genuine issue of material fact exists. See Matsushita Elec. Indus. Co. v. Zenith Radio Corp., 475 U.S. 574, 586 n.10 (1986).

"Facts that could alter the outcome are 'material,' and disputes are 'genuine' if evidence exists from which a rational person could conclude that the position of the person with the burden of proof on the disputed issue is correct." Horowitz v. Fed. Kemper Life Assurance Co., 57 F.3d 300, 302 n.1 (3d Cir. 1995) (internal citations omitted). If the moving party has demonstrated an absence of material fact, the nonmoving party then "must come forward with 'specific facts showing that there is a genuine issue for trial.'" Matsushita, 475 U.S. at 587 (quoting Fed. R. Civ. P. 56(e)). The court will "view the underlying facts and all reasonable inferences therefrom in the light most favorable to the party opposing the motion." Pa. Coal Ass'n v. Babbitt, 63 F.3d 231, 236 (3d Cir. 1995). The mere existence of some evidence in support of the nonmoving party, however, will not be sufficient for denial of a motion for summary judgment; there must be enough evidence to enable a jury reasonably to find for the nonmoving party on that issue. See Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 249 (1986).

IV. DISCUSSION

A. NonInfringement of the Lundquist Patents

Defendants assert that they cannot infringe the asserted claims for several reasons. First, because plaintiff DeKalb performed steps (i)-(iii) of the claims 1, defendants cannot be liable for infringing those claims and, therefore, cannot be

liable for infringing any claims dependent on the claims 1. Defendants also argue that they cannot be liable under § 271(g) because all the steps alleged to infringe the process claims were performed in the United States. Defendants' motion for summary judgement for noninfringement of the Lundquist patents raises several legal issues properly resolved by the court.

1. Infringement of dependent claims

The initial question is whether the asserted claims are dependent claims. Claims 4-9 of the '880 patent read:

4. A process comprising obtaining progeny from a fertile transgenic plant obtained by the process of claim 1 which comprise said DNA.
5. The process of claim 4 wherein said progeny are obtained by crossing said fertile transgenic plant with an inbred line.
6. The process of claim 4 comprising obtaining seed from said progeny and obtaining further progeny plants comprising said DNA from said seed.
7. The process of claim 5 wherein the progeny obtained are crossed back to the inbred line, to obtain further progeny which comprise said DNA.
8. The process of claim 6 wherein seeds are obtained from said further progeny plants and plants comprising said DNA are recovered from said seed.
9. The process of claim 7 wherein said further progeny are crossed back to the inbred line to obtain progeny which comprise said DNA.

('880 patent, col. 22, ll. 61-3) Claims 5-6 of the '863 patent read:

5. The process of claim 1 further comprising obtaining transgenic glyphosate resistant progeny plants of subsequent generations from said fertile plant.
6. The process of claim 5 further comprising obtaining seed from one of said progeny plants.

('863 patent, col. 30, ll. 14-6)

The patent statute, 35 U.S.C. § 112, ¶ 4, provides that "a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed." Claims 5 and 6 of the '863 patent follow this form exactly and, therefore, are dependent on claim 1 either directly (claim 5) or indirectly (claim 6). Claims 5-9 of the '880 patent, like claims 5 and 6 of the '863 patent, are clearly dependent on claim 4. If claim 4 is dependent on claim 1, claims 5-9 are all indirectly dependent on claim 1. Claim 4 of the '880 patent does not exactly follow the form specified in the statute but, nevertheless, is a dependent claim. Claim 4 refers to claim 1 ("a fertile transgenic plant obtained by the process of claim 1") and recites a further step ("obtaining progeny"). Furthermore, claim 4 includes the phrase "said DNA" which refers back to the DNA of claim 1. All the asserted claims are dependent from claim 1 of their respective patents.

The effect of writing a claim in dependent form is that it "shall be construed to incorporate by reference all the limitations of the claim to which it refers." 35 U.S.C. § 112, ¶ 4. As a result, all of the limitations set out in the independent claims must be met. Claim 1 of the '880 patent reads:

A process for producing a fertile transgenic *Zea mays* plant comprising the steps of (i) bombarding intact

regenerable *Zea mays* cells with DNA-coated microprojectiles, (ii) identifying or selecting a population of transformed cells, and (iii) regenerating a fertile transgenic plant therefrom, wherein said DNA is transmitted through a complete sexual cycle of said transgenic plant to its progeny, and imparts herbicide resistance thereto.

('880 patent, col. 22, ll. 48-55) Claim 1 of the '863 patent reads:

A process for producing a fertile transgenic *Zea mays* plant comprising the steps of (i) bombarding intact regenerable *Zea mays* cells with DNA-coated microprojectiles, wherein said DNA comprises at least a screenable marker gene; (ii) selecting a population of transformed cells expressing the selectable marker gene; and (iii) regenerating a fertile transgenic plant therefrom, wherein said DNA is expressed so as to impart glyphosate resistance to said transgenic plant and is transmitted through a normal sexual cycle of said transgenic plant to progeny plants.

('863 patent, col. 29 l. 26-col. 30 l. 6) It is not disputed that only plaintiff DeKalb performed steps (i)-(iii) set out in claim 1 of both patents.

There are two fundamental principles which find general application to the facts of record. First, "[i]t is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found . . . infringed."

Wahpeton Canvas Co., Inc. v. Frontier, Inc., 870 F.2d 1546, 1553 (Fed. Cir. 1989).² The second principle that must be examined is

²Plaintiff asserts that this proposition has been narrowed by the Federal Circuit in Wilson Sporting Goods Co. v. David Geoffrey & Assoc., 904 F.2d 677 (Fed. Cir. 1990). The Court in that case found that the independent claim of the patent in suit was not infringed because it could not be given a range of

the "all elements rule". The Federal Circuit has held that "[i]nfringement of process inventions is subject to the 'all-elements rule' whereby each of the claimed steps of a patented process must be performed in an infringing process, either literally or by an equivalent of that step." Canton Bio-Medical, 216 F.3d at 1370. In addition, "[a] method claim is directly infringed only by one practicing the patented method." Joy Techs., 6 F.3d at 775. The Federal Circuit has explained in General Foods Corp. v. Studiengesellschaft Kohle mbH, 972 F.2d 1272 (Fed. Cir. 1992):

It cannot be said - though it often is, incorrectly, by the uninitiated - that a part of a claim is "claimed" subject matter. For example, a claim to a process comprising the step A followed by step B followed by step C defines, as a matter of law, only the A-B-C process and one cannot properly speak of any single step as being "claimed," for it is not; all that is claimed is the process consisting of the combination of all three steps. Such a claim, therefore, creates no patent right or monopoly in step A, no right to prevent others from using step A apart from the combination of steps A-B-C. Step A is not "patented."

Id. at 1274.

Clearly, plaintiff DeKalb did not engage in any infringing activity when it performed steps (i)-(iii) of the claims 1. Nevertheless, plaintiffs argue, based on the reasoning of a

equivalents broad enough to encompass the accused device without also covering the prior art. Although the Federal Circuit went on to determine that it had to consider whether the dependent claims might be infringed, even though the independent claim was not, this court declines to broaden the scope of this holding to the facts at bar.

single district court case, E.I. DuPont DeNemours & Co. v. Monsanto, 903 F.Supp. 680 (D. Del. 1995),³ that defendants should be held liable for infringement even though they performed only the final steps of the claimed process and even though the first steps of the process were performed by plaintiff DeKalb. In DuPont, plaintiff DuPont owned patents covering a three-step process for manufacturing certain stain-resistant nylon carpet fibers. Under a toll processing agreement with CaMac, Monsanto practiced step (a) of the patented process. It then shipped the product resulting from step (a) to CaMac, who performed steps (b) and (c). CaMac then sold the resulting fibers. CaMac was held liable for direct infringement of the process patent under § 217(a) because "a party cannot avoid liability for infringement by having someone else perform one or more steps of a patented process for them." Id. at 735.

The facts reviewed by the court in DuPont, of course, are distinguishable from those at bar. In DuPont, all of the steps of the claimed process were performed by parties who had not been given permission to so act. In the case at bar, the critical initial steps of the claimed process were performed by the patent owner, at a time before the patents were even issued. These facts are more suited to a business tort than patent infringement litigation, and the court declines to create an exception to

³A non-binding, non-precedential opinion.

fundamental principles of patent law to reach what, in fact, might be the fair result. Therefore, the court concludes that, under the "all elements rule", defendants are not liable for infringement of the asserted claims of the '863 and '880 patents.

2. Section 102(g)

The final issue raised in connection with the Lundquist patents is whether a patented process performed in the United States constitutes infringement under § 271(g). This court has previously addressed the issue in British Telecommunications v. Owest Communications Inc., Nos. 03-526-SLR, 03-527-SLR, 03-528-SLR, slip op. at 7 (D. Del. Feb. 24, 2004). "In the case at bar, the patented methods at issue are being used, if at all, in this country; consequently, the fundamental purpose underlying passage of the statute [§ 271(g)] has absolutely no application." Id. The court finds no precedent to now mandate a different conclusion. If the accused infringement of the process claims occurs in the United States, defendant are not liable under § 271(g).⁴

B. Enablement of the '835 Patent

It is undisputed that claims 5 and 6 of the '835 depend from claim 1. All three claims are directed to a chimeric gene. Claim 1 reads:

⁴As is stated in British Telecommunications, remedies already exist for domestic use of a patented process.

1. A chimeric plant gene which comprises:
(a) a promoter sequence which functions in plant cells;
(b) a coding sequence which causes the production of RNA, encoding a chloroplast transit peptide/5-enolpyruvylshikimate-3-phosphate synthase fusion polypeptide, which chloroplast transit peptide permits the fusion polypeptide to be imported into a chloroplast of a plant cell; and
(c) a 3' non-translated region which encodes a polyadenylation signal which functions in plant cells to cause the addition of polyadenylate nucleotides to the 3' end of the RNA;
the promoter being heterologous with respect to the coding sequence and adapted to cause sufficient expression of the fusion polypeptide to enhance the glyphosate resistance of a plant cell transformed with the gene.

('835 patent, col. 32, ll. 31-47) The chimeric gene is claimed using functional language. "The functional language is, of course, an additional limitation in the claim." K-2 Corp. V. Salomon, 191 F.3d 1356, 1363 (Fed. Cir. 1999). The phrase, "which chloroplast transit peptide permits the fusion polypeptide to be imported into a chloroplast of a plant cell," modifies the coding sequence of the gene. This functional language requires that the gene contain a coding sequence for RNA encoding a chloroplast transit peptide ("CPT") that permits the fusion polypeptide to be imported into a chloroplast of "a plant cell." The claim also describes the promoter being adapted to cause sufficient expression of the fusion polypeptide to enhance glyphosate resistance of "a plant cell transformed with the gene." Thus, the claim uses the broad language of "a plant cell" in its limitations.

The issue raised at bar is how the enablement requirement plays out with broad functional language.

Functional terminology may render a claim quite broad. By its own literal terms a claim employing such language covers any and all embodiments which perform the recited function. Legitimate concern often properly exists, therefore, as to whether the scope of protection defined thereby is warranted by the scope of enablement indicated and provided by the description contained in the specification.

In re Swinehart, 439 F.2d 210, 1032 (C.C.P.A. 1971). Section 112 requires that the patent specification enable "those skilled in the art to make and use the full scope of the claimed invention without 'undue experimentation.'" Koito Mfg. Ltd. v Turn-Key-Tech, LLC, 381 F.3d 1142, 1155 (Fed. Cir. 2004) (citing Genentech, Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1365 (Fed. Cir. 1997); Amgen Inc v. Hoechst Maion Roussel, Inc., 314 F.3d 1313, 1334 (Fed. Cir. 2003) (holding that the enablement requirement requires that the specification teach those in the art enough that they can make and use the invention without "undue experimentation"). "The scope of the [patent] claims must be less than or equal to the scope of the enablement. The scope of enablement, in turn, is that which is disclosed in the specification plus the scope of what would be known to one of ordinary skill in the art without undue experimentation." Nat'l Recovery Techs. v. Magnetic Separation Sys., In.c, 166 F.3d 1190, 1196 (Fed. Cir. 1999); see also In re Goodman, 11 F.3d 1046, 1050 (Fed. Cir. 1993) ("[T]he specification must teach those of skill

in the art 'how to make and how to use the invention as broadly as it is claimed'.").

In In re Vaeck, 947 F.2d 488 (Fed. Cir. 1991), the Federal Circuit held that the PTO did not err in rejecting applicants' generic claims to hybrid genes and transformed cells. More specifically, the patent application in Vaeck related to a genetically engineered bacterium capable of expressing an insecticidal protein. Applicants transformed cyanobacterial host cells with a Bacillus gene that expresses an insecticidal protein and a DNA promoter. The specification disclosed "two particular species of Bacillus (B. thuringiensis, B. sphaericus) as sources of insecticidal protein; and nine genera of cyanobacteria (Synechocystis, Anacystis, Synechococcus, Agmenellum, Aphanocapsa, Gloecapsa, Nostoc, Anabaena and Ffremyllia) as useful hosts." It set forth two working examples, which used the same cyanobacteria strain (Synechocystis 6803) with different promoters. Claim 1 was to "A chimeric gene capable of being expressed in Cyanobacteria cells" Other claims were to preferred Bacillus species, promoters, and selectable markers, and to hybrid plasmid vectors and bacterial strains and cyanobacterium with the claim 1 chimeric gene.

The PTO examiner and Board rejected all the claims, except the claim limited to the deposited plasmid, for want of enabling disclosure, relying on "the relatively high degree of

unpredictability in this particular art": "[T]he claims ... are not limited to any particular genus or species of cyanobacteria" and "the cyanobacteria are a diverse and relatively poorly studied group of organisms, comprising some 150 different genera, and ... heterologous gene expression in cyanobacteria is 'unpredictable.'" The applicants appealed, arguing that their invention is "pioneering," which entitles them to claims of broad scope and that narrower claims would provide no real protection, because the level of skill in this art is so high and art workers could easily avoid the claims. Applicants argued that given the disclosure in their specification, "any skilled microbiologist could construct vectors and transform many different cyanobacteria, using a variety of promoters and Bacillus DNA, and could easily determine whether or not the active Bacillus protein was successfully expressed by the cyanobacteria." Id. at 495.

The Federal Circuit affirmed the rejection:

Taking into account the relatively incomplete understanding of the biology of cyanobacteria **as of appellants' filing date**, as well as the limited disclosure by appellants of particular cyanobacterial genera operative in the claimed invention, we are not persuaded that the PTO erred in rejecting [the claims, except dependent claim 47, which is limited to the Anacystis and Synechocystis cyanobacterium genera, and claim 48, which is limited to Synechocystis 6803] under § 112, first paragraph. **There is no reasonable correlation between the narrow disclosure in appellants' specification and the broad scope of protection sought in the claims encompassing gene expression in any and all cyanobacteria**

In so doing we do not imply that patent applicants in art areas currently denominated as

"unpredictable" must never be allowed generic claims encompassing more than the particular species disclosed in their specification. It is well settled that patent applicants are not required to disclose every species encompassed by their claims, even in an unpredictable art. . . . **However, there must be sufficient disclosure, either through illustrative examples or terminology, . . . to teach those of ordinary skill how to make and how to use the invention as broadly as it is claimed.** This means that the disclosure must adequately guide the art worker to determine, without undue experimentation, which species among all those encompassed by the claimed genus possess the disclosed utility. Where . . . a claimed genus represents a diverse and relatively poorly understood group of microorganisms, the required level of disclosure will be greater than, for example, the disclosure of an invention involving a "predictable" factor such as a mechanical or electrical element.

Id. at 496 (emphasis added).⁵

Similar to Vaeck, the state of the relevant art at the time of filing the '835 patent was unpredictable.⁶ The patent is directed to transforming plant cells, both monocots and dicots, with specific genes. The parent patent, from which the '835 patent originates, was filed July 7, 1986. Defendants have cited extensive prior litigation establishing that in 1986, a person of skill in the art could not transform a monocot. Indeed, the

⁵Accord Enzo Biochem, Inc. v. Calgene, Inc., 188 F.3d 1362 (Fed. Cir. 1999) (the Federal Circuit concluding that the "breadth of enablement in the patent specifications [was] not commensurate in scope with the claims, as the quantity of experimentation required to practice antisense in cells other than E. coli at the filing date would have been undue").

⁶No genuine issue of material fact is raised as to this issue.

Federal Circuit has consistently found that claims directed to plants or plant cells generally were not enabled in and around 1986. See In re Goodman, 11 F.3d 1046 (Fed. Cir. 1993) (relying on a 1987 article, found no effective method of transforming cells from monocot plants as of 1985); Plant Genetic Sys., N.V. v. DeKalb Genetics Corp., 315 F.3d 1335 (Fed. Cir. 2003) (affirming the district court's findings that, as of March 11, 1987, no method existed for the transformation of monocot plants or plant cells; therefore, the claims to plant cells and methods of making plant cells were not enabled).

Plaintiffs do not dispute the fact that, as of 1986, no method existed for one of skill in the art to transform monocot plant cells. Plaintiffs instead argue that, because the claims are not directed to a plant cell but, rather, are directed to a gene which functions in a plant, the disclosure need not be enabling for both monocots and dicots. The summary judgment motion, consequently, revolves around the issue of whether monocots **and** dicots must be enabled when the claim is directed to a gene that functions in a plant cell.

Although none of the cases cited above are precisely on point, nevertheless, the analyses highlight several propositions. First, unlike most of the cases cited, where the question was whether undue experimentation by those of skill in the art was

required for enablement of the claimed invention,⁷ it is undisputed by plaintiffs that those of skill in the art could not transform monocot plant cells with the chimeric gene claimed in the '835 patent as of the filing date of the '835 patent.

Second, the fact that the patentee amended the claim language to distinguish "plant cell" and "gene" claims (found by the examiner to be enabled) from "plant" claims (found by the examiner to not be enabled for monocots) is less than compelling in light of the subsequent analyses of the Federal Circuit in Vaeck, 947 F.2d at 496, and PGS v. DeKalb, 315 F.3d at 1344. Therefore, the court concludes that plaintiffs cannot avoid the enabling requirement by claiming a gene that functions in plant cells rather than claiming plants transformed by a gene.

V. CONCLUSION

For the reasons discussed above, defendants' motions for summary judgment are granted. An order consistent with this memorandum opinion shall issue.⁸

⁷See, e.g., Johns Hopkins University v. CellPro, Inc., 152 F.3d 1342, 1361 (Fed. Cir. 1998) (the Federal Circuit rejected an enablement challenge where it was not satisfied that the unsuccessful attempts to produce the full scope of the claimed invention were consistent with the level of ordinary skill in the art or with the patent's teachings).

⁸For purposes of appeal, and consistent with the above conclusions of law, the court adopts the claim construction proposed by defendants (D.I. 309) in connection with the asserted claims of the '880 and '863 patents. For purposes of appeal, and consistent with the above conclusions of law, the court adopts the claim construction proposed by defendants (D.I. 309) in

connection with the asserted claims of the '835 patent, except for the construction of "chloroplast transit peptide", which shall be: "A chloroplast transit peptide is a naturally occurring series of amino acids that causes the transport of a polypeptide into a chloroplast."

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O R D E R

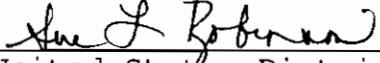
At Wilmington this 10th day of May, 2006, consistent with the memorandum opinion issued this same date;

IT IS ORDERED that:

1. Defendants' motions for summary judgment (D.I. 208, 213) are granted.

2. Unless the parties bring to the court's attention any outstanding issues that need to be addressed or a reason to

continue with the trial, judgment shall be entered for
defendants.⁹



United States District Judge

⁹The remaining outstanding motions (D.I. 199, 201, 205, 211, 220, 241 and 310) are denied as moot.