

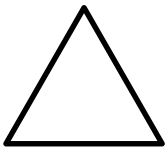
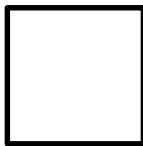
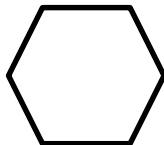
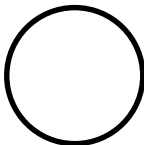
The mathematics of bees

Our Forest, Our Future

Why do the honeycombs of bees have hexagonal shapes?

What are the benefits of the hexagonal shape relative to other formats?

- To answer these questions start by calculating the area of the following figures, assuming that the perimeter of each is 18 mm, a value which is usually found in the cells of the hives.

	Equilateral triangle 	Square 	Regular hexagon 	Circle 
Perimeter formula				
Edge of the polygon / radius of circle				
Area formula				
Area of figure				

The velutina wasp

The velutina wasp ('*Vespa velutina nigrithorax*'), the invader that has attacked the apiaries in Minho, has not yet been sighted in the Serra da Lousã, said Ana Paula Sançana.

This year's production of certified honey from Serra da Lousã should be around 30 tons, three more than in 2013, admitted today Cooperative Lousamel to Lusa News Agency. Last year, the production of heather honey with a protected designation of origin (PDO) amounted to 27 tons, according to the executive director of that company, Ana Paula Sançana.

Without definitive data on the results of the "tanning" (honey collection of hives), still in progress, the president of Lousamel, António Carvalho, recognized that the production may be "higher" than last year.

In the ten municipalities of the PDO Lousã Mountain honey region - Arganil, Castanheira de Pera, Figueiró dos Vinhos, Góis, Lousã, Miranda do Corvo, Pampilhosa da Serra, Pedrógão Grande, Penela and Vila Nova de Poiares - "we are seeing different productions", according to Ana Paula Sançana.

"We have beekeepers with the best production of the last 30 years, in some cases 30 to 40 kilograms of honey per hive, when the average is eight to nine kilograms," she said. For other producers, "is being a full raid," said Ana Paula Sançana. The current "tanning" will be "about the same" as last year, with beekeepers "who had more honey to compensate those who had nothing."

The low yields, he added, may "have to do with the swarming control", consisting of new swarms leaving the source hive, each with his queen. The more swarmings occur, the less the amount of honey each year.

"The number of bees, which are, after all, the hand labor available, is closely connected with the production," said the executive director of Lousamel, stressing that a hive can gather from 60 to 100 thousand bees.

Moreover, this honey harvest "is coming lighter". In years when it rains a lot, like this, "there is less honeydew" in forest areas where bees forage. Rich substance sugars, the honeydew, which determines the dark honey color of Serra da Lousã, is excreted by insects that feed on the sap of trees and other plant species.

With nearly 26 years, Lousamel gathers 350 beekeepers and exports PDO honey to Germany, and provides Sonae distribution network.

Newspaper i, September 26, 2014.

The societize project

The Societize project, Citizen Science, is an innovative concept that aims to involve the general public in scientific processes. The best way to help civil society to understand what science is, is to enable all people to participate in projects and scientific research experiences. This is the purpose of Citizen Science.

One of the projects associated with this is the Urban Bees, which includes the participation of environmental scientists (bees and the environment), physicists from complexity science (data analysis), technologists (web and electronic) and artists able to work in this environment.

Urban bees are quality indicators for the city in which we live. In this sense, the project aims to collect and decipher information provided by bees through open source sensors installed on the exterior and interior of urban bee hives. The sensors provide data such as temperature (internal and external) and ambient noise (inside), the weight of the hive or the input and output of bees, which can be related to the health of the urban ecosystem around us.

<http://www.societize.eu/?q=pt-pt/content/societize>

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