

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*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 328(a)

I. INTRODUCTION

RiceTec, Inc. (“Petitioner”) filed a Petition requesting post-grant review of claims 1–17 of U.S. Patent No. 11,096,36 B2 (Ex. 1001, “the ’346 patent”), which is owned by BASF SE (“Patent Owner”). Paper 2 (“Pet.”). After considering the Petition, Preliminary Response (Paper 16, “Prelim. Resp.”), Petitioner’s pre-institution Reply (Paper 18), and Patent Owner’s pre-institution Sur-reply (Paper 20), we instituted post-grant review of the challenged claims of the ’345 patent. Paper 21 (“Institution Decision” or “Dec. Inst.”).

After institution, Patent Owner filed a Response (Paper 24, “PO Resp.”), Petitioner filed a Reply (Paper 27, “Pet. Reply”), and Patent Owner filed a Sur-reply (Paper 29, “PO Sur-reply”). A consolidated oral argument was held in this proceeding and PGR2021-00113 on December 13, 2022, and a copy of the transcript was entered into the record. Paper 34 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6, and we issue this Final Written Decision under 35 U.S.C. § 328(a) and 37 C.F.R. § 42.73. For the reasons discussed below, we conclude that Petitioner has proven by a preponderance of the evidence that claims 1–17 of the ’346 patent are unpatentable.

A. *Real Parties-in-Interest*

In the Petition and supplemental mandatory notices, Petitioner identifies itself, Agritec Ventures Corporation, Makhteshim Agan of North America, Inc. d/b/a ADAMA, Liechtenstein Group Holding AG, and Liechtenstein Group AG as the real parties-in-interest to this proceeding. Pet. 4; Paper 3, 1; Paper 11, 1. Patent Owner identifies itself as the real party-in-interest. Paper 6, 1.

B. Related Proceedings

Petitioner states that it is unaware of any related matters. Pet. 4. Patent Owner identifies PGR2021-00113, involving U.S. Patent No. 11,096,345, as related to this proceeding. Paper 6, 1.

C. The '346 Patent

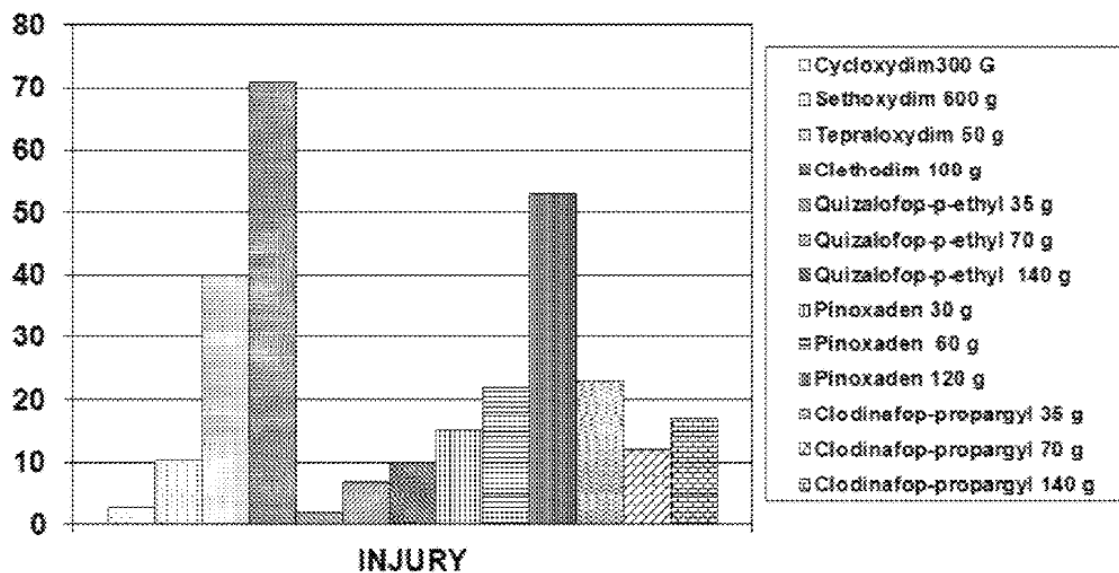
The '346 patent “generally relates to treatment of domestic rice crop plants for the control of weeds.” Ex. 1001, 1:27–28. The '346 patent explains that Acetyl-Coenzyme A carboxylase (“ACCCase”) enzymes are involved in the fatty acid synthesis pathway in plant chloroplasts. *Id.* at 1:57–59. ACCCase enzymes are inhibited by three classes of herbicidal active ingredients: aryloxyphenoxypropanoates (“FOPs”), cyclohexanediones (“DIMs”), and phenylpyrazolines (“DENs”). *Id.* at 1:65–2:3. ACCCase-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 ACCCase-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 2:22–34. The '346 patent also describes embodiments in which the domestic rice crop plant includes and expresses “an endogenous non-transfected ACCCase 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,¹ G2096S,² and W2027C.³ *Id.* at 2:43–45.

The ’346 patent describes in Example 8 the results of one study testing the tolerance of AIT rice sown into a field to various herbicides in varying amounts. *Id.* at 68:55–70:3. The results for the AIT rice are shown in Figure 20B, reproduced below:

Figure 20B



¹ I1781L refers to a mutation from isoleucine (I) to leucine (L) at position 1781 of the amino acid sequence of ACCase using a numbering system based on *Alopercurus myosuroides*, which is referenced as “(Am).” See Ex. 1002 ¶ 36; Ex. 2036 ¶ 37.

² G2096S refers to a mutation from glycine (G) to serine (S) at position 2096 of the ACCase enzyme (Am). See Ex. 1002 ¶ 36; Ex. 2036 ¶ 37.

³ W2027C refers to a mutation from tryptophan (W) to cysteine (C) at position 2027 of the ACCase enzyme (Am). See Ex. 1002 ¶ 36; Ex. 2036 ¶ 37.

Figure 20B depicts the amount of injury to various herbicides applied at varying rates, including quizalofop-p-ethyl at rates of 35, 70, and 140 g AI/Ha.⁴ Ex. 1001, Fig. 20B.

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 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 an ester

⁴“g AI/Ha” refers to grams of active ingredient per hectare.

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