

**Bees or no bees,  
this is the question:**

Deaths of bees and ccd-colony  
collapse disorder



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The bees are the largest pollinators on the planet and are closely related to the perpetuation cycle of 85% of flowering plants in forests.

Bees are also responsible for almost 70% of agricultural crops, ensuring productivity in fields as quality of fruits and seeds.

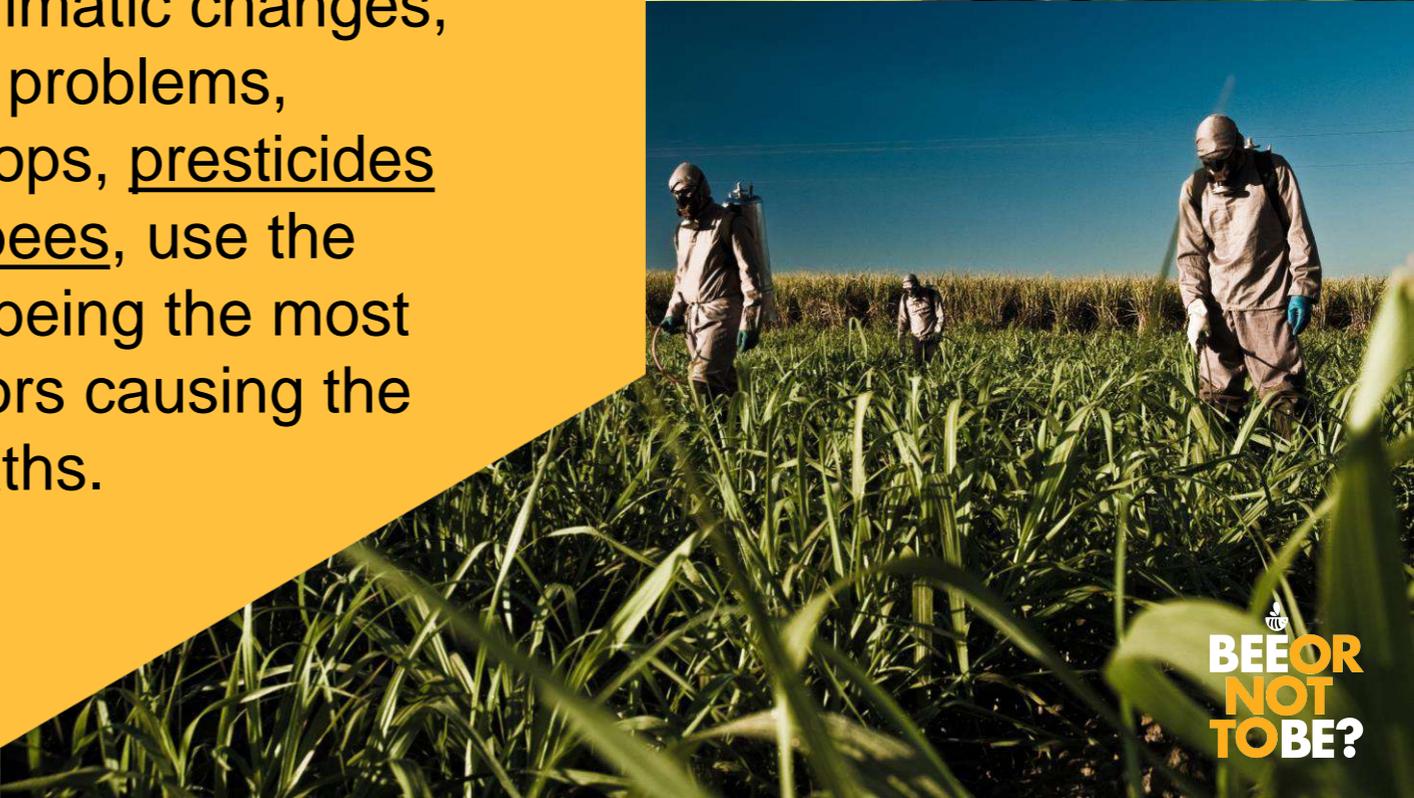
Brazil has the largest biodiversity of bees in the planet: about 3.000 species, including native, solitary and stinging bees.





However, more and more occurrences of deaths is present in several countries, inclusive in Brazil.

The main causes of deaths are: deforestation, climatic changes, nutritional problems, monoculture crops, pesticides toxic to the bees, use the **PESTICIDES** being the most important factors causing the deaths.



# BEE OR NOT TO BE?

## NOBEE NOFOOD

CAMPAIGN TO PROTECT THE BEES.

Initiative: **BEE OR NOT TO BE?**

### ● ADS - MAGAZINES AND POSTERS



### ● APP BEE ALERT

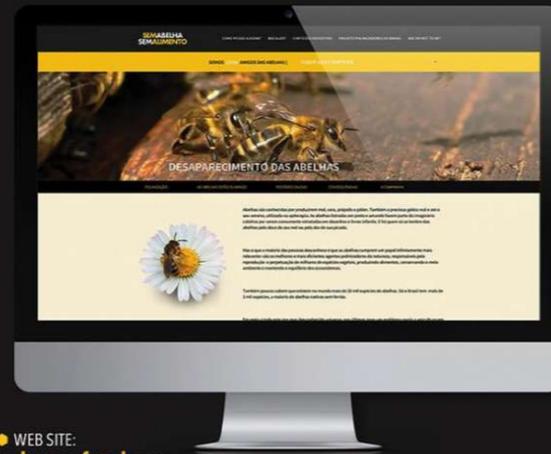


Registered the death of more than 700 million bees

### ● BEEHIVE DISPLAY



● WEB SITE:  
[nobeenofood.com](http://nobeenofood.com)



### ● MASCOT

SOUVENIRS



### ● LEARNING MATERIAL



### TV PROGRAM



CAMPAIGN'S EMBASSADORS



SPONTANEOUS MEDIA

FACEBOOK

### PROBLEM

Bees are nature's most efficient pollinators, ensuring the production of 1/3 of all foods. But a current phenomenon causes their disappearance and massive death. Causes are controversial. Pesticides and deforestation are the main reasons.

### IDEA

Fight misinformation and make society aware of the importance of bees and how to protect them was the multiplatform campaign "No Bee, No Food" main goal.

### RESULTS

- 17 million people impacted.
- 7 countries embraced the campaign.
- Over 100 events of bee deaths recorded.
- The Facebook community became the largest in the beekeeping segment.
- A public petition was submitted to the authorities.
- The data will be used to revise pesticide use.

The first NGO created in South America to Protect the Bees and the Environment against the harmful effects of agrochemicals (pesticides), the "Bee Or Not To Be" is located in Ribeirão Preto-SP, Brazil.

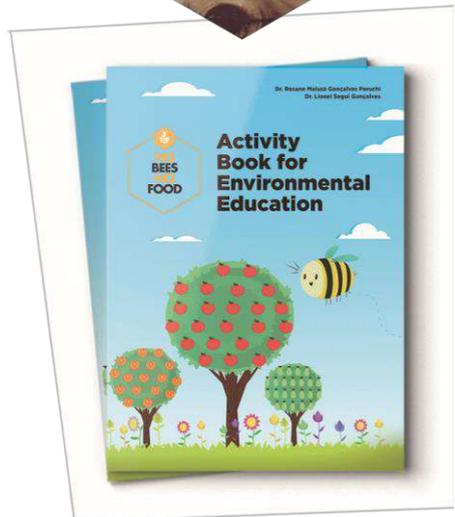
# Among the main actions of "Bee Or Not To Be" NGO are:



1- The creation of the app "Bee Alert " a Project which allows beekeepers and researchers to register online, on a world map, the occurrences of bee death and CCD, due to the action of toxic pesticides on bee;

2- A PhD. Thesis on bee deaths and CCD syndrom, developed by Dr. Dayson Castilhos at UFERSA-Mossoró-RN, Brazil, with data of contaminated bees registered by the "Bee Alert" app.

3- The Educational-environmental project "No Bee No Food": Activity Book for Environmental Education "prepared to teaching children of elementary school, basic concepts of bee Biology, Botany and Pollination;





The actions are related to Death of Bees or CCD (Colony Collapse Disorder). The name does not matter, the important is to protect the bees and the environment

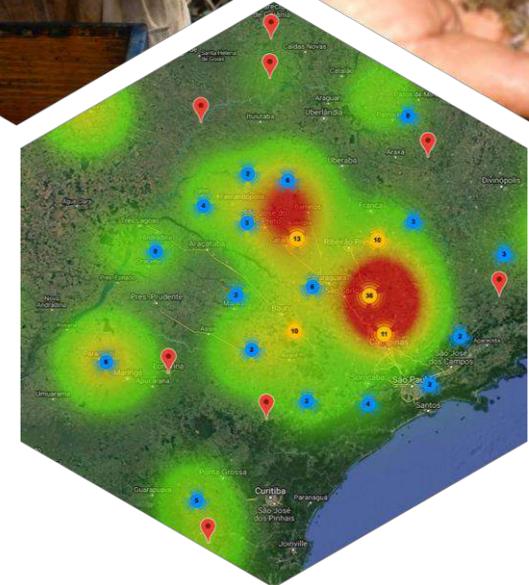


## 1- Bee Alert App:

The idea was to create an electronic app that would allow the recording of the online occurrence on a computer, notebook, or tablet, with data on the death of bees and disappearance of the bees or CCD syndrom, and to allow the record of the characteristics of the occurrences as type of bees, number of colonies reached, possible causes of death or CCD and to estimate of the damages caused to beekeepers.



The Bee Alert App is the first online platform in South America to document occurrences of massive death and disappearances (CCD) of bees by geolocation. With this app beekeepers and researchers worldwide can communicate and disseminate the occurrences, cause and losses generated, allowing the generation of technical and scientific informations and giving everyone the real dimension of the problem. The site [www.semabelhassemalimento.com.br/beealert](http://www.semabelhassemalimento.com.br/beealert) can be accessed on any computer, smartphone or tablet, in Portuguese, Spanish and English.





Quanto à localização do apiário, indique se é um:

**Apiário Fixo**  
**Apiário Itinerante ou Migratório**

Você autoriza que o local de seu apiário seja mostrado no mapa da campanha?

**Sim** **Não**

\*Total de Colmeias no Apiário ou Meliponário

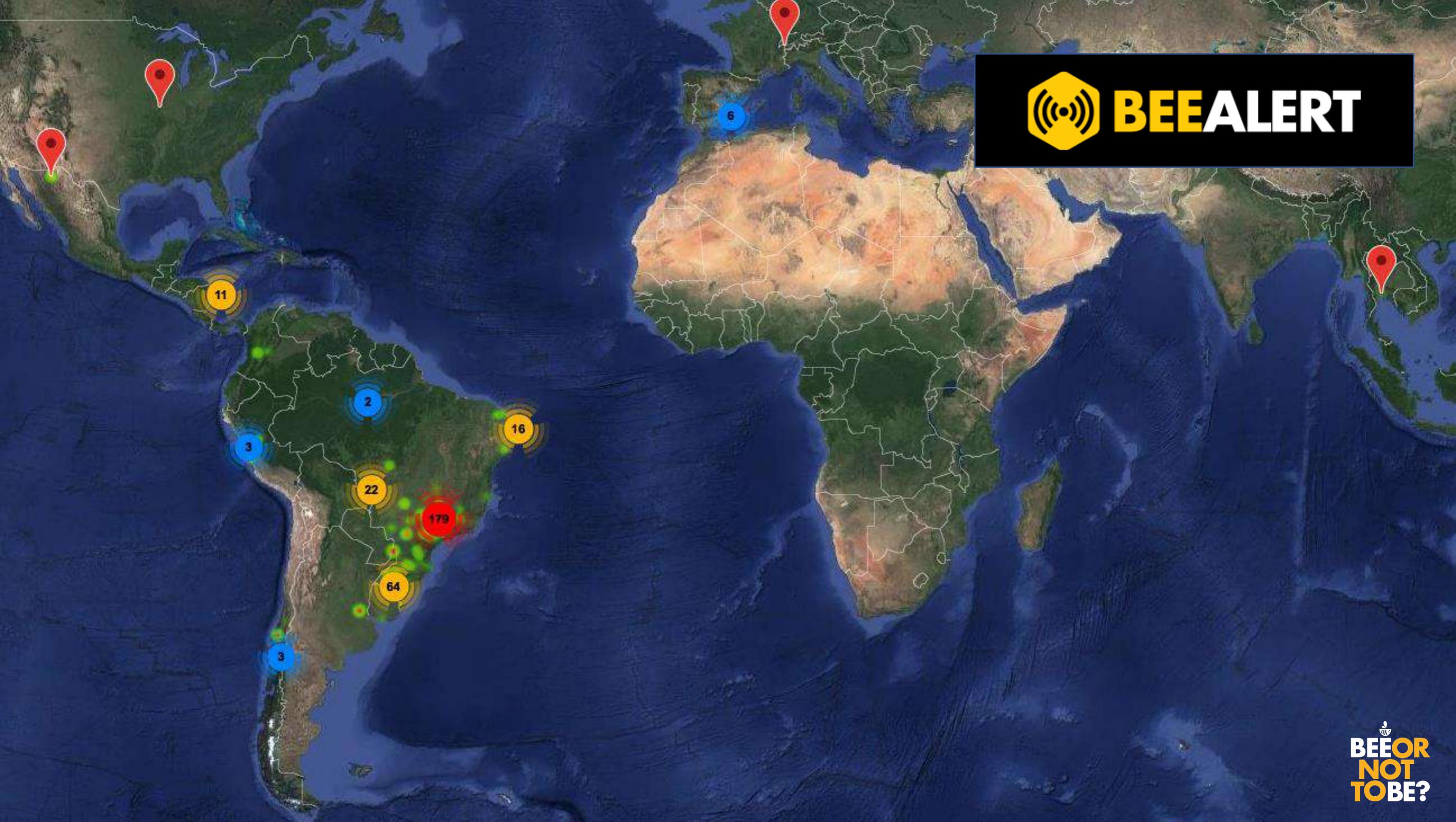
99

*Indique a abotoar a quantidade de colmeias afetadas, por grau de intensidade de perda de abelhas.*

| Perda até 30%                                     | Perda de +30% a 60%                                   | Perda de +60% a 100%                            |
|---|---|---|
| Quantidade de colmeias com baixa perda de abelhas | Quantidade de colmeias com perda parcial das abelhas. | Quantidade de colmeias com perda alta ou total. |
| 0 <input type="text"/>                            | 0 <input type="text"/>                                | 0 <input type="text"/>                          |

The App indicate:

- Occurrence's Location
- Kind of Bees (Apis or stingless bees)
- Intensity of the loss
- Possible causes
- Damage



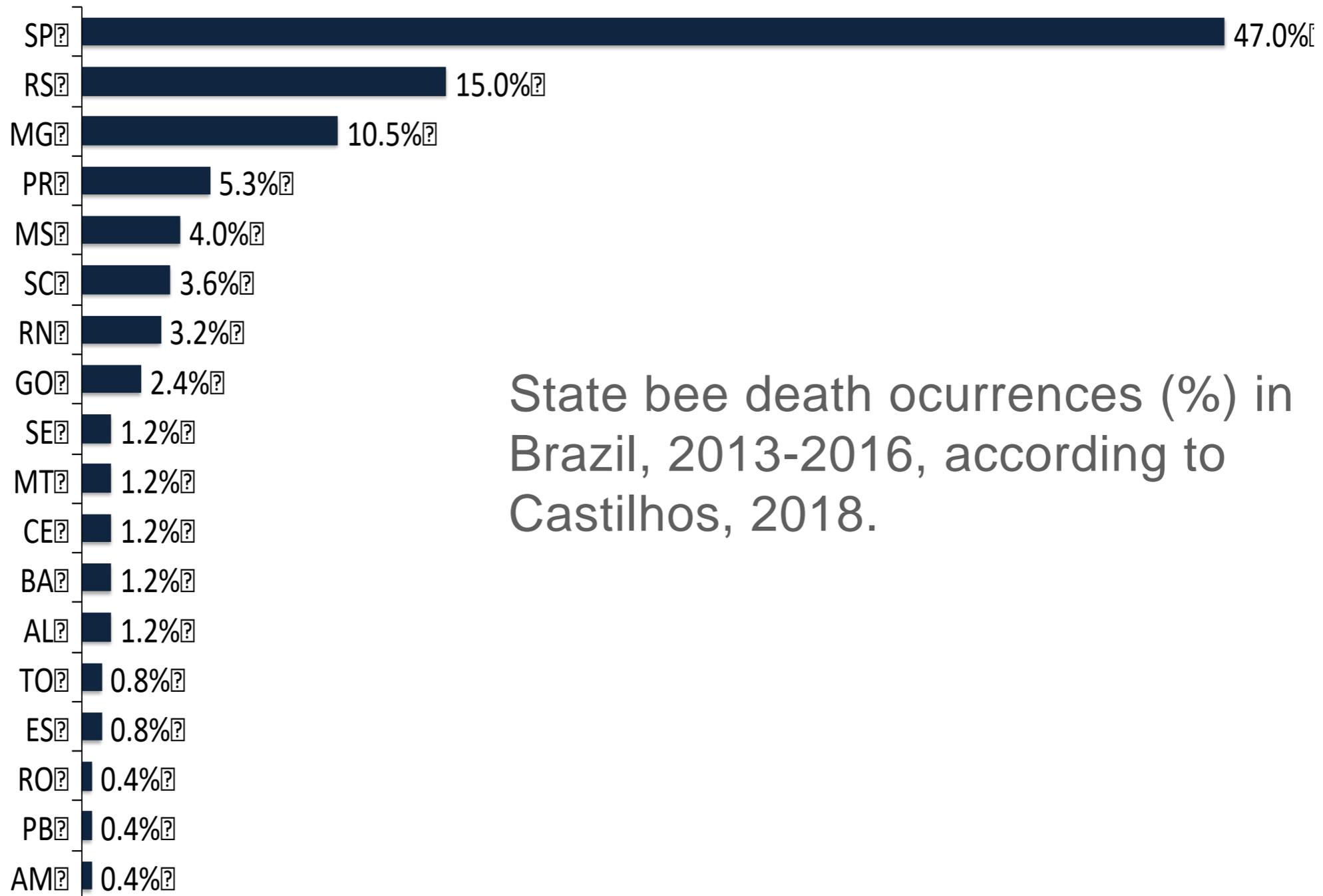
  
**BEE OR  
NOT  
TO BE?**

## 2- Ph.D. Thesis on Death of Bees and CCD

The objective was the development of a thesis on bees contaminated by pesticides, involving the use of the Bee Alert App for the record of occurrences by beekeepers and researchers, of bee deaths and occurrences of CCD (Colony Collapse Disease) in commercial apiaries, during four years in Brazil, between 2013 and 2016. In addition toxicological analysis were done in the laboratory of samples of live and dead workers of Africanized honeybees contaminated with toxic pesticides. The project was developed at Ufersa University, in Mossoró-RN-Brazil, under my orientation, by Mr. Dayson Castilhos and whose thesis was completed in July. 2018

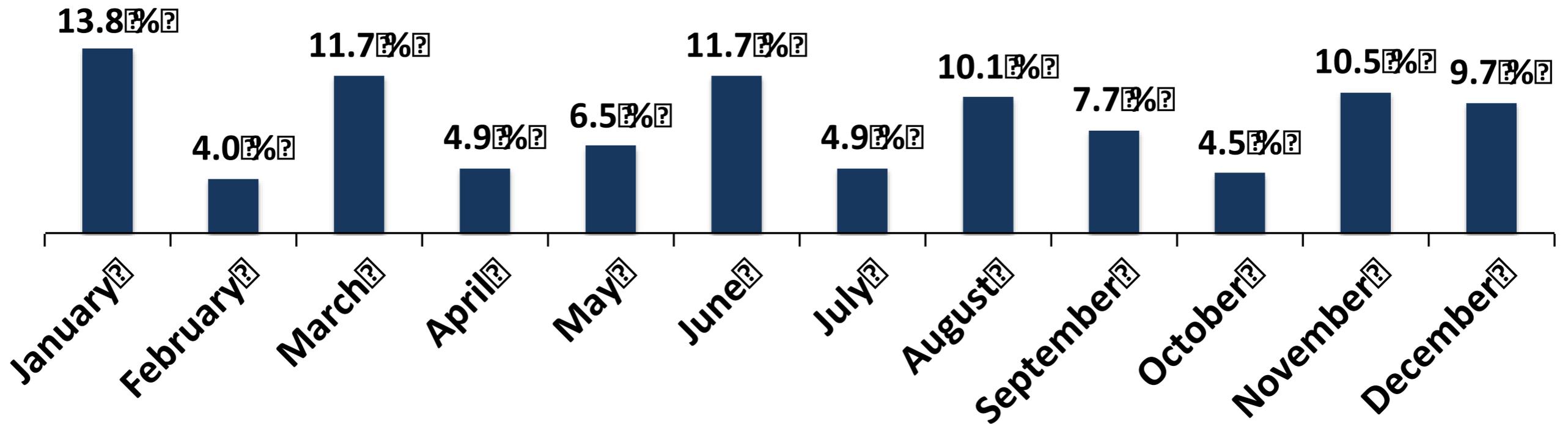


From 2013 to 2016 the recorded data obtained by Dayson Castilhos on 247 occurrences of beekeepers, reached the loss of 14.531 bees colonies of commercial apiaries (88% Apis, 11% Stingless bees ) in 17 states of Brazil, what represent about 770 million of bees killed by pesticides in Brazil. Theses data do not include the wild and native bees in the nature. Bee deaths ocurred every month of the year during the four years of the survey by Castilhos. The most affected states were: SP (47%), RS (15%), MG (10%), PR (5%). Results showed that pesticides are the main responsible for bee mass death and CCD in the country. In Paraná >1,500 nests of stingless bees were exterminated, including CCD syndrom records.



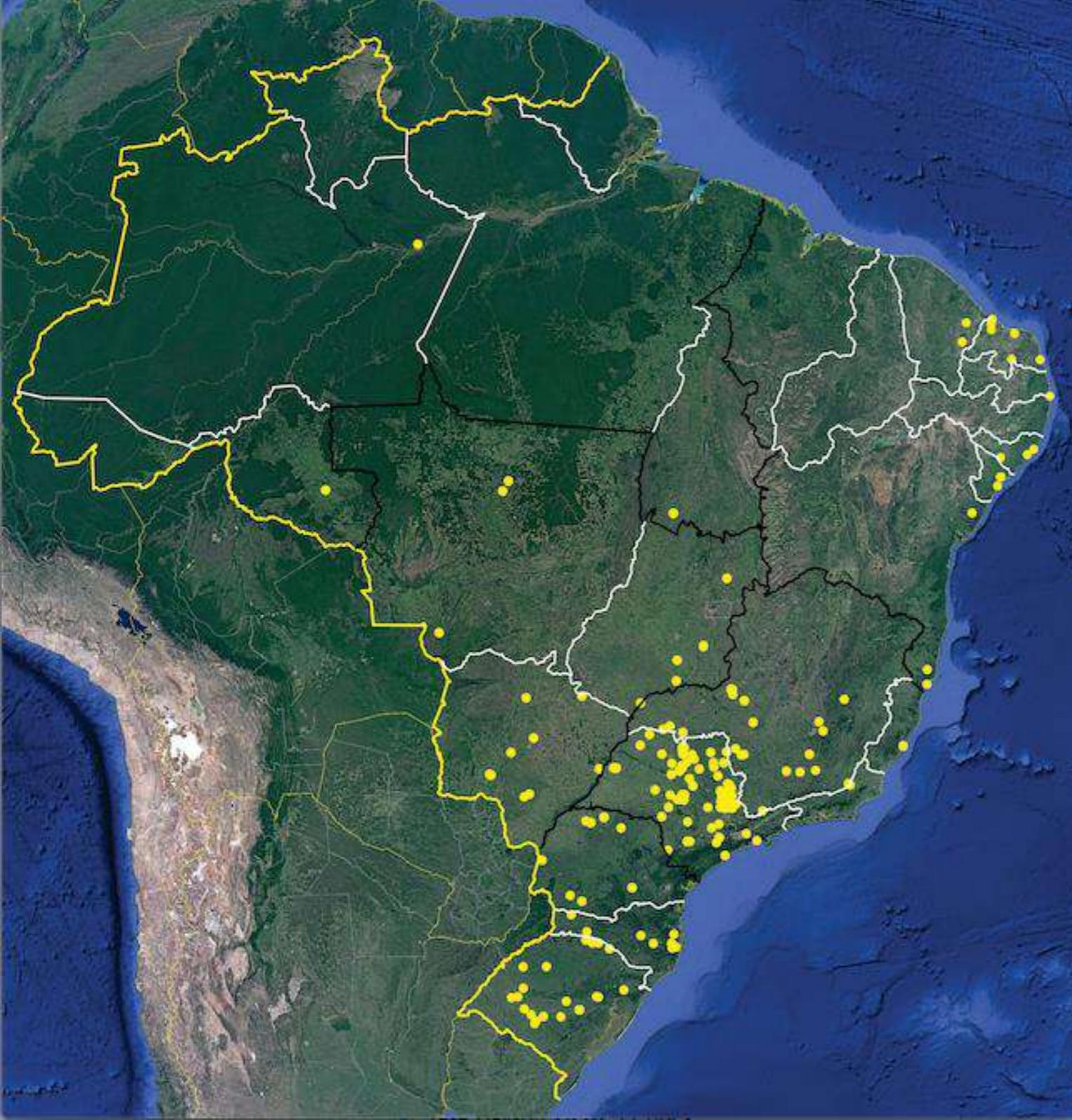
State bee death occurrences (%) in Brazil, 2013-2016, according to Castilhos, 2018.

Monthly bee colony losses (%) from 2013 to 2016, according to Castilhos, 2018.



# Table 1- Chemicals more frequently registered in Bee Alert App which caused the death of the bees

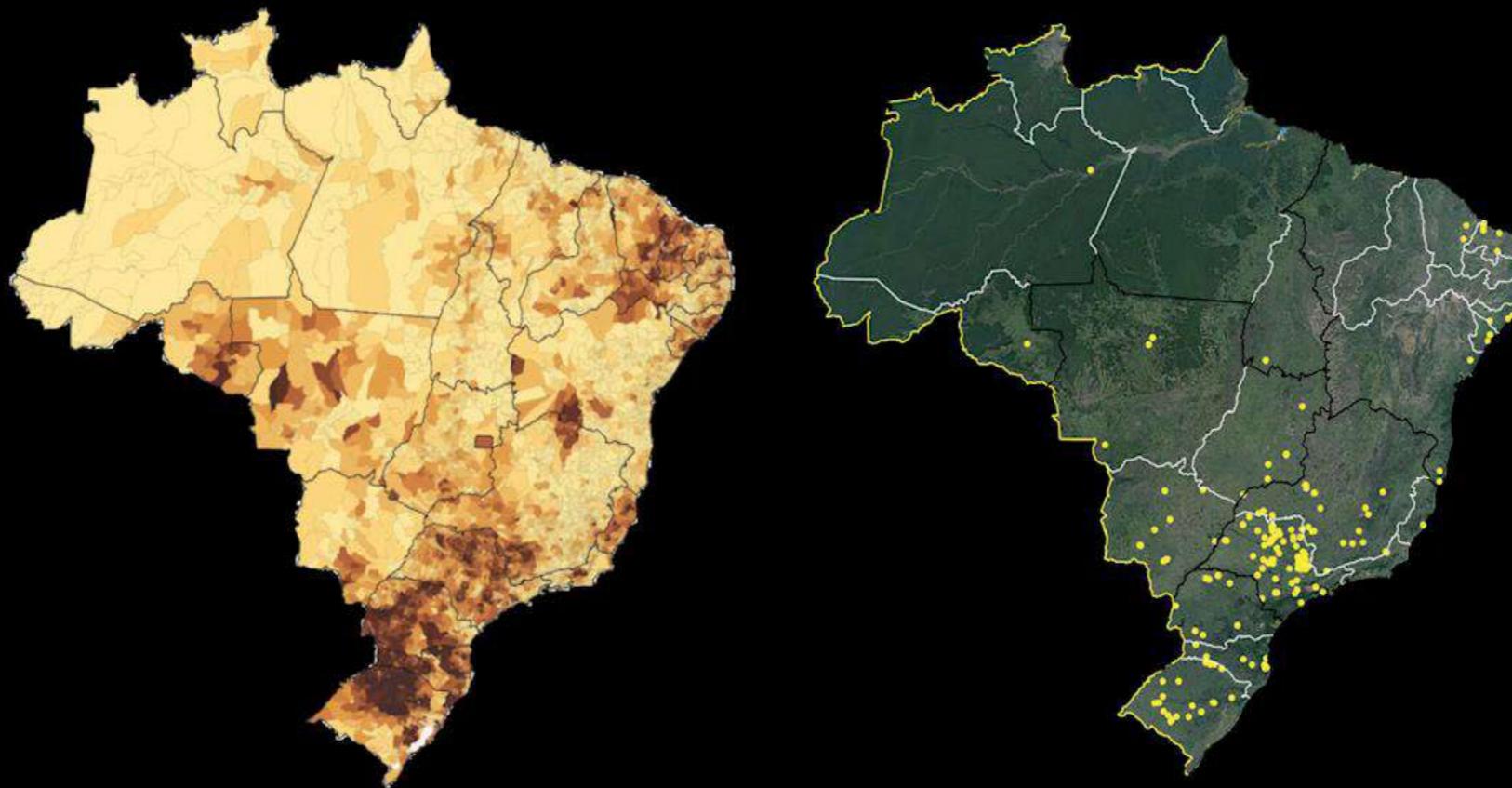
| GROUP OF CHEMICALS       | COMMERCIAL NAMES   | %    |
|--------------------------|--|------|
| SYSTEMIC PESTICIDES:     |  |      |
|                          | FIPRONIL, NEONICOTINOIDS (IMIDACLOPRIDE, TIAMETOXAM), ACTARA, REGENTE, GAUCHO, CLAP.....                         | 37,7 |
| NON SYSTEMIC PESTICIDES: |  |      |
|                          | ORGANOCLORADES, ORGANOPHOSFORADES, CARBAMATES, KARATÊ, MALATHION, AMITRAZ, AVERMECTINA, ALTACOR, ABAMECTINA..... | 12,3 |
| HERBICIDES:              |  |      |
|                          | GLIFOSATE, ROUNDUP, TORDON, 2,4.D.AURORA, GAMIT.....   | 13,4 |
| FUNGICIDES:              |  |      |
|                          | OPERA, AZIMUT.....   | ,7   |
| ACARICIDES:              |  |      |



Distribution of bee death occurrences in Brazil registered by the Bee Alert App (2013-2016), according to Castilhos, 2018.

Source: BASE  
Cartografica Google  
Earth, 2017

Comparative brazilian maps: Left, pesticides distribution in Brazil (Bombardi,2017): Right, bee death occurrences (Castilhos,2018).





## RESULTS OF BEE DEATHS IN BRAZIL

TODAY >300 OCURRENCES IN BEE ALERT  
LOSS OF ABOUT 20.000 BEE COLONIES,  
(90 % APIS AND 10% STINGLESS BEES)

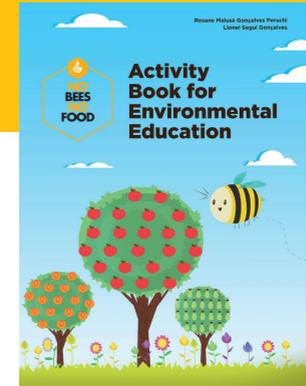
ABOUT 1.2 BILLION BEES WERE KILLED DUE TOXIC PESTICIDES IN 17  
STATES OF BRAZIL (2013 TO 2018). THESE DATA DO NOT INCLUDE WILD  
AND NATIVE BEES IN THE NATURE



Today more than 300 occurrences were registered until 2018 , what represent more than 20.000 bee colonies and more than 1.2 billion of bees killed by pesticides. Fipronil and the neonicotinoids (imidacloprid, thiamethoxam and clothianidin) were the main cause of bee deaths in Brazil specially due to the action of aerial sprays.

Mass bee deaths means less honey and food being produced. Mass bee death means ultimately a warning of ecosystem collapse!!!

**Saving the bees we are saving flora, fauna and ourselves.**



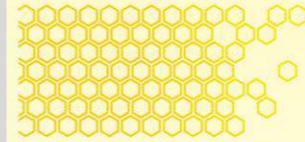
### **3- Educational-Environmental Project: "No Bees No Food – Activity Book for Environmental Education"**

A public survey (Ibope,2015) showed that 78% of our population is unaware of the importance of bee pollinating activity. Hence the reason for being created The Educational-Environmental Project developed for children of Elementary Education in the topic of Bee and Pollination. It was applied in 2018 for 1821 children, in 21 Municipal Public Schools in Ribeirão Preto-SP, Brazil. The program was divided into 5 modules: 1- What are the bees; 2- Where the bees live; 3- How is the life inside the hive; 4- Why bees are important and 5 – How can we protect bees? The children's receptive was excellent. The results were published this year in an educational report presented to the City Hall of Ribeirão Preto.

Rosane Malusá Gonçalves Peruchi  
Lionel Segui Gonçalves



# Activity Book for Environmental Education



## Summary



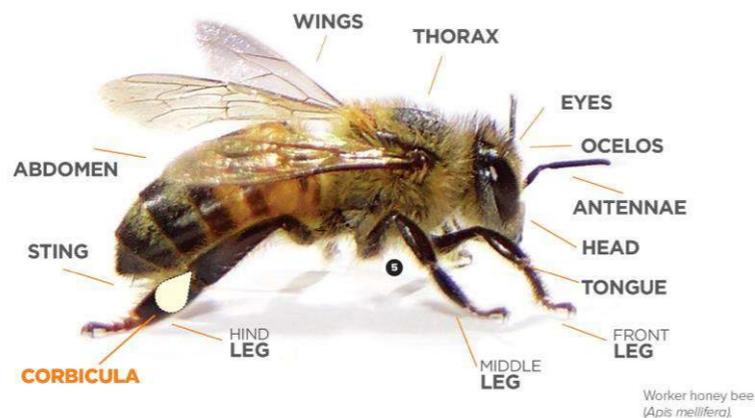
|  |    |
|--|----|
| Presentation.....                                    | 03 |
| <b>1 - What are bees like?</b> .....                 | 06 |
| 1A - Painting and learning .....                     | 07 |
| 1B - Do you know what a bee looks like? .....        | 07 |
| 1C - Bee crossword puzzle! .....                     | 08 |
| 1D - Word hunt puzzle .....                          | 08 |
| 1E - You are the illustrator! .....                  | 09 |
| <b>2 - Where do bees live?</b> .....                 | 11 |
| 2A - Painting and learning .....                     | 14 |
| 2B - Time to think and draw! .....                   | 16 |
| 2C - To observe and rethink: .....                   | 17 |
| 2D - You are the illustrator! .....                  | 18 |
| <b>3 - What is life like in a beehive?</b> .....     | 21 |
| 3A - Painting and learning .....                     | 24 |
| 3B - Do you know what a worker bee does? .....       | 25 |
| 3C - Broaden your vision! .....                      | 26 |
| 3D - You are the illustrator! .....                  | 27 |
| <b>4 - Why are bees so important?</b> .....          | 29 |
| No bees, no food .....                               | 30 |
| Passion fruit and the carpenter bee .....            | 32 |
| 4A - Painting and learning .....                     | 34 |
| 4B - Labyrinth .....                                 | 35 |
| 4C - Connect the dots and dance like the bees! ..... | 36 |
| 4D - You are the illustrator! .....                  | 37 |
| <b>5 - How can we protect the bees?</b> .....        | 39 |
| Food chains .....                                    | 40 |
| Bees need... ..                                      | 44 |
| 5A - To observe and think: .....                     | 47 |
| 5B - Energy crossword puzzle! .....                  | 48 |
| 5C - Word hunt puzzle .....                          | 49 |
| 5D - You are the illustrator! .....                  | 50 |
| To know a lot more .....                             | 51 |
| Dear reader, ... ..                                  | 52 |



## 1A Painting and learning...

Look at the image of a worker bee:

» Find and paint, using a very strong yellow, the pollen in the pollen basket (corbicula). The pollen baskets are structures that are used to store and transport the pollen from the flowers to the hive. They are on the last pair of legs of honey bees, bumble bees, stingless bees and orchid bees.



## 1B Do you know what a bee looks like?

Let's count together until six and answer "I know"! A bee is an insect that has...

**1 A TONGUE**  
like a trunk to suck water and the nectar of flowers;

**4 FOUR WINGS**  
two large and two small, which serve to fly, to fan the honey, to ventilate the nest and to spread odors to communicate with other bees;

**2 TWO ANTENNAE**  
sensitive and responsible for hearing, touch and smell in bees;

**5 FIVE EYES**  
three simple eyes on the top of the head, and two large compound eyes on the sides of the head (page 26);

**3 THREE DIVISIONS**  
parts of the body: the head, the thorax and the abdomen;

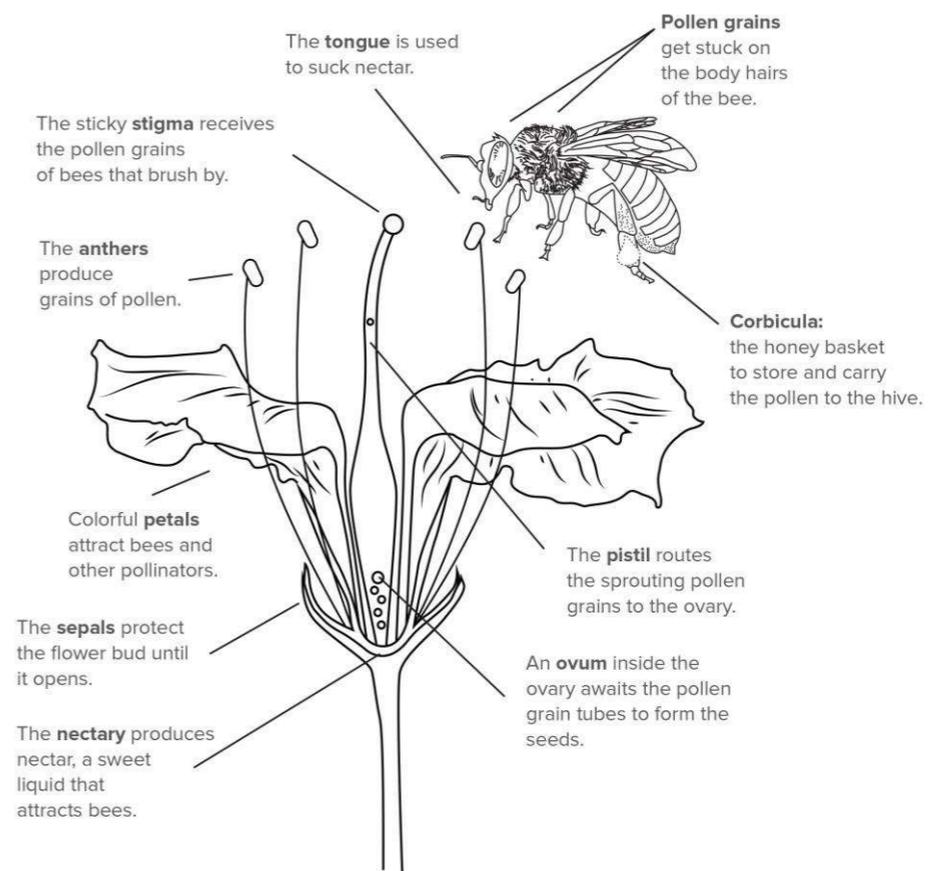
**6 SIX LEGS**  
three on each side of the thorax, which help in collecting pollen, in the construction and cleaning of the nest.

And so, do you know what a bee is like?



## 2A Painting and learning...

Observe the drawing and the description of a bee near a complete (or perfect) flower:

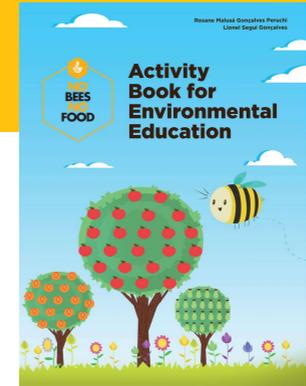


» Now, let's paint the flower!

The sepals are usually green; the petals are always showy; they can be yellow, orange, white, pink ... Choose the color of your flower. And the pollen grains, on the anthers of flowers, are usually yellowish.

Do a good job coloring!





This Project was created due the fact that bees are the most important pollinators of plants, and consequently, because bees are responsible for the production of food and one of the most important bioindicators of the environment. It was written by Rosane M. G. Peruchi and Lionel S. Gonçalves, for elementary school children, 8 to 9 years old, whit basic concepts on bee biology, botany and pollination, for better knowledgment about the importance of the pollination and the bees. **With Educational Project directed to children and students we help to protect our bees. Saving the bees we are saving flora, fauna and ourselves.**



  
**BEEOR  
NOT  
TOBE?**



**Thankzzz you!**

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