Innovation and Intellectual Property as Engines for Competitive Agribusiness: Empowering Women Researchers and Entrepreneurs in Africa

Promoting new Plant Variety for enhanced agricultural productivity and food security

Sibelle de Andrade Silva
Casablanca – Morocco – 15th November 2017
Overview

✓ Brazil and the Brazilian Agricultural Research Corporation – Embrapa

✓ Embrapa’s contribution to the development of new plant varieties and their impact on Brazilian agriculture

✓ Cotton-4 Project
There is a Brazil that most people know...

Amazon forest  Soccer  Carnival  Rio de Janeiro

It keeps being successful, but there is still more to know...
The Brazil you must Know

Strong Emphasis in Science-Based Development

Technology, Innovation, Development, Competitiveness

>10,000 doctors trained every year
>230,000 researches in activity
Institutional Building and Strengthening: Brazil has created a large research system for agriculture

THE BRAZILIAN AGRICULTURAL RESEARCH CORPORATION

- 47 Research Centers Dedicated to Technology Development
- Largest Agricultural Research Organization in Latin America

City of Brasilia (Federal District) (capital of Brazil)
Embrapa has been helping Brazil to developed a Science-Based, Advanced Tropical Agriculture.
Women at Embrapa
30% of total employees
31% of the management positions
Challenges to Agricultural Production in Brazil

Before the 1970’s Brazil was not a food secure country.

- Low agricultural production and low yields;
- Production concentrated in the South and Southeast Regions;
- Constant food supply crisis and rural poverty;
- Lack of specific knowledge in Tropical Agriculture;
- Lack of adequate agricultural development policies;
- Brazil known as coffee and sugar producer.
Period corresponding to the beginning of the activities of plant breeding programs conducted by Embrapa
Brazil Developed a Science-Based Advanced Tropical Agriculture

Brazilian Scientists had to “Tropicalize” Soybeans and Other Species.

Embrapa invested vigorously in genetic resources, searching for germplasm suitable for tropical and subtropical conditions.
Soil fertility built

Soybean

Natural Soil
Biological Nitrogen Fixation

More Sustainable Cropping Systems in the Tropics

Biological Nitrogen Fixation with *Bradyrhizobium* strains

No Biological Nitrogen Fixation

Annual economy: > US$ 7 billion
Embrapa and partner institutions are responsible for the conservation of approximately 300,000 accessions in Germplasm Banks of distinct plant species distributed throughout Brazil.

<table>
<thead>
<tr>
<th>Cereals</th>
<th>Fruit species</th>
<th>Vegetables and spices</th>
<th>Leguminous, Oleaginous, Fibrous plants</th>
<th>Industrial use</th>
<th>Forest trees and palms</th>
<th>Roots and tubers</th>
<th>Forage species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amaranth</td>
<td>Apple</td>
<td>Mammee</td>
<td>Arracacha</td>
<td>Cocoa</td>
<td>Acacia</td>
<td>Potato</td>
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<td>Barley</td>
<td>Avocado</td>
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<td>Bell peppers</td>
<td>Coffee</td>
<td>Acai</td>
<td>Sweet-potato</td>
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<td>Corn</td>
<td>Bacuri</td>
<td>Mango</td>
<td>Black pepper</td>
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<td>Acrocarpus</td>
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<td>Millet</td>
<td>Banana</td>
<td>Murici</td>
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<td>Rye</td>
<td>Baru</td>
<td>Pear</td>
<td>Chili peppers</td>
<td>Rubber tree</td>
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<td>Quinoa</td>
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<td>Cratylia</td>
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<td>Sorva</td>
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<td>Pumpkin</td>
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<td>Pataua palm</td>
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<td>Tomato</td>
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<td>Pink Pepper</td>
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<td>Yellow mombin</td>
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<td>Pinus</td>
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<td>Stylosanthes</td>
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Genetic diversity adequately preserved, accessed and used will continue to be the basic foundation for the continued success of breeding programs aimed at developing new varieties, cultivars and lines.
Evolution of domestic grain production (in millions of tons) and of the respective planted area (in millions of hectares)

710 PVP applications in Brazil

12 PVP Processes outside Brazil (US and Latin America)

PVP applications

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<th>Year</th>
<th>2016</th>
<th>2017</th>
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Embrapa, Sibelle A. Silva (2017)
Cultivar BRS Vitoria

BRS Vitoria is a black seedless grape with medium sized, elongated, droplet-shaped berries. The flavour is the most interesting aspect of the grape for consumers.
STRUCTURING PROJECTS
Development projects implemented in partnerships between Embrapa and one country or a group of countries

✓ Strengthen their technological, institutional, and human resource bases necessary for sustainable agricultural development.

✓ Example: Embrapa has implemented the Cotton 4 + Togo project in Benin, Burkina Faso, Chad, Mali, and Togo in partnership with the Brazilian Cooperation Agency (ABC).
If you have any questions, I would be happy to answer them.

 شكرا
Shukran.

Je vous remercie de votre attention.

Thank you for your attention.