HOW TO INCREASE HONEY PRODUCTION UP TO 50%. *

* Accept for presentation and publication at **Apimondia 2005 International Apicultural Congress** [1i].

Antonio José Balloni
Beekeeper used to be my second hobby.
Source: http://www.apiarioballoni.com/um_abraco.html

The main proposal of this work is to present an overview on how to construct an experimental device (Systems of multiples Bee Queens – **Apis mellifera**) , with 2 or more bee queens and aiming to increase honey bee production up to 50% [01].

I - Experimental Set up.

The experimental setup is presented in the figure 01, [02].

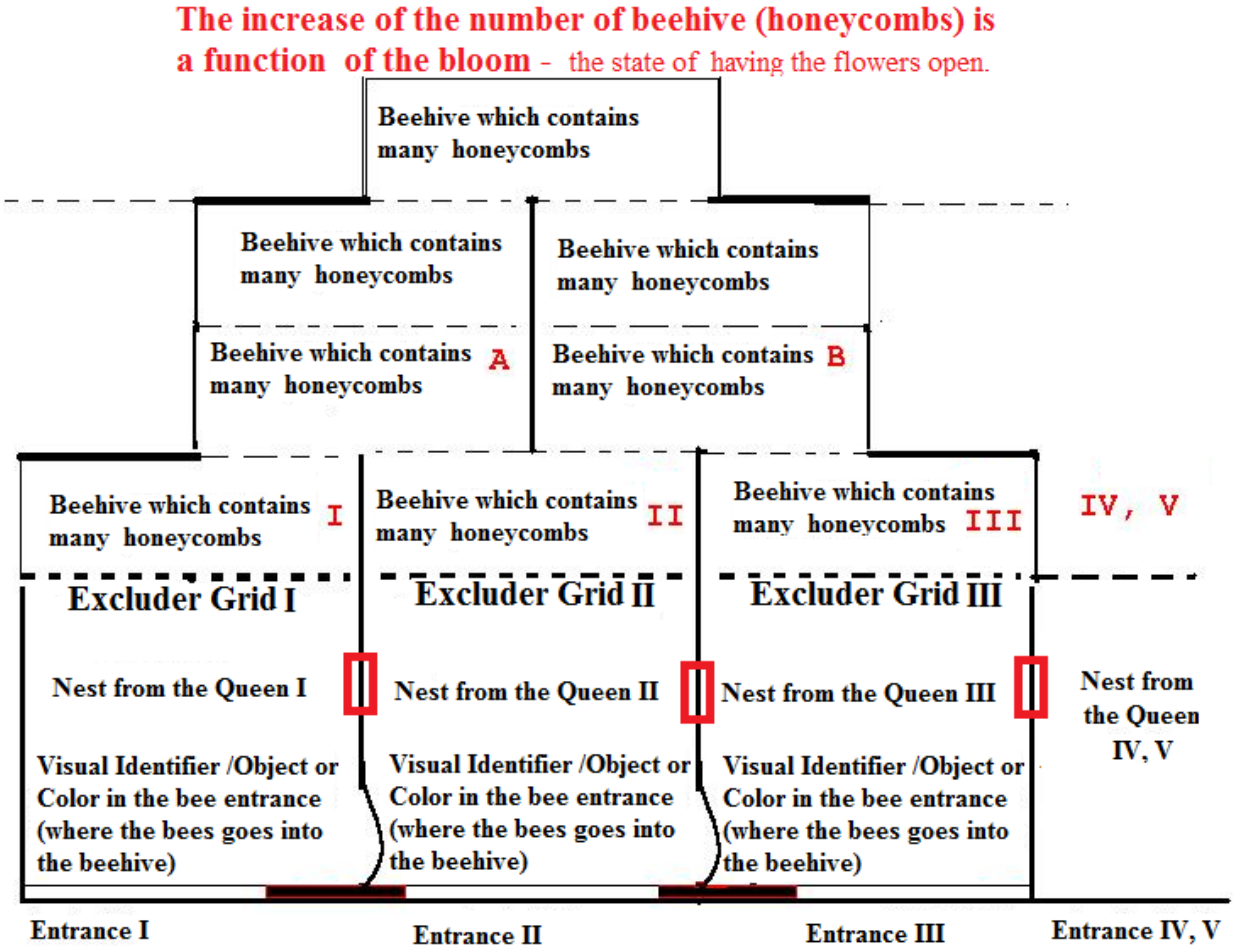

Figure 01: System of multiples beehives - It consists, basically, from several beehives (place where bees live).

The Queens are separated from each other by the excluder grid (each queen always remains in the same nest).

The entrance of the bees (workers who brings nectar), should be marked with a visual identifier: this will

Help the bee remember which hives/nest it left and go back to that same.

The "red rectangle" is a window aimed only for the Queen´s pheromones exchange and, as a result, we have the

bee's (workers) socialization. Nor the Queens neither the bees (workers) are allowed to go through this window.

After the socialization, all bees have a mixed signature of all pheromones: that is the bee´s socialization and these bees are allowed to go inside of any of the hives.

Never the Queen will be socialized with each other – since they never will be in touch with each other – only its pheromone through the window.

II. Experimentals Results.

With the experimental setup figure 01, it was observed that the honey be increase up to 50%. The table I present the results:

Table I – Experimental results for multiple queens for increasing honey production.

R= the number of Queens = 3. The number 3 was an arbitrary choice in view of the difficult to run the experiment with 4 or more queens.

1998: starting experimentation: R=3
1999: 50% in honey bee production: R=3
2000: 30% in honey bee production: R=3
2001: 30% in honey bee production: R=3
2002: 40% in honey bee production: R=3

III – Modifying Fabrega´s Law [03].

In according to Fabrega´s Law, the honey bee production is directly proportional to the product of

N*R
where
N is the square of bee weight [Kg], and
R is the square number of Queen utilized.

The experimental System, figure 01, were designed based on four (4) standard Langstroth hives (R=4), with each hive connected sideways one to the other, i.e., with its respective hive entrance guided to a same direction. With this system was obtained a honey production higher than **50%** when compared with the production of an isolated hive (only one Queen (R=1).

The Fabrega's law says that [03]:

$$\mathbf{P(Kg)} = \mathbf{2} * \mathbf{N}^2 * \mathbf{R}^2$$

where
P = honey production in [Kg]
N = is the number of bee in Kg (for 10.000 bees we have **N ≈1,0 Kg)** and
R = the number of Queen utilized**.**

From our experimental data it was concluded that the factor 2 (two) in the Fabrega's Law could not be fixed. It could have a variation between zero and two [02,04].

The honey production higher that 50% is in full agreement with the new proposal for the Fabrega's law: where a K constant were introduced:

$$\mathbf{P(Kg)} = \mathbf{K} * \mathbf{N}^2 * \mathbf{R}^2$$

where $0 < K \leq 2$, is a function of bloom - state of having the flowers open - and the bee population

This constant is fully dependent on the bloom condition.

K = 0 does not have any sense, since all beekeeper, in order to pick up honey, always put their hives (apiary) in places where is supposed to have **flowers**,
K = 2 we are in the Fabrega's law conditions.

For this work **K=1 (low level of flowerage) we have**

$$\mathbf{P(Kg)} = \mathbf{N}^2 * \mathbf{R}^2$$

Initial conclusions and perspectives:

In order to study the dependence of the K factor in function of flowerage as well in function of the number of bees, and also to confirm if the factor two (K=2) from Fabrega's Law does exist, ***a deeper study must be carried out.***

The mains results from these news experimentation are presented in table 1. Also, it is important to increase the number of the Queens to five or six….

REFERENCES:
[01] - http://revistapesquisa.fapesp.br/2002/12/01/apiarios-mais-produtivos/
[02] - http://www.apiarioballoni.com/inovacao.html
[03] - http://www2.persocom.com.br/api-df/snel.htm
[04]- http://www.apiarioballoni.com/

Acknowledgment:
Thanks to the APACAME for allowing this presentation - REUNIÃO PLENÁRIA DE MARÇO/2000 - **http://www.apacame.org.br/mensagemdoce/55/atividade.htm**

[1i] Dear Speaker (*),

Abstract Reference Number: 0018

…On behalf of the Apimondia Standing Commissions -Apimondia Conference 2005-, I am delighted to inform you that your abstract entitled HOW TO INCREASE HONEY PRODUCTION UP TO 50%. Has been accepted to be presented as an Oral Presentation at Apimondia Ireland 2005: Beekeeping Economy Commission. According to the program, you will present your paper from 14.10 to 14'30 in the Plenary Session on Thursday afternoon of August 24rd, 2005…

……

…On behalf of Beekeeping Economy Commission of APIMONDIA I would like to invite you to be Chair of the Beekeeping Economy 's Symposium 1 in the morning on August 23, 2005…
Sincerely yours,

…

President for Beekeeping Economy Commission
APIMONDIA

* The speaker, Antonio José Balloni could not come to that congress due to financial reasons. The message above in to let you know the acceptance of the paper.