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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KINYA OGAWA and TATSUYA HOJO

Appeal 2018-008408
Application 13/491,208
Technology Center 1600

Before DONALD E. ADAMS, DEMETRA J. MILLS, and RICHARD M. LEBOVITZ, *Administrative Patent Judges*.

ADAMS, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from Examiner's decision to reject claims 1–3. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as "Shin-Etsu Chemical Co., LTD" (Appellant's January 23, 2018 Appeal Brief (Appeal Br.) 1).

STATEMENT OF THE CASE

Appellant's disclosure "relates to a so-called mating disruption method and a mating disruptant used therefor, wherein the former is a pest control method of releasing a sex pheromone substance of an insect pest in a field to disrupt the mating behavior of the insect pest" (Spec. 1). Claims 1–3 are representative and reproduced below:

> 1. A mating disruption method comprising a step of starting to apply a mating disruptant after mating and oviposition of imagoes of the first generation of an insect pest are substantially over and before imagoes of the second generation of the insect pest emerge, with neither the use of the mating disruptant nor the use of an insecticide against the first generation,
>
> the mating disruptant targeting at least one kind of insect pest which comprises one or more kinds of acetates as a natural sex pheromone, the insect pest being selected from the group consisting of tortricid (Leafroller), armyworm (Spodoptera), Sesiidae (Synanthedon), pink bollworm (Pectinophora gossypiella: PBW), European grapevine moth (Lobesia botrana: EGVM), tomato pinworm (Keiferia lycopersicella: TPW), light brown apple moth (Epiphyes postvittana: LBAM), Grapholita dimorpha Komai (Grapholita dimorpha), apple leafminer (Phyllonorycter ringoniella), tomato leafminer (Tuta absoluta) and European goat moth (Cossus cossus), all of which are substantially free of alcohol or alcohols derived from the acetates as well as oriental fruit moth (Grapholitha molesta: OFM) and omnivorous leafroller (Platynota stultana), both of which comprise 1.5% by weight or less of alcohol or alcohols derived from the acetates; and
>
> the mating disruptant comprising the acetates and the alcohol or alcohols derived from the acetates wherein each amount of the alcohol or alcohols is 1.5 to 10% by weight relative to each amount of the acetates.

(Appeal Br. 12.)

> 2. The mating disruption method according to claim 1, wherein the insect pest is an insect pest which emerges earlier between two kinds of insect pests having different emergence times, and the step of starting to apply is carried out after mating and oviposition of imagoes of the first generation are substantially over and before imagoes of the second generation of the insect pest emerge, and before emergence of the first generation of an insect pest which emerges later between the two kinds of insect pests.

(*Id.*)

> 3. The mating disruption method according to claim 2, wherein the insect pest which emerges earlier is oriental fruit moth and the insect pest which emerges later is peach twig borer or codling moth.

(*Id.* at 13.)

Grounds of rejection before this Panel for review:

Claims 1–3 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Ogawa,[2] Johnson,[3] and McGhee.[4]

ISSUE

Does the preponderance of evidence relied upon by Examiner support a conclusion of obviousness?

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[2] Ogawa et al., US 2010/0021417 A1, published Jan. 28, 2010.
[3] Johnson et al., *Organic Fruit Production Needs and Pest Management Practices in the Southeastern United States*, 873 Acta. Hort. 37–44 (2010).
[4] Stelinski et al., *Sprayable Microencapsulated Sex Pheromone Formulations for Mating Disruption of Four Tortricid Species: Effects of Application Height, Rate, Frequency, and Sticker Adjuvant*, 100 J. Econ. Entomol. 1360–69 (2007). We refer to this document as McGhee as it was relied upon by Appellant and Examiner.

ANALYSIS

Examiner finds that although Ogwa discloses Appellant's claimed method but for:

> [A]n insect pest which emerges earlier between two kinds of insect pests having different emergence times, and the step of starting to apply is carried out after mating and oviposition of imagoes of the first generation are substantially over and before imagoes of the second generation of the insect pest emerge without use of the mating disruptant against the first generation, and before emergence of the first generation of an insect pest which emerges later between the two kinds of insect pests. Ogawa does not teach such a method wherein the earlier emerging insect pest is the oriental fruit moth and the later emerging insect pest is the codling moth.

(Ans.[5] 3–4 (citing Ogawa, Abstract and claims 1–9); *see also* Appeal Br. 4.)

To make up for this deficiency in Ogawa, Examiner relies on Johnson to disclose a pest management practice relating to "organic fruit production in the southeastern United States," wherein "mating disruption applied against mid-season generations of codling moth and oriental fruit moth can result in less than 1% fruit damage at harvest" (Ans. 4 (citing Johnson, Abstract and 38: fourth paragraph); *see also* Appeal Br. 4).

Thus, based on the combination of Ogawa and Johnson, Examiner concludes that, at the time Appellant's invention was made, it would have been

> implicit to one of ordinary skill in the art to treat before the first generation of codling moth [CM], which would occur after the oviposition of the first generation of oriental fruit moth [OFM] and before the emergence of the second generation of . . . [OFM] since the start of the first generation of . . . [CM] (May 13) occurs after the first generation of . . . [OFM] (April 29) but

[5] Examiner's August 2, 2018 Answer.

> before the second generation of . . . [OFM] (June 25) as evidenced by McGhee (pg. 1363).

(Ans. 4.) We are not persuaded.

Ogawa discloses that the pest control effect of sex pheromone is reduced as the pest population density increases (Ogawa ¶ 62). In this regard, Ogawa discloses that application of mating disruptants against the second or later generation of insect pest resulted in insufficient pest control effects (*id.*). In contrast, Ogawa discloses that stable results were obtained when the application of mating disruptants were switched from the second or later generation to application against the first generation, which has a low population density (*id.*). Thus, we agree with Appellant's contention that Ogawa "teaches away from delayed application of a mating disruptant," as set forth in Appellant's claimed invention (Appeal Br. 8).

In addition, we agree with Appellant's contention that it is not clear from Johnson: (a) "how the mating disruptant was applied," i.e., whether or not the mating disruptant was applied in combination with an insecticide, and (b) "what was meant by mid-season generations" (Appeal Br. 5; *see also* Reply Br. 5). Therefore, we look to Aselage,[6] as relied upon by Johnson, to provide context to Johnson's disclosure.[7]

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[6] Aselage et al., *From IPM to organic and sustainable agriculture*, In: E.B. Radcliffe, W.D. Hutchison and RE. Cancelado (eds.), Integrated Pest Management: Concepts, Tactics, Stategies and Case Studies, 489–505, Cambridge University Press, New York (2009). Appellant refers to this document as Johnson 2009.

[7] Appellant explains:

> The fourth paragraph on page 38 of Johnson states the following:

As Appellant explains, Aselage's Table 39.2 makes clear that the insecticides Intrepid and Guthion were repeatedly applied throughout the season and "no mating disruptant was applied against CM," which were instead "controlled by [the] insecticides . . . Intrepid and Guthion" (*see* Appeal Br. 6 (citing Aselage's Table 39.2) (describing "[i]nsecticides (active ingredient) and mating disruption (MD) sprayable pheromone applied to the conventional and alternative management apple blocks in Berryville, AR, 2004); *see also* Reply Br. 5–6). In addition, although Aselage's Table 39.2 discloses that an OFM disruptant was applied June 24, July 12 and July 26, 2004, Aselage "does not[, as Appellant explains,] show that the disruptant was applied after mating and oviposition of imagoes of the first generation of an insect pest are substantially over and before imagoes and the second generation of the insect pest emerge" (*id.* (citing Aselage's Table 39.2)).

Similarly, Aselage's Table 39.3 discloses that the application of mating disruptant "against CM in combination with insecticide Sevin on May 3-6, 2005," with "no mating disruptant . . . applied against OFM" (*see* Appeal Br. 7 (citing Aselage's Table 39.3) (describing "[i]nsecticides (active ingredient) and mating disruption (MD) pheromone ties applied to the

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> "early and late season use of CMGV [codling moth granulosis virus] and Bt [Bacillus thuringiensis] could be integrated with mating disruption against mid-season generations of CM and OFM [oriental fruit moth], resulting in less than 1% fruit damage at harvest (Aselage and Johnson, 2008)."

(*Id.* at 4–5 (alteration original).) We agree with Appellant's contention that the reference to Aselage on page 38 of Johnson includes a typographical error with respect to the year, wherein 2008 should have been 2009 (*see id.* at 5; *see* Johnson 41 (citing Aselage's 2009 publication)).

conventional and alternative management apple blocks in Berryville, AR, 2005)). In addition, although Aselage's "Table 39.3 of does not [, as Appellant explains,] teach that the disruptant was applied after mating and oviposition of imagoes of the first generation of an insect pest are substantially over and before imagoes of the second generation of the insect pest emerge" (*id.*).

Thus, with the benefit of the context provided by Aselage, we agree with Appellant's contention that "Johnson does not teach applying a mating disruptant after mating and oviposition of imagoes of the first generation of an insect pest are substantially over and before imagoes of the second generation of the insect pest emerge, as recited in [Appellant's] claims" (*id.*).

Appellant further contends that "McGhee does not cure the[] deficiencies" in the combination of Ogawa and Johnson (*id.* at 9). As Appellant explains, although McGhee "discloses several experiments evaluating various parameters of mating disruption," in all of McGhee's experiments "the mating disruptant was applied to each moth generation, including the first generation" (*see id.* (citing McGhee 1361–63)). Thus, we agree with Appellant's contention that

> McGhee fails to teach or suggest a mating disruption method comprising applying a mating disruptant after mating and oviposition of imagoes of the first generation of an insect pest are substantially over and before imagoes of the second generation of the insect pest emerge, with neither the use of the mating disruptant nor the use of an insecticide against the first generation.

(*Id.*)

We recognize Examiner's assertion that "McGhee is only relied on as evidentiary support of the start of the first generation of codling moth (May

13) occurring after the first generation of oriental fruit moth (April 29) but before the second generation of oriental fruit moth (June 25)" (Ans. 6). As Appellant explains, however, McGhee discloses experiments "conducted at the Trevor Nichols Research Complex (TNRC) of Michigan State University in Fennville, MI" (Reply Br. 6). Therefore, "the date of the start of each moth generation [in McGhee] means the date in Michigan" (*id.*). In contrast, Johnson discloses experiments performed in Arkansas, wherein "the start of the first generation of OFM . . . [, due to climatic differences between Arkansas and Michigan, is] about one month earlier than that in Michigan (*id.*). Thus, as Appellant explains, McGhee's Michigan dates are not indicative of OFM and CM generations in Arkansas, as disclosed by Johnson and evidenced by Aselage (*see id.*).

For all of the foregoing reasons, which include, *inter alia*, application of mating disruptant: (a) against the first generation, (b) together with insecticide, and (c) on different dates due to climatic differences in the geographic region of application, we are not persuaded by Examiner's assertion, that based on the combination of Ogawa, Johnson, and McGhee, those of ordinary skill in this art at the time of Appellant's claimed invention would have arrived at a mating disruption method that comprises the specific timing and manner of applying a mating disruptant that is required by Appellant's claimed invention through routine experimentation (Ans. 6).

CONCLUSION

The preponderance of evidence relied upon by Examiner does not support a conclusion of obviousness. The rejection of claims 1–3 under 35

U.S.C. § 103(a) as unpatentable over the combination of Ogawa, Johnson, and McGhee is reversed.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–3	103	Ogawa, Johnson, McGee		1–3

REVERSED