



PATENTS ACT 1977

APPLICANT	David Munday
ISSUE	Whether GB 2003279.3 complies with sections 1(1), 14(5)(b) & 14(5)(d) of the Patents Act 1977
HEARING OFFICER	Stephen Brown

DECISION

Introduction

- 1 Patent Application GB 2003279.3 is the national phase of a PCT application published as WO 2019/033162 claiming a priority date of 15th August 2017. It was subsequently republished as GB2582454 on 23rd September 2020.
- 2 Despite several rounds of correspondence, the applicant has been unable to convince the Examiner that the application is allowable under Sections 2 and 3 of the Act. Notwithstanding that, the applicant has also been unable to convince the Examiner that the application meets the requirements of Section 14(5) of the Act. As a consequence, the applicant has requested a hearing to resolve these matters.
- 3 The hearing took place on 15th December 2020 by video. The applicant was represented by Mr Graham Lock of Fry Heath and Spence to whom I add my thanks for his comprehensive skeleton arguments. I was assisted in this hearing by Mr Nigel Hanley.
- 4 In preparing this decision, I would also like to thank Adrian Morris who is a member of staff at the IPO and is currently an Examiner for the Welsh Beekeepers Association and holds the Welsh Beekeepers Association Advanced Theory and General Husbandry certificates. He is also a former DEFRA Seasonal Bee Inspector. His help has been of great assistance in identifying the skilled person.

The Application

- 5 The application is concerned with bee farming and in particular, the production of bioactive honey which is said to have long-lasting anti-bacterial qualities. To be bioactive a honey must have a methylglyoxal (MGO) number of at least 350. The application recognises that plants whose pollen provide this type of honey include *Leptospermum* and *Eucalyptus*.

- 6 However, the pollen and nectar that can yield bioactive honey is not always a good nutrient for bees and as a result bees require a further source of nutrition from another type of plant. The applicant has recognised that using a “non-natural” planting scheme around a hive that includes first and second types of plants allows for improved bio-active honey production along with happy well fed bees.

The Claims

- 7 The claims on file are those dated 14th October 2022, a copy of them is attached at Annex A to this decision.

The Issues

- 8 The examiner issued a pre-hearing report to the applicant on 10th November 2022. In that letter they identified a number of issues that I need to resolve. These are:
- a. The independent claims, claims 1, 7, 10 & 14, are not considered to be clear;
 - b. Claims 1, 7, 10 and 14 appear to be for different inventions;
 - c. Claims 1-10, 12 and 14 are not considered novel;
 - d. Notwithstanding objection (c), to novelty, claims 1-5 and 7-12 are considered obvious;
 - e. In addition, claims 3, 5 and 15 are also considered not to be clear.

The Law

- 9 1(1) of the Act sets out what is required of a patentable invention as follows:

1(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say-

(a) the invention is new;

(b) it involves an inventive step;

(c) it is capable of industrial application;

(d) the grant of a patent for it is not excluded by subsections (2) and (3) of Section 4A below;

and references in this Act to a patentable invention shall be construed accordingly

10 Section 2 of the Act sets out what 'new' means as follows:

2(1) An invention shall be taken to be new if it does not form part of the state of the art.

2(2) The state of the art in the case of an invention shall be taken to comprise all matter (whether a product, a process, information about either, or anything else) which has at any time before the priority date of that invention been made available to the public (whether in the United Kingdom or elsewhere) by written or oral description, by use or in any other way

2(3) The state of the Art in the case on an invention to which an application for a patent or a patent relates shall be taken also to comprise matter contained in an application for another patent which was published on or after the priority date of that invention, if the following conditions are satisfied, that is to say:-

(a) That matter was contained in the application for that other patent both as filed and as published; and

(b) The [priority date of that matter is earlier than that of the invention

11 Section 3 of the Act states

An invention shall be taken to involve an inventive step if it is not obvious to a person skilled in the art, having regard to any matter which forms part of the state of the art by virtue only of section 2(2) above (and disregarding section 2(3) above).

12 In addition to statute, the courts have long used the so called *Windsurfing* test to assess issues of inventive step. This test was reformulated by the Court of Appeal in *Pozzoli*¹. Paragraph 23 of this decision lays out the test as:

(1) (a) Identify the notional "person skilled in the art"

(b) Identify the relevant common general knowledge of that person;

(2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;

(3) Identify what, if any, differences exist between the matter cited as forming part of the "state of the art" and the inventive concept of the claim or the claim as construed;

(4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?

13 Section 14(5) of the Act states:

¹ *Pozzoli Spa v BDMO SA & Anor* [2007] EWCA Civ 588

The claim or claims shall:

- (a) define the matter for which the applicant seeks protection;*
- (b) be clear and concise;*
- (c) be supported by the description;*
- (d) relate to one invention or to a group of inventions which are so linked as to form a single inventive concept*

Claim construction and Clarity

14 My starting point for assessing this application lies in construing the claims. Without that first step, I am unable to make any decision on the issues raised by the examiner above.

i. Common terms

15 I will first start with the common terms used across the claims.

“Hive” and “Honey Producing Insects”;

16 This presents little difficulty, I will construe the former as a habitat housing “honey producing insects”, and the latter as bees.

A “Floral Cell”;

17 The term flora cell is used in several of the claims. The specification describes this as a structured environment designed as a foraging cell inhabited by bees and has a controlled population of flora. In essence, the hive is located in an environment with a specific planting scheme around the hive. From this, I take the term “floral cell” to mean the flora around a hive. According to the specification, and likely in practice, the hive will be at the centre of a floral cell.

“Bioactive Honey”

18 The opening pages of the specification are helpful in this regard. This is a measure of the molecule methylglyoxal (MGO) and is generally found in *Leptospermum* and *Eucalyptus* plants. To be bioactive the honey must have an MGO of at least 350.

“First” and “Second” Plant populations

19 The claimed invention requires a first and second plant species to be present. In terms of the current application these have two distinct meanings:

- a. The first population is one that provides the nectar required to make the bioactive honey, that is *Leptospermum* or *Eucalyptus* according to the specification (Paragraph 0069);

- b. The second population is one that provides essential nutrients for the bees to allow them to return to the hive. In a preferred embodiment this may be *Corymbia maculata* (Paragraph 0032). Other examples are given in paragraph 0071;

20 I note that the plants in the specification are native to Australia as would perhaps be expected given this application takes its priority from an Australian application. However, for the purposes of this decision I take the first and second plants to be defined by their properties rather than the specific examples.

“Foraging Range”

21 The foraging range is taken to mean the distance that the bee can travel from, and return to, the hive. Paragraph 076 refers to a bee having a range of 4km. This means that it is likely to operate within in 2km of the hive.

ii. The Independent Claims

22 Having come to a view on what the common terms mean, I can now turn my attention to the independent claims. In doing so, I will also consider whether the claim is considered clear given the issues I set out earlier in this decision.

Claim 1

23 Claim 1 comprises a hive located in a floral cell with first nectar and second nutrient plant populations. The claim contains four terms that require further consideration.

24 In assessing these terms, it is helpful to refer to the Manual of Patent Practice at 14.110. Specifically, the claims to a patent should be:

“drafted in terms of the technical features of the invention and not contain any statements relating, for example, to commercial advantages or other non-technical matters. In addition, claims should not define the invention over the prior art by unusual, non-standard or unreasonable parameters against which no comparison with the prior art can be made, unless the invention does not allow a clear alternative.”

That section of the MoPP also makes clear that

“functional limitations may be included provided that the skilled person would have no difficulty in providing some means of performing this function without exercising inventive skill”.

25 Firstly, in claim 1 there is the term “not naturally occurring”. This raises issues since, it appears to lack any technical meaning beyond there is an arrangement of plants that is in some way artificial. Since the full term is *“first and second plant populations... in a numerical ratio that is not naturally occurring”* it does suggest that this is perhaps the only interpretation of the term. In so far as that has some degree of clarity it presents a broader problem in that how does it allow a comparison with the prior art, given that agriculture is as old as civilisation itself? There is also the

further issue in that it refers to a negative set of circumstances rather than a positive statement of what the claim actually achieves. Given the random diversity of nature, it will be almost impossible for the skilled person to know that any given ratio does not occur naturally somewhere. It is perhaps an example of the great philosophical problem of “you can’t prove a negative”.

- 26 Secondly, the ratio of first to second plants whilst understandable provides little more limit than to specify that there are two types of plant present in the habitat. I will thus take these parts of the claim to mean that the two types of plant are artificially planted around a hive.
- 27 Thirdly, I also have a great deal of difficulty with the phrase “*the second population comprising a source of nutrient... at a nutritionally adequate level for sustaining... returning to the hive*”. It will be very difficult for even a skilled observer to know if this condition is true or not. I suppose, however, that over time if there is not enough of the second plant type present to allow effective foraging the number of bees in the hive will die off. I will thus construe this feature to mean that there are enough plants of the second type to sustain a given size of hive.
- 28 Fourthly, I have the most difficulty with the phrase “*the second population comprising individual plants located... at distances which extend the foraging range of the insects from the hive*”. Paragraph 076 of the description, quoted earlier, makes it clear that bees already have a typical foraging range – how does this extend it? There must be a maximum range beyond which even the strongest bee will not forage. Plus, one cannot *make* bees do anything. I will thus construe this part to mean that individual plants are located so as to encourage the bees to maximise their foraging range.
- 29 Of course, this last feature is ‘definition by result’, as is how many plants of the second type is ‘enough’ to sustain a hive. I am also aware that it would take substantial trial and error to determine the exact number of plants and their locations to achieve the required results. I will return to these issues below
- 30 For now, I will construe claim 1 to be:

“Artificially planting two species of plants, one suitable for producing bioactive honey and the other for providing nutrients for bees, around a hive, the second type being numerous enough to sustain the hive and located so as to encourage the bees to maximise their foraging range.”

Claim 1 and Section 14(5)

- 31 I will now consider whether claim 1 is clear for the purposes of Section 14(5)(b) of the Act. I do not believe it is. While I have attempted above to condense the claim into as much certainty as I can, I am very aware that the claim itself talks about ratios of plants that are not naturally occurring. Furthermore, how would the skilled person know what number of plants of the second type provides a nutritionally adequate level? Similarly, how do you extend the foraging range of a bee through plant location? And how would you know if you had?

- 32 It is my view that these issues appear to present a set of moving targets for the skilled person which make the claim of indeterminate scope and are quite probably “unreasonable parameters against which no comparison can be made”. In short, the skilled man would have no clear baseline for considering whether any action they took would infringe the claim. For that reason, I consider claim 1 unclear.

Claim 7

- 33 Claim 7 again repeats the phrase “a layout which is not naturally occurring” and once again I have concerns as to how you could interpret this. The claim goes on to describe the planting ratio as “based on a known foraging range”. I understand the concept of foraging range as set out above, but I fail to see how this is linked to the planting of the two populations.

Claim 7 and Section 14(5)

- 34 I have already commented on the clarity of the phrase “*not naturally occurring*” and see no need to add further comment. As to “*the ratio is based on the known foraging range*” I am none the wiser as to what this entails or what it is likely to be. It is indeterminate in meaning and as a result lacks the required clarity. In truth, it does not define a ratio in any technical sense other than by defining it against an equally unclear definition of “*a foraging range*” of an insect. For that reason, I consider claim 7 is unclear.

Claim 10

- 35 Claim 10, also presents some difficulties in understanding. In particular, what is meant by “*a non-natural flora cell*” and “*a radius from the location of the hive that corresponds to the maximum known foraging range*”.
- 36 Taking a “*non-natural flora cell*” first, I can only deduce this is terminology used to describe an area deliberately planted with the first and second plant types. In so far as it pertains to that, it is clear but as I have already said when discussing claims 1 and 7, the main concern is what does “*non-natural*” actually mean in practice. Specifically, how many plants must be introduced before a given area is “*non-natural*” – one plant? All of them? To that end it is not clear what this means other than it is artificially planted to some degree.
- 37 On the question of what is meant by a radius, if you place a hive in any location it will form the centre of circle of some sort that can be related to the distance the bees will travel. I take this feature to mean that the bees can only access the ‘*non-natural*’ plants.
- 38 In so far as I can construe the claim, it is a method of planting two types of plant around a hive, the planting extending out to the maximum foraging range of the bees in the hive.

Claim 10 and Section 14(5)

- 39 Based on the interpretation set out above, I am unsure if claim 10 is clear. I have no doubt it could be better expressed especially in terms of “*non-natural*”. In this particular instance, and given the potential interpretation of “*non-natural*” as “artificially planted” then it is probably clear enough for the skilled man to understand the scope and content of the claim. However, it is unclear in its current format and for that reason alone that is enough to say the claim does not meet the requirements of Section 14(5)

Claim 14

- 40 This is a method of “*maximising the foraging range*” of bees in a hive. If I take this simply as a statement of intent then it causes no problems but equally it doesn’t meaningfully limit the claim. The method steps of establishing a “*non-naturally occurring honey-yielding environment*”. Once again, the concept of “*non-naturally occurring*” causes issues with meaning. If I construe it to mean “artificially planted” then it is probably clear enough for the skilled man to understand, but once again, it is unclear in its current format.
- 41 The method also specifies that the environment is such that a majority of plants of the first population are located between the hive and the second population. This, at least, is fairly clear.

Claim 14 and Section 14(5)

- 42 For the same reasons I have already set out in connection with the other claims the claim is unclear as it refers to a “non-naturally” occurring environment.

Summary of Clarity issues of Claims 1,7, 10 & 14

- 43 In summary, I do not believe the independent claims are clear. On its own that is enough to dispose of this hearing. However, in case I am wrong on this issue I will continue and consider the issues of plurality, novelty and inventive step. In doing so, I will base my assessments on my understanding of the claims set out above.

Plurality

- 44 The examiner has raised the issue of plurality and reports that the independent claims are for separate and different inventions. Key to the issue of plurality is the identification of the common subject matter in the claims. In the examiner’s opinion this was:

“a non-natural (e.g. partially planted) environment comprising a first population of plants from which bioactive honey is producible, a second population of plants providing nutrition for honey bees, and a hive from which the honeybees forage in both plant directions”.

45 The Examiner also contends that this common subject matter is known, as shown in the on-line document:

*“New Venture in Medical Manuka”, Jamie Brown, 22nd June 2017;
<https://www.theland.com.au/story/4734666/manuka-comes-to-the-people/>*

46 As a result, the examiner views the differences in the various claims to be for separate inventions. At the hearing Mr Lock asserted that they are not plural inventions, arguing that BROWN does not disclose the common subject matter.

47 In view of this difference of opinion, I will identify the common subject matter myself. There is little doubt that all the claims feature a habitat containing a hive and either a floral cell or a layout corresponding to a floral cell. Equally, that habitat contains two types of plant, one of which produces bioactive honey and the other providing nutrition for the bees.

48 Is the common subject matter known? BROWN on the second page of the article states:

“GatherBy has taken the Manuka plantation concept original pioneered by Broadwater apiarist Alistair Maloney, who used to curse the dreaded jellybush, and amplified it with fodder plants and herbs for bee health. About 60% of a Gather By plantation consists of the strongest yielding cultivars with the remainder being other varieties that help extend the season’s flowering to the point where bees can reside in one spot for some time. Companion plants are designed to maintain bees’ protein levels.”

49 Does this statement read onto the common subject matter? I believe it does. It clearly describes a floral cell in which a hive is located. It contains two plants, Jellybush (a.k.a. leptospermum) that produces the bioactive honey which is planted with companion plants for bee health. It even contains a reference to 60% first plants which means the other 40% are not. There is no doubt in my mind that the BROWN document is a clear anticipation of the common subject matter. In light of that conclusion, I will now go onto consider the independent claims.

50 In claim 1 this arrangement of planting is said to be in a “ratio that is not naturally occurring”. As I have said above, this is not clear and for the purpose of this analysis I will take it as artificially planted. The claim further states that this planting “extends the foraging range”. On that basis this claim is “the common subject matter” done in such a way that it extends the foraging range of the bees.

51 Claim 7 also refers to a ratio but only in terms of the planting of the first and second plants within a radius of the hive that corresponds to the known range of the bees. Paragraph 0076 of the description makes it clear that this range is between 2 and 4 km. On that basis claim 7 is “the common subject matter” with the planting around

the hive in a radius of 2-4km (the known foraging range). This is different to claim 1, so it appears to be a second invention.

- 52 Claim 10 is a method claim which requires me to ask two questions in determining if it is separate invention. Firstly, is it linked to either claim 1 or 7 in such a way as to be a corresponding method claim? If it is not, then the second question is what is the difference and does this give rise to another invention?
- 53 On the face of it, claim 10 appears to be an associated method claim to claim 7. It shares all the same features and specifically the radius of planting corresponds to the foraging range. On that basis I will consider that claims 7 and 10 relate to the same inventive concept.
- 54 Claim 14 is also to a method claim of a habitat for maximising the foraging range of the bees through planting first and second crops. It does not refer to a ratio of planting, but I have already expressed my concern about the use of that phrase. It does however, set out a very specific planting regime where a majority of the first plants are between the hive and the second plants. This does not appear to be a method claim of either claim 1 or claim 7, and it has a differentiating feature is so far as it specifies the location of planting. I therefore conclude that it is a third invention.
- 55 In summary, I believe that claims 1, 7 & 10, and 14 are three separate inventions, namely:
- a. A habitat comprising a hive located in a planted environment comprising a first plant suitable for a producing bioactive honey and a second providing nutrition for the bees wherein the planting extends the foraging range of the bees as set out in claim 1:
 - b. A habitat comprising a hive located in a planted environment comprising a first plant suitable for a producing bioactive honey and a second providing nutrition for the bees wherein the planting is within a radius of the hive corresponding to the bees foraging range (i.e. 2–4 km) as set out in claims 7 and & 10;
 - c. A habitat comprising a hive located in a planted environment comprising a first plant suitable for a producing bioactive honey and a second providing nutrition for the bees wherein the first plants are planted between the hive and the second plants to maximise the range of the bees as set out in claim 14.

Novelty and Inventive Step

- 56 I will now turn my attention to whether claims 1, 7, 10 & 14 are novel and inventive. As with my analysis of whether the claims represented plural inventions, I can only offer a view on the novelty or inventive step that is dependent on my construction of the claims, as explained above, given the associated issues of clarity.

The Prior Art

57 The Examiner has cited two pieces of prior art. I have already referred to the BROWN document above. The other citation is:

“The Mānuka and Kānuka Plantation Guide”; Boffa Miskell Ltd., April 2017 (henceforth PLANTATION).

- 58 I have already concluded that BROWN discloses the artificial planting of two species of plant one for bioactive honey and another for bee nutrition around a Hive.
- 59 PLANTATION on page 19 discusses the size of a plantation to encourage the production of bioactive honey. In doing so, it refers to the ideal size of plantation to ensure that the foraging range of a bee does not extend beyond the boundaries of the plantation. For example, in the rural areas of North Island in New Zealand a size of >40ha is recommended to ensure the quality of the honey. It notes specifically that the presence of clover and gorse means a plantation should be larger >50ha.
- 60 Section 3.4 of PLANTATION on page 20 discusses bee foraging activity. It sets out a number of issues for optimal bee foraging that include amongst others wind, rain, temperature and cloudiness. (I am informed that bees rely heavily on UV light for navigation that explains this.)
- 61 The section on “Managing Beehives”, on page 23, makes the observation that hives may need supplementary feed in winter months. To provide this nutrient source for the bees it suggests planting “pollen rich species and winter flowering species around the hive site margins”.

Claim 1

62 My understanding of claim 1 is that it claims

Artificially planting two species of plants, one suitable for producing bioactive honey and the other for providing nutrients for bees, around a hive, the second type being numerous enough to sustain the hive and located so as to encourage the bees to maximise their foraging range

- 63 Both BROWN and PLANTATION clearly show an artificially planted environment with two species and bioactive honey. PLANTATION builds on this and describes an environment where large areas are needed to be planted to maximise the range in which bees can forage for the right type of nectar. It also suggests that planting a second plant type at the margins of a floral cell to provide a nutrient source for the bees. I consider the discussion of the size of the plantation and to planting at the margins to equate to encouraging the bees to maximise their foraging range.
- 64 Consequently, taking into account my understanding of the claim as set out above, I believe that PLANTATION anticipates claim 1.
- 65 I will not complete a full analysis of the claim using the Windsurfing/Pozzoli test as I do not believe it is beneficial to do so in this instance. However, even if my

assumption regarding the size of plantations and the planting at the edge does not encourage maximising the foraging range of the bees I regard this as obvious in light of the prior art. If the plantation size increases, then planting a nutritionally rich species at the edge of the plantation can only have one result.

Claim 7 and Claim 10

66 In considering plurality of invention, I noted above that claims 7 and 10 relate to the same inventive concept. My understanding of these claims given the lack of clarity present is that they claim:

“A habitat comprising a hive located in a planted environment comprising a first plant suitable for a producing bioactive honey and a second providing nutrition for the bees wherein the planting is within a radius of the hive corresponding to the bees foraging range (i.e. 2 – 4 km) as set out in claims 7 and 10”

67 When a hive is placed in a floral cell of two types of plant there will automatically be a radius around the hive for which a bee will forage. That is clearly seen in PLANTATION where the second plants are also located at the margins of a cell. On that basis alone I believe that claims 7 and 10 lack novelty.

68 I will offer one observation on this claim. A 50ha cell would approximate to a circular cell extending to a radius of some 400m around a hive. This is clearly different from the actual foraging range of a bee which may be 2-4 km. However, PLANTATION discloses that the size of the plantation can be increased to ensure that the foraging range of a bee does not extend beyond its boundaries. This I take as, at least an implicit, disclosure that planting is within a radius of the hive corresponding to the bees foraging range.

Claim 14

69 I have taken claim 14 to cover:

“A habitat comprising a hive located in a planted environment comprising a first plant suitable for a producing bioactive honey and a second providing nutrition for the bees wherein the first plants are planted between the hive and the second plants to maximise the range of the bees”.

70 PLANTATION provides a very specific example where it expressly states that the second plants are planted at the periphery of a plantation beyond the first plant that produces bioactive honey. Consequently claim 14 is also not novel.

Inventiveness of claims 1-5, 7-12 & 14-16:

- 71 The examiner is of the view that claims 1-5 and 7-12 lack an inventive step. Given I have decided that claims 1, 7 & 10 lack novelty on which these claims are based there seems little value in completing a formal analysis of these claims for inventive step. However, I will note that these claims all relate to features that would be part of the apiarist's art or to the use of specific plants which are known from the prior art. It follows that they lack an inventive step.
- 72 In view of my finding on the novelty of claim 14 I also need to give some consideration to claim 15 and 16. The very fact that the layout of claim 14 is artificial means that it is to some degree controllable. Thus claim 15 is either not novel or, at the least, not inventive.
- 73 Claim 16 specifies that the honey yielding environment is enclosed under a covering in some way. This presents some difficulty, as I am unsure if this has been adequately searched during prosecution of this application. Based on the citations on file, it would seem both novel and inventive. As a result, I may need to remit the application to the examiner to consider if further searching is required.

Conclusion

- 74 In conclusion, I find that:
- a. Claims 1, 7, 10 & 14 are not clear and thus do not meet the requirements of Section 14(5)(b) of the Act;
 - b. Claims 1, 7&10 and 14 constitute three separate inventions and thus do not meet the requirements of Section 14(5)(d) of the Act;
 - c. Claims 1, 7, 10 & 14 are not novel;
 - d. Claims 1-5, 10-12 & 14-15 lack an inventive step;
 - e. I make no decision on the clarity of claims 3, 5 & 15;
- 75 Normally, given these conclusions, I would consider the application to be refused under Section 18(3). However, in this case there may well be subject matter in the application that could form the basis of an allowable application. Specifically, figures 5 & 9-12 set out an invention comprising a covered structure in which bees can be located. I believe this embodiment is covered by claim 16. In the absence of any prior art, I cannot say with any certainty whether this is allowable or not.
- 76 I thus decide to give the applicant until the expiry of the extended compliance date to file claims based on the embodiment of Figs 5 and 9-12. If they do so, I remit the application to the examiner for further processing which may include a further search (and thus require the applicant to also file a further Form 9 and the accompanying fee). If they do not file any allowable claims by this date, then the application will be refused under section 18(3).

Appeal

77 Any appeal must be lodged within 28 days after the date of this decision.

Stephen Brown

Deputy Director, acting for the Comptroller

Annex A

Claim 1

An artificially-created honey-yielding environment comprising:

a hive and, associated therewith,
a flora cell, within which first and second plant populations cohabit in a numerical ratio that is not naturally occurring and within which honey-producing insects from the hive are permitted to forage,
the first population comprising a primary source of a nectar from which a bioactive honey type is derivable,
the first population being deficient in a nutrient capable of sustaining the insects for returning to the hive; and
the second population comprising a source of a nutrient not available from the first population at a nutritionally adequate level for sustaining said foraging honey-producing insects for returning to the hive,
the second population comprising individual plants located remote from the hive at distances which extend the foraging range of the insects from the hive.

Claim 7

An artificially-created bioactive honey-producing cell having:

a layout which is not naturally occurring, the layout comprising first and second plant populations growing in a ratio of individual numbers or of biomass wherein the ratio is based on a known foraging range of honey-producing insects released into the cell from a hive therein, for nectar collecting and
wherein the first population is a primary source of nectar for producing a bioactive honey and the second population supplements nutrition of the foraging honey-producing insects, maintaining their metabolism and repairing tissue.

Claim 10

A bioactive honey-farming method comprising steps of:

- a: providing a non-natural flora cell populated with a first population of bioactive honey-producing plants and a second population of plants which provide nutrition for nectar-collecting insects, such that insects from a hive are allowed to forage in the first population for bioactive honey-producing nectar and in the second population for nutrition,
- b. locating an insect-populated hive within said cell,
- c. providing the cell with a radius from the location of the hive that corresponds to the maximum known foraging range of the honey-producing insects of the cell, and
- d. collecting bioactive honey from the hive.

Claim 14

A method of maximizing the foraging range of bioactive honey-producing insects from a hive, the method including the steps of establishing a non-naturally occurring honey-yielding environment comprising a first population of plants which yield nectar from which bioactive honey is producible and a second population of plants which yield pollen having nutritional properties for the honey-producing insects, and allowing the honey-producing insects to forage in said environment, wherein a majority of members of the first population are located between the hive and the second population.