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Paper 32
Entered: April 11, 2013

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MONSANTO COMPANY
Petitioner,

v.

PIONEER HI-BRED INTERNATIONAL, INC.
Patent Owner

Case IPR2013-00023 (SGL)
Patent 6,162,974

Before SALLY GARDNER LANE, MICHAEL P. TIERNEY, and LORA M. GREEN.

GREEN, *Administrative Patent Judge*.

DECISION
Denying Inter Partes Review
37 .F.R. § 42.108

I. BACKGROUND

Monsanto Company ("Monsanto") filed a Petition requesting *inter partes* review of U.S. Patent No. 6,162,974 on October 17, 2012. (Pet., Paper 1.) Patent Owner, Pioneer Hi-Bred International, Inc. ("Pioneer") filed a Preliminary Response on January 17, 2013. (Prelim. Resp., Paper 14.) We have jurisdiction under 35 U.S.C. §§ 6(b) and 314.

The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which states:

> THRESHOLD. -- The Director may not authorize an inter partes review to be instituted unless the Director determines that the information presented in the petition filed under section 311 and any response filed under section 313 shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.

Inter partes review is instituted only if the petition supporting the ground demonstrates "that there is a reasonable likelihood that the petitioner would prevail with respect to at least one of the claims challenged in the petition." 37 C.F.R. § 42.108(c). In making that determination, the Board considers both the Petition and the Preliminary Response of the Patent Owner. *Id.*

Monsanto challenges the patentability of claims 1-11 of the '974 patent (Pet. 1). We determine that the record before us does not demonstrate that there is a reasonable likelihood that Monsanto would prevail with respect to at least one challenged claim. We thus decline to institute *inter partes* review of the '974 patent, and the Petition is DENIED.

A. Related Proceedings

Monsanto indicates that the ’974 patent is the subject of litigation styled in *Pioneer Hi-Bred Int’l, Inc. v. Monsanto Co.*, Civ. No. 4:11-cv-00497-JAJ-RAW (S. D. Iowa). (Pet. 5). In addition, Patent No. 5,518,989, which is a continuation of the parent of the ’974 patent, is the subject of a Petition for *inter partes* review in IPR2013-00022, which was filed concurrently with the instant Petition on October 17, 2012.

B. The ’974 Patent

The ’974 patent describes a method of enhancing the quality of maize seed (Ex. 1011, Abstract). In particular, the method involves defoliating maize plants after pollination (*id*. at col. 1, ll. 13-15).

The ‘974 patent teaches that seed vigor is a concept used to describe rapid, uniform emergence of plants and the development of normal seedlings under a wide range of field conditions (*id*. at col. 1, ll. 50-55). Seed vigor is said to be enhanced by subjecting a stand of maize plants to defoliation within a certain range of times after the pollination of the plant (*id*. at col. 2, ll. 30-32). Generally, the patent describes defoliating the plant at between 600 and 850 growing degree days (“GDDs”) after pollination, with growing degree days said to be a recognized standard in the art as evidenced by a 1986 NATIONAL CORN HANDBOOK (*id*., col. 2, ll.39-42, and col. 3, ll. 47-49).

The examples of the ’974 patent demonstrate that enhanced seed vigor is not necessarily obtained when the maize plants are defoliated in the 600 to 850 growing degree day time frame. Specifically, the patent examples demonstrate that enhanced seed vigor is also dependent on other factors, such as when the seed is harvested (*see, e.g., id.* at col. 5, Example 1; col. 6, Example 2).

C. Representative Claims

Monsanto challenges claims 1-11, which are all of the claims, of the '974 patent. Claims 1, 8 and 10 are the independent claims, and read as follows:

1. A maize seed assemblage having enhanced seed vigor, wherein said seed assemblage is obtained by the method comprising the steps of:

(a) reducing functional leaf area in substantially all of a stand of maize plants, wherein said reducing is effected at between about 600 and about 850 GDDs after pollination of said plants, and

(b) harvesting said stand to obtain an assemblage of seeds, wherein said seed assemblage is characterized by a level of seed vigor that is enhanced relative to the level of seed vigor in a seed assemblage harvested from a comparison stand of maize plants not subjected to said reducing of functional leaf area.

8. A stand of maize plants in combination with a maize seed assemblage having enhanced seed vigor, wherein said stand of maize plants remains foliated until about 600 to about 850 GDDs after pollination and wherein said seed assemblage is obtained by the method comprising the steps of:

(a) defoliating said stand of maize plants, wherein said defoliating is effected at between about 600 and about 850 GDDs after pollination of said plants, and

(b) harvesting said stand to obtain an assemblage of seeds, wherein said seed assemblage is characterized by a level of seed vigor that is enhanced relative to the level of seed vigor in a seed assemblage harvested from a comparison stand of maize plants not subjected to said defoliation.

10. A stand of maize plants producing a maize seed assemblage having enhanced seed vigor, wherein said stand of maize plants remains foliated until about 600 to about 850 GDDs after pollination and wherein said seed assemblage is obtained by the method comprising the steps of:

(a) defoliating said stand of maize plants, wherein said defoliating is effected at between about 600 and about 850 GDDs after pollination of said plants, and

(b) harvesting said stand to obtain an assemblage of seeds, wherein said seed assemblage is characterized by a level of seed vigor that is enhanced relative to the level of seed vigor in a seed assemblage harvested from a comparison stand of maize plants not subjected to said defoliation.

As to the claims dependent on claim 1, dependent claim 2 specifies that the reduction in functional leaf area is accomplished by mechanical means. Dependent claim 3 specifies that the reduction in functional leaf area is accomplished by chemical means, while dependent claims 4-7 specify that the chemical method is herbicide, with certain components of the herbicidal compositions specified.

Dependent claims 9 and 11, which are dependent on claims 8 and 10 respectively, specify that the defoliation comprises reducing the functional leaf area in substantially all the stand of maize plants.

D. Prior Art Relied Upon

Monsanto relies upon the following prior art references:

James L. Hunter ("Hunter"), "Relationship between the Stage of Corn Seed Maturation and Assimilate Supply, Assimilate Uptake, and Seed Quality," *Ph.D. Dissertation*, University of Kentucky (June 1989) (Ex. 1002).

B.L. Vasilas and R.D. Seif ("Vasilas"), "Effect of Defoliating Corn Inbreds on Seed Quality," 10 J. SEED TECH. 121-128 (1986) (Ex. 1004).

Alcantara and Wyse ("Alcantara"), "Glyphosate as a Harvest Aid for Corn (*Zea mays*)," 2 WEED TECH. 410-413 (1988) (Ex. 1006).

D.J. Major ("Major"), "Effect of Simulated Frost Injury Induced by Paraquat on Kernel Growth and Development in Corn," 60 CAN. J. PLANT SCI. 419-426 (1980) (Ex. 1007).

Hunter ("Hunter 1988"), "Seed Maturation and Vigor in Corn (Zea Mays L.) as Influenced by Defoliation," Agronomy Abstracts, Am. Soc. Agronomy 1988 Annual Meetings (1988) (Ex. 1003).

Albrecht et al. ("Albrecht"), U.S. Patent No. 5,491,125, issued February 13, 1996 (Ex. 1008).

B.L. Vasilas and R.D. Seif ("Vasilas 1985"), "Defoliation Effects on Two Corn Inbreds and their Single-Cross Hybrid," 77 AGRONOMY J. 816-820 (1985) (Ex. 1005).

E. The Asserted Challenges

Monsanto challenges the patentability of claims of the '989 patent on the following grounds.

i. Claims 1, 2, and 8-11 are anticipated by Hunter (Pet. 12).

ii. Claims 1, 2, and 8-11 are anticipated by Vasilas (*id.* at 20).

iii. Claims 1, 3-5, and 8-11 are anticipated by Alcantara (*id.* at 24).

iv. Claims 1, 3-5, and 8-11 are anticipated by Major (*id.* at 29).

v. Claims 1-5 and 8-11 are rendered obvious by Hunter (*id.* at 34).

vi. Claims 1-5 and 8-11 and rendered obvious by the combination of Hunter and Hunter 1988 (*id.* at 36).

vii. Claims 1-5 and 8-11 are rendered obvious by the combination of Hunter and Alcantara (*id.* at 41).

viii. Claims 6 and 7 are rendered obvious by the combination of Hunter, Alcantara, and Albrecht (*id.* at 58).

ix. Claims 1-5 and 8-11 are rendered obvious by the combination of Hunter and Major (*id.* at 45).

x. Claims 6 and 7 are rendered obvious by the combination of Hunter, Major, and Albrecht (*id.* at 58).

xi. Claims 1-5 and 8-11 are rendered obvious by the combination of Vasilas and Vasilas 1985 (*id.* at 49).

xii. Claims 1-5 and 8-11 are rendered obvious by the combination of Vasilas and Alcantara (*id.* at 51).

xiii. Claims 6 and 7 are rendered obvious by the combination of Vasilas, Alcantara, and Albrecht (*id.* at 58).

xiv. Claims 1-5 and 8-11 are rendered obvious by the combination of Vasilas and Major (*id.* at 54).

II. ANALYSIS

A. Prior Art Challenges

As identified above, the challenged claims require both defoliating within a specified GDD time frame and obtaining enhanced seed vigor. As discussed below, we conclude that Monsanto has failed to demonstrate that there is a reasonable likelihood that the prior art anticipates and/or renders obvious such claim limitations.

1. Growing Degree Days - Declaration of Dr. Joseph S. Burris

Monsanto relies upon the declaration of Dr. Burris (Ex. 1016) to establish that the prior art references teach and/or provide a reason to defoliate maize plants within the claimed 650 to 800 GDD timeframe. Pioneer, however, disagrees with Dr. Burris' conclusions and contends that the declaration is entitled to little weight, as Dr. Burris "withheld the data and calculations that underlie his opinions" (Prelim. Resp. 1).

37 C.F.R § 42.65(a) states, in relevant part:

> Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight.

We agree with patent owner that Dr. Burris' declaration is entitled to little weight. Specifically, Dr. Burris' declaration fails to provide sufficient underlying

data such that one of ordinary skill in the art would have a reasonable basis to believe that his growing degree day calculations and conclusions are correct.

Absent Dr. Burris' declaration, Monsanto has failed to identify sufficient credible evidence to establish that the prior art meets the GDD limitation of the claims. That is, the prior art references relied upon by Monsanto do not discuss the number of GDDs between pollination and defoliation. Therefore, absent Dr. Burris' Declaration, Monsanto has not provided sufficient evidence to demonstrate that the prior art references anticipate or render obvious the limitation that the plants were defoliated between about 600 and about 850 GDDs after pollination of the plants, as required by all of the challenged claims. As we do not credit Dr. Burris' declaration with respect to his GDD calculations and conclusions, we conclude that Monsanto has failed to demonstrate that there is a reasonable likelihood that the prior art renders the challenged claims unpatentable.

2. Enhanced Seed Vigor

With the exception of the Hunter and Vasilas references, Monsanto relies upon the doctrine of inherency to demonstrate that enhanced seed vigor is obtained from the prior art defoliation techniques. Specifically, Monsanto relies upon Dr. Burris' declaration to establish that enhanced seed vigor was obtained in prior art references relied upon. For example, Dr. Burris states:

> Because Alcantara discloses defoliation of maize between about 600 and about 850 GDDs after pollination and harvesting a seed assemblage, and thus discloses the same steps as claim 1 of the '974 patent, Alcantara's maize plants must necessarily have had enhanced vigor relative to a comparison stand of maize plants that had not undergone such defoliation.

(Ex. 1016, p. 77, ¶ 85).

Enhanced seed vigor is not a necessary result when maize plants are defoliated during the time frames specified by the claims. Specifically, as demonstrated by the '974 patent, maize plants may be subjected to defoliation within the specified time frame but enhanced seed vigor is not obtained. (Ex. 1011, e.g., Example 2). As Dr. Burris has not provided a sufficient and credible explanation as to why the ordinary artisan would have expected enhanced seed vigor we do not credit his conclusions that the prior art inherently teaches enhanced seed vigor. Further, Dr. Burris' declaration fails to establish that there would have been a reasonable expectation of successfully obtaining enhanced seed vigor as neither the '974 patent nor Dr. Burris' declaration identify the specific conditions necessary to achieve such a result.

III. CONCLUSION

Monsanto has failed to demonstrate that there is a reasonable likelihood that the petitioner would prevail with respect to at least one of the claims challenged in the petition. Accordingly, we decline to institute *inter partes* review of Patent No. 6,162,974.

IV. ORDER

For the forgoing reasons, it is

ORDERED that the Petition is denied as to claims 1-11 of the '974 patent.

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