

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN

EMD CROP BIOSCIENCE INC.,
EMD CROP BIOSCIENCE CANADA INC.
and MCGILL UNIVERSITY,

OPINION and ORDER

Plaintiffs,

10-cv-283-bbc

v.

BECKER UNDERWOOD, INC.,

Defendant.

In this patent infringement suit, plaintiffs EMD Crop Bioscience Canada Inc. and McGill University contend that defendant Becker Underwood, Inc. is infringing plaintiffs' United States Patent No. 6,979,664 (the '664 patent). The '664 patent, titled "Composition for Accelerating Seed Germination and Plant Growth," relates to the effects of lipo chitooligosaccharide signaling molecules (LCOs) on certain physiological processes of plants. The asserted independent claims of the '664 patent are 1, 17, 22, 33 and 34. Independent claims 1 and 17 respectively recite methods of using a composition containing an LCO to (1) enhance seed germination or seedling emergence and (2) break the dormancy or quiescence of a plant. The remaining asserted independent claims recite methods of using

a bacterial strain (claims 33 and 34) or a rhizobial strain (claim 22) expressing an LCO to enhance seed germination or seedling emergence.

Now before the court is defendant's motion for construction of certain terms found in the claims asserted in the patent. Dkt. #68. In an order dated February 14, 2011, dkt. #74, I informed the parties that I would construe four terms because defendant had shown that construction of these terms was relevant to disputes as to infringement or invalidity. These terms are:

- a. "strain that expresses a lipo chitooligosaccharide" as used in claims 22, 33 and 34;
- b. "effective amount" as used in claims 1 and 17;
- c. "enhancing" and "enhances" as used in claims 1, 9, 16, 22, 27, 28, 33 and 34; and
- d. "breaking of the dormancy or quiescence" as used in claim 17.

The parties have filed both opening and responsive claim construction briefs addressing construction of the four terms. Although plaintiffs assert that construction is not necessary for any terms in the patent, they have proposed alternative constructions.

After reviewing the parties' submissions, I conclude that several of the alleged disputes defendant asserts are illusory. Where disputes might exist, defendant's proposed limitations are either not supported in the patent or would not resolve the dispute adequately. In addition, the parties' constructions are not necessary to provide clarity to the terms. Because the parties have failed to show any benefit from their proposed constructions, I will not

construe any of the four terms. I remain willing to provide constructions of these terms if the parties provide sufficient information in a summary judgment motion or motion in limine.

OPINION

The construction of the claims at issue in a patent infringement case is a legal determination to be made by the court. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996); Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996). In interpreting an asserted claim, the court should look first to the claims themselves. Teleflex, Inc. v. Ficosa North America Corp., 299 F.3d 1313, 1324-25 (Fed. Cir. 2002). Generally, claim terms are given their “ordinary and customary” meaning, which is the meaning the term would have to a person of ordinary skill in the art as of the filing date of the patent application. Phillips v. AWH Corp., 415 F.3d 1303, 1312-13 (Fed. Cir. 2005). In addition to considering the ordinary meaning of a claim term, the court must consider the context of the surrounding words of the claim and the specification. Id. It is in the specification that the patentee provides a written description of the invention that allows a person of ordinary skill in the art to make and use the invention, Markman, 52 F.3d at 979, and at times even “set[s] forth an explicit definition for a claim term that could differ in scope from that which would be afforded by its ordinary

meaning.” Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001); Vitronics, 90 F.3d at 1582.

A. “Strain that expresses a lipo chitooligosaccharide” (claims 22, 31, 33 and 34)

Surrounding Claim Language	Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
A method for enhancing seed germination or seedling emergence of a plant crop comprising the steps of: providing a rhizobial <i>strain that expresses a lipo chitooligosaccharide</i> (LCO); and incubating the rhizobial strain in the immediate vicinity of one of a seed or seedling of said plant such that said LCO enhances seed germination or seedling emergence [cl. 22] wherein said composition comprises a bacterial <i>strain that expresses said LCO</i> [cl. 31] A method for enhancing seed germination or seedling emergence of a plant crop comprising the steps of: providing a bacterial <i>strain that expresses a lipo chitooligosaccharide</i> (LCO); [cls. 33, 34]	A s t r a i n producing an LCO	A strain that is currently producing an LCO such that the LCO is present in an effective amount

Initially, defendant suggested that the parties had two disputes about the meaning of the phrase “strain that expresses a lipo chitooligosaccharide,” found in independent claims 22, 33 and 34. First, defendant contended that the phrase should be construed to make

clear that “expresses” means that the strain is *currently* producing an LCO, rather than merely *capable of* producing an LCO. However, in the parties’ responsive claim construction briefs they state that they both agree that the phrase “strain that expresses a lipo chitooligosaccharide” means “a strain that is producing an LCO.” Dft.’s Br., dkt. #79, at 4; Plt.’s Br., dkt. #81, at 5. Thus, there is no real dispute about the meaning of “expresses.”

The second alleged dispute regarding this phrase relates to defendant’s request for inclusion of “such that the LCO is present in an effective amount.” Defendant contends that this language is necessary to establish that the claimed enhancement is caused by LCOs produced at the initial “providing step,” rather than LCOs generated by rhizobia after the providing step. In other words, defendant contends that the patent does not claim an enhancement caused by LCOs generated later through natural processes and not referred to in the claim.

Although plaintiffs object to defendant’s proposed construction as unnecessary, redundant, unsupported by the specification and contrary to the principles of claim construction, plaintiffs do not deny that the LCOs referred to in the providing step of each claim, rather than some other LCOs or nodulation factors, bring about the claimed enhancement. Plts.’ Br., dkt. #72, at 14 (“each claim in which this limitation appears recites that the *expressed* LCO is bringing about the desired result”). According to plaintiffs, because claims 22, 33 and 34 already state that “*said* LCO enhances seed germination or seedling

emergence” and “*said* bacterial strain, upon expression of *said* LCO, enhances seed germination or seedling emergence,” defendant’s “effective amount” language is “unnecessary because [those] phrases already recite that the LCO is bringing about the desired result.” Id. at 14-15.

Because the parties agree that the claimed “strains” must be producing LCOs and that those expressed LCOs must cause the claimed enhancements, it is not necessary to construe this term to resolve any dispute. Defendant has provided no other justification for its proposed limitation that the LCO be present in an “effective amount.” Therefore, I will not adopt defendant’s proposed limitation or construe this term at this stage.

B. “enhancing/enhances” (claims 1, 9, 16, 22, 27, 28, 33 and 34)

Surrounding Claim Language	Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction

applying the composition in an effective amount for <i>enhancing</i> seed germination or seedling emergence in comparison to an untreated seed or seedling [cl. 1] wherein said composition is effective in <i>enhancing</i> seed germination or seedling emergence under field conditions [cls. 9, 16] such that said LCO <i>enhances</i> seed germination or seedling emergence in comparison to a non-inoculated seed or seedling [cl. 22] wherein said LCO <i>enhances</i> seed germination or seedling emergence under field conditions [cls. 27, 28] such that said LCO <i>enhances</i> seed germination or seedling emergence of said plant crop, wherein said incubation <i>enhances</i> seed germination or seedling emergence in comparison to a non-inoculated seed or seedling of said plant [cl. 33] such that said bacterial strain, upon expression of said LCO, <i>enhances</i> seed germination or seedling emergence of said plant crop, in comparison to a non-treated seed or seedling of said plant [cl. 34]	Causing/causes a difference between the treated and untreated object	Causing/causes a significant observable difference between the treated and untreated object
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The parties dispute the extent to which seed germination or seedling emergence must be “enhanced” by the LCOs. Plaintiffs contend that “enhances” retains its ordinary meaning and needs no construction, while defendant contends that the terms “enhances” and

“enhancing” as used in several of the patent’s claims means that these processes are enhanced by a “significant observable difference between the treated and untreated object.”

Defendant has not explained satisfactorily that its proposed limitation is required by the patent. Defendant’s proposed construction is drawn from the specification, which states:

When referring to an “enhanced seedling emergence”, the Applicant refers to a significant observable difference between the growth of the seedling in the treated versus the control.

Dkt. #61-1, col. 8, ln. 42-45. Defendant contends that because the patent contains a specific definition for the term “enhanced,” the claim should not be given its ordinary meaning. Also, defendant contends that by defining “enhanced” as it relates to “seedling emergence,” the applicants impliedly defined all other “enhanced” measurables, including seed germination, claimed in the ‘664 patent. It is true that a patent specification may “act[] as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication.” Phillips, 415 F.3d at 1321; see also Bell Atlantic Network Services, Inc. v. Covad Communications Group, 262 F.3d 1258, 1268 (Fed. Cir. 2001) (“[T]he specification may define claim terms ‘by implication’ such that the meaning may be ‘found in or ascertained by a reading of the patent documents’”). However, to determine whether a term is actually defined by the specification, the language in a specification must be considered in the context of the whole patent and specification. Abbott Labs. v. Andrx Pharmaceuticals, Inc., 473 F.3d 1196, 1210 (Fed. Cir. 2007) (holding that term was not explicitly defined in

specification even though patentee set off term in quotation marks and followed term with “is”).

In this case, the specification uses a variety of words and phrases to describe the “enhancement” provided by LCOs on seedling emergence and seed germination. As defendant points out, the specification uses the phrase “*significant observable* difference” when discussing enhanced seedling emergence. It uses slightly different phraseology in the preceding paragraph when discussing seed germination, stating that “increased seed germination” “refers to a *significant difference* in seed germination between the treated versus the control seed.” Dkt. #61-1, col. 8, ln. 36-39 (emphasis added). In other areas of the patent, the patentee describes enhancements caused by LCOs without discussing whether the enhancements were “significant” or “observable.” Dkt. #61-1, col. 9, ln. 10-12. Thus, it is not clear from the patent that the claimed enhancements caused by LCOs are limited to those that are both significant and observable.

More important, it is not clear how defendant’s proposed limitation could be applied usefully. Defendant says that its construction is necessary to provide a “test for determining enhancement.” Dft.’s Br., dkt. #79, at 12. However, its proposed construction does not provide a workable test. Adding the undefined words “significant” and “observable” provides more questions than answers. What qualifies as significant? What does observable mean? Defendant offers no answers to these important questions and these words are not defined

in the patent. In effect, defendants’ test would provide no more help than what the claims provide already.

Claim 1 states that seed germination or seedling emergence is enhanced “in comparison to an untreated seed or seedling.” Id., col. 25, ln. 56-58. The other claims have similar language. E.g., id., Claim 22, col. 27, ln. 5-6 (“LCO enhances seed germination or seedling emergence in comparison to a non-inoculated seed or seedling.”) Thus, it is clear from the claims themselves that application of LCOs improves seed germination and seedling emergence in treated seeds as compared to nontreated seeds. Certainly the patent does not claim a composition containing LCOs that produces no benefit. Although the parties may dispute the level of benefit that must be supplied, defendant’s proposed limitation does nothing to help answer that question. Accordingly, I reject defendant’s proposed limitation and decline to construe the term “enhances” at this time.

C. “effective amount” (claims 1 and 17)

Surrounding Claim Language	Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction

A method for enhancing seed germination or seedling emergence of a plant crop comprising the steps of: providing a composition that comprises an <i>effective amount</i> of at least one lipo chitooligosaccharide (LCO); and applying the composition in the immediate vicinity of a seed or seedling in an <i>effective amount</i> for enhancing seed germination or seedling emergence in comparison to an untreated seed or seedling. [cl. 1] applying the composition in the immediate vicinity of a seed, tuber or root in an <i>effective amount</i> to enable a breaking of the dormancy or quiescence of the seed, tuber or root, in comparison to an untreated seed, tuber or root. [cl. 17]	An amount that causes the intended effect	A quantity which is sufficient to result in a statistically significant difference in the claimed benefit
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Similar to their debate regarding the meaning of “enhances,” the parties disagree whether an “effective amount” of the LCO composition from claims 1 and 17 means a quantity of the composition that results in *any* enhancement to seed germination, seedling emergence or dormancy breaking or whether the composition must result in a “statistically significant difference” in those plant processes. Defendant contends that a “statistically significant” difference is required, pointing to the following language in the patent’s “Summary of the Invention”:

“An agriculturally effective amount of a composition” for increasing the growth of crop plants in accordance with the present invention refers to a quantity which is sufficient to result in a statistically significant enhancement of growth and/or protein yield and/or of grain yield of the plant crop as compared to the

growth, protein yield, and grain yield of the control-treated plant crop.

Dkt. #61-1, col. 8, ln. 1-7.

Defendant contends that this passage demonstrates the patentee's intent to act as a lexicographer. Also, because the patentee set off this language with quotations, the definition was intended to define the term "effective amount" when used in conjunction with *any* composition, including those applied to enhance seed germination and seedling emergence. Additionally, defendant contends that including a statistical requirement in the definition of "effective amount" is consistent with the patent's use of statistical analysis throughout the specification to analyze results of LCO treatment. As with defendant's proposed construction of "enhances," plaintiffs contend that defendant's construction is too narrow and ignores portions of the specification that use a broader, plain meaning of "effective amount."

I conclude that defendant's proposed construction must be rejected for reasons similar to those discussed above in the context of "enhances." First, I am not persuaded that the construction is correct. It relies on a phrase, "agriculturally effective amount," that was removed from the claims and is defined with respect to increases in plant growth, protein yield and grain yield. An increase in protein and grain yield is substantially different from the acceleration of seed germination or enabling of dormancy-breaking that is provided in the claims. The patent applicants removed the terms "an agriculturally effective amount"

and “a growth-promoting amount” from the claims in a preliminary amendment, adding the phrase “effective amount” to the claims instead. However, there is no discussion in the patent of the specific level of acceleration on seed germination, seedling emergence or dormancy-breaking that results from an “effective amount” of an LCO and there is no suggestion in the specification that statistically significant results are required. Although the specification discusses seed germination and seedling emergence in terms of statistical analysis, it also discusses enhancements in general terms. Id., col. 9-10. In addition, some of the examples related to breaking the dormancy in tubers include no apparent statistical analysis. E.g., id., Example 8, Table 6, col. 18-19. Thus, I am not persuaded that the patent claims only compositions resulting in a “statistically significant” benefit.

Additionally, defendant does not explain how its proposed limitation would be applied. Defendant does not explain what “statistically significant difference” means or whether statistical significance is something that would be understood by a person of ordinary skill in the art. Although the patent discusses certain statistical methods, it provides no explanation of how to use the methods or what qualifies as “statistically significant.” Without such guidance from the patent or any suggestion from defendant as to how this limitation would be applied, defendant’s proposed construction provides uncertainty, not clarity.

Finally, I agree with plaintiffs that construction of this phrase is not necessary. The

meaning of “effective amount” is provided in the claims themselves. Claim 1 provides that the composition must be applied in “an effective amount for enhancing seed germination or seedling emergence in comparison to an untreated seed or seedling.” Id., col. 25, ln. 57-60. Claim 17 provides that the composition be applied “in an effective amount to enable a breaking of the dormancy or quiescence . . . in comparison to an untreated seed, tuber, or root.” Id., col. 26, ln. 53-55. Thus, the claims provide that effective amount means an amount sufficient to achieve either enhancement of seed germination or seedling emergence or an amount sufficient to enable breaking of dormancy. Defendant has provided no satisfactory reason for looking beyond the claims for further elaboration or definition.

In sum, because defendant has not shown that its proposed limitation is supported by the patent, useful or necessary, I am declining to adopt the limitation.

D. “breaking of the dormancy or quiescence” (claim 17)

Surrounding Claim Language	Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction

A method for <i>breaking the dormancy or quiescence</i> of a plant comprising the steps of . . . applying the composition in the immediate vicinity of a seed, tuber or root in an effective amount to enable a <i>breaking of the dormancy or quiescence</i> of the seed, tuber or root, in comparison to an untreated seed, tuber or root	Ending a state in which the seed will not germinate, tuber will not sprout or root will not grow	Ending a state in which the seed, tuber or root will not grow even if the conditions for growth are favorable
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The parties agree that “dormancy” from claim 17 means a state in which the seed will not germinate, tuber will not sprout or root will not grow. However, they dispute whether “dormancy” as used in the claim requires that conditions for growth be “favorable.” Defendant contends that this limitation is necessary to establish that the claim does not encompass a seed that is not growing and a tuber that is not sprouting simply because they lack adequate moisture, light or warmth. According to defendant, its proposed construction would make clear that the LCO, rather than the provision of suitable moisture, light and temperature conditions, caused the seed to germinate.

The patent contains no support for defendant’s proposed limitation. The patent makes no reference to whether “conditions for growth are favorable” in the context of breaking the dormancy of a seed or tuber and defendant’s citations to the patent do not support its construction. In particular, defendant cites Examples 6 and 8 of the ‘664 patent. Example 6 describes the dormancy breaking potential of a “signal solution” comprising an LCO in comparison with gibberellic acid, a known dormancy-breaker. Id., col. 15:57-16:63.

Example 8 concerns the use of LCOs as a dormancy-breaking treatment for microtubers and minitubers. Id., col. 18:29-34. In neither of these cited portions of the specification do the inventors discuss whether the conditions for growth were “favorable” or suggest a particular meaning for the terms “dormancy” or “quiescence.”

Again, defendant has proposed a construction that raises more questions than answers. Neither the proposed construction nor the specification provides any guidance as to what “the conditions for growth” are and when such conditions are “favorable.”

Finally, I am not concerned by defendant’s argument that construction is necessary to make clear that the LCO, rather than the provision of light or water, breaks the dormancy of the seed or tuber. Claim 17 makes clear that application of a composition comprising at least one LCO is what “enable[s] a breaking of the dormancy or quiescence of the seed, tuber, or root, in comparison to an untreated seed, tuber, or root.” Id., col. 26, ln. 50-56. There is no ambiguity to the claim that would allow it to encompass germination of a seed, tuber or root without enablement by the LCO.

In sum, defendant has not shown that the method recited in claim 17 applies only to seeds, tubers and roots that are in a dormant state when growth conditions are favorable. Therefore, I am rejecting defendant’s proposed limitation and declining to construe this claim.

ORDER

IT IS ORDERED that defendant Becker Underwood, Inc.'s request for construction of certain terms in United States Patent No. 6,979,664, dkt. #68, is DENIED.

Entered this 15th day of April, 2011.

BY THE COURT:

/s/

BARBARA B. CRABB

District Judge