

8th International Symposium on Plant Protection and Plant Health in Europe

## Biorational Use in Brazilian Agriculture

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Embrapa Wheat  
Passo Fundo - Brasil

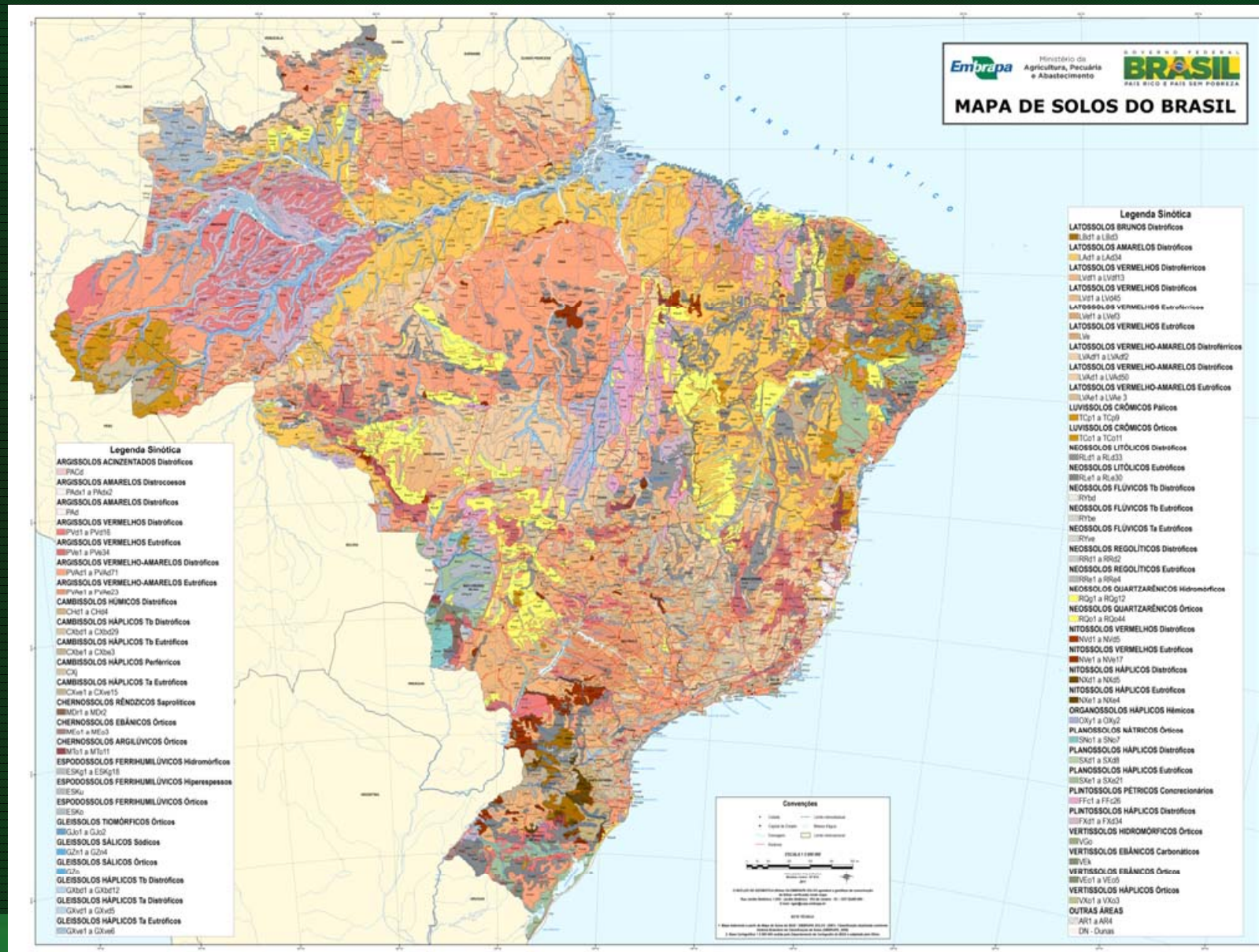
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## Presentation Guidelines

1. Distribution of Agricultural Area by Crops
2. Use of Microorganisms in Brazilian Agriculture
3. Legal Framework
4. Selection and Recommendation of Inoculants

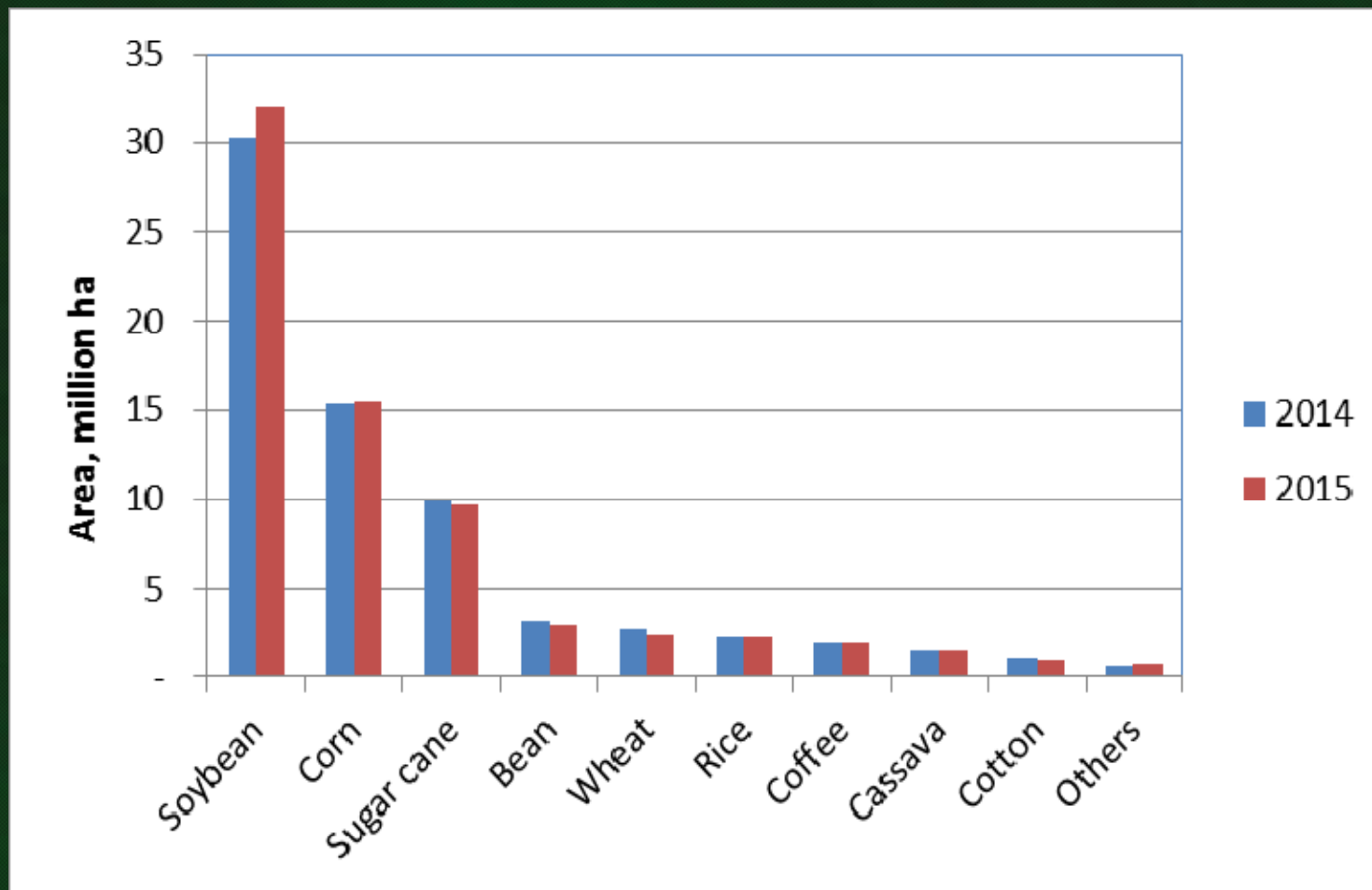
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# Distribution of Agricultural Area



# Use of Microorganisms in Brazilian Agriculture

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## Possibilities of Microorganism Applications in Crop Production

Biocontrol agents

Growth Plant Promoters

Biofertilizers

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Biocontrol agents

## Soybean Lizard – *Anticarsia gemmatalis*



Control only with *Baculovirus* applications



Biocontrol agents

## Sugarcane - spittlebug



Control with *Metarhizium anisopliae*



Biocontrol agents

Whitefly *Bemisia tabaci* – bean , cotton e  
tomate



Control with *Beauveria bassiana*

## Biofertilizers

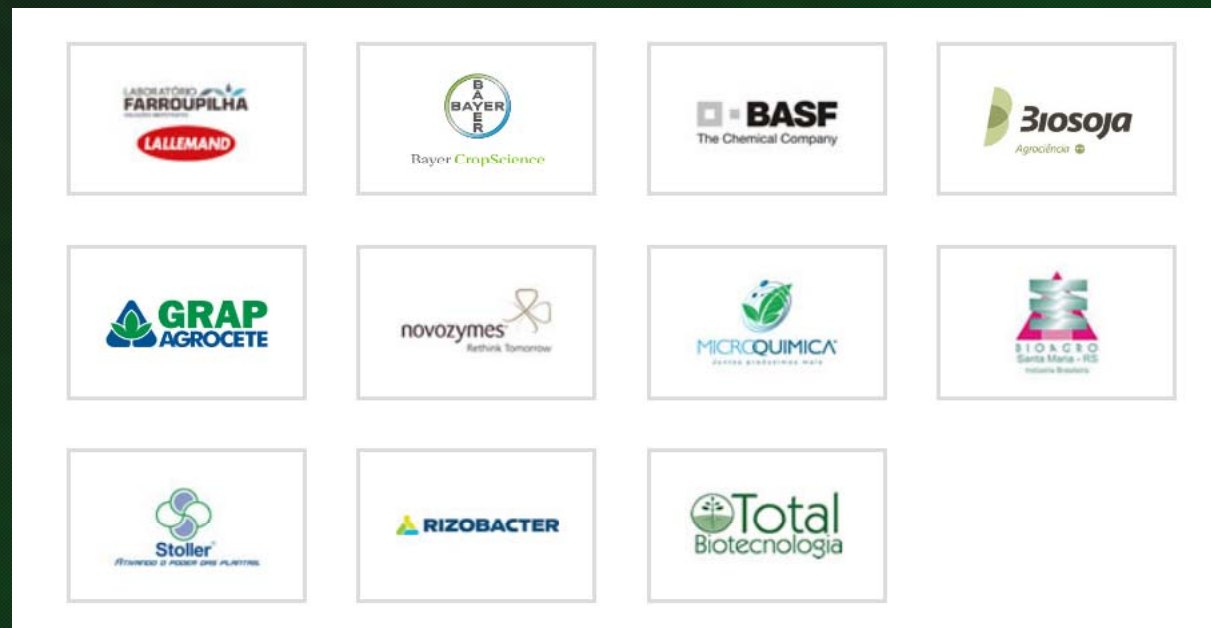
# Rhizobia – Soybean and Bean

- The most common N input – > 22 million ha use rhizobia inoculation;
- Around 6.8 million ton of N mineral are saved each crop season;
- 5.3 billion Euro saved per year.



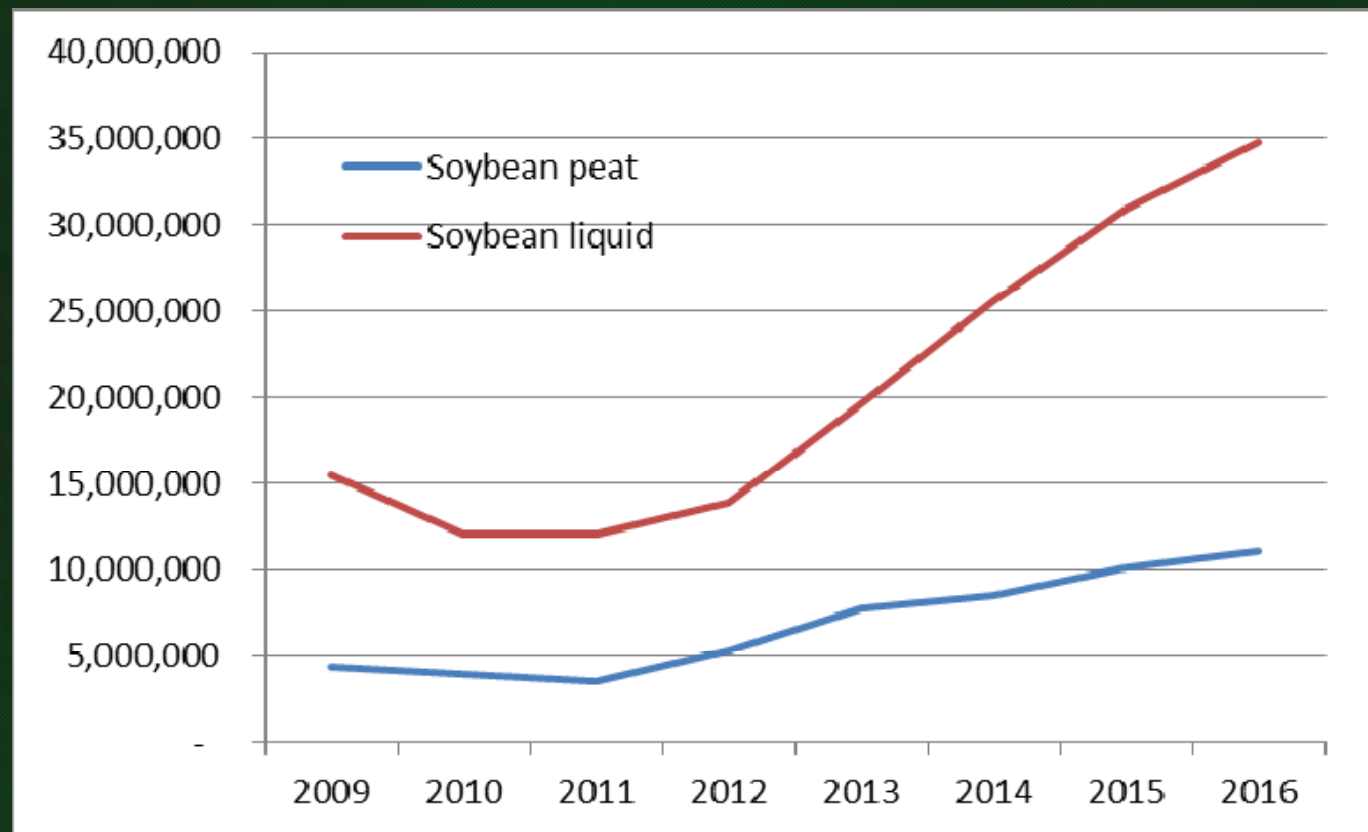


# Inoculant Market in Brazil



# Inoculant Market in Brazil

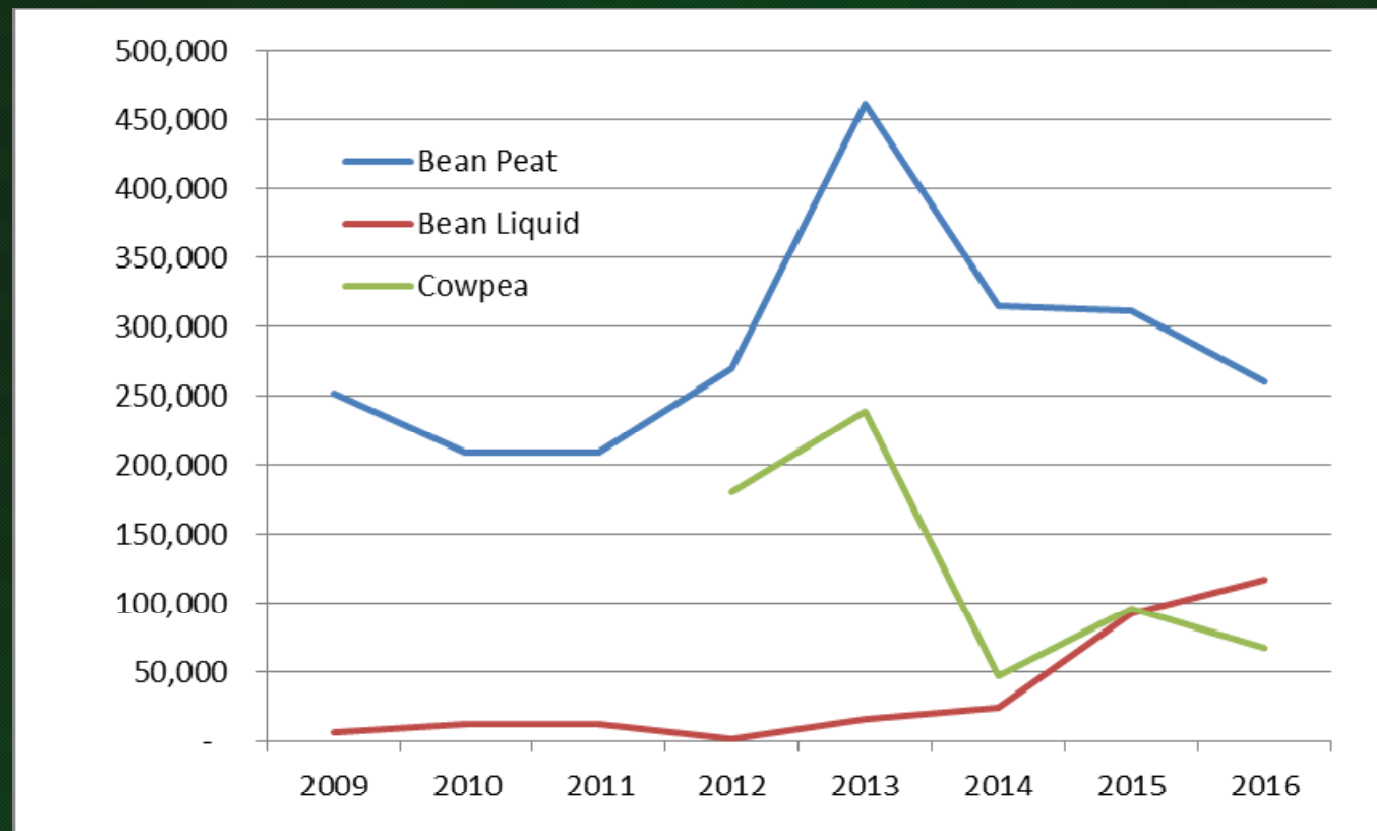
## Number of Doses per Year





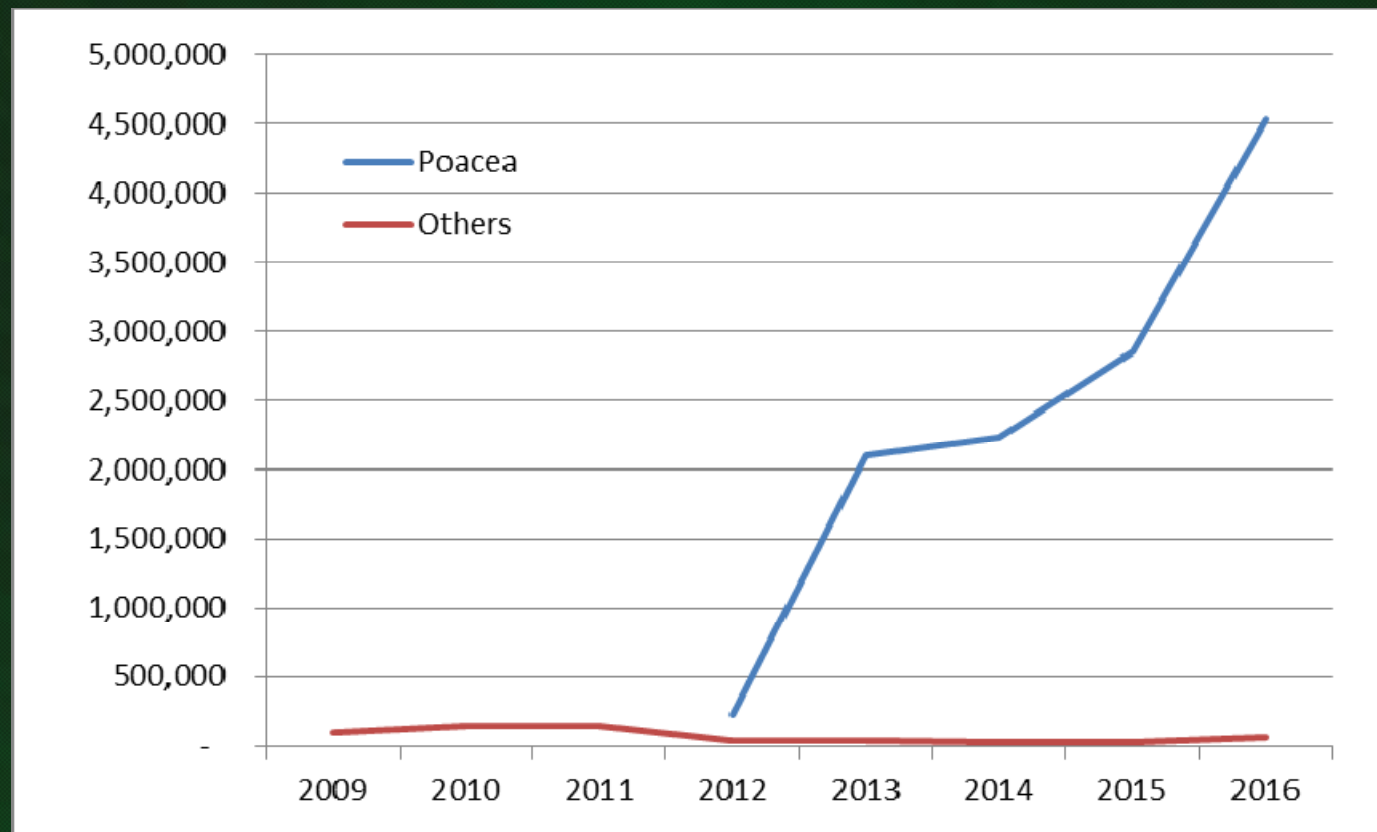
# Inoculant Market in Brazil

## Number of Doses per Year



# Inoculant Market in Brazil

## Number of Doses per Year





# Legal Framework

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Brazilian Agriculture Ministry  
**Normative Instruction 13/2011**

Specifications

Warranties

Registration

Packing

Labeling

# Legal Framework

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Brazilian Agriculture Ministry  
Normative Instruction 13/2011



**RELARE**  
Laboratory Networking of Recommendation,  
Standardization and Transfer of Microbial  
Inoculants for Agriculture



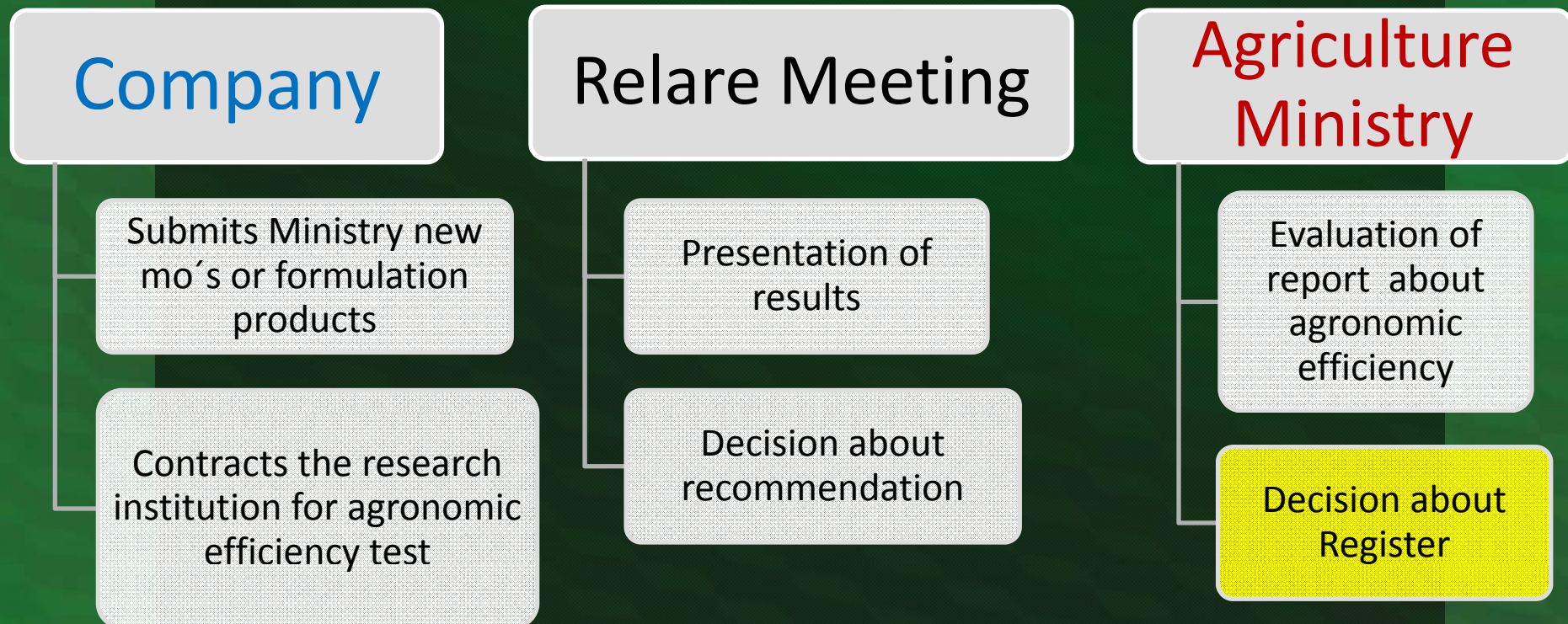
# RELARE

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- Performed by the Agriculture Ministry, inoculant producers, different public and private institutions with researches on microbial inoculants for agriculture.
- Meeting biannually for discussing, presenting results and recommending strains, warranty level, standard methodology etc.



# Brazilian Register Process





Viele Danke

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