

**United States Court of Appeals
for the Federal Circuit**

MONSANTO TECHNOLOGY LLC,
Appellant

v.

E.I. DUPONT DE NEMOURS & COMPANY,
Appellee

2017-1032

Appeal from the United States Patent and Trademark
Office, Patent Trial and Appeal Board in No. 95/002,028.

Decided: January 5, 2018

MATTHEW JAMES HILMERT, Winston & Strawn LLP,
Chicago, IL, argued for appellant.

MICHAEL J. FLIBBERT, Finnegan, Henderson,
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argued for appellee. Also represented by CORA RENAE
HOLT, MAUREEN DONOVAN QUELER.

Before DYK, REYNA, and WALLACH, *Circuit Judges*.

WALLACH, *Circuit Judge*.

Appellee E.I. DuPont de Nemours & Co. (“DuPont”) sought inter partes reexamination of various claims of Appellant Monsanto Technology LLC’s (“Monsanto”) U.S. Patent No. 7,790,953 (“the ’953 patent”). The U.S. Patent and Trademark Office’s (“USPTO”) Patent Trial and Appeal Board (“PTAB”) issued a final decision that affirmed an examiner’s rejection of claims 1, 7, 12–22, 24, and 27–30 (“the Asserted Claims”) as anticipated by U.S. Patent No. 6,426,448 (“Booth”), and of, inter alia, claim 2 as obvious over Booth. *See E.I. DuPont de Nemours & Co. v. Monsanto Tech. LLC*, No. 2015-007692, 2016 WL 4255131, at *3 (P.T.A.B. Aug. 10, 2016).

Monsanto appeals. We have subject matter jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A) (2012). We affirm.

BACKGROUND

I. The Patented Technology

Entitled “Soybean Seed and Oil Compositions and Methods of Making Same,” the ’953 patent claims a two-step process for crossing (mating) two parent soybean lines to produce soybean seeds with a modified fatty acid profile. *See* ’953 patent col. 111 ll. 34–67; *id.* col. 1 ll. 31–37. The ’953 patent describes “the combination of transgenes that provide both moderate oleic acid levels and low saturated fat levels with soybean germplasm that contains mutations in soybean genes that confer low linolenic acid phenotypes.” *Id.*, Abstract. Claim 1, which was amended during the reexamination, is the sole independent claim and is illustrative.¹ It recites:

¹ Monsanto has not separately argued the patentability of the remaining Asserted Claims, so all Asserted Claims rise and fall with claim 1. *See Kennametal, Inc. v.*

A method of obtaining a soybean plant with an altered seed oil fatty acid composition comprising the steps of:

(a) crossing a first soybean parent line having a seed oil fatty acid composition comprising a linolenic acid content of *about 3% or less*^[2] of total seed fatty acids by weight with a second soybean parent line having a seed oil fatty acid composition wherein the i) level of oleic acid is greater than about 55% of total seed fatty acids by weight, or ii) wherein both the level of saturated fatty acid is about 8% or less of total seed fatty acids by weight and the level of oleic acid is greater than about 55% of total seed fatty acids by weight, said second soybean parent line comprising either a transgene that decreases the expression of an endogenous soybean FAD2-1 gene to provide the level of oleic acid greater than about 55% of total seed fatty acids by weight of said second parent soybean line of (i); or both a transgene that decreases the expression of an endog-

Ingersoll Cutting Tool Co., 780 F.3d 1376, 1385 (Fed. Cir. 2015) (stating that “we need not, and do not, separately analyze whether the [PTAB] correctly found [unpatentability] even as to the additional limitations recited in the [remaining] claims” because the appellant “did not argue for the independent patentability of any of [the remaining] claims”). We treat claim 2 separately in our review of the PTAB’s obviousness findings.

² “A ‘low linolenic’ oil composition contains less than about 3% linolenic acid by weight of the total fatty acids by weight.” ’953 patent col. 13 ll. 3–4.

enous soybean FATB gene and a trans gene that decreases the expression of an endogenous soybean FAD2-1 gene to provide the level of saturated fatty acid of about 8% or less by weight and the level of oleic acid greater than about 55% of total seed fatty acids by weight of said second parent soybean line of (ii); and

(b) obtaining a progeny^[3] plant exhibiting a seed oil fatty acid composition comprising a linolenic acid content of *about 3% or less* of total fatty acids by weight and also comprising either i) an oleic acid level in the range of [about] 55% to [about] 80% of total seed fatty acids by weight, or ii) both a saturated fatty acid level of about 8% or less of total seed fatty acids by weight and an oleic acid level of [about] 55% to [about]

³ When a single cross of two soybean parent lines results in multiple generations of plants, each generation is referred to as a “progeny.” ’953 patent col. 11 ll. 8–15. Relevant here, when referring to progeny of a particular generation, the ’953 patent uses an identifier to specify the generation. For example, it uses the term “F1 progeny” (“F1”) to refer to the first generation progeny from a cross of two plants and the term “F2 progeny” (“F2”) to refer to the second generation of progeny from that cross (i.e., the first cross of the first progeny). *Id.* col. 11 ll. 8–9, 12–13; *e.g., id.* col. 4 l. 50, col. 5 l. 34, col. 7 l. 29, col. 8 ll. 12–13. The ’953 patent also uses the term “progeny” without a generation identifier to refer more broadly to any generation of progeny plants, *see, e.g., id.* col. 5 l. 66, col. 6 l. 26, col. 8 l. 46, col. 13 l. 26, and uses designations such as “F2:3” to distinguish separate batches of the second generation of progeny, *e.g., id.* col. 25 l. 53.

80% of total seed fatty acids by weight, thereby obtaining a soybean plant with an altered seed oil fatty acid composition.

J.A. 329–30 (footnotes and emphases added) (alterations in original).⁴

II. Booth

Booth is directed toward a number of soybean crosses aimed at obtaining progeny with desired fatty acid compositions. *See* Booth col. 38 l. 53–col. 45 l. 43 (exs. 5–8), col. 47 l. 53–col. 48 l. 40 (ex. 11). Similar to the '953 patent, Booth discloses a “variety of novel soybean genes that alter oil quality.” *Id.* col. 6 ll. 40–41. Specifically, Booth Example 8 describes a method of crossing two soybean lines, one with a “fan allele” or D3A gene for low linolenic acid content and the other with a D2T gene for high oleic acid content. *See id.* col. 25 l. 45–col. 26 l. 38 (Example 8: “Soybeans with High Oleic Acid and Low Linolenic Acid Content”); *see also id.* tbl. 12 (showing the fatty acid makeup of the selected progeny plants).

During the inter partes reexamination, DuPont submitted two declarations from one of Booth’s named inventors, Dr. Anthony John Kinney (together, “the Kinney Declarations”). J.A. 133–275 (First Kinney Declaration), 359–71 (Second Kinney Declaration). DuPont produced the Kinney Declarations to show data from additional progeny produced by following the disclosed method of Example 8, “including plants not selected for inclusion in

⁴ The bracketed language in amended claim 1 reflect language deleted from the '953 patent as issued. During inter partes reexamination, Monsanto additionally amended claims 2 and 7–11 and submitted new claims 12–30. J.A. 328–34. The dependent claims as amended narrow the scope of the fatty acid or linolenic acid profiles of the progeny plants. *See* J.A. 330–34.

Table 12 of the Booth patent.” J.A. 360 (footnote omitted). Relevant here, the PTAB relied upon the Kinney Declarations to interpret the fatty acid properties of the F2:3 generation because it found the “F2:3 generation results provided in Exhibit A of the Second Kinney Declaration represent[ed] the lines of all resulting progeny” from a cross prepared according to Booth Example 8 and related Table 12 that were not included in Booth Table 12. *E.I. DuPont*, 2016 WL 4255131, at *4 n.9; see J.A. 360 n.1.

DISCUSSION

Monsanto contends that the PTAB erred by: (1) misconstruing the “about 3% or less” limitation in the ’953 patent to include progeny with a linolenic acid content of 4%, Appellant’s Br. 45–50; (2) “rejecting [the Asserted C]laims for anticipation” based on “an unlawful composite” of Booth and the Kinney Declarations, the latter of which Monsanto alleges are non-prior art references, *id.* at 33–34 (capitalization and alterations omitted); see *id.* at 33–50; and (3) employing a legally erroneous “accidental obviousness theory for claim 2,” *id.* at 51 (capitalization and alterations omitted); see *id.* at 50–60. After articulating the applicable standard of review, we address these arguments in turn.

I. Standard of Review

“We review the PTAB’s factual findings for substantial evidence and its legal conclusions de novo.” *Redline Detection, LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 449 (Fed. Cir. 2015) (citation omitted). “Substantial evidence is something less than the weight of the evidence but more than a mere scintilla of evidence,” meaning that “[i]t is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion.” *In re NuVasive, Inc.*, 842 F.3d 1376, 1379, 1380 (Fed. Cir. 2016) (internal quotation marks and citations omitted). If two “inconsistent conclusions may reasonably be drawn from the evidence in record, [the PTAB]’s decision to favor one

conclusion over the other is the epitome of a decision that must be sustained upon review for substantial evidence.” *In re Cree, Inc.*, 818 F.3d 694, 701 (Fed. Cir. 2016) (internal quotation marks and citation omitted).

II. Claim Construction

A. Legal Standard

We review the PTAB’s ultimate claim construction de novo and its underlying factual findings for substantial evidence. *In re CSB-Sys. Int’l, Inc.*, 832 F.3d 1335, 1340 (Fed. Cir. 2016) (citing, inter alia, *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 840–41 (2015)). “During reexamination proceedings of unexpired patents, . . . the [PTAB] uses the broadest reasonable interpretation consistent with the specification standard, or BRI.” *Id.*, 832 F.3d at 1340 (internal quotation marks and citations omitted). A specification “includes both the written description and the claims” of the patent. *In re Packard*, 751 F.3d 1307, 1320 n.11 (Fed. Cir. 2014). A patent’s specification, together with its prosecution history,⁵ constitutes intrinsic evidence to which the PTAB gives priority when it construes claims. *See Microsoft Corp. v. Proxycorr, Inc.*, 789 F.3d 1292, 1297–98 (Fed. Cir. 2015). When the PTAB reviews only evidence intrinsic to the patent, the PTAB’s determination will amount solely to a determination of law, which we review de novo. *See In re CSB-Sys.*, 832 F.3d at 1340.

⁵ A patent’s prosecution history “consists of the complete record of the proceedings before the [US]PTO,” which provides “evidence of how the [US]PTO and the inventor understood the patent.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (citations omitted).

B. The PTAB Properly Construed the “About 3% or Less”
Limitation in Step (a)

The PTAB “reasonably interpreted” Booth’s parent line containing 4% linolenic acid “to be within the scope of ‘about 3%,’” as recited in claim 1 step (a).⁶ *E.I. DuPont*, 2016 WL 4255131, at *6.⁷ Monsanto maintains that the PTAB’s construction is inconsistent with the specification. Appellant’s Br. 45–50; see J.A. 5006 (arguing before the PTAB that a “4% linolenic acid content is outside the scope of a 3% linolenic acid content” (capitalization omitted)).⁸ We disagree.

⁶ Monsanto does not dispute that Booth “meets the definition of the second line in Monsanto’s claimed cross [as it relates to D2T],” Oral Arg. at 11:04–12, <http://oralarguments.cafc.uscourts.gov/default.aspx?fl=2017-1032.mp3>, which includes a separate “about 3% or less” limitation, see J.A. 329–30.

⁷ “Claim construction must . . . be explicit, at least as to any construction disputed by parties.” *Gechter v. Davidson*, 116 F.3d 1454, 1460 (Fed. Cir. 1997). Although the PTAB did not formally label its “about 3%” finding as a claim construction, the Examiner treated the analysis as such, see *E.I. DuPont*, 2016 WL 4255131, at *5, and the PTAB stated that it “agree[s] with” the Examiner, *id.* at *6–7. The parties also treat the finding as a construction on appeal. See Appellant’s Br. 45–50; Appellee’s Br. 43–47. The PTAB’s anticipation analysis is “conducted on a limitation by limitation basis, with specific fact findings for each contested limitation and satisfactory explanations,” *Gechter*, 116 F.3d at 1460 (footnote omitted), and so we have sufficient basis to review the PTAB’s findings here. We thus analyze its findings on the term “about 3%” under our claim construction framework.

⁸ For the first time on appeal, Monsanto proffers a new definition of “*about* 3%” to mean allowing variance

The claim language is not instructive, so we turn to the remainder of the specification. *See Marine Polymer Techs., Inc. v. HemCon, Inc.*, 672 F.3d 1350, 1358 (Fed. Cir. 2012). Indeed, in *Phillips*, we held that the specification “is the single best guide to the meaning of a disputed term.” 415 F.3d at 1315 (internal quotation marks and citation omitted). Here, the specification provides examples, which are “included to demonstrate preferred embodiments of the invention.” ’953 patent col. 29 ll. 64–65. Example 9 describes a parent line designated as the “C1640 line” with “a linolenic acid content of about 3%.” *Id.* col. 45 l. 65; *see id.* col. 45 ll. 64–66. The specification further identifies Wilcox, J.R. et al., *Inheritance of Low Linolenic Acid Content of the Seed Oil of a mutant In Glycine Max*, *Theoretical & Applied Genetics* (1985) (“Wilcox”) as the source of this C1640 line, *see id.* col. 46 ll. 2–5, and Wilcox states that the C1640 line has a range of linolenic acid contents from 2.3% to 4.1%, J.A. 5098. In light of this intrinsic evidence,⁹ we agree with the PTAB’s

from 3% “at the most by tenths of a percent and *not* an entire percentage.” Appellant’s Br. 46 (emphases added). Monsanto never proffered this construction to the PTAB, *see* J.A. 5001–30 (original brief to PTAB), 5052–66 (rebuttal brief to PTAB). While the court “retains case-by-case discretion over whether to apply waiver,” *Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241, 1251 (Fed. Cir. 2005) (citations omitted), we have held that a party waives an argument that it “failed to present to the [PTAB]” because it deprives the court of “the benefit of the [PTAB]’s informed judgment,” *In re NuVasive*, 842 F.3d at 1380 (citation omitted). Accordingly, we find Monsanto’s new claim construction argument waived.

⁹ Neither party discussed further evidence of prosecution history for our review, *see generally* Appellant’s Br.; Appellee’s Br., so we need not address it, *see Teleflex*,

finding that a person having ordinary skill in the art (“PHOSITA”) would reasonably consider “about 3%” to encompass a range that includes 4%. *See E.I. DuPont*, 2016 WL 4255131, at *6.

Monsanto’s counterargument is unavailing. Monsanto maintains that “[e]ven *if* it had been appropriate to construe ‘about 3% or less’ based on Wilcox rather than the specification,” the PTAB erred in “defin[ing] the claims based on the highest, most outlying data point for linolenic acid in Wilcox’s sample” rather than its mean and standard deviation values. Appellant’s Br. 48 (emphasis added). However, Monsanto fails to identify what qualifies as an “outlier” or cite anything in the intrinsic record contradicting the “about 3%” claim interpretation before us. *See generally id.* Accordingly, the PTAB did not err in its construction of the “about 3%” limitation.

III. Anticipation

A. Legal Standard

“Anticipation is a question of fact that we review for substantial evidence.” *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1341 (Fed. Cir. 2016) (citation omitted). Likewise, “[w]hether a claim limitation is inherent in a prior art reference is a question of fact.” *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1328 (Fed. Cir. 2001) (citation omitted).

“A person shall be entitled to a patent unless,” *inter alia*, “the invention was patented . . . more than one year prior to the date of the application for patent in the United States.” 35 U.S.C. § 102(b) (2006).¹⁰ A prior art refer-

Inc. v. Ficosa North Am. Corp., 299 F.3d 1313, 1324 (Fed. Cir. 2002).

¹⁰ Congress amended § 102 when it passed the Leahy-Smith America Invents Act (“AIA”). Pub. L. No.

ence anticipates a patent’s claim under § 102(b) if it “discloses each and every element of the claimed invention arranged or combined in the same way as in the claim.” *Blue Calypso*, 815 F.3d at 1341 (internal quotation marks, alterations, and citation omitted). “[A]nticipation by inherent disclosure is appropriate only when the reference discloses prior art that must *necessarily* include the unstated limitation . . .” *Transclean Corp. v. Bridgewood Servs., Inc.*, 290 F.3d 1364, 1373 (Fed. Cir. 2002) (citation omitted).

B. Substantial Evidence Supports the PTAB’s Finding that Booth Anticipates the Asserted Claims

The PTAB found that Booth anticipates the Asserted Claims, relying in part on the Kinney Declarations, which analyze Booth. The PTAB concluded that Booth discloses step (a) of claim 1 and “the Second Kinney Declaration shows that . . . the progeny of plants obtained” from step (a) “as taught by Example 8 of Booth necessarily includes” plants disclosed in step (b). *E.I. DuPont*, 2016 WL 4255131, at *9; *see id.* at *18 (“[T]he evidence in the Kinney Declarations establishes that carrying out the crosses described by Booth, particularly[] the D2T and *fan* allele cross, would have necessarily resulted in progeny within the scope of claim 1.”).

Monsanto contends that the PTAB’s anticipation findings are not supported by substantial evidence because

112-29, § 3(b)(1), 125 Stat. 284, 285–87 (2011). However, because the application that led to the ’953 patent has never contained a claim having an effective filing date on or after March 16, 2013 (the effective date of the statutory changes enacted in 2011), or a reference under 35 U.S.C. §§ 120, 121, or 365(c) to any patent or application that ever contained such a claim, the pre-AIA § 102 applies. *See id.* § 3(n)(1), 125 Stat. at 293.

the PTAB may not rely on the Kinney Declarations and, when reviewing only intrinsic evidence, Booth Example 8 does not “inevitably produce[] progeny within the scope of [the Asserted C]laims.” Appellant’s Br. 36 (internal quotation marks omitted); *see id.* at 36–45. Monsanto also argues that, if we consider the PTAB’s findings to be based on inherent anticipation, the record does not support a finding that Booth inherently anticipates Monsanto’s claims. *See id.* at 35 (citing to the PTAB’s statement that Booth “*necessarily* includes” progeny within the claim scope as evidence of potential review for inherent anticipation but noting that the PTAB never used the term “inherent” explicitly (emphasis added)).¹¹ We disagree.

1. Substantial Evidence Supports the PTAB’s Finding that Booth Teaches Steps (a) and (b) of the Asserted Claims

Substantial evidence supports the PTAB’s finding that Booth expressly discloses step (a) of claim 1. Step (a) discloses crossing soybean lines having known genetic features—a first parent line having “about 3% or less” seed oil linolenic acid content with a second parent line having a transgene that decreases the expression of the FAD2-1 gene—and, thus, having a seed oil oleic acid content greater than about 55%. ’953 patent col. 111 l. 39; J.A. 329.

Booth Example 8 describes crossing a first parent line containing “either a fan allele or the D3A gene” with a second line containing “the D2T gene.” Booth col. 25

¹¹ Monsanto additionally contends that, “[b]ecause the [PTAB]’s ‘anticipation’ rulings were premised on [an incorrect claim construction], they should be reversed for this additional reason as well.” Appellant’s Br. 50. Because we find the PTAB’s claim construction proper, *see supra* Section II.B, we find this argument unpersuasive.

ll. 49–50. Table 2 of Booth identifies the fatty acid characteristics of the first parent lines that were used. *Id.* tbl. 2; *see* J.A. 135–39. Booth states that the fan allele line in Table 2 has 4% linolenic acid by weight and that the D2T line has a fatty acid content of 85%. Booth tbl. 2; *see* J.A. 136–37. Thus, given our claim construction above that 4% is within the “about 3%” limitation, we find that a fan allele cross of the parent line from Booth anticipates step (a) of claim 1 of the ’953 patent. We further find substantial evidence that Booth teaches that the D2T line contains a transgene that decreases the expression of the FAD2-1 gene, providing 85% seed oil oleic acid levels—thus meeting both the transgene and the “greater than about 55%” seed oil oleic acid requirement for the second parent line of the ’953 patent claim 1 step (a). *See* Booth tbl. 2 (indicating D2T as having an oleic acid content of 85%—oleic being shorthand in the table as column “18:1”); *see also* J.A. 137–39.

Substantial evidence also supports the PTAB’s finding that Booth “necessarily includes” step (b) of the Asserted Claims. *E.I. DuPont*, 2016 WL 4255131, at *7.¹² Step (b) requires “obtaining a progeny plant” having a seed oil fatty acid composition with low levels of linolenic acid (about 3% or less) and oleic acid levels from 55% to 80%. *See* ’953 patent col. 111 ll. 58–67; *see also* J.A. 329. Step (b) does not limit a progeny to a first generation plant. *See* ’953 patent col. 111 ll. 58–67; *see* Oral Arg. at 5:39–41 (conceding by counsel for Monsanto that “[t]he claims don’t require any particular progeny.”). Table 12 of Booth reports seed oil fatty acid profiles of some of those progeny generation plants. *See* Booth tbl. 12; *see also id.* col. 25 ll. 48–65.

¹² We treat the PTAB’s statement as a finding of inherent anticipation for purposes of this appeal.

Monsanto argues that Booth does not anticipate step (b) of claim 1 because Table 12 does not *explicitly* identify a progeny with the fatty acid by weight characteristics of claim 1 step (b), but rather identifies progeny with seed oil oleic acid contents above the '953 patent's claimed ranges, which "forecloses any claim of inherency." Appellant's Br. 37. As the PTAB found, Booth "clearly [informs a PHOSITA] that Table 12 does not represent the full scope of the progeny lines resulting from the cross, but only represents the '[s]ingle plants and family means that were both lowest in linolenic acid content and highest in oleic acid content.'" *E.I. DuPont*, 2016 WL 4255131, at *9 (quoting Booth col. 25 ll. 61–65). Indeed, Booth expressly states that *multiple* generations of plants, including the "F2:3 families" generations not shown in Table 12, were obtained from the cross. *See* Booth col. 25 ll. 48–65. Because Booth describes obtaining many progeny from the cross families of Example 8 but only reports a "select" subset of results in Table 12, *E.I. DuPont*, 2016 WL 4255131, at *4, the "select" subset of Table 12 does not *foreclose* inherency.

Inherent anticipation applies here because the "[Booth] disclosures . . . must *necessarily* include the unstated limitation," *Transclean*, 290 F.3d at 1373, i.e., the progeny line having a seed oil fatty acid composition with low levels of linolenic acid and high levels of oleic acid. The Second Kinney Declaration's D2T and fan allele cross confirm that Booth's F2:3 generation would necessarily result in progeny within the scope of claim 1. *See* J.A. 360, 364–71 (describing and containing resultant fatty acid profile data set for seeds from the F2:3 generation from which the Booth Table 12 plants were self-pollinated to produce F3:4 progeny—of which forty-five have an oleic acid content of 55% to 80% and a linolenic acid content of 3.5% or less, and sixteen have an oleic acid content of between 55% and 80% by weight and a linolenic acid content of 3% or less by weight). As the PTAB ex-

plained, the Kinney Declarations confirm that the cross from step (a) “necessarily includes progeny plants that have an oleic acid concentration and a linolenic acid concentration” as claimed in step (b), *E.I. DuPont*, 2016 WL 4255131, at *7, such that substantial evidence demonstrates that Booth inherently anticipates step (b) of the Asserted Claims as construed.

2. The PTAB Properly Relied Upon the Kinney Declarations

Monsanto maintains that the PTAB impermissibly looked to “non-prior art data” and “secret data” by using the Kinney Declarations to support its anticipation finding. Appellant’s Br. 34; *see id.* at 33–36.¹³ However, Monsanto confuses prior art with extrinsic evidence used to support what is “necessarily present” in a prior art’s teaching. Extrinsic evidence “may be used to interpret the allegedly anticipating reference and [to] shed light on what it would have meant to [a PHOSITA].” *Ciba-Geigy Corp. v. Alza Corp.*, No. 95-1046, 1995 WL 598380, at *2 (Fed. Cir. 1995) (citation omitted); *see In re Baxter Travonol Labs.*, 952 F.2d 388, 390 (Fed. Cir. 1991). We conclude that the PTAB did not err in relying upon the Kinney Declarations.

First, the Kinney Declarations do not expand the meaning of Booth or serve as prior art: they demonstrate what is inherent in Booth progeny with various seed oil fatty acid profiles. *See* J.A. 142 (“[Booth] discloses the benefits of producing an altered seed fatty acid content that favors saturated fatty acids such as oleic acid over

¹³ Monsanto makes the same argument with respect to the PTAB’s obviousness findings. *See* Appellant’s Br. 51, 54. Our finding that the PTAB properly looked to the Kinney Declarations in its anticipation analysis applies equally to the PTAB’s obviousness findings.

polyunsaturated fatty acids such as linolenic acid to improve the health of those ingesting the soybean plant or products made from the soybean plant.”); *see also* J.A. 360 (“Exhibit A shows the fatty acid profiles for seeds from all of the plants resulting from cross described in [Booth] Example 8 . . . including plants not selected for inclusion in Table 12” (footnote omitted)).

Second, the Kinney Declarations are not improper “secret data” simply because they were not published. The Kinney Declarations were not used as the single prior art anticipatory reference for purposes of this appeal. Instead, they were offered in support of the prior art already of record, Booth, for purposes of anticipation. It is well established that such reliance on extrinsic evidence is proper in an inherency analysis. *See Telemac*, 247 F.3d at 1328 (“[R]ecourse to extrinsic evidence is proper to determine whether a feature, while not explicitly discussed, is necessarily present in a reference.” (citation omitted)). Moreover, extrinsic evidence need not antedate the critical date of the patent at issue, *Schering Corp. v. Geneva Pharm., Inc.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003) (“[T]his court rejects the contention that inherent anticipation requires recognition in the prior art.”), nor have contemporaneous recognition by a PHOSITA, *id.* (“[R]ecognition by a [PHOSITA] before the critical date . . . is not required to show anticipation by inherency.”). In addition, the Kinney Declarations were not secretive for purposes of the lower proceeding. Monsanto submitted the First Kinney Declaration with its Request For Inter Partes Reexamination, J.A. 133, and submitted the Second Kinney Declaration in response to Monsanto’s challenge that the F2:4 generation progeny plant (from the First Kinney Declaration) represents an “outlier” for oleic acid content cited in Booth, J.A. 361 (“The 72.8% oleic acid content in Exhibit 5 of [the First Kinney Declaration] corresponding to sample 7OLT-2709-0 of Table 12 is consistent with the oleic acid contents of the samples

identified . . .”). Contrary to Monsanto’s assertions about a “void of evidence about the origin of that secret data,” Appellant’s Br. 42, we find the Kinney Declarations demonstrate the inherent features already in Booth’s express teachings regarding the resultant progeny characteristics.

Third, although Monsanto cites to *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043 (Fed. Cir. 1995), to support its contention that the Kinney Declarations are insufficient or inaccurate, *see* Appellant’s Br. 41, *Glaxo* is inapposite. In *Glaxo*, the parties disputed whether the process found in a prior art’s specification produced the claimed invention. 52 F.3d at 1047. The petitioner’s expert presented extrinsic evidence in the form of testimony on the issue of inherent anticipation; however, the patent-owner successfully rebutted the petitioner’s evidence with its own data and expert testimony. *Id.* Unlike *Glaxo*, here, Monsanto presented no rebuttal testimony. *See E.I. DuPont*, 2016 WL 4255131, at *5 (“Without evidence to the contrary, it is reasonable to assume that both Exhibit 5 and Exhibit A are results directed to a D2T and *fan* allele cross as identified by the First Kinney Declaration.”), *7 (“[Monsanto] has presented no argument or evidence to suggest that the data provided by Dr. Kinney in Exhibit A of the Second Kinney Declaration does not fairly represent actual test results from a cross prepared in Example 8 of Booth.”). To the extent Monsanto raises arguments that Example 8 would not necessarily produce progeny soybean plants each and every time within the scope of the claims on appeal, *see* Appellant’s Br. 20–22, we find those waived, *see Singleton v. Wulff*, 428 U.S. 106, 120 (1976) (“It is the general rule, of course, that a federal appellate court does not consider an issue not passed upon below.”). In any event, as counsel for Monsanto agreed at oral argument, the claims do not require that the desired soybean progeny be produced each and every time. Oral Arg. at 5:34–7:19, 28:34–56. For the foregoing reasons,

the PTAB did not err in relying on the Kinney Declarations.

IV. Obviousness

A. Legal Standard

A patent claim is invalid as obvious “if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a [PHOSITA].” 35 U.S.C. § 103(a) (2006).¹⁴ Obviousness is a question of law based on underlying findings of fact. *See In re Gartside*, 203 F.3d 1305, 1316 (Fed. Cir. 2000).

“[A]lthough anticipation can be proven inherently, proof of inherent anticipation is not the same as proof of obviousness.” *Cohesive Techs., Inc. v. Waters Corp.*, 543 F.3d 1351, 1364 (Fed. Cir. 2008). “Though less common, in appropriate circumstances, a patent can be obvious in light of a single prior art reference if it would have been obvious to modify that reference to arrive at the patented invention.” *Arendi S.A.R.L. v. Apple Inc.*, 832 F.3d 1355, 1361 (Fed. Cir. 2016), *cert. denied sub nom. Google Inc. v. Arendi S.A.R.L.*, 137 S. Ct. 1329 (2017). This court has “repeatedly held that the motivation to modify a prior art reference to arrive at the claimed invention need not be the same motivation that the patentee had.” *Alcon Research, Ltd. v. Apotex Inc.*, 687 F.3d 1362, 1368 (Fed. Cir. 2012).

¹⁴ Congress also amended § 103 when it enacted the AIA. Pub. L. No. 112-29, § 3(c), 125 Stat. at 287 (2011). As discussed *supra*, the pre-AIA § 103 applies. *See id.* § 3(n)(1), 125 Stat. at 293.

B. Substantial Evidence Supports the PTAB's Finding of Obviousness Related to Claim 2

Dependent claim 2 limits the claim 1 step (b) progeny plant to specific percentage ranges of linolenic, oleic, and seed oil fatty acid levels, requiring that a step (b) progeny plant have a seed oil linolenic acid content “of about 1% to about 3%” by weight, an “oleic acid content of . . . 65% to . . . 80%” by weight, and a seed oil saturated fatty acid level of “about 1.5% to about 8%” by weight. J.A. 330. The PTAB affirmed the Examiner’s rejection of claim 2 on grounds that “claim 2 would have been obvious” while basing its factual findings in large part upon its prior anticipation findings for similar claim 29.¹⁵ *E.I. DuPont*, 2016 WL 4255131, at *8 (“Although the Examiner did not include claim 2 in the anticipation rejection . . . , [Monsanto] does not dispute [line 7OLT-IP36102-20 of the Second Kinney Declaration] falls within the scope of [the claim 2 limitation] ‘about 3%’ by weight.” (citation omitted)).¹⁶ The PTAB reasoned that a PHOSITA would have

¹⁵ Claim 2 is similar to claim 29 in that it requires a saturated fatty acid level of “about 8%” of total seed fatty acid as an added limitation. *Compare* J.A. 330, *with* J.A. 334. Monsanto does not dispute that claim 1 is representative for purposes of anticipation, so we do not separately address claim 29 in our anticipation findings. *See Kennametal*, 780 F.3d at 1385.

¹⁶ The PTAB also reviewed and affirmed the Examiner’s obviousness rejections relating to claims 1, 7, 24, and 27–30. Because we find the Asserted Claims invalid as anticipated, we do not review Monsanto’s alternative arguments regarding the PTAB’s obviousness findings with respect to the Asserted Claims. *See In re Gleave*, 560 F.3d 1331, 1338 (Fed. Cir. 2009) (declining to address alternative grounds of unpatentability when the court upholds one such ground).

a reasonable expectation of success in performing the D2T or fan allele cross. *See E.I. DuPont*, 2016 WL 4255131, at *8–9.

Our findings with respect to anticipation apply equally here. *See supra* Section III.B. As such, the Second Kinney Declaration’s disclosure of a progeny (7OLT-IP36102-20) with a saturated acid content of about 8% by weight, an oleic acid content of 80% by weight, and a linolenic acid content of 3.4% by weight is substantial evidence to support the finding of obviousness. *See* J.A. 370; *see also* J.A. 275, 359–71. Therefore, the sole remaining issue concerns whether a PHOSITA would have been motivated to modify Booth to arrive at the patented invention. *See Arendi S.A.R.L.*, 832 F.3d at 1361.

Despite Monsanto’s contentions to the contrary, *see* Appellant’s Br. 52, we find substantial evidence supports the PTAB’s determination that a PHOSITA would have been motivated to combine elements of Booth. The PTAB did not base its obviousness finding solely on its inherent anticipation analysis.¹⁷ The PTAB explained that a PHOSITA would have been motivated to modify Booth to produce plants having more variable seed oil fatty acid characteristics, as found in claim 2 of the ’953 patent, because Booth “only represents the [s]ingle plants and family means that were both lowest in linolenic acid content and highest in oleic acid content.” *E.I. DuPont*,

¹⁷ Given the Examiner did not reject claim 2 on grounds of anticipation, the PTAB could not independently adopt this ground of rejection without following the procedures required for a new ground of rejection. *See Honeywell Int’l Inc. v. Mexichem Amanco Holding S.A. de C.V.*, 865 F.3d 1348, 1357 (Fed. Cir. 2017) (explaining that the PTAB’s “ability to rely on different grounds [of rejection] than the examiner” is limited (internal quotation marks and citation omitted)).

2016 WL 4255131, at *9 (quoting Booth col. 25 ll. 61–65)). The PTAB then “[ou]nd this evidence sufficiently teaches [a PHOSITA] that the progeny results also include[] plants that have higher linolenic acid content and/or lower oleic acid content.” *Id.* Monsanto points to no statement or suggestion in Booth that it would be undesirable to produce progeny having low seed oil levels of linolenic acid and 65% to 80% oleic acid (i.e., the composition recited in claim 2). *See generally* Appellant’s Br. Accordingly, we uphold the PTAB’s conclusion that claim 2 would have been obvious over Booth.

CONCLUSION

We have considered Monsanto’s remaining arguments and find them unpersuasive. Accordingly, the Decision on Appeal of the U.S. Patent and Trademark Office’s Patent Trial and Appeal Board is

AFFIRMED