IN THE UNITED STATES DISTRICT COURT

FOR THE WESTERN DISTRICT OF WISCONSIN

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

Plaintiffs,

v.

BECKER UNDERWOOD, INC.,

Defendant.

OPINION and ORDER

10-cv-283-bbc

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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) by selling a product for encouraging seed germination. Also, plaintiffs EMD Crop Bioscience Canada and EMD Crop Bioscience Inc. contend that defendant has violated 35 U.S.C. § 292 by marking its products with expired patents.

Now before the court are the parties' cross motions for summary judgment on the issues of infringement, invalidity, willfulness and false marking. After reviewing the undisputed facts, I conclude that plaintiffs have failed to adduce sufficient evidence to allow

a reasonable jury to find that defendant has directly or indirectly infringed any of the asserted claims in plaintiffs' patents. Plaintiffs have no evidence than any party used the accused product in such a way as to carry out each step of the asserted claims of the '664 patent. Moreover, plaintiffs have not shown that the use of defendant's accused product would infringe the asserted claims under the conditions to which it would be subjected in the field. Therefore, defendant is entitled to summary judgment on plaintiffs' infringement claims. For the same reason, defendant is entitled to summary judgment on plaintiffs' willfulness allegation. Because non-infringement is clear and defendant has shown no reason to believe it is at risk for further infringement suits, I will exercise my discretion not to decide defendant's invalidity counterclaims or defenses. (The parties filed a stipulation stating that defendant had withdrawn its implied license defense in order to avoid arbitration of the issue in Canada. Dkt. #201. I will accept that stipulation.) With respect to plaintiffs' false marking claim, I conclude that the false marking statute does not apply under the facts of this case, because the newly-revised statute does not apply to situations in which a party mismarked its products with expired patents that formerly covered the marked products. Therefore, I will grant defendant's motion for summary judgment on that claim as well.

From the facts proposed by the parties, I find that the following are both undisputed and material. (I note that plaintiffs responded to several of defendant's proposed findings

of fact by stating simply "disputed," without elaborating as to the dispute or citing to any evidence in the record. Because this is a violation of this court's summary judgment procedures, I disregarded plaintiffs' response in such situations and accepted defendant's proposed fact as undisputed.) Procedure to be Followed on Motions for Summary Judgment, attached to Pretrial Conference Order, dkt. #39 (Aug. 26, 2010).

UNDISPUTED FACTS

A. The Parties

Plaintiffs EMD Crop Bioscience Canada Inc. and McGill University are co-owners of the '664 patent and EMD Crop Bioscience Canada is an exclusive licensee of the patent. McGill University also owns unrelated U.S. Patent No. 7,262,151, which is licensed to defendant Becker Underwood, Inc. Defendant developed a "rhizobial inoculant" product, Vault HP, using the technology in the '151 patent. Plaintiffs accuse defendant's Vault HP product of infringing claims 1, 5-17, 22 and 26-35 of the '664 patent.

B. The '664 Patent

The Patent and Trademark Office issued the '664 patent to Donald Smith and others on December 27, 2005. The '664 patent is titled "Composition for Accelerating Seed Germination and Plant Growth" and relates to the effects of lipo chitooligosaccharide

signaling molecules (LCOs) on certain physiological processes of plants.

1. Background

Soil naturally contains bacteria, one category of which can establish a symbiotic relationship with legume plants and is referred to collectively as rhizobia. Several kinds of rhizobia contain genome sequences known as nodulation or nod genes. When nod genes are activated by an "inducer," the rhizobia produces LCOs, which are phytohormones commonly referred to as "nod factors." There are several known naturally occurring nod-gene inducers, referred to as flavanoids or isoflavanoids, that cause LCOs to be produced by rhizobia.

One well known benefit of naturally occurring LCOs is their ability to assist in nitrogen fixation, which enables plants to obtain the nitrogen they need for growth by converting nitrogen gas into usable nitrogen mineral compounds. Rhizobia are able to fix atmospheric nitrogen; rhizobia living in root nodules can make the nitrogen available to plants. These processes occur after a seedling has taken root, that is, after seed germination and seedling emergence.

The '664 inventors claim to be the first to recognize that LCOs, directly or from an introduced bacteria, can be used in a method to accelerate seed germination and seedling emergence. '664 patent, col. 2, lns. 62-64; col. 3, lns. 61-63.

2. Claims and specification

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 enhance seed germination or seedling emergence and 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.

The asserted independent claims do not specify the actual amounts of LCOs, such as a numerical concentration, that should be applied to achieve the claimed enhancements under any particular growing conditions. Instead the asserted independent claims of the '664 patent require "an effective amount" of LCOs, taking steps "such that said LCO enhances seed germination or seedling emergence," or taking steps "such that said bacterial strain, upon expression of said LCO, enhances seed germination or seedling emergence." Id. (claims 1, 17, 22, 33 & 34).

The specification acknowledges that the ability of LCOs to effect germination and emergence, and the amount of LCOs necessary to do so, may be dependent on growing conditions, stating that "[i]n some plants, germination/emergence promoting effects of LCOs is seen at all temperatures suitable for growth, while in others, it is only observed under temperature limiting conditions." Id. at col. 13, lns. 42-45. See also id. at col. 19, lns. 27-32

("Signal solution (100%) was effective in causing sprouting in minitubers with 2 or 8 wks cold storage but it was ineffective on minitubers that had not been cold stored.") Some of the dependent claims identify specific ranges of LCO concentrations to be applied. E.g., id. at col. 26, lns. 14-16 ("wherein said LCO is present in said composition at a concentration between about 10^{-5} M to about 10^{-14} M") (claim 6).

C. Defendant's Accused Products

Defendant sells Vault HP, which is advertised as a "growth enhancement system" for soybeans. Dkt. #130-6. Vault HP is a seed inoculant, meaning that it is a coating for seeds that includes rhizobia. Defendant developed Vault UP after receiving a license from plaintiff McGill University to its 7,262,151 patent. The '151 patent relates to the discovery that compounds other than flavanoids can induce rhizobia to produce LCOs. Specifically, the '151 patent claims methods and compositions for promoting nitrogen fixation in soybean plants wherein the composition comprises rhizobia and at least one of a jasmonic acid, linoleic acid and linolenic acid or an ester or salt thereof. '151 patent, col. 15, lns. 25-35; col. 16, lns. 42-44. Methyl jasmonate is one derivative of jasmonic acid found to increase production of LCOs by rhizobia. Vault HP uses rhizobia in combination with methyl jasmonate to promote root nodulation and plant growth.

Vault HP is sold as one case containing three separate components. The first

component is inoculant pouches filled with Bradyrhizobium japonicum. These rhizobia are living organisms that require nutrients and oxygen to survive, and the inoculant pouches are filled with liquid that includes the required nutrients. The second component is a growth enhancer, of which methyl jasmonate is a key active ingredient. Finally, Vault HP includes a biofungicide, a liquid used to kill fungus to protect plants from the detrimental effects of fungus.

Defendant does not mix the three components of Vault HP before providing it to customers. Instead, customers (generally agricultural retailers who supply treated seed to farmers) mix the components of the product and apply the mixture to seeds. Each package of Vault HP contains instructions for mixing and application.

The Vault HP directions instruct users to mix the three components in water or another seed treatment. The directions say "Attention! Open contents only when ready to use." Dkt. #130-3. They direct a user to mix the Vault HP components with water and "[t]hen apply the resulting mixture to soybean seed," Id., and they state that "[p]roducts must be used on the same day they are first opened" and that Vault HP and any seeds treated with Vault HP should be stored "between 40°– 70°F (4°– 20°C) away from direct sunlight." Id.

Generally, Vault HP is applied to seeds in an uncontrolled environment, such as an open warehouse. After seeds are coated with the Vault HP mixture they are sent directly

through a chute into a farmer's truck. The farmer transports the treated seeds to a farm and plants the seeds in a field, where conditions are apt to vary widely. The soybeans are not necessarily protected from the sun during planting; the soil may contain varying levels of nutrients or bacteria; and the temperature of the soil and air may fluctuate.

D. Testing Vault HP against the '664 Patent

To determine whether use of Vault HP results in performance of the claimed methods in the '664 patent, plaintiffs' experts, Dr. Sadowsky and Dr. Carlson, performed a series of experiments with Vault HP. Defendant's expert, Dr. Vessey, reviewed and critiqued Sadowsky's and Carlson's tests, but did not perform his own tests with Vault HP. However, he concluded that because LCOs are not found in any component of Vault HP, using Vault HP cannot result in performance of the claimed methods of the '664 patent. He concluded that LCOs are not present by reviewing Vault HP's list of ingredients, which does not include an LCO. He also averred that he watched the manufacturing process of Vault HP and did not see LCOs being added to any component of Vault HP.

1. Testing Vault HP for the presence of LCOs

Because the first step of the claimed methods requires "providing a composition that comprises an effective amount of at least one [LCO]," both Dr. Sadowsky and Dr. Carlson

tested Vault HP and its individual components for the presence of LCOs. Dr. Sadowsky performed a "root hair deformation test" for several different compositions formed from Vault HP. Because LCOs are known to cause deformation in root hairs, this test involved applying test solutions to the roots of siratro plants (a tropical legume) and counting how many root hairs were deformed in comparison to a water control.

According to Dr. Sadowsky, the "root hair deformation assay is considered to be a 'gold standard' test for LCO detection in a sample," and "[i]t has been reported that a root hair deformation assay may detect an LCO at a concentration ranging from 10^{-6} to 10^{-12} M." Sadowsky Decl., dkt. #118, at ¶¶ 66, 84.

Dr. Sadowsky stated that "[b]ecause root hairs may produce an inducer that activates rhizobia to produce an LCO, the test samples of the 2011 [Vault HP] Product were centrifuged to remove rhizobia, and the supernatants were used as treatment solutions in some assays to avoid potential root hair deformation due to an LCO produced by the rhizobia induced by the roots." Id. at ¶ 72. He stated that he was "not aware that anything other than an LCO in the Vault HP Composition can cause root hair deformation." Id. at ¶ 66. In some of Sadowsky's root hair deformation tests, a composition was prepared by mixing the components of Vault HP in a container and incubating the mixture at 30° C for a period of 4–16 hours in the container. In those tests, Sadowsky observed root hair deformation. In other tests, Sadowsky applied components of Vault immediately after

mixing or after waiting only 10 minutes. He was unable to detect root hair deformation in those tests.

Dr. Carlson also tested the Vault HP components for LCOs. His method involved running samples of Vault HP through a chromatography column and then analyzing portions of the samples using a "mass spectrometry" technique. In testing the 2010 Vault HP product, Carlson prepared four test samples using various combinations of the Vault HP components: (1) enhancer, inoculant and fungicide; (2) enhancer and inoculant; (3) inoculant only; and (4) enhancer only. Carlson Decl., dkt. #119, at ¶ 34. The first sample (enhancer, fungicide and inoculant) was placed on a shaker at 30° C for 18 hours and then centrifuged. Id. at ¶ 35.

When testing the 2011 Vault HP product, Dr. Carlson created three samples: (1) enhancer, fungicide and inoculant; (2) inoculant with incubation; and (3) inoculant without incubation. Id. at ¶ 45. For both the first sample (enhancer, fungicide and inoculant) and the second (inoculant with incubation), Carlson placed the samples on a shaker at 30°C for six hours and then centrifuged them. Id. at ¶¶ 76, 85. Carlson concluded that his mass spectrometry tests showed the presence of LCOs in all samples that included the inoculant component. Carlson also identified specific concentrations of LCOs that were present in Vault HP as sold. Additionally, Carlson concluded that "it is reasonable to expect that a longer incubation. . . will result in additional LCO production such that the LCO

concentration of the VAULT HP Composition will [increase]." Id. at ¶ 85.

2. Determining whether Vault HP causes enhanced germination and emergence

Dr. Sadowsky tested Vault HP to determine whether it provided the claimed germination and emergence enhancements. (Dr. Carlson did not perform any testing for the claimed enhancements.) Sadowsky's enhancement testing was a series of eight germination and emergence assays. These experiments used the complete product mix of inoculant, enhancer and fungicide.

In the first experiment, Dr. Sadowsky applied the three components to soybean seeds at room temperature and immediately after mixing. The first solution was applied to seeds in the ratio recommended by defendant and the second solution used double the recommended amount of product for the same number of seeds. The second experiment was the same as the first experiment, but used more seeds. The third experiment also used more seeds, did not use a "double dose" of Vault HP and kept the solution for 4 hours at 30°C before applying it to seeds. The fourth experiment used three solutions of the recommended does of Vault HP. The first was mixed and held 10 minutes at room temperature before applying, the second was held 4 hours at 30°C and the third was held 16 hours at 30°C. Sadowsky detected enhancement of germination or emergence in every test, though he was unable to detect any "statistically significant" enhancement for the tests in which the

solution was applied immediately or after ten minutes.

3. Determining whether it was LCOs in Vault HP that caused enhanced germination and emergence

In his expert report, Dr. Vessey listed a number of ingredients in Vault HP that could cause enhanced germination or emergence. Vessey Decl., dkt. #112, at 84-88. Dr. Sadowsky stated in his expert report that he is "not aware of anything other than an LCO in the Vault HP Composition that can cause enhancement of seed germination." Sadowsky Decl., dkt. #118, ¶ 101. Sadowsky stated in his rebuttal report that "[t]o determine whether an LCO is the ingredient in a seed inoculant that causes a recited effect, one of ordinary skill in the art would be able to isolate and characterize the ingredient in the seed inoculant to determine whether it is an LCO by, for example, comparing certain features unique to an LCO (e.g. chemical structure, and biological effects such as root hair deformation)." Sadowsky Decl., dkt. #121, ¶ 156. He did not perform any testing that involved isolating the LCOs from Vault HP to determine whether it was the LCOs and not some other ingredient that caused the claimed enhancements.

Both Dr. Vessey and Dr. Sadowsky agree that the germination rate for a seed may vary depending on the conditions under which the seed is maintained and grown and that "the amount of LCO required to enhance seed germination or seedling emergence of a seed

may vary due to the surrounding conditions." Sadowsky Decl., dkt. #118, ¶ 137; Vessey Decl., dkt. #113 at 53-58. Dr. Smith, the inventor of the '664 patent, also agreed that the amount of LCOs required to enhance germination and emergence may depend on growing conditions. Smith testified that knowing whether a particular concentration of LCOs would enhance germination or emergence "depends on the conditions." Smith Dep., dkt. #117, at 309; see also id. at 32 (in response to question whether he could tell solely from concentration of LCOs whether there would be enhancement, Smith responded, "You'd have to have LCOs present, you have to be in the right concentrations, and you need—in fact, probably a bit of stress helps too.")

E. Mismarking of Vault HP

Plaintiffs have raised a false marking claim against defendant relating to the sale of Vault HP products with two expired patents listed on the packaging for the fungicide component, sold under the name Integral. Defendant began marking its Integral product with U.S. Patents Nos. 5,061,495 and 5,344,647 in 2005. As of 2005, neither the '495 nor the '647 patent had expired.

When defendant decided to incorporate the Integral product into the Vault HP product, it incorporated the same information from the existing Integral packaging into Vault HP's packaging, including the marking of the packaging with the '495 and '647 patents. At

the time, nobody working for defendant raised any questions about the Integral information on the Vault HP packaging or labels and nobody knew the Vault HP packaging was mismarked.

In May 2010, plaintiffs filed this lawsuit, raising a claim of false patent marking. Upon learning that Vault HP product packaging included expired patent numbers, defendant quarantined and modified all existing inventory to remove the patent markings, destroyed all mismarked labels and repackaged all products that had not been shipped. Defendant sent a letter to every customer or distributor location where a Vault product had been shipped in the previous year, explaining that the two patent numbers had expired and that the patent numbers had been left on the label inadvertently. Defendant has instituted a new internal review system for all product labels to insure that any information related to patents and trademarks included on the product labeling is reviewed before the label is printed or reprinted.

OPINION

A. Infringement

Plaintiffs contend that defendant's Vault HP product infringes claims 1, 5-17, 22 and 26-35 of the '664 patent. Plaintiffs have moved for summary judgment as to defendant's infringement of claims 1, 5 and 10-12. Defendant has moved for summary judgment of non-

infringement on all claims.

Patent infringement analysis has two steps: first, the patent claims must be interpreted or construed to determine their meaning and scope; second, the properly-construed claims are compared to the process or product accused of infringing. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed. Cir. 1995). The first step of this analysis, claim construction, is a matter of law reserved to the court. Id. at 970-71.

1. Claim construction

Earlier in this case, defendant filed a motion for construction of several terms found in the asserted claims of the '664 patent and I informed the parties that I would construe four terms. However, after reviewing the parties' submissions, I concluded that several of the alleged disputes were illusory and where disputes did exist, defendant's proposed limitations were either not supported by the patent or would not resolve the dispute adequately. Therefore, I declined to adopt any of the constructions proposed by the parties. Dkt. #94.

Having reviewed the parties' summary judgment materials, however, it is apparent that I must clarify the meaning of "effective amount" and "enhance/enhancing" in order to resolve the parties' summary judgment disputes. These terms are closely related. Claims 1 and 5-17 of the '664 patent say that LCOs must be present in the composition in an

"effective amount" in the"providing" step of the asserted method. Then, in claims 1 and 5-16, the composition must be applied in "an effective amount for enhancing seed germination or seedling emergence in comparison to an untreated seed or seedling." In claim 17, the composition must be applied "in an effective amount to enable a breaking of the dormancy or quiescence," and in claims 22 and 26-35, rhizobial or bacterial strains producing LCOs must be present in the first providing step and those LCOs must "enhance" seed germination or seedling emergence.

At the claim construction stage, both parties agreed that whether an amount is an "effective amount" depends on whether it is an amount sufficient to achieve the claimed benefit. Additionally, the parties agreed, at least with respect to some of the claims, that it was the LCOs present in the providing step, and not some other LCOs or nodulation factors, that caused the claimed enhancements. Thus, in the claim construction order, I concluded that the claims made it clear that an "effective amount" of LCOs means "an amount sufficient to achieve either enhancement of seed germination or seedling emergence or an amount sufficient to enable breaking of dormancy," and that those LCOs must "improve[] seed germination and seedling emergence in treated seeds as compared to nontreated seeds." Dkt. #94 at 10, 14.

I declined to adopt defendant's proposed construction of "effective amount" as "a quantity which is sufficient to result in a statistically significant difference in the claimed

benefit," because, among other reasons, defendant had not explained what "statistically significant" meant or whether statistical significance is something that would be understood by a person of ordinary skill in the art. Similarly, I declined to adopt defendant's proposed construction of "enhance/enhancing" as "cause/causing a significant observable difference between the treated and untreated object," because defendant had not explained what qualified as "significant" or "observable." Id. at 9-10.

In their summary judgment materials, both parties agree that "effective amount" is a functional limitation, meaning that it is the amount sufficient to achieve the function recited in the method steps of each claim. However, plaintiffs argue at various points in their briefs that the amount of LCOs "provided" initially "is not required to be effective by itself." Plts.' Br., dkt. #193, at 10, 14 n.7. For example, LCOs might accumulate between the "providing" stage and the "applying" stage, so long as the *applied* amount is effective for the claimed enhancement. Id.

Plaintiffs' interpretation of "effective amount" would read the limitation out of the "providing" step of the claims. Such a construction cannot be correct. Additionally, plaintiffs' new interpretation contradicts the position they took at the claim construction stage, when they admitted that "claim 1 requires separately that *both* the LCO and the composition comprising the LCO be present in an amount sufficient to achieve the recited benefits of enhancing seed germination or seedling emergence." Plts.' Br., dkt. #72, at 7

(emphasis in original). This was the correct interpretation and the one that I will apply in evaluating whether plaintiffs have proven that Vault HP contains LCOs in an "effective amount" when it is applied to soybean seeds. In sum, plaintiffs must show that the LCOs present in Vault HP when it is applied to seeds cause the claimed enhancements.

(I note that the parties also dispute the level of enhancement that is required by the claims and particularly, whether the non-statistically significant enhancements shown by plaintiffs' experts are sufficient to show infringement of the claims. Because I conclude that the tests are deficient for other reasons, I need not resolve this dispute.)

2. Direct infringement

Plaintiffs have moved for summary judgment on defendant's alleged direct infringement of claims 1, 5 and 10-12 of the '664 patent. Defendant has moved for summary judgment of non-infringement on all asserted claims. Because the asserted claims are method claims, defendant cannot be liable for direct infringement of the asserted claims merely because it manufactures and sells a product capable of carrying out the claimed methods. i4i Limited Partnership v. Microsoft Corp., 598 F.3d 831, 850 (Fed. Cir. 2010) ("Because the claims asserted by [the patent owner] are method claims, [the accused infringer's] sale of [its computer software], without more, did not infringe the . . . patent."); Ormco Corp. v. Align Technology, Inc., 463 F.3d 1299, 1311 (Fed. Cir. 2006); RF Delaware,

Inc. v. Pacific Keystone Technologies, Inc., 326 F.3d 1255, 1267 (Fed. Cir. 2003). Rather, to establish direct infringement, plaintiffs must prove that defendant performed every step of the claimed methods. Muniauction, Inc. v. Thomson Corp., 532 F.3d 1318, 1328 (Fed. Cir. 2008) ("[A] method claim is directly infringed only if each step of the claimed method is performed."); BMC Resources, Inc. v. Paymentech, L.P., 498 F.3d 1373, 1381 (Fed. Cir. 2007) ("Direct infringement . . . is limited to those who practice each and every element of the claimed invention.").

This means that to prove direct infringement of claims 1, 5 and 10-12, plaintiffs must show that defendant provided a composition (Vault HP) containing an effective amount of LCOs, applied the composition to seeds and then achieved enhanced germination or emergence caused by the LCOs. To prove that defendant directly infringed claim 17, plaintiffs must show that defendant applied Vault HP in an effective amount to break dormancy or quiescence, and to prove direct infringement of claims 22, 33 and 34, plaintiff must show that defendant applied Vault HP containing rhizobia expressing LCOs to seeds and then achieved enhanced germination or emergence caused by those LCOs.

Plaintiffs have produced no evidence that defendant ever performed every claimed step of these asserted method claims. Although plaintiffs contend that defendant "is directly infringing when it uses the product, for example for testing or demonstrations," Plts.' Resp., dkt. #193, at 6; Plts.' Reply, dkt. #187, at 1, n.1, the only evidence of any testing by

defendant consists of tests performed in 2007 in collaboration with plaintiff McGill University, the co-owner of the '664 patent. Dkts. ##147-7, 147-8, 147-9. These tests were not conducted with Vault HP, a product that did not exist until three years later. Moreover, plaintiffs have not shown whether an "effective amount" of LCOs were present when the tested solutions were applied to seeds, or whether any LCOs were the cause of any enhanced germination or emergence. Because plaintiffs have adduced no evidence of direct infringement by defendant, their direct infringement claims fail as a matter of law.

3. Indirect infringement

Plaintiffs also accuse defendant of indirect infringement arising from the sales of Vault HP to its customers along with instructions that allegedly result in infringement of the claimed methods. It is well established that the sale of a product designed to carry out a patented process may create liability for indirect infringement if the sale leads to direct infringement. Lucent Technologies, Inc. v. Gateway, Inc., 580 F.3d 1301, 1320 (Fed. Cir. 2009). Indirect infringement may be proven by evidence of "inducing infringement" or "contributory infringement." 35 U.S.C. §§ 271(b) & (c). Plaintiffs accuse defendant of both contributory and induced infringement.

To establish contributory infringement, a patent owner must show "(1) that there is direct infringement, (2) that the accused infringer had knowledge of the patent, (3) that the

component has no substantial noninfringing uses, and (4) that the component is a material part of the invention." Fujitsu Ltd. v. Netgear Inc., 620 F.3d 1321, 1326 (Fed. Cir. 2010); 35 U.S.C. § 271(c).

To establish induced infringement, a patentee must prove that the defendant "actively induce[d] infringement of a patent." 35 U.S.C. § 271(b). As with contributory infringement, the patentee must establish that some other third party committed the entire act of direct infringement. BMC Resources, 498 F.3d at 1380. Additionally, the patentee must show that the alleged infringer took specific acts to knowingly induce the infringement. DSU Medical Corp. v. JMS Co., 471 F.3d 1293, 1304 (Fed. Cir. 2006) (en banc) (citations and quotations omitted).

Thus, the threshold question for plaintiffs' indirect infringement claim is whether they have adduced evidence showing that a third party directly infringed the method claims by performing each step of the method by using the Vault HP product. Dynacore Holdings Corp. v. U.S. Philips Corp., 363 F.3d 1263, 1272 (Fed. Cir. 2004). Plaintiffs must either "point to specific instances of direct infringement or show that the accused device *necessarily* infringes the patent in suit." ACCO Brands, Inc. v. ABA Locks Manufacturer Co., 501 F.3d 1307, 1313 (Fed. Cir. 2007) (emphasis added).

Plaintiffs contend that defendant's customers, including seed distributors and farmers, directly infringe the '664 method claims when they use Vault HP according to defendant's

instructions. In particular, a customer performs the "providing" steps of the asserted claims when the customer mixes the Vault HP components as directed and "provides" an LCO composition. Customers perform the "applying" step when they coat the mixture onto seeds. The Vault HP mixture then causes enhanced germination and emergence and enables the breaking of dormancy or quiescence, as claimed.

Plaintiffs have not pointed to any instance of a specific customer using Vault HP products to perform all of the steps of the claimed methods. In fact, plaintiffs did not take discovery from any actual Vault HP seed distributors or customers to determine whether they perform the claimed methods. Plaintiffs never tested Vault HP after it was mixed by a seed distributor, never tested soybean seed actually coated with Vault HP by a seed distributor and never determined whether any LCOs in Vault HP enhance germination or emergence in a farm field in which the treated seeds had been planted.

Plaintiffs cite advertisements for the Vault HP product, in which defendant states that the retailers and growers have reported faster emergence and plant growth for soybeans treated with Vault HP. Additionally, defendant has said in advertisements that Vault HP "produce[s] higher levels of nod factors." Dkts. ##130-6, 130-7. Plaintiffs contend that because nod factors and LCOs are synonymous, these advertisements confirm their assertions that specific customers have performed the methods of the asserted claims by applying Vault HP containing LCOs to their soybeans and achieving enhanced seed germination and

seedling emergence.

These infringement arguments are not persuasive. Although "it is true that circumstantial evidence may be used to demonstrate direct infringement, the evidence must still indicate that infringement actually occurred." SRI International Inc. v. Internet Security Systems, Inc., 647 F. Supp. 2d 323, 336 (D. Del. 2009), aff'd, 2010 WL 4569946, at *1 (Fed. Cir. Nov. 5, 2010) (internal citation omitted)). "Hypothetical instances of direct infringement are insufficient to establish vicarious liability or indirect infringement." ACCO Brands, 501 F.3d at 1313 (citation omitted).

Defendant's advertising materials do not teach all of the claimed steps in combination and they do not claim that the specific limitations of the claims are met by Vault HP. The advertisements do not connect the observed "emergence" to LCOs in Vault HP that were present when it was applied to seeds. Further, it is not clear whether the advertisements use the term "emergence" in the same way the patent does. The "emergence" described in the '664 patent refers to growth of the seedling "which is observable above the rooting medium surface." '664 patent, col. 8, lns. 42-45. One of the advertisements that plaintiffs point to as touting the "earlier emergence" of plants treated with Vault HP displays pictures of plants treated with Vault HP and non-treated plants. The treated plants are taller and have multiple leaves and the untreated plants are shorter with fewer leaves. Plts.' Resp. Br., dkt. #193, at 46. Thus, the picture suggests that "earlier emergence" results in plants that grow

taller or faster than untreated plants. To the extent the picture is advertising increased plant growth, this benefit was disclaimed specifically during prosecution of the '664 patent as a benefit of LCOs already known in the art. Resp. to PTO action, dkt. #116-2, at 67-68.

In sum, no reasonable jury could rely on the advertisements cited by plaintiffs to conclude that a specific third party performed all of the required steps of the asserted method claims. PharmaStem Therapeutics, Inc. v. ViaCell, Inc., 491 F.3d 1342, 1351 (Fed. Cir. 2007) (affirming judgment for accused infringer because advertising statements did not represent that stem cells were "present in an amount sufficient to effect hematopoietic reconstitution of a human adult" as required by claims); Regents of University of Minnesota v. AGA Medical Corp., 2011 WL 13943, *9 (D. Minn. Jan. 4, 2011) (defendant's products did not meet claim requirement for "disks," even though marketing literature described accused products "as having two disks"; the "two disks" language of marketing literature did not carry same meaning as "disks" required by asserted claims); Whirlpool Corp. v. LG Electronics, Inc., 2006 WL 2035215, at *8 (W.D. Mich. July 18, 2006) (granting summary judgment of non-infringement of method claims and noting that "literature Whirlpool points to cannot be understood to be an admission [that washer operates as required by asserted claims] . . . [I]t is the washer, not the marketing materials, that are the subject of the infringement accusation. The marketing materials cannot override the actual operation of the Harmony.").

Because plaintiffs have not shown a specific instance of infringement by a particular customer, they must establish that customers using Vault HP according to defendant's instructions will "necessarily" perform all steps of the asserted method claims. Exergen Corp. v. Wal–Mart Stores, Inc., 575 F.3d 1312, 1322 (Fed. Cir. 2009) ("Because [plaintiff] presented no evidence of any specific instance of direct infringement, [plaintiff] was required to show that the accused device necessarily infringes the patent in suit.") (internal citations and quotations omitted); see also ACCO Brands, 501 F.3d at 1313. Plaintiffs contend that the experiments and opinions of their experts satisfy this requirement. Golden Blount, Inc. v. Robert H. Peterson Co., 438 F.3d 1354, 1362-63 (Fed. Cir. 2006) (instructions that, when followed, necessarily lead to infringement can be used to establish that customers infringed). Although plaintiffs' experts establish that customers using Vault HP according to defendant's instructions *may* infringe the asserted claims, the experts' tests fall short of establishing that customers will *necessarily* infringe.

Turning first to the "providing" step of the independent claims, plaintiffs contend that customers using Vault HP "provid[e] a composition that comprises an effective amount of at least one [LCO]" because LCOs are present in an effective amount when customers apply Vault HP to soybean seeds. Plaintiffs' experts, Dr. Carlson and Dr. Sadowsky, performed tests specifically to detect LCOs in Vault HP and both concluded that Vault HP's inoculant component contains LCOs, as does the composition that is created when all three

components are mixed.

Defendant criticizes the experts' tests and conclusions on several grounds. First, the two experts used different tests to detect LCOs in the Vault HP components and reached different results. Dr. Sadowsky used root hair deformation assays and Dr. Carlson used mass spectrometry tests. In his report, Sadowsky wrote that "[a] root hair deformation assay is considered to be a 'gold standard' test for LCO detection in a sample." Sadowsky Decl., dkt. #118, ¶ 66. However, Sadowsky's root hair deformation tests detected no LCOs in the 2011 Vault HP Product when the three components were mixed and immediately applied to seed or when the three components were mixed and applied to seed ten minutes after mixing. Id. at ¶ 80. Sadowsky detected LCOs only when the three components were mixed, incubated for four or sixteen hours at 30°C (above Vault HP's recommended temperature limits) and then applied to seeds.

Dr. Sadowsky's results suggest that because no LCOs were detected when the samples were tested immediately after mixing, the three components of Vault HP provided by defendant to its customers do not contain LCOs. In other words, under Sadowsky's tests, defendant's customers would not perform the "providing" step of the claimed methods if they mixed the three components and then applied that mixture to seeds immediately or within ten minutes, because the customer would not be "providing a composition that comprises an effective amount of at least one [LCO]." Because plaintiffs have not adduced

evidence establishing that defendant's customers always wait several hours after heating and mixing Vault HP before applying it, Sadowsky's tests do not establish that customers using Vault HP will *necessarily* provide a composition containing an LCO.

In addition, plaintiffs downplay the results of Sadowsky's "gold standard" test, pointing out that Sadowsky relied ultimately on the findings of plaintiffs' other expert, Dr. Carlson, who reported that his testing found LCOs when the three components of Vault HP were mixed and applied immediately to seed. Defendant takes issue with Carlson's testing, pointing out that he incubated some of his samples for several hours before applying the mixture to seeds, something that defendant's customers, or at least most of them, would not do. However, Carlson conducted some tests without incubating the samples and concluded that the both the inoculant and the mixed components contain LCOs.

It does not appear that Dr. Sadowsky or Dr. Carlson did any testing to try to resolve the discrepancies between their test results. Rather, Sadowsky explained the different results by stating that "[t]he two LCO detection techniques, i.e., root hair deformation assay and the mass spectrometry are two different techniques, having different sensitivities. A negative result obtained by either technique does not necessarily negate a positive result obtained by the other technique." Sadowsky Decl., dkt. #118, at ¶ 85. However, Sadowsky also believes that root hair deformation tests generally can detect LCOs in the concentrations detected by Carlson. He did not explain why his tests did not detect any LCOs in this case.

In addition to the apparent discrepancies between the findings of Dr. Sadowsky and Dr. Carlson, there are other problems with the tests. In particular, plaintiffs' testing does not establish that it is LCOs in Vault HP that cause the claimed enhancement, as required by the claims, rather than some other ingredient. Sadowsky did not test any LCOs separately to determine whether those LCOs are capable of causing enhanced germination or emergence or breaking of dormancy or quiescence. He stated only that he was "not aware of anything other than an LCO in the Vault HP Composition that can cause enhancement of seed germination." Id. at ¶¶ 101, 117. Dr. Vessey pointed out that in Sadowsky's tests, the treatments that had been incubated the longest and thus, were likely to have the most LCOs, caused the least amount of enhancement. Additionally, Vessey stated that a number of other ingredients in Vault HP can enhance germination or emergence. Vessey Decl., dkt. #112, at 85-87.

Defendant has several additional criticisms of Dr. Sadowsky's test results and methodology, but the primary problem with Sadowsky's tests and opinions is that there is no evidence that they are an adequate representation of all of the growing conditions in the fields in which customers actually use Vault HP. It is undisputed that the "effective amount" of LCOs is dependent upon the particular growing conditions. Vessey, Sadowsky, Smith (the inventor of the '664 patent) and the '664 patent itself all acknowledge this. Sadowsky's tests do not establish that Vault HP would provide an effective amount of LCOs to enhance seed

germination, emergence or dormancy breaking under all possible growing conditions. They do not account for the variations in temperature, pH, soil composition or other factors that affect seed germination and emergence. For example, as the '664 patent points out, a concentration of LCOs that qualifies as an "effective amount" to enhance germination in a temperature-limiting situation might provide no enhancement for seeds in normal growing conditions.

Because plaintiffs have no evidence of a specific instance of infringement, "[i]t is not enough to simply show that a product is *capable* of infringement" in a laboratory. Fujitsu, 620 F.3d at 1329 (emphasis added). Rather, plaintiffs must show that customers using Vault HP according to defendant's instructions will *necessarily* perform the claimed methods. Sadowsky's tests do not satisfy this standard; rather, they show only "hypothetical" instances of infringement. This showing is insufficient to meet plaintiffs' burden at summary judgment. ACCO Brands, 501 F.3d at 1313. See also Alza Corp. v. Mylan Labs., Inc., 464 F.3d 1286, 1297 (Fed. Cir. 2006) (laboratory testing not predictive of actual performance "absent evidence demonstrating that the [laboratory] system is a good model of [the] actual [accused] behavior"); Silicon Graphics, Inc. v. ATI Technologies, Inc., 2008 WL 4200359, *21 (W.D. Wis. Jan. 30, 2008) (improper for patent plaintiff "to rely on its experts' creation of an infringing system"), overruled on other grounds by Silicon Graphics, Inc., 607 F.3d 784 (Fed. Cir. 2010).

Although this may seem like a high burden to meet at the summary judgment stage, this standard applies only because plaintiffs failed to adduce evidence of at least one example of a specific customer who had performed all of the claimed methods. E–Pass Technologies v. 3Com Corp., 473 F.3d 1213, 1222–23 (Fed. Cir. 2007) ("If, as [plaintiff] argues, it is 'unfathomable' that no user in possession of one of the accused devices and its manual has practiced the accused method . . . [plaintiff] should have had no difficulty in meeting its burden of proof and in introducing testimony of even one such user."); SRI, 647 F. Supp. 2d at 338 ("[I]f [defendant's] documents encouraged its customers to infringe, it follows that infringement would not be an isolated incident, and plaintiff should have been able to adduce evidence of at least one example of actual infringement.") (citing Lucent Technologies, Inc. v. Gateway, Inc., 543 F.3d 710, 723 (Fed. Cir. 2008) (finding no error in court's analysis that if using infringing combination of software was "so common and so routine, then certainly [plaintiff] could have produced evidence of at least one instance" where infringement occurred)); see also Minsurg International, Inc. v. Frontier Devices, Inc., 2011 WL 486120, *3 (M.D. Fla. Feb. 7, 2011) ("If infringement among surgeons is an inescapable conclusion, [plaintiff] should have been able to timely identify at least one instance of direct infringement.").

In sum, plaintiffs have failed to adduce evidence establishing that any third party directly infringed any of the asserted method claims of the '664 patent. Therefore, plaintiffs'

indirect infringement claims fail as a matter of law and defendant is entitled to summary judgment on all of plaintiffs' infringement claims.

B. Invalidity

Defendant has moved for partial summary judgment on two of its invalidity counterclaims, contending that all asserted claims of the '664 patent are invalid under 35 U.S.C. § 101 as attempting to patent a natural process and invalid under 35 U.S.C. § 102 as anticipated by U.S. Patent No. 5,646,018. Plaintiffs have moved for summary judgment on defendant's remaining invalidity counterclaims, contending that defendant has failed to show by clear and convincing evidence that any of the claims of the '664 patent are invalid for attempting to patent a natural process, for lack of written description or enablement, for indefiniteness or for anticipation or obviousness.

The Court of Appeals for the Federal Circuit has held that a district court has the discretion to dismiss invalidity counterclaims upon a grant of summary judgment of non-infringement. Phonometrics, Inc. v. Northern Telecom Inc., 133 F.3d 1459, 1468 (Fed. Cir. 1998); Cardinal Chemical Co. v. Morton International, Inc., 508 U.S. 83, 95 (1993) (in addressing motion for declaratory judgment district court has discretion to decide whether to exercise jurisdiction even when established). It is appropriate for a district court to address only the infringement issue when non-infringement is clear and invalidity is not

plainly evident. Phonometrics, 133 F.3d at 1468 (citing Leesona Corp. v. United States, 530 F.2d 896, 906 n.9 (Ct. Cl. 1976)).

Discretionary dismissal of defendant's invalidity counterclaims is appropriate in this case. It is clear that plaintiffs have failed to prove either direct or indirect infringement and it is less clear whether these patents are invalid. It would be a poor use of judicial resources to explore these issues at this time, when defendant has given the court no reason to believe that it is at risk of a future infringement suit based on the '664 patent. In sum, because defendant's motion for summary judgment will be granted on the core issue of non-infringement and because the outcome of defendant's counterclaims for invalidity is less certain, I will exercise my discretionary authority and dismiss defendant's invalidity counterclaims without prejudice.

C. False Marking

Plaintiffs have raised a false marking claim against defendant based on defendant's marking the fungicide component of Vault HP with two recently expired patent numbers. Under 35 U.S.C. § 292, "[w]hoever marks upon, or affixes to, or uses in advertising in connection with any unpatented article, the word 'patent' . . . for the purpose of deceiving the public . . . [s]hall be fined not more than $500 for every such offense." 35 U.S.C. § 292(a). Defendant has moved for summary judgment on the claim, contending that there

is no evidence that it had any intent to deceive the public when it mismarked Vault HP. I agree that plaintiffs have adduced no evidence that defendant knew that the patents had expired or that it intended to deceive the public.

However, there is a more fundamental problem with plaintiffs' false marking claim. On September 16, 2011, Congress amended the false marking statute to state that "[t]he marking of a product . . . with matter relating to a patent that covered that product but has expired is not a violation of this section." 35 U.S.C. § 292(c). This amendment applies "to all cases, without exception, that are pending on, or commenced on or after" September 16, 2011. Pub. L. 112-29, § 16(b)(4) at 329 (Sept. 16, 2011). Because plaintiffs' claims rely solely on defendant's mismarking its products with expired patents, plaintiffs cannot state a claim under the Act. Therefore, I will grant defendant's motion for summary judgment on this claim.

ORDER

IT IS ORDERED that

1. Defendant Becker Underwood, Inc.'s motion for summary judgment, dkt. #108, is DENIED with respect to its invalidity counterclaims and GRANTED with respect to:

a. The claims of plaintiffs EMD Crop Bioscience Canada Inc. and McGill University that defendant infringe claims 1, 5-17, 22 and 26-35 of United States Patent No. 6,979,664;

and

b. The claims of plaintiffs EMD Crop Bioscience Canada and EMD Crop Bioscience Inc. that defendant falsely marked its products in violation of 35 U.S.C. § 292.

2. Plaintiffs' motions for summary judgment, dkts. #125 and #126 are DENIED.

3. The parties' joint stipulation regarding the withdrawal of defendant's implied license defense, dkt. #201, is GRANTED.

4. Defendant's counterclaims asserting invalidity are DISMISSED without prejudice.

5. The clerk of court is directed to enter judgment accordingly and close this case.

Entered this 3d day of November 2011.

BY THE COURT:
/s/
BARBARA B. CRABB
District Judge