

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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RICETEC, INC.,  
Petitioner,

v.

BASF SE,  
Patent Owner.

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PGR2021-00113  
Patent 11,096,345 B2

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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 1–15 of U.S. Patent No. 11,096,345 B2 (Ex. 1001, “the ’345 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 PGR2021-00114 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 1–15 of the ’345 patent are unpatentable.

### A. *Real Parties-in-Interest*

In the Petition and supplemental mandatory notices, Petitioner identifies itself, Liechtenstein Group Holding AG, Liechtenstein Group 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. 5; 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. 5. Patent Owner identifies PGR2021-00114 (“-114 PGR”), involving U.S. Patent No. 11,096,346, as related to this proceeding. Paper 6, 1.

*C. The '345 Patent*

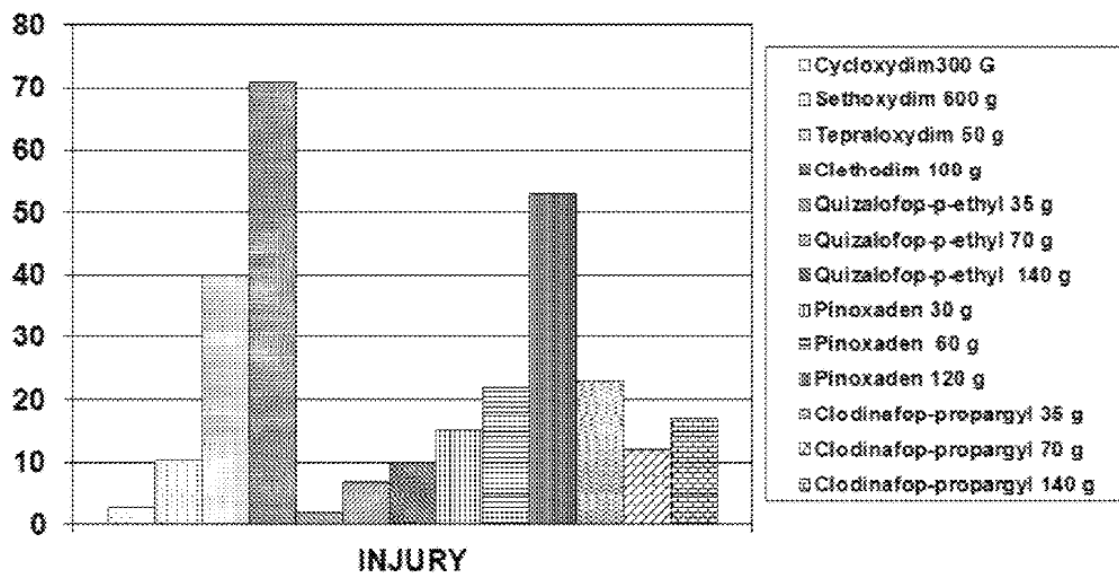
The '345 patent “generally relates to treatment of domestic rice crop plants for the control of weeds.” Ex. 1001, 1:24–25. The '345 patent explains that Acetyl-Coenzyme A carboxylase (“ACCCase”) enzymes are involved in the fatty acid synthesis pathway in plant chloroplasts. *Id.* at 1:54–56. ACCCase enzymes are inhibited by three classes of herbicidal active ingredients: aryloxyphenoxypropanoates (“FOPs”), cyclohexanediones (“DIMs”), and phenylpyrazolines (“DENs”). *Id.* at 1:62–67. ACCCase-inhibitor-tolerance (“AIT”) mutations that are tolerant toward DIM and FOP herbicides have been found in monocot weed species and maize. *Id.* at 2:1–3. According to the '345 patent, it would be advantageous to provide rice that is tolerant to DIMs and FOPs. *Id.* at 2:8–10. The Specification explains, however, that “[i]n some cases, herbicide-tolerance-inducing mutations create a severe fitness penalty in the tolerant plant.” *Id.* at 2:12–14. The '345 patent therefore states that “there remains a need in the art for an AIT rice that also exhibits no fitness penalty.” *Id.* at 2:14–16.

The '345 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 2:21–31. The '345 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 2:34–38. The mutation can be selected from I1781L,<sup>1</sup> G2096S,<sup>2</sup> and W2027C.<sup>3</sup> *Id.* at 2:40–42.

The ’345 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 69:8–70:13. The results for the AIT rice are shown in Figure 20B, reproduced below:

**Figure 20B**



<sup>1</sup> 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 ¶ 37; Ex. 2036 ¶ 37.

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

<sup>3</sup> W2027C refers to a mutation from tryptophan (W) to cysteine (C) at position 2027 of the ACCase enzyme (Am). See Ex. 1002 ¶ 37; 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<sup>4</sup> and clodinafop-propargyl at rates of 35, 70, and 140 g AI/Ha. Ex. 1001, Fig. 20B.

*D. Illustrative Claim*

Petitioner challenges claims 1–15 of the '345 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:

(A) providing

(1) a domestic rice crop plant grown from seed, the domestic rice crop plant

(a) comprising and expressing an endogenous nontransfected 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); and

(b) possessing a phenotype of tolerance to quizalofop or an ester thereof, fluazifop or an ester thereof, clodinafop, clodinafop-propargyl, or diclofop or diclofop methyl, wherein said plant exhibits less than 10% herbicide injury to a field application of

at least 70 g AI/[H]a to 140 g AI/Ha of clodinafop-propargyl,

at least 11 g AI/Ha to 34 g AI/Ha of clodinafop,

at least 56 g AI/Ha to 140 g AI/Ha of fluazifop or an ester thereof,

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

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