

United States Court of Appeals for the Federal Circuit

02-1011

PLANT GENETIC SYSTEMS, N.V.
(now known as Aventis CropScience N.V.),

Plaintiff-Appellant,

and

BIOGEN, INC.,

Plaintiff,

v.

DEKALB GENETICS CORPORATION,

Defendant-Appellee.

Eric H. Weisblatt, Burns, Doane, Swecker & Mathis, L.L.P., of Alexandria, Virginia, argued for plaintiff-appellant. With him on the brief were Susan J. Dadio, R. Danny Huntington, and Barbara Webb Walker.

John F. Lynch, Howrey Simon Arnold & White, LLP, of Houston, Texas, argued for defendant-appellee. With him on the brief were Thomas A. Miller, and Richard L. Stanley. Of counsel on the brief Daniel T. Shvodian, Howrey Simon

Arnold & White, LLP, of Menlo Park, California. Of counsel was Hemant H. Kewalramani, Howrey Simon Arnold & White, LLP, of Houston, Texas.

Appealed from: United States District Court for the District of Connecticut

Judge Dominic J. Squatrito

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DECIDED: January 13, 2003

Before NEWMAN, MICHEL, and PROST, Circuit Judges.

MICHEL, Circuit Judge.

Plant Genetic Systems, N.V. (“PGS”) appeals the September 7, 2001 decision of the United States District Court for the District of Connecticut, Plant Genetic Sys., N.V. v. DeKalb Genetics Corp., 175 F. Supp. 2d 246 (D. Conn. 2001), entering judgment for the accused infringer, DeKalb Genetics

Corporation (“DeKalb”), on all counts of the complaint in this patent infringement suit. The case was tried to the bench for thirteen days. At the end of the trial, the district court concluded that claims 1-5 and 10-11 of PGS’ patent, U. S. Pat. No. 5,561,236 (“the ’236 patent”), were invalid for lack of enablement and that claims 8-9 and 12-15, the remaining asserted claims, were not infringed. Id. at 270. Because as to enablement, the defendant established a need for undue experimentation and as to non-infringement, that the properly construed claims did not cover the defendant’s products, we affirm.

BACKGROUND

This case involves only one patent, the ’236 patent, which claims a priority date of March 11, 1987. The patent issued on October 1, 1996 to inventors from PGS and Biogen Corporation and is directed to transgenic plant cells, plants, and seeds. DeKalb makes and sells transgenic corn seeds. PGS sued DeKalb for patent infringement the day the ’236 patent issued.

The ’236 patent and DeKalb’s transgenic corn products relate to the herbicide-resistant characteristics of a plant or plant cell. Non-selective herbicides may indiscriminately kill most plants by blocking an essential biochemical process of these plants -- metabolizing ammonia via the action of glutamine synthetase. Thus, these herbicides are also called glutamine synthetase inhibitors. Two structurally-related compounds, bialaphos and glufosinate, are such herbicides. It has been desirable to obtain food plants that are resistant to non-selective herbicides. Herbicide-resistant plants can grow in the presence of the herbicide that kills other unwanted plants or weeds.

The ’236 patent teaches a plant cell, or a plant or seed containing such a cell, that is genetically engineered so that the cell can produce a protein that prevents herbicides such as bialaphos or glufosinate from blocking the function of glutamine synthetase. The mechanism of the engineering is to incorporate into the genome of the plant cell a gene (today called either the bar gene or the pat gene)^[1], the protein product of which can inactivate a glutamine synthetase inhibitor.

The claims in issue are claims 1-5 and 8-15. Claims 1-5 and 10-11 include the cell, tissue and culture claims and are referred to, post, as “the cell claims.” This group of claims all depends on claim

1, which reads:

A plant cell having a heterologous DNA stably integrated into its genome; said DNA comprising a heterologous DNA fragment encoding a protein having an acetyl transferase activity which inactivates a glutamine synthetase inhibitor in said cell.

Claims 8-9 and 12-15 are referred to by the parties and herein as the “plant and seed claims.”

Claim 8 is representative of this group of claims and reads:

A plant which consists of the cells of claim 1 and which is susceptible to infection and transformation by *Agrobacterium* and capable of regeneration thereafter.

A key issue of this case is the scope of both sets of the claims, i.e., what kind of plants or plant cells are covered by the claims. Flowering plants can be broadly categorized as monocotyledons (“monocots”) and dicotyledons (“dicots”), depending on whether the initial development of the seed produces one leaf (monocot) or two leaves (dicot). In the ’236 patent, all the working examples are dicots, for example, tomato, potato, and tobacco plants. However, the accused infringing product made and sold by DeKalb is corn -- a monocot. Additionally, the scientific community was not able to transform monocots until after it first transformed dicots. Thus, it is disputed whether the cell claims of the ’236 patent, which are agreed by the parties literally to cover all plant cells, were enabled for monocots on March 11, 1987. It is also disputed whether the plant and seed claims are correctly interpreted to exclude monocots, therefore leaving DeKalb’s corn products outside the scope of these claims.

The district court, at its thirteen-day bench trial, heard evidence on various transformation techniques and the chronology of scientific progress regarding monocot transformation. Plant Genetic Sys., 175 F. Supp. 2d at 255-64. At the end, the court found that despite the teachings of the specification, practicing stable gene transformation for monocot cells in 1987 required undue experimentation and, thus, the cell claims of the ’236 patent were proven invalid for lack of enablement. Id. at 265.

The district court also construed the limitation “susceptible to infection and transformation by *Agrobacterium* and capable of regeneration” that was added to the plant and seed claims during prosecution to overcome the Examiner’s rejection for non-enablement. The court held that a person skilled in the art at the time the parent application was filed would have understood the plant and seed claims to exclude monocots. *Id.* at 266-68. The court additionally considered trial testimony that no methodology existed as of the effective filing date of the ’236 patent by which monocots could be infected and transformed by *Agrobacterium* to produce plants capable of regeneration. *Id.* at 268-69. The court viewed this testimony as further supporting its claim construction. Thus, the court held that DeKalb’s transgenic corn products could not infringe the plant and seed claims because corn is indisputably a monocot. *Id.* at 269-70.

Both the invalidity and non-infringement holdings have been appealed.

DISCUSSION

Enablement is ultimately a question of law which this court reviews *de novo*. *Durel Corp. v. Osram Sylvania Inc.*, 256 F.3d 1298, 1307 (Fed. Cir. 2001). However, the factual findings underlying the legal conclusion are reviewed for clear error. *PPG Indus., Inc. v. Guardian Indus. Corp.*, 75 F.3d 1558, 1564 (Fed. Cir. 1996). Claim constructions are reviewed *de novo*. *Cybor Corp. v. FAS Techs.*, 138 F.3d 1448, 1454-55 (Fed. Cir. 1998) (*en banc*).

I

PGS asks this court to reverse the district court’s invalidity decision regarding claims 1-5 and 10-11 because, PGS asserts, the district court (A) failed to make any findings regarding the pioneering nature of the invention claimed in the ’236 patent; (B) improperly shifted the burden of proof to the patentee to establish enablement; (C) failed to consider all of the relevant evidence; and (D) misused post-effective filing date work in its enablement determination. After considering each of PGS’ arguments, for the reasons set forth below we conclude that the district court did not clearly err in its

evidentiary findings and did not err in its conclusion that DeKalb had proven non-enablement by clear and convincing evidence.

A

PGS argues that the '236 patent is a pioneer patent and thereby entitled to a broad scope of coverage and lower standard of enablement. PGS asserts that, in failing to make any findings regarding the pioneering status of the invention of the '236 patent, the district court committed reversible error.

A patent application is required to “contain a written description of the invention, and of the manner and process of making and using it . . . as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same.” 35 U.S.C. § 112, ¶ 1 (2000). “To be enabling, the specification of the patent must teach those skilled in the art how to make and use the full scope of the claimed invention without ‘undue experimentation.’” Genentech Inc. v. Novo Nordisk A/S, 108 F.3d 1361, 1365 (Fed. Cir. 1997) (quoting In re Wright, 999 F.2d 1557, 1561 (Fed. Cir. 1993)). Enablement is determined as of the effective filing date of the patent, In re Hogan, 559 F.2d 595, 604 (CCPA 1977), which, it is undisputed, is March 11, 1987.

We reject appellant’s argument that the district court erred for making no finding on whether the claimed invention was “pioneering.” Such a finding was unnecessary to the disposition of this case. We have previously affirmed a lack-of-enablement rejection by the United States Patent and Trademark Office (“PTO”) without addressing the “pioneering” issue. In re Vaeck, 947 F.2d 488, 495-96 (Fed. Cir. 1991). Even in Hogan, on which PGS heavily relies, the Court of Customs and Patent Appeals stated, in addressing the Board of Patent Appeals’ failure to consider the “pioneer” status of appellants’ invention, that “[w]hether appellants’ invention is of ‘pioneer’ status is not before us and bears no relation to our decision herein, though such status may influence the decision required on remand.” Hogan, 559 F.2d at 602 n.10. Thus, we hold that the district court’s failure here to make findings on the “pioneer” status of the '236 patent, without more, was not erroneous.

Further, even assuming the court had made such a finding, and properly, PGS’ argument that the

'236 patent is thereby entitled to a lower enablement requirement is not supported by precedents. The first paragraph of 35 U.S.C. § 112 effectively requires that “the scope of the claims must bear a reasonable correlation to the scope of enablement provided by the specification to persons of ordinary skill in the art.” In re Fisher, 427 F.2d 833, 839 (CCPA 1970) (holding that the appellant, who was the first to achieve a potency of greater than 1.0 for adrenocorticotrophic hormones (“ACTHs”), had not enabled the preparation of ACTHs having potencies much greater than 2.3, and the claim recitations of potency of “at least 1” rendered the claims insufficiently supported under the first paragraph of 35 U.S.C. § 112). To determine whether there is a reasonable correlation between the scope of the claims and the scope of enablement, the degree of predictability of the relevant art may need to be considered. Id.; Vaeck, 947 F.2d at 495.

PGS notes that Fisher also stated that “such an inventor should be allowed to dominate the future patentable inventions of others where those inventions were based in some way on his teachings.” Fisher, 427 F.2d at 839. This dictum, however, only sets the context for Fisher’s holding that “[i]t is equally apparent, however, that [the inventor] must not be permitted to achieve this dominance by claims which are insufficiently supported and hence not in compliance with the first paragraph of 35 USC 112.” Id.

PGS also argues that the courts should consider the effect of Hogan on the principles set forth by Fisher. However, we do not agree with PGS that Hogan alters the principles set forth in Fisher and commands an outcome favorable to PGS. In Hogan, a patent application, having a priority date in 1953, claimed a solid polymer of propylene. Although the claims were not limited to the crystalline form of the polymer but also encompassed amorphous forms, amorphous propylene did not exist until 1962. Hogan, 559 F.2d at 605. The methods disclosed in the specification were not able to produce amorphous polymers that later became possible to produce. Id. On appeal from a Board of Patent Appeals decision that the application was not enabling as to how to prepare amorphous propylene, the Court of Customs and Patent Appeals held that the PTO erred in relying on the later state of the art in assessing enablement. Id. at 605-07. The court remanded the enablement issue for consideration of whether the application was enabling in view of the state of the art existing in 1953. Id. at 609.

We do not read Hogan as allowing an inventor to claim what was specifically desired but difficult to obtain at the time the application was filed, unless the patent discloses how to make and use it. In Hogan, amorphous propylene, on the record before the court, was not known or in existence when the application was filed. In the present case, however, monocots existed in 1987 and stably-transformed monocot cells were highly desirable. PGS indeed asserts that monocot cells were already being stably transformed. Thus, monocots and stably transformed monocot cells were not an unknown concept that came into existence only after 1987. But stably transformed monocot cells were difficult to produce, and the '236 patent gave no instruction how.

Moreover, Hogan cannot be read to assist “improper enforcement against later developers.” Id. at 607. Hogan simply held that one could not use a later-existing state of the art to invalidate a patent that was enabled for what it claimed at the time of filing. In addressing the issue of whether a claim may be of sufficient breadth to cover the later state of the art, Hogan stated:

The business of the PTO is patentability, not infringement. Like the judicially-developed doctrine of equivalents, designed to protect the patentee with respect to later-developed variations of the claimed invention, the judicially-developed “reverse doctrine of equivalents,” requiring interpretation of claims in light of the specification, may be safely relied upon to preclude improper enforcement against later developers.

Id. If the present case were comparable to Hogan, PGS could avoid invalidation of the cell claims by at least asserting that these claims were not understood by those skilled in the art as encompassing monocots when the '236 patent was filed. However, PGS concedes that the cell claims cover monocot cells. Only by doing so can PGS sue DeKalb, which makes monocot products, for infringement. Having agreed that the cell claims encompass monocot cells, a later development, PGS' reliance on Hogan ignores the validity-infringement differentiation Hogan made.

Regarding PGS' extensive citation of statements from Hogan such as that pioneering inventions “deserve broad claims to the broad concept,” id. at 606, we conclude that they are taken out of context and thus unconvincing. As the concurrence in Hogan pointed out, these statements are “extended

dicta.” Id. at 610. We do not need to address all of the insightful comments made by the concurring judge; it is sufficient for the present case that we hold the district court did not err in not applying Hogan’s dicta to its enablement analysis.

PGS also cites Hormone Research Foundation Inc. v. Genentech, Inc., 904 F.2d 1558, 1568 (Fed. Cir. 1990), for its proposition that “a rigid application of the enablement requirement cannot be permitted to destroy the incentives in our patent system that encourage the early disclosure of pioneering inventions.” In Hormone Research, the enablement challenge focused on the lack of disclosure regarding how to make the compound as later produced with higher purity and potency. This court vacated a summary judgment of non-enablement because, inter alia, it was not clear from the record whether the technology of making the compound of higher purity and potency existed at the time the application was filed, and therefore, “[f]urther factual developments as to the state of the art at the date of the application . . . [were] required.” Id. at 1568-69.

Again, PGS relies on dicta from Hormone Research but ignores the holding of the case. In both Hogan and Hormone Research, which relied on Hogan, compounds having better qualities did not seem to be in existence on the date when the patent applications were filed, but the claims (albeit with a narrower scope) might be nevertheless enabled in view of the state of the art then existing. In the present case, PGS does not allege that monocots or stably transformed monocot cells were not in existence in 1987 or that the cell claims were enabled in 1987 under the standard enablement analysis. Instead, PGS attempts to use the dicta from Hogan and Hormone Research to expand the coverage of claims, yet create a new, lower standard of enablement.

We conclude that the law does not support PGS’ assertion that the ’236 patent is entitled to both a broad scope of coverage and a lower standard of enablement. The extended dicta PGS cites cannot be used to alter the holdings of these precedents. PGS’ reliance on Hogan and related cases is misplaced. DeKalb distinguishes these cases from the present one on the ground that each of these cases involves a method to make the claimed invention as of the filing date and a later-developed state of the art pertaining to an improved version of the patented invention, i.e., having better properties than originally

possible, while the '236 patent did not disclose any method of achieving transgenic monocots and, therefore, the later development with monocots was not merely an improvement. In view of our analysis as stated above, we need not treat DeKalb's argument.

B

PGS next argues that the district court improperly shifted a burden to prove enablement to it when the burden of proving non-enablement properly rests on the accused infringer. We do not agree that the district court did so. The district court, at the outset of its opinion, properly stated that "all United States patents enjoy a presumption of validity" and that "the burden of proving that the '236 patent is not enabled rests squarely with DeKalb." Plant Genetic Sys., 175 F. Supp. 2d at 253-54. Furthermore, the district court specified that DeKalb "bears the burden of presenting clear and convincing evidence that the cell claims were not enabled as of March 11, 1987, the effective filing date of the 236 patent." Id. at 254. After analyzing various cell transformation techniques available in 1987, the district court concluded that "the defendant has shown by clear and convincing evidence that the cell claims of the '236 patent were not enabled." Id. at 265.

PGS asserts that the district court shifted the burden of proof to PGS because it improperly used In re Goodman, 11 F.3d 1046 (Fed. Cir. 1993). In analyzing the Agrobacterium-mediated transformation method, the district court used, as a starting point, Goodman, which held that Goodman's patent claims covering all "plant cells," filed in 1985, were not enabled because the record showed that no reliable Agrobacterium-mediated transformation method for use with monocots existed in 1985. Plant Genetic Sys., 175 F. Supp. 2d at 256-57. The court then proceeded to determine whether, on the evidence in this case, reliable Agrobacterium-mediated transformation methods developed for monocots between 1985 and 1987. Id. at 258-62. PGS believes that, by adopting findings in Goodman for the state of art in 1985 and then looking for evidence between 1985 and 1987 to alter the Goodman conclusion, the district court shifted DeKalb's burden to prove non-enablement to PGS' burden to show enablement.

We conclude that the district court did not shift the burden of proof to PGS by using Goodman as

a starting point. There is no assertion that the district court excluded evidence that could rebut the findings of Goodman. Thus, Goodman was not used as an “irrebuttable factual presumption[],” as PGS asserts. The district court would have improperly used Goodman if the court used Goodman to show the state of art in 1985 regardless of evidence showing results contrary to Goodman. This was not the case.

Neither did the district court shift the burden of proof to PGS when it looked for any evidence between 1985 and 1987 that could alter Goodman’s findings on Agrobacterium-mediated monocot transformation. The district court’s search for such evidence of enablement merely indicated the strength of the evidence of non-enablement, rather than a shift of the burden to prove enablement to PGS. We hold that the district court did not commit legal error in using Goodman as a starting point and then looking for any subsequent evidence, before it concluded that DeKalb proved non-enablement by clear and convincing evidence.

C

PGS argues that the district court failed to consider all of the relevant evidence before reaching its conclusion of non-enablement. PGS asserts that the district court committed legal error by not considering a 1987 abstract by Goldman, Graves, and Roberts, a 1988 publication of Rhodes et al. that referred to a 1986 work of Fromm, and three patents, U.S. Patent Nos. 5,177,010, 5,187,073, and 6,020,539,^[2] awarded for Goldman and Graves’ 1986 method of transforming corn seedlings.

The fact that the district court did not in its opinion recite every piece of evidence does not mean that the evidence was not considered. FMC Corp. v. Hennessy Indus., Inc., 836 F.2d 521, 524 (Fed. Cir. 1987). “We presume that a fact finder reviews all the evidence presented unless he explicitly expresses otherwise.” Medtronic, Inc. v. Daig Corp., 789 F.2d 903, 906 (Fed. Cir. 1986). “The ultimate test of the adequacy of findings is whether they are sufficiently comprehensive and pertinent to the issue to form a basis for the decision (and whether they are supported by the evidence).” Id. (quoting Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 873 (Fed. Cir. 1985)).

No evidence shows that the district court did not consider the documents that PGS cites. According to DeKalb, all these allegedly ignored documents were presented at trial, but found unpersuasive in view of the evidence of non-enablement. The district court indeed heard numerous pieces of evidence in the thirteen-day trial and issued a thorough decision discussing various transformation techniques at issue. See Plant Genetic Sys., 175 F. Supp. 2d at 250-65. The court found that, in view of the publication itself and the testimony from other researchers, Goldman and Graves' 1986 publication did not enable one to transform corn cells using Agrobacterium without undue experimentation. Id. at 258-62. The court made the same finding regarding Fromm's electroporation method published in 1986. Id. at 262-63.

We thus do not agree with PGS that the district court ignored the 1987 abstract, the three patents, and the publication of Rhodes et al. These documents relate to the 1986 work of Goldman and Graves or that of Fromm. The district court, after weighing all evidence, apparently found that the 1986 work of Goldman and Graves and that of Fromm did not enable one skilled in the art to stably transform corn cells without undue experimentation. The district court did not commit legal error for not reciting the documents that referred to or originated from the publications of Goldman and Graves and Fromm. Neither did it clearly err in finding that certain pieces of evidence had more weight than others or were more worth discussing.

Having held that the district court did not clearly err in its evidentiary findings, it is not necessary for us to address DeKalb's arguments that (1) the data published in the 1987 abstract by Goldman et al. were characterized by an expert as "extremely questionable," (2) PGS' assertion regarding the abstract conflicts with its later request for research funding to determine the feasibility of maize transformation by A. tumefaciens, and (3) the presumed validity of the three patents allegedly based on Goldman and Graves' 1986 work cannot be used as irrebuttable proof that one skilled in the art was able, in 1987, to practice the invention of the cell claims of the '236 patent, and that the district court considered evidence not available to the PTO in evaluating the weight of these three patents.

D

PGS further argues that the district court misused post-filing-date work in its non-enablement determination. PGS states that the district court erred in using work relevant to a later-existing state of the art to test whether the cell claims were enabled in 1987.

We do not agree with PGS' characterization of the district court's analysis. The district court indeed cited post-1987 reports indicating first transformation of corn cells. However, as Hogan stated:

This court has approved use of later publications as evidence of the state of art existing on the filing date of an application. That approval does not extend, however, to the use of a later . . . publication disclosing a later (1962) existing state of the art in testing an earlier (1953) application for compliance with § 112, first paragraph. The difference may be described as that between the permissible application of later knowledge about art-related facts existing on the filing date and the impermissible application of later knowledge about later art-related facts . . . which did not exist on the filing date.

Hogan, 559 F.2d at 605. Clearly, the district court looked into post-1987 reports to determine whether monocot cells were readily transformable in 1987 rather than to show that monocot cells could be successfully transformed in 1990. Report of a first success after 1987 indicates failure or difficulty in or before 1987. Thus, the district court properly used later reports as evidence of the state of the art existing in 1987.

We have considered PGS' other arguments regarding enablement of the cell claims, including its reliance on an unpublished district court decision,^[3] and find them unpersuasive.^[4] To the contrary, we conclude that the district court properly conducted its enablement analysis under In re Wands, 858 F.2d 731 (Fed. Cir. 1988), before reaching its conclusion that stable transformation of monocot cells required undue experimentation on March 11, 1987. The district court did not commit the legal error asserted by PGS. Nor did the court clearly err in its evidentiary findings. We therefore uphold the district court's conclusion that the cell claims are invalid because they were proven by clear and convincing evidence not to have been enabled by the specification of the '236 patent in view of the then-state of the art.

II

PGS asks this court to reject the district court's claim construction for the plant and seed claims and, therefore, reverse its non-infringement decision.

The district court construed the added limitation "susceptible to infection and transformation by *Agrobacterium* and capable of regeneration" of the plant and seed claims to mean that, at the time the patent application was originally filed, a person skilled in the art would understand the claim limitation to exclude monocots. Plant Genetic Sys., 175 F. Supp. 2d at 266-68. The specification of the '236 patent does not disclose any method or working examples for so transforming monocot plants or cells. However, the district court found this not to be determinative in excluding monocots from the claim coverage. On the other hand, the court found that, during the prosecution of the patent application, the patentees disclaimed monocots when they added the limitation of "susceptible to infection and transformation by *Agrobacterium* and capable of regeneration" to overcome the examiner's non-enablement rejection, which was based on the fact that "there [was] no evidence that fertile transgenic plants [could] be regenerated in most agronomic monocots, as in the case of maize or rice." Id. at 267-68 (citing the Examiner's Office Action dated April 17, 1989) (emphasis added). Finally, the court considered trial testimony asserting that no methodology existed in 1987 that could transform monocots with *Agrobacterium* to produce plants capable of regeneration. It accepted that testimony. The district court held that the plant and seed claims did not cover monocots such as corn ("maize"), and accordingly, DeKalb's transgenic corn products could not infringe the plant and seed claims.

A

PGS argues that the district court ignored the plain meaning of the claim language. As written, claims 8-9 and 12-15 literally cover any plant or seed that consists of the cells of claim 1 and is "susceptible to infection and transformation by *Agrobacterium* and capable of regeneration." PGS asserts that the lack of the word "dicot" in these claims indicates that these claims are not so limited.

We hold that the district court did not ignore the plain meaning of the claims, but properly gave objective meaning to them as they were understood at the time the patent application was filed. Claims are to be given their ordinary and objective meaning as of the time of the invention. Kopykake Enters.,

Inc. v. Lucks Co., 264 F.3d 1377, 1383 (Fed. Cir. 2001). “[W]hen a claim term understood to have a narrow meaning when the application is filed later acquires a broader definition, the literal scope of the term is limited to what it was understood to mean at the time of filing.” Id. (citation omitted).

Although we agree that lack of any disclosure on monocot transformation in the specification is not determinative, the prosecution history of the ’236 patent shed light on the meaning of the plant and seed claims as they were understood at the time of filing. During prosecution of the patent application, the patentees added the limitation “susceptible to infection and transformation by *Agrobacterium* and capable of regeneration” to overcome the Examiner’s rejection of non-enablement as to monocots, including “maize” (corn). Before the limitation was added, the Examiner cited the lack of evidence on monocot transformation and regeneration and the “undue amount of experimentation [required] to set forth the conditions necessary for plant cell transformation and/or plant regeneration for the different plants as broadly claimed [as] in the instant application.” The Examiner’s Office Action, April 17, 1989. We conclude that the plant and seed claims were only allowed because the limitation on transformation and regeneration was added. Thus, patentees amended the plant and seed claims effectively to exclude monocots from the claims. This conclusion is inescapable even though neither the word “dicots” appears in the claims as a positive limitation, nor the word “monocots” as a limitation of exclusion. Therefore, based on prosecution history alone, the claims at issue cannot cover corn or any other monocots.

B

PGS also argues that the district court erred in considering extrinsic evidence to construe claims 8-9 and 12-15. We disagree. PGS’ assertion that the district court “improperly relied upon extrinsic evidence . . . to change the plain and ordinary meaning of the claim” is without merit.

To properly construe claims, a court must always examine the claims, the rest of the specification, and, if in evidence, the prosecution history. Vitronics Corp. v. Conceptor, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996). However, Vitronics does not bar the courts from ever considering extrinsic evidence. Pitney Bowes, Inc. v. Hewlett Packard Co., 182 F.3d 1298, 1308 (Fed. Cir. 1999). In fact, “it is entirely appropriate, perhaps even preferable, for a court to consult trustworthy extrinsic evidence to ensure that the claim construction . . . is not inconsistent with clearly expressed, plainly apposite and widely held understandings in the pertinent technical field.” Id.

We hold that the district court did not abuse its discretion in admitting or otherwise err in considering or relying on such extrinsic evidence. The court first examined intrinsic evidence such as the specification and the prosecution history, which, it determined, indicated that addition of the

limitation on transformation by Agrobacterium and regeneration was intended and understood to exclude monocots. Plant Genetic Sys., 175 F. Supp. 2d at 267-68. Having so determined, the district court consulted extrinsic evidence to ensure that its interpretation of the claim language was not inconsistent with the understanding in the technical field as of the filing date of the patent. Such use of extrinsic evidence is permitted.

We thus conclude that the district court did not err in its construction that claims 8-9 and 12-15 covered only dicots. Because DeKalb's allegedly infringing products are unquestionably monocots, the district court properly found that the plant and seed claims were not infringed. At the least, its finding of non-infringement cannot be viewed as clearly erroneous.

CONCLUSION

We hold that the district court did not err in concluding that claims 1-5 and 10-11 were proven by defendant to be invalid for lack of enablement. We also hold that the district court correctly construed claims 8-9 and 12-15 to exclude monocots and therefore could not have erred, much less clearly erred, in holding that these claims were not infringed. Accordingly, the judgment of the district court is, in all respects challenged on appeal,

AFFIRMED.

[1] The *bar* gene is also widely used as a selectable marker, whose herbicide resistance character can help determine whether other genes linked to it have also been incorporated into a cell.

[2] These three patents issued in 1993 and 2000 from either divisional or continuation-in-part applications that were based on one abandoned application filed on June 30, 1986.

[3] Chiron Corp. v. Abbott Labs., No. C-93-4380, 1996 WL 209717 (N.D. Cal. Apr. 23, 1996).

[4] At the oral argument on appeal, PGS also stated that the district court erred by applying evidence of difficulties in monocot plant transformation to monocot cells. We conclude that the district court did not clearly err in its evidentiary findings. Regarding enablement of the cell claims, although the court used the words “corn transformation” or “transform corn” in its analysis of post-1985 developments in Agrobacterium-mediated transformation, it clearly was addressing the issue of corn-cell transformation rather than transformation and regeneration of a whole corn plant. Plant Genetic Sys., 175 F. Supp. 2d at 258-62. Additionally, the court’s analysis of electroporation and microprojectile bombardment as well as its conclusion drawn to the cell claims unambiguously focused on corn cells rather than plants.