



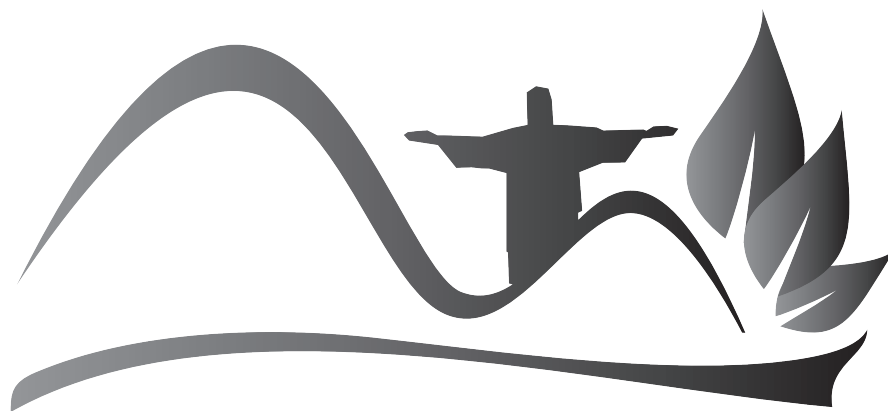
# 16<sup>th</sup> WORLD FERTILIZER CONGRESS OF CIEC

TECHNOLOGICAL INNOVATION FOR A  
SUSTAINABLE TROPICAL AGRICULTURE

# PROCEEDINGS



*International Scientific Centre of Fertilizers (CIEC)*



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## **PROCEEDINGS**

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## MARKET OUTLOOK OF MINERAL-ORGANIC FERTILIZERS IN BRAZIL

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### Introduction

Agribusiness can be considered one of the biggest deals of Brazilian and world economies. According to the annual report “Agricultural Outlook 2010-2019”, Brazil will be one of the largest agricultural producers in the world in the next decade as well as one of the largest suppliers of agricultural products [1]. The production of fertilizers is linked to the growth of agricultural production and the productivity and the availability and competitiveness of raw material [1]. According to ANDA, in Brazil, the fertilizer market in 2013 was 31.09 million tonnes, while Mato Grosso was responsible for 17.8% of sales, 13.6% São Paulo, Rio Grande do Sul 12.7% Paraná 12.2%, Minas Gerais 11.3%, and Goiás 8.9% [2]. The specialization of rural workers and the advances in agricultural research to improve agricultural productivity in a sustainable basis have increased in recent decades. On the other hand, is not observed in the same rate the development of new technologies for the manufacture of fertilizers and its supply in the domestic market.

Brazilian law defines fertilizer as “*mineral or organic, natural or synthetic substance, provider of one or more plant nutrients*” and mineral-organic fertilizer as “*the product resulting from the physical mixture or combination of mineral and organic fertilizers*”. Therefore, the manufacturing depends on the mixture of mineral and organic base and the final product must meet standards set by law. Class of fertilizers is also defined in rules. [3]

The manufacturing and marketing of mineral-organic fertilizers has increased in the Brazilian market considering the deficit of the commercial trading of mineral fertilizer and also the difficulties of logistics and supply for the organic fertilizer. These and other challenges for the use of mineral fertilizers and organic compounds generated the need to fit the production chain by developing mineral-organic fertilizers as an alternative to attenuate the

demands imported manufactured mineral fertilizers and increase the efficiency of this agronomic use on the agricultural sector. It is emphasized that the use of agroindustry organic waste, specially from poultry and swin for the production of fertilizers is a way to adding value to the discarded material, and to be in accordance with the Brazilian National Solid Waste Politics [4].

Accordingly, the aim of this work is to identify producers of organic-mineral fertilizers in Brazil and analyze the characteristics of the manufactured products.

### Methods

In this work a bibliometric analysis was used to collect and analyse data concerning domestic manufacturing of fertilizers and biofertilizers. Official information available in sites of the Brazilian federal government, especially MAPA - Ministry of Agriculture, Livestock and Supply were used. Publications of ANDA - National Association for the Diffusion of Fertilizers and EMBRAPA - Brazilian Agricultural Research Corporation were also used. The data were selected to represent the sector.

### Results and discussions

The registration, production and marketing of organic-mineral fertilizers in the country are surveyed by MAPA [3], the agency that keeps track of products through registration. This control allowed the mapping of manufacturers distributed in Brazil and characterization of products. Research to identify registered establishments was performed using the MAPA site by entering the requested information “AREA OF INTEREST: Agricultural raw materials, ACTIVITY: Producer”, “CLASSIFICATION: Organic Fertilizer”, “ADDITIONAL FEATURE: Mineral Organic”. The result is shown in Figure 1, which shows that the country has 217 registered establishments are divided into 15 (fifteen) Federal

States: AL, BA, EC, ES, GO, MG, MS, MT, PE, PR, SC, SE, SP, RN and RS. São Paulo is the state with the largest number of producers, followed by Minas Gerais, Rio Grande do Sul and Paraná.

From the information collected, we attempted to check the amount of products registered by registered establishments showed in Figure 1 as well as class information products, year of registration, application route and origin. It is observed in Table 1 that in 2756 registered products were found. It is noted that the Class A organomineral fertilizers represents 84% of all registered products, followed by Class B organo fertilizers (5.7%) and Class A organic compound (5.2%). It can be noticed again the greatest amount of product registrations in the states of São Paulo and Minas Gerais.

Table 2 presents data for the year in which registrations were granted, the mode of application and its origin. The increasing trend of granting registrations each year, with a slight reduction in the years 2009 and 2012 can be observed. Data found in 2014 can be explained by the fact that the year did not end and there are still ongoing processes. Foliar, fertigation and soil are the main modes of application. It can also be seen that 95% of products presents national origin.

## Conclusions

The country has a strong demand for agricultural raw materials and production of mineral-organic fertilizers is an interesting alternative to meet

the domestic market, very harmed by the import of mineral fertilizers.

Registered establishments as well as the bulk of registered products of organic and mineral-organic fertilizers are concentrated in the southeast region, especially the state of São Paulo. The number of granted establishments shows a trend of annual increases and origin of the product is essentially national. The application mode keeps preferably through soil or leaf application and fertigation.

Keywords: Fertilizers, Mineral-Organic, Agricultural and Production.

## Acknowledgements

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**Figure 1.** Location of establishments producing mineral-organic fertilizers in Brazil.

**Table1.** Total registered mineral-organic and organic fertilizers and production per UF

	Fertilizer								Mineral *	Not Found**	Others ***
	Mineral-Organic		Organic								
	Class A	Class B	Simple Class A	Compound Class A	Compound Class B	Misto Classe A	Mixed Class B				
<b>Total: 2756</b>	2319	157	75	143	4	5	1	19	23	10	
<b>UF</b>	<b>% Registered products/UF</b>										
AL	0,6%										
BA			1,3%						8,7%		
CE	0,4%			3,5%					4,3%		
ES	1,9%			2,8%					8,7%		
GO	0,9%		2,7%	0,7%				10,5%	4,3%		
MG	22,4%	13,4%	9,3%	9,8%				5,3%	4,3%		
→ SP	42,4%	86,6%	46,7%	43,4%	100%	100%	100%	57,9%	30,4%		
PR	7,7%		28,0%	0,7%				10,5%	8,7%		
SE	1,3%										
RN	1,2%		1,3%	3,5%							
MS	2,8%		1,3%	0,7%					4,3%		
MT	4,1%		2,7%	13,3%				5,3%			
PE	0,3%			2,1%					4,3%		
SC	5,6%		5,3%	0,7%							
RS	8,4%		1,3%	18,9%				10,5%	21,7%		

\*Mineral Fertilizer: Presents only record of mineral fertilizers.  
 \*\*Not Found: Registration number of the establishment has no product report.  
 \*\*\*Others: Products registered without identification or distinct from the object of research. Example: Beverage.

**Table2.** Year of registration, mode of application and product origin.

Year Concession Registry			
Year	N° Products	Year	N° Products
2003	0	2009	216
2004	9	2010	322
2005	65	2011	434
2006	133	2012	424
2007	137	2013	585
2008	268	2014*	113

\*2014: current year.

Mode of application of the product	
Pathway of application	N° Products
Soil	1476
Leaf	1013
Fertigation	134
Hydroponics	6
Seed	26
Ready Use	9
Not Informed	92

Origin of the product	
Origin	N° Products
National	2621
Imported	82
Not Informed	53