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Paper 21
Date: March 11, 2022

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RICETEC, INC.,
Petitioner,

v.

BASF SE,
Patent Owner.

PGR2021-00114
Patent 11,096,346 B2

Before ULRIKE W. JENKS, TINA E. HULSE, and ROBERT A. POLLOCK, *Administrative Patent Judges.*

HULSE, *Administrative Patent Judge*.

DECISION
Granting Institution of Post-Grant Review
35 U.S.C. § 324

I. INTRODUCTION

RiceTec, Inc. ("Petitioner") filed a Petition requesting a post-grant review of claims 1–17 of U.S. Patent No. 11,096,346 B2 (Ex. 1001, "the '346 patent"). Paper 2 ("Pet."). BASF SE ("Patent Owner") filed a Corrected Preliminary Response. Paper 16 ("Prelim. Resp."). With our authorization, Petitioner filed a Reply to Patent Owner's Preliminary Response (Paper 18, "Reply"), and Patent Owner filed a Sur-Reply (Paper 20).

We have authority under 35 U.S.C. § 324(a), which provides that a post-grant review may not be instituted "unless . . . the information presented in the petition . . ., if such information is not rebutted, would demonstrate that it is more likely than not that at least 1 of the claims challenged in the petition is unpatentable." Upon considering the arguments and evidence presented by the parties, we determine Petitioner has demonstrated that it is more likely than not that at least one of the claims challenged in the Petition is unpatentable.

A. Real Parties-in-Interest

In the Petition, Petitioner identifies itself, RiceTec AG, Agritec Ventures Corporation, and Makhteshim Agan of North America, Inc. d/b/a ADAMA as the real parties-in-interest to this proceeding. Pet. 4. Patent Owner identifies itself as the real party-in-interest. Paper 6, 1.

B. Related Proceedings

Petitioner states that they are unaware of any related matters. Pet. 4. Patent Owner identifies PGR2021-00113, involving U.S. Patent No. 11,096,345, as related to the '346 patent. Paper 6, 1.

C. The '346 Patent

The '346 patent "generally relates to treatment of domestic rice crop plants for the control of weeds." Ex. 1001, 1:27–28. According to the specification, domestic rice tolerant to imidazolinone herbicides have been developed, but imidazolinone herbicide-tolerant red rice and weeds have emerged. *Id.* at 1:49–56.

The '346 patent explains that Acetyl-Coenzyme A carboxylase ("ACCase") enzymes are involved in the fatty acid synthesis pathway in plant chloroplasts. *Id.* at 1:57–59. ACCase enzymes are inhibited by three classes of herbicidal active ingredients: aryloxyphenoxypropanoates ("FOPs"), cyclohexanediones ("DIMs"), and phenylpyrazolines ("DENs"). *Id.* at 1:65–2:3. ACCase-inhibitor-tolerance ("AIT") mutations that are tolerant toward DIM and FOP herbicides have been found in monocot weed species and maize. *Id.* at 2:4–6. According to the '346 patent, it would be advantageous to provide rice that is tolerant to DIMs and FOPs. *Id.* at 2:12–14. The specification explains, however, that "[i]n some cases, herbicide-tolerance-inducing mutations create a severe fitness penalty in the tolerant plant." *Id.* at 2:15–17. The '346 patent therefore states that "there remains a need in the art for an AIT rice that also exhibits no fitness penalty." *Id.* at 2:17–19.

The '346 patent describes a method for treating rice that includes the steps of providing a domestic rice crop plant and at least one ACCase-inhibiting FOP herbicide and applying an effective amount of the herbicide to the domestic rice crop plant, post-emergence, to create a treated rice plant. *Id.* at 2:24–34. The '346 patent describes embodiments in which the domestic rice crop plant includes and expresses "an endogenous non-transfected mutant ACCase nucleic acid whose sequence encodes a multi-

functional, plastidic ACCase containing a mutation that causes the ACCase to be tolerant to the herbicide." *Id.* at 2:37–41. The mutation can be selected from I1781L, G2096S, and W2027C. *Id.* at 2:43–45.

D. Illustrative Claim

Petitioner challenges claims 1–17 of the '346 patent, of which claim 1 is the only independent claim. Claim 1 is illustrative and is reproduced below:

> 1. A method for treating rice, comprising:
>
> (i) providing at least one ACCase-inhibiting aryloxyphenoxypropanoate herbicide selected from the group consisting of quizalofop, an ester of quizalofop, an enantiomer of quizalofop, and an agriculturally acceptable salt of quizalofop;
>
> (ii) providing a domestic rice crop plant grown from seed, the domestic rice crop plant comprising and expressing an endogenous non-transfected mutant ACCase nucleic acid whose sequence encodes a multi-functional, plastidic ACCase containing a mutation selected from the group consisting of I1781L (Am), G2096S (Am), and W2027C (Am) that causes the ACCase to be tolerant to the herbicide, the nucleic acid thereby providing to the plant tolerance to the aryloxyphenoxypropanoate herbicide;
>
> (iii) applying an effective amount (measured in grams of active ingredient per hectare (g AI/Ha)) of the at least one aryloxyphenoxypropanoate herbicide to the domestic rice crop plant, post-emergence; thereby creating a treated rice plant; and
>
> (iv) growing the treated rice plant,
>
> wherein the effective amount of the at least one ACCase inhibiting aryloxyphenoxypropanoate herbicide is 14 g AI/Ha[1] to 40 g AI/Ha of quizalofop or an ester of quizalofop, or an amount equivalent to 14 g AI/Ha to 40 g AI/Ha of quizalofop or

[1] "g AI/Ha" refers to grams of active ingredient per hectare.

an ester of quizalofop, and

wherein the effective amount of the aryloxyphenoxypropanoate herbicide causes less than 10% injury to the rice plant in field applications, wherein the injury to the rice plant is evaluated 2-3 weeks after herbicide treatment.

Ex. 1001, 269:55–271:5.

E. The Asserted Grounds of Unpatentability

Petitioner challenges claims 1–17 of the '346 patent based on the grounds set forth in the table below.

Claims Challenged	35 U.S.C. §	Reference(s)/Basis
1–17	112	Written Description
1–17	112	Enablement
1–17	102(a)(1)	Hinga[2]
5–10	103	Hinga, Hinga2013[3]
11, 12	103	Hinga, Anyszka[4]
13, 14	103	Hinga, Hinga2013, Assure II,[5] Maneechote[6]

Petitioner also relies on the Declaration of Dale Shaner, Ph.D. (Ex. 1002). Patent Owner relies on the Declaration of Dr. Nilda Roma-Burgos (Ex. 2003).

F. Person of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art "would have been a person with a Ph.D. in plant molecular biology, plant physiology,

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[2] US 2015/0038331 A1, published Feb. 5, 2015 (Ex. 1003).
[3] US 2013/0023416 A1, published Jan. 24, 2013 (Ex. 1004).
[4] *The response of snap bean and barnyardgrass (Echinochloa crus-galli) on quizalofop-P-tefuryl*, 51 Vegetable Crops Research Bulletin 95–102 (January 1999) (Ex. 1006).
[5] Assure II label, E. I. du Pont de Nemours and Co. (1999) (Ex. 1005).
[6] *Resistance to ACCase-inhibiting herbicides in sprangletop (Leptochloa chinensis),* 53 Weed Science 290–95 (May 2005) (Ex. 1007).

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