

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

PIONEER HI-BRED INTERNATIONAL
INC. and E. I. DU PONT DE NEMOURS
AND COMPANY,

Plaintiffs/Counterclaim-
Defendants,

v.

SYNGENTA SEEDS, LLC,

Defendant/Counterclaim-
Plaintiff.

Civil Action No. 22-1280-RGA

MEMORANDUM OPINION

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ANDREWS, UNITED STATES DISTRICT JUDGE:

Before me is the issue of claim construction of multiple terms in U.S. Patent No. 8,859,846 (“the ’846 patent”). The parties submitted a Joint Claim Construction Brief (D.I. 72) and Appendix (D.I. 73), and I heard oral argument on August 31, 2023.¹ The parties submitted additional letters. (D.I. 86, 88, 90, 93).

I. BACKGROUND

On September 29, 2022, Plaintiffs Pioneer Hi-Bred International, Inc. and E. I. du Pont de Nemours and Company filed a complaint against Defendant Syngenta Seeds, LLC, alleging infringement of the ’846 patent. (D.I. 1). The ’846 patent discloses methods of obtaining doubled haploid maize plants. (’846 patent at 1:25–29).

II. LEGAL STANDARD

“It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (cleaned up). “[T]here is no magic formula or catechism for conducting claim construction.’ Instead, the court is free to attach the appropriate weight to appropriate sources ‘in light of the statutes and policies that inform patent law.’” *SoftView LLC v. Apple Inc.*, 2013 WL 4758195, at *1 (D. Del. Sept. 4, 2013) (alteration in original) (quoting *Phillips*, 415 F.3d at 1324). When construing patent claims, a court considers the literal language of the claim, the patent specification, and the prosecution history. *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 977–80 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996). Of these sources, “the specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.”

¹ Citations to the transcript of the argument (D.I. 105) are in the format “Markman Tr. at ____.”

Phillips, 415 F.3d at 1315 (cleaned up). “While claim terms are understood in light of the specification, a claim construction must not import limitations from the specification into the claims.” *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1354 (Fed. Cir. 2012) (citing *Phillips*, 415 F.3d at 1323).

“[T]he words of a claim ‘are generally given their ordinary and customary meaning.’ . . . [It is] the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” *Phillips*, 415 F.3d at 1312–13 (citations omitted). “[T]he ‘ordinary meaning’ of a claim term is its meaning to [an] ordinary artisan after reading the entire patent.” *Id.* at 1321. “In some cases, the ordinary meaning of claim language as understood by a person of skill in the art may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words.” *Id.* at 1314.

When a court relies solely on the intrinsic evidence—the patent claims, the specification, and the prosecution history—the court’s construction is a determination of law. *See Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 331 (2015). The court may also make factual findings based on consideration of extrinsic evidence, which “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” *Phillips*, 415 F.3d at 1317–19 (quoting *Markman*, 52 F.3d at 980). Extrinsic evidence may assist the court in understanding the underlying technology, the meaning of terms to one skilled in the art, and how the invention works. *Id.* Extrinsic evidence, however, is less reliable and less useful in claim construction than the patent and its prosecution history. *Id.*

“[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those

skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). Inferring indefiniteness because a claim’s scope is broad, however, is “legally incorrect: ‘breadth is not indefiniteness.’” *BASF Corp. v. Johnson Matthey Inc.*, 875 F.3d 1360, 1367 (Fed. Cir. 2017) (quoting *SmithKline Beecham Corp. v. Apotex Corp.*, 403 F.3d 1331, 1341 (Fed. Cir. 2005)). The party raising indefiniteness bears the burden of proving it by clear and convincing evidence. *See BASF*, 875 F.3d at 1365.

III. CONSTRUCTION OF DISPUTED TERMS

Claims 1 and 5 of the ’846 patent are at issue. Claim 1 is independent. Claim 5 depends on claim 2, which depends on claim 1. The text of these claims follows.

1. A method of obtaining a doubled haploid maize plant, said method comprising:
 - (a) pollinating silks of a maize ear with a maize inducer line to produce at least one diploid maize embryo and at least one haploid maize embryo;
 - (b) *isolating said haploid maize embryo between 4-21 days after step (a), wherein said at least one haploid maize embryo is distinguished from the diploid maize embryos via expression of a marker;*
 - (c) *contacting said haploid maize embryo with a chromosome doubling agent* to produce at least one doubled haploid maize embryo cell;
 - (d) *culturing said doubled haploid maize embryo cell on a non-callus promoting medium;* and
 - (e) *generating a doubled haploid maize plant from said doubled haploid maize embryo cell.*

(’846 patent, 18:28–43 (disputed terms bolded and italicized)).

2. The method of claim 1, wherein the maize inducer line contains a marker gene that is expressed in embryo tissue.

(’846 patent, 18:44–45).

5. The method of claim 2, *wherein said marker gene is expressed 4 or more days after pollination.*

(’846 patent, 18:48–49 (disputed terms bolded and italicized)).

A. Order of Steps

The parties dispute whether the five steps in claim 1 must be performed in the written order.

Plaintiffs note that step (b) must occur after step (a) because step (b) explicitly states that “isolating” occurs “4-21 days after step (a).” (D.I. 72 at 31). Plaintiffs contend that all other parts of claim 1 do not need to occur in a “rigid” order. (*Id.*). At oral argument, Plaintiffs argued that the inclusion of “after step (a)” in step (b) supports their argument because subsequent steps do not include similar language. (Markman Tr. at 12:14–21). Plaintiffs also rely on the specification to argue that step (b) and step (c) may overlap. (D.I. 72 at 41). Plaintiffs contend that the ’846 patent discloses “proceeding *immediately* from isolation to contacting with a chromosome doubling agent, without any requirement for intermediate marker expression or distinguishing between haploid and diploid embryos.” (*Id.* at 46). Plaintiffs similarly argue that “part (d) does not recite any particular order and allows for overlap with part (e).” (*Id.* at 61).

Defendant argues that the steps in claim 1 must be performed in the written order. (*Id.* at 10; *see also* Markman Tr. at 54:13–55:21). Defendant relies on the claim language to support its argument. (D.I. 72 at 62–63). First, Defendant contends that the steps “refer back to the completed result of the prior step.” (*Id.* at 63). Defendant points out that the outputs of step (a) are “at least one diploid maize embryo” and “at least one haploid maize embryo.” Step (b) distinguishes between these haploid embryos and diploid embryos. Defendant contends that step (c) then references the “haploid maize embryo” from step (b); step (c)’s output is a “doubled haploid maize embryo cell.” In step (d), the “doubled haploid maize embryo cell” from step (c) is cultured. Defendant contends that step (e) then generates a “doubled haploid maize plant.” (*Id.*). At oral argument, Defendant argued that the absence of language similar to “after step (a)”

in steps (c) through (e) is inconsequential because the antecedents in those steps already indicate an order of steps. (Markman Tr. at 75:11–76:2). Second, Defendant contends that Plaintiffs’ use of (a) through (e) in claim 1 and the presence of semicolons between each step support its position. (D.I. 72 at 63–64). Defendant also relies on the specification to support its argument, contending that Examples 1, 2, and 3 follow a sequential order of steps. (*Id.* at 64).

I do not find Defendant’s argument about the use of semicolons or (a) through (e) to be persuasive. Plaintiffs’ argument about the significance of the “after step (a)” language is similarly unpersuasive. Inconsistencies between Plaintiffs’ proposed construction and the claim language, however, undermine Plaintiffs’ argument. I agree with Defendant that the steps refer back to outputs from previous steps. The parties agree that step (b) comes after step (a). (Markman Tr. at 12:15–16, 75:19–25).² For step (c), Plaintiffs do not offer a persuasive reason why “said haploid maize embryo” may be contacted with a chromosome doubling agent before that embryo is isolated. The output of step (c) is “at least one doubled haploid maize embryo cell,” and step (d) refers to “said doubled haploid maize embryo cell.” (’846 patent at 18:37–41). The claim language thus suggests that step (d) occurs after step (c). As for the final step, Plaintiffs do not provide a logical reason how “a doubled haploid maize plant” can be generated before the relevant embryo cells are cultured. The claim language therefore follows a logical order.

The specification is consistent with an order of steps. Examples 1, 2, and 3 all describe isolating before culturing; the examples mention a plant toward the end. (*Id.* at 13:21–34, 13:45–64, 14:20–40). Examples 2 and 3, which mention a doubling agent in the same sentence as a

² The “wherein” clause, as I explain below, is not an independent step; the clause is part of step (b).

medium, do not contradict the existence of a sequential order. (*Id.* at 13:49–53; 14:25–28).

Column 2 of the specification also describes a method whose steps appear in a logical order. (*Id.* at 2:22–30).

I therefore agree with Defendant that the steps must occur in the written order. I now turn to the disputed terms of claim 1.

B. Disputed Terms

1. **The 1(b) limitation: “isolating said haploid maize embryo between 4-21 days after step (a), wherein said at least one haploid maize embryo is distinguished from the diploid maize embryos via expression of a marker” (’846 patent, claim 1)**
 - a. *Plaintiffs’ proposed construction*: plain and ordinary meaning or, alternatively, “extracting the at least one haploid maize embryo from a kernel of the maize ear between 4-21 days after step (a)” and “the expression of a marker gene is used to distinguish the at least one haploid maize embryo from the diploid maize embryos”
 - b. *Defendant’s proposed construction*: “4-21 days after step (a), extracting the haploid maize embryo from a kernel of the maize ear of step (a) based upon whether the at least one haploid maize embryo has, or has not, expressed a marker gene” or, alternatively, indefinite
 - c. *Court’s construction*: isolating the at least one haploid maize embryo between 4-21 days after step (a), wherein the at least one haploid maize embryo is distinguished from the diploid maize embryos at or before isolation via expression of a marker

The parties dispute the meaning of the “wherein” clause in step (b).

Plaintiffs argue that step (b) does not require construction because the “plain and ordinary meaning is clear.”³ (D.I. 72 at 12). They contend that the time limitation of “4-21 days” does not apply to the “wherein” clause. (*Id.* at 12–13). Plaintiffs’ position is that the marker gene does not need to be expressed before isolation. (*Id.* at 13). Plaintiffs argue that such a construction is consistent with the doctrine of claim differentiation because claim 5 includes a time limitation. (*Id.* at 13–14). Plaintiffs additionally argue that claim 1 neither prohibits

³ Declaring that the term has its plain and ordinary meaning would do nothing to resolve the significant dispute as to scope.

extracting both haploid and diploid maize embryos nor requires discarding diploid maize embryos. (*Id.* at 13).

Defendant argues that the “wherein” clause limits the scope of step (b). (*Id.* at 16). Defendant’s position is that haploid and diploid maize embryos are distinguished based on the expression of a marker gene. (*Id.*). Defendant thus argues that the time limitation in step (b) applies to the “wherein” clause. (*Id.* at 17). To support its argument, Defendant cites to Examples 1, 2, and 3 in the specification, arguing that they are consistent with distinguishing haploid embryos before isolation. (*Id.* at 17–18; *see also* Markman Tr. at 57:1–18). Defendant also cites to the prosecution history, noting that the examiner moved the “wherein” clause from the final step of the claim to the “isolating” step. (D.I. 72 at 18–19). Defendant argues that the patentees could have drafted a separate “distinguishing” step if they wanted. (*Id.* at 19). Instead, Defendant contends, the patentees used the past participle of “distinguish” to indicate an action that must be completed prior to “isolating.” (*Id.* at 19–20). Defendant points out that isolating only haploid maize embryos “aligns with the purpose of the purported invention, which is efficiency.” (*Id.* at 21).

In reply, Plaintiffs argue that Defendant’s proposed construction would render claim 5 superfluous. (*Id.* at 24–26). They also contend that Defendant’s proposed construction is inconsistent with the specification because it would exclude preferred embodiments. (*Id.* at 26–28). To support their argument, Plaintiffs cite to the expert declaration of Dr. Stephen P. Moose, who states that a skilled artisan would understand that the green fluorescent protein (GFP) marker from Examples 2 and 3 generally cannot be used to distinguish embryos under ambient conditions. (*Id.* at 27–28; *see also* D.I. 73-1 at 92 of 264). Plaintiffs further argue that the

prosecution history does not support distinguishing haploid embryos before step (c), and that Defendant misconstrues the “is distinguished” language in step (b). (D.I. 72 at 28–31).

Plaintiffs’ argument that the “wherein” clause is separate from the “isolating” clause does not persuade me. “Wherein” clauses are limiting when they are material to patentability. *See Allergan Sales, LLC v. Sandoz, Inc.*, 935 F.3d 1370, 1376 (Fed. Cir. 2019). Defendant has shown that the “wherein” clause serves as a limitation on the “isolating” clause and is material to patentability. To clarify that both clauses in step (b) refer to the same haploid maize embryos, I use “the at least one haploid maize embryo” in my construction instead of “said haploid maize embryo” and “said at least one haploid maize embryo.”

The claim language also undermines Plaintiffs’ argument that both diploid and haploid maize embryos may be isolated in step (b). At oral argument, Defendant pointed out that step (b) only calls for isolating haploid maize embryos (Markman Tr. at 60:4–6); the step does not mention isolating diploid maize embryos. Steps (c) through (e) do not mention diploid maize embryos at all. (*Id.* at 60:25–61:2). Plaintiffs’ argument that diploid maize embryos may be present as late as step (e) (*id.* at 23:22–24:5) is therefore unsupported by the claim language.

The specification supports Defendant’s position as well. Although Plaintiffs argue that Defendant’s proposed construction would exclude preferred embodiments, I find that Examples 1, 2, and 3 are consistent with requiring the “wherein” clause to occur at or before the time of the “isolating” clause. Example 1 of the specification states: “The haploid embryos are isolated based on the identification of the visible marker gene in the inducer lines.” (’846 patent at 13:1–3). This language indicates that the “isolating” occurs after the haploid and diploid embryos are distinguished. Examples 2 and 3 do not contradict this construction. In each example, after a sentence describing the isolation step, the patentees write that diploid embryos were discarded.

(*Id.* at 13:45–49, 14:20–25). While claim 1 does not include a discarding step, the language in Examples 2 and 3 supports Defendant’s contention that haploid and diploid embryos are already distinguished by the time the isolation occurs, even if the examples omit some details of the process.

The prosecution history further supports Defendant’s argument that the “isolating” and “wherein” clauses are related. I find that the Examiner’s decision to move the “wherein” clause from the end of the final step to the “isolating” step has some significance. (D.I. 72 at 36–39). Given the Examiner’s amendment (*id.* at 38–39), it is implausible that the distinguishing in the “wherein” clause can occur at any time. Plaintiffs do not provide a logical reason why the “wherein” clause would have been added to step (b) if it described an independent event.

Plaintiffs’ expert declaration does not disturb Defendant’s contention that the “isolating” and “wherein” clauses are related. Dr. Moose wrote that a skilled artisan would “understand that Examples 2 and 3 describe extracting *both* haploid and diploid embryos and then distinguishing them afterwards.” (D.I. 73-1 at 92 of 294). He also wrote that one skilled in the art would need to use a microscope on extracted embryos to detect GFP because “GFP fluorescence generally cannot be detected under ambient conditions as embryos are being extracted.” (*Id.*). The language in claim 1, however, is broader than what Dr. Moose suggests; step (b) describes “expression of a marker” without specifying which marker to use or whether expression occurs in embryo tissue or in endosperm tissue. (’846 patent at 18:33–36). *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1584 (Fed. Cir. 1996) (“[E]xtrinsic evidence in general, and expert testimony in particular, may be used only to help the court come to the proper understanding of the claims; it may not be used to vary or contradict the claim language.”). Claim 2, while not directly at issue, further shows that claim 1 does not require expression in

embryo tissue. The claim's "wherein" clause describes a maize inducer line that "contains a marker gene that is expressed in embryo tissue." ('846 patent at 18:44–45; *see also* Markman Tr. at 89:4–13). Dr. Moose, however, focuses on expression in embryo tissue only.

The specification is consistent with allowing the expression in claim 1 to occur in either embryo tissue or endosperm tissue. One paragraph, which both parties agree describes claim 1, discloses a method "wherein the inducer line has a marker gene that is expressed in embryos and/or endosperm tissue." ('846 patent at 2:22–30). This language indicates that one skilled in the art may rely on marker expression in either embryo tissue or endosperm tissue to carry out the distinguishing required in step (b). Example 1, meanwhile, describes expression in endosperm tissue instead of embryo tissue. The example states that for inducer lines with visible marker genes, "this marker gene will be included in the endosperm cells only, but not in the embryo cells in the haploid kernels." (*Id.* at 13:14–17). I am therefore not persuaded by Plaintiffs' reliance on Dr. Moose's declaration. *See Phillips*, 415 F.3d at 1318 ("[A] court should discount any expert testimony 'that is clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent.'" (citation omitted)).

Lastly, as I explain below, my construction of step (b) does not render claim 5 superfluous. I find that the "wherein" clause indicates that a marker is used to distinguish haploid maize embryos from diploid maize embryos at or before the time of the "isolating" in step (b). Expression may occur in embryo tissue or endosperm tissue. My construction reflects this.

2. The 1(c) limitation: “contacting said haploid maize embryo with a chromosome doubling agent . . .” (’846 patent, claim 1)

- a. *Plaintiffs’ proposed construction*: plain and ordinary meaning or, alternatively, “contacting the at least one haploid maize embryo with a chromosome doubling agent”
- b. *Defendant’s proposed construction*: “contacting the extracted haploid maize embryo of step (b) with a doubling agent”
- c. *Court’s construction*: contacting the extracted at least one haploid maize embryo with a chromosome doubling agent

The dispute with respect to this term is whether step (b) must occur before step (c). For the reasons described above, I find that the steps in claim 1 must be performed in the written order. I therefore reject Plaintiffs’ proposed construction. I largely agree with Defendant’s proposed construction of step (c). Defendant, however, inexplicably omits “chromosome” from the term “doubling agent.” I also find it unnecessary to add “of step (b)” to the construction. I have already found that the steps follow the written order. My construction reflects this.

3. The 1(d) limitation: “culturing said doubled haploid maize embryo cell on a non-callus promoting medium” (’846 patent, claim 1)

- a. *Plaintiffs’ proposed construction*: plain and ordinary meaning or, alternatively, “culturing the doubled haploid maize embryo cell on a non-callus promoting medium”
- b. *Defendant’s proposed construction*: indefinite
- c. *Court’s construction*: culturing the doubled haploid maize embryo cell on a non-callus promoting medium. A non-callus promoting medium is a medium that does not support proliferation of dedifferentiated masses of cells or tissue.

Defendant argues that the patentees defined “non-callus promoting medium” in such a way that the term is indefinite. I ruled at oral argument that I would not find this term indefinite. (Markman Tr. at 99:22–25). I also ruled that I would construe the term “non-callus promoting medium” using the definition in column 9 of the ’846 patent. (*Id.* at 99:23–25). I therefore construe “non-callus promoting medium” as “a medium that does not support proliferation of dedifferentiated masses of cells or tissue.” (*See* ’846 patent at 8:67–9:2). I further note that the specification discloses that “[a] preferred ‘non-callus promoting medium’ is used for embryo

rescue, containing typical salt and vitamin formulations well known in the art.” (*Id.* at 9:2–5; Markman Tr. at 100:1–4).

4. The 1(e) limitation: “generating a doubled haploid maize plant from said doubled haploid maize embryo cell” (’846 patent, claim 1)

- a. *Plaintiffs’ proposed construction*: plain and ordinary meaning, or, alternatively, “generating a doubled haploid maize plant (including seeds and progeny) from the doubled haploid maize embryo cell”⁴
- b. *Defendant’s proposed construction*: “generating from the doubled haploid maize embryo cell of step (d) a doubled haploid maize whole plant, plant organ (e.g., leaves, stems, roots, etc.), *seeds*, and plant cells (e.g., seeds, suspension cultures, embryos, meristematic regions, callus tissue, leaves, roots, shoots, gametophytes, sporophytes, pollen, and microspores), and progeny of same”
- c. *Court’s construction*: generating from the doubled haploid maize embryo cell a doubled haploid maize whole plant, plant organ (e.g., leaves, stems, roots, etc.), seeds, and plant cells (e.g., seeds, suspension cultures, embryos, meristematic regions, callus tissue, leaves, roots, shoots, gametophytes, sporophytes, pollen, and microspores), and progeny of same

The parties dispute whether step (e) should be construed to include the specification’s definitions of “plant” and “plant cell.”

Plaintiffs argue that the specification only provides general definitions of a “plant” and “plant cell,” while claim 1 recites a specific “doubled haploid maize plant” produced by the disclosed method. (D.I. 72 at 58). Plaintiffs contend that Defendant’s proposed construction improperly equates the “doubled haploid maize plant” with embryos and cells. (*Id.*).

Defendant argues that the patentees acted as their own lexicographers. Defendant contends that the specification’s definitions of “plant” and “plant cell” provide the meanings for the corresponding words in step (e). (*Id.* at 59). To support this argument, Defendant relies on Federal Circuit precedent, which states that patentees may use phrases like “as used herein” to

⁴ In a supplemental letter, Plaintiff proposed a second alternative construction: “A doubled haploid maize ‘plant’ may include whole plants, plant organs (e.g., leaves, stems, roots, etc.), seeds and plant cells and progeny of the same.” (*See* D.I. 90).

expressly define terms. (*Id.* (citing *Abbott Lab'ys v. Andrx Pharms., Inc.*, 473 F.3d 1196, 1210–11 (Fed. Cir. 2007))).⁵

At oral argument, I ordered Plaintiffs to submit a supplemental letter citing any Federal Circuit authority on discounting lexicography. (Markman Tr. at 106:19–107:13). Plaintiffs filed a letter (D.I. 90), and Defendant filed a response (D.I. 93). Plaintiffs argue they defined terms in step (e) that are relevant to infringement. (D.I. 90). Plaintiffs contend that Defendant's proposed construction is "unnecessarily wordy and potentially confusing." (*Id.*). Plaintiffs rely on *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017), where the Federal Circuit declined to construe the term "HVAC system." Plaintiffs' letter also proposes another alternative construction: applying the specification's express definition of "plant," but not "plant cell," to step (e). (D.I. 90). To support their argument, Plaintiffs rely on *AFG Industries, Inc. v. Cardinal IG Co.*, 239 F.3d 1239, 1247 (Fed. Cir. 2001), where the Federal Circuit noted that "it is critical for trial courts to set forth an express construction of the material claim terms in dispute."

Defendant responded that Plaintiffs' letter omits authority on ignoring express definitions in a patent specification. (D.I. 93). Defendant cites to *Phillips*, where the Federal Circuit stated that "the inventor's lexicography governs." 415 F.3d at 1316. Defendant also relies on *Nestle USA, Inc. v. Steuben Foods, Inc.*, 686 F. App'x 917, 919 n.1 (Fed. Cir. 2017), where the Federal Circuit noted, "A patentee cannot partially serve as a lexicographer for a claim term: either the specification includes a binding definition of that term by way of lexicography, or it is to be read consistent with the plain and ordinary meaning." The quoted footnote is in a non-precedential

⁵ The definitions of "plant" and "plant cell" in the '846 patent's specification include the phrase "as used herein." ('846 patent at 2:1–7).

case. Nonetheless, I think Defendant correctly relies upon the footnote, as I believe it correctly describes how lexicography works.

Plaintiffs' supplemental letter does not persuade me to ignore definitions in the specification. In *Nidec*, the Federal Circuit resolved a different issue than the one here, finding that construction of "HVAC system" would not change the court's conclusion on obviousness. 868 F.3d at 1017. The *AFG Industries* case also addressed a different issue. There, the Federal Circuit was unable to "discern exactly what interpretation" the trial court settled on for the term "layer," and the patentee did not include a definition for that term in the specification. 239 F.3d at 1247. Plaintiffs alternatively propose using the definition for "plant" but not the one for "plant cell," arguing that applying lexicography for the latter would be confusing. (D.I. 90). Plaintiffs do not, however, cite any authority for the proposition that courts may apply lexicography for some terms but not others within the same claim. Defendant's argument on this point is inapposite as well because *Nestle* focused on one claim term being used to mean two different things. 686 F. App'x at 919 n.1. Plaintiffs instead suggest applying lexicography for one term while ignoring it for another.

I find that Plaintiffs have acted as their own lexicographers to define "plant" and "plant cell." First, the terms are "set off by quotation marks—often a strong indication that what follows is a definition." *Sinorgchem Co., Shandong v. Int'l Trade Comm'n*, 511 F.3d 1132, 1136 (Fed. Cir. 2007). Second, "[t]he 'as used herein' language leading into the definition, . . . , indicates that the patentee[s] became [their] own lexicographer[s]." *Jazz Pharms., Inc. v. Roxane Lab'ys, Inc.*, 2012 WL 4103880, at *4 (D.N.J. Sept. 14, 2012); *see also Exeltis USA, Inc. v. Lupin Ltd.*, 2023 WL 2306736, at *5 (D. Del. Mar. 1, 2023). I find that these indicators "put one reasonably skilled in the art on notice that the inventor intended to redefine the claim term[s]."

Merck & Co. v. Teva Pharms. USA, Inc., 395 F.3d 1364, 1370 (Fed. Cir. 2005) (citations omitted).

At oral argument, Defendant stated that it mistakenly omitted the word “maize” from its proposed construction of “doubled haploid whole plant.” (Markman Tr. at 109:20–110:15). I adopt Defendant’s proposed construction of step (e) with the word “maize” included, but I find it unnecessary to add “of step (d)” to the construction. I reject Plaintiffs’ proposed construction.

5. “. . . wherein said marker gene is expressed 4 or more days after pollination” (’846 patent, claim 5)

- a. *Plaintiffs’ proposed construction*: plain and ordinary meaning or, alternatively, “the marker gene is expressed 4 or more days after pollination”
- b. *Defendant’s proposed construction*: indefinite
- c. *Court’s construction*: plain and ordinary meaning

The parties dispute whether claim 5 is a proper dependent claim.

Plaintiffs rely on claim differentiation to contend that claim 5 is proper. They argue that the timing requirement in claim 1(b) only applies to the “isolating” clause, not to the “wherein” clause. (D.I. 72 at 67). Plaintiffs contend that unlike claim 1, claim 5 includes a time limitation for expression of the marker gene. (*Id.*). They therefore argue that claim 1 encompasses marker expression occurring fewer than four days after pollination, while claim 5 only covers marker expression at four days or later. (*Id.* at 65–66). Plaintiffs contend that their position is consistent with the specification, which describes different marker genes and preferred times for marker expression. (*Id.* at 65).

Defendant counters that claim 5 is an improper dependent claim because it is broader than claim 1. (*Id.* at 66). Defendant argues that step (b) of claim 1 requires expression of the marker gene to occur between four and twenty-one days after pollination, but that claim 5 broadens the time for expression beyond this twenty-one-day limit. (*Id.* at 66–67).

Based on my construction of step (b), marker expression in claim 1 occurs between zero and twenty-one days after step (a). Claim 5 further limits the time for expression, requiring it to occur at least four days after step (a). The time for expression in claim 5 is thus four to twenty-one days, which is narrower than the zero to twenty-one days of claim 1.⁶ I reject Plaintiffs' argument to the extent that it removes the timing requirement from the "wherein" clause in claim 1, but I adopt Plaintiffs' proposed construction for claim 5. I reject Defendant's proposed construction.

IV. CONCLUSION

Within five days the parties shall submit a proposed order consistent with this Memorandum Opinion and my rulings at oral argument.

⁶ At oral argument, I said: "I think that the Plaintiff has made an argument that would show why claim 5 is not an improper dependent claim because it covers more ground than claim 2. It doesn't narrow claim 2, it expands it and maybe because it expands claim 1." (Markman Tr. at 118:15–19). I intended to say Plaintiff has shown that claim 5 is not improper because it is narrower, not broader, than claim 1.