



EAAP 2016  
67th Annual Meeting of the  
European Federation of Animal  
Science  
Belfast UK, 29 Aug – 2 Sept 2016

24118 Pires, P.-P.

Precision tools for Brazilian beef production systems.





***EMBRAPA***

***Brazilian Agricultural  
Research Corporation***

***Research & Development on Animal  
Science***

*Founded April, 1973*

***Embrapa***

[www.embrapa.br](http://www.embrapa.br)

# Mission

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***“Provide feasible solutions  
for the sustainable  
development of Brazilian  
agribusiness, through knowledge  
and technology generation  
and transfer.”***



# Embrapa in Brazil

## Unidades da Embrapa Brasil



1. Embrapa Clima Temperado
2. Embrapa Pecuária Sul
3. Embrapa Uva e Vinho
4. Embrapa Trigo
5. Embrapa Suínos e Aves
6. Embrapa Florestas
7. Embrapa Soja
8. Embrapa Agropecuária Oeste
9. Embrapa Gado de Corte
10. Embrapa Pantanal
11. Embrapa Agrossilvipastoril
12. Embrapa Rondônia
13. Embrapa Acre
14. Embrapa Amazônia Ocidental
15. Embrapa Roraima
16. Embrapa Amapá
17. Embrapa Amazônia Oriental
18. Embrapa Cocais
19. Embrapa Meio-Norte
20. Embrapa Caprinos e Ovinos
21. Embrapa Agroindústria Tropical
22. Embrapa Algodão
23. Embrapa Semiárido
24. Embrapa Tabuleiros Costeiros
25. Embrapa Mandioca e Fruticultura
26. Embrapa Pesca e Aquicultura
27. Embrapa Cerrados  
Embrapa Hortaliças  
Embrapa Recursos Genéticos e Biotecnologia  
Embrapa Agroenergia  
Embrapa Café  
Embrapa Informação Tecnológica  
Embrapa Transferência de Tecnologia  
Embrapa Estudos e Capacitação
28. Embrapa Arroz e Feijão
29. Embrapa Milho e Sorgo
30. Embrapa Gado de Leite
31. Embrapa Solos  
Embrapa Agroindústria de Alimentos
32. Embrapa Agrobiologia
33. Embrapa Informática Agropecuária  
Embrapa Monitoramento por Satélite
34. Embrapa Meio Ambiente
35. Embrapa Pecuária Sudeste  
Embrapa Instrumentação

● Capitais

# Internationalization

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- **Labex USA (USDA/ARS)** – Beltsville, MD
- **Labex Europe**
  - **France** – Agropolis, Montpellier
  - **Netherlands** – Wageningen
  - **England** – Hertfordshire
- **Labex Korea** – Seoul
- **Embrapa America Project** – Venezuela and Panama
- **Embrapa Africa Project** (Ghana, Mali, Mozambique and Senegal)
- **56 countries / 89 institutions**



# International Recognition

- Technology adoption
- Expanding collaboration
- International awards
- Media attention
- "Way round" Labex
- Law MP 504/2010



# Embrapa Beef Cattle

Founded in April, 1977



# Personnel

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- **208 employees**
- **53 researchers**
  - 46 Ph.D.
  - 7 M.Sc.
- **30 Analysts**
- **125 Assistants**



# Research Areas

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- Pastures
- Animal Nutrition
- Animal Breeding
- **Traceability and Risk Analysis**
- Farm Management and Economics
- Technology for Hides and Skins
- Technology Transfer
- Animal Health
- Sheep and Goats
- Environment



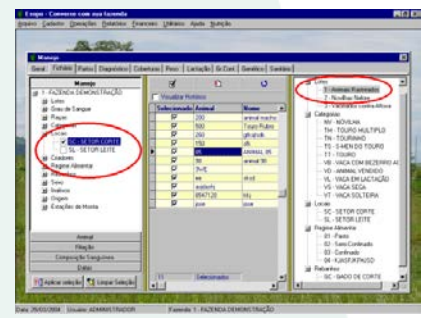
# Research Area



## *Precision Livestock Farming*

- *Good Practices*
- *Traceability & Certification Methods*
- *Electronic identification (chips)*
- *Certification systems*
- *Farm & herd management software*





# AGRIBUSINESS TO BRAZIL/WORLD

- 82% of all distributed orange juice in the world,
  - 38% world soybean market,
  - 29% of all sugar,
- 
- An aerial photograph of a vast agricultural field, likely a soybean field, showing numerous tractors working in parallel rows. The tractors are moving away from the viewer, leaving behind long, straight tracks in the dark brown soil. The perspective is from a high angle, looking down on the field, which stretches far into the distance.
- 28% of all coffee consumed in the world,
  - 23% of all tobacco consumed in the world,
  - Leader in export of chicken, alcohol, leather and shoes,
  - Leader in export of meat since 2003.

# Precision Livestock In Brazil

Embrapa Beef Cattle

Pedro Paulo Pires

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# Precision Livestock In Brazil

**Development of precision tools directed at the competitiveness and sustainability of livestock**

- » Introduction
- » History
- » Perspective

# Cowboy



© Guto Bertagnolli

# Brazilian Beef Industry

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**Embrapa**



# Precision Livestock

**Embrapa**

*Beef Cattle*



# Introduction

Increased global demand for safe food has changed the behaviour of consumers all over the world.

Both the consumer and producer of livestock products must be concerned not only with productivity and profitability, but also with respect for the environment and animal welfare.

There is a lack of manpower in rural areas, as well as a need to provide more training and tools to increase productivity.

# Introduction

In summary we need:

- ➔ livestock products with verifiable high-quality;
- ➔ produced in sustainable systems with
- ➔ high animal welfare and
- ➔ low environmental impact.

As a result of these changes, there is increasing need to manage several variables throughout the production process simultaneously.



**Development of precision tools directed at the competitiveness and sustainability of livestock**

# Introduction

## Precision Livestock

"Tools" increasingly being used to assist in the correct treatment of products, in search of increasingly healthy food, in adequate control of the business, aiming at increasing productivity and satisfying the demands of new markets - both internal and external.

Precision livestock introduces new information and communication techniques for control and automation of production. Because of this, electronic devices such as RFID transponders, electronic scales, GPS, barcode readers, sensors of biometrics, among others, are increasingly used on farms and processing sites.

# Introduction

## Precision Livestock

- The use of electronic devices is, without doubt, the most secure and efficient method for identification of animals, however they can be expensive.
- Consequently, EID should be aligned to development of tools that encourage producers to productivity and traceability.
- It is crucial that these tools provide producers with new information for better management of the herd.
- And that they help produce more food for a growing population and in line with food safety, environmental and animal welfare requirements.

# History

**Pioneering in Precision Livestock -  
Working in the area since 2001:**

- ➔ **electronic identification of bovine animals (RFID);**
- ➔ **umbilical chip with treatment;**
- ➔ **cowboy keyboard;**
- ➔ **scale of passage;**
- ➔ **umbilical chip thermometer;**



# History

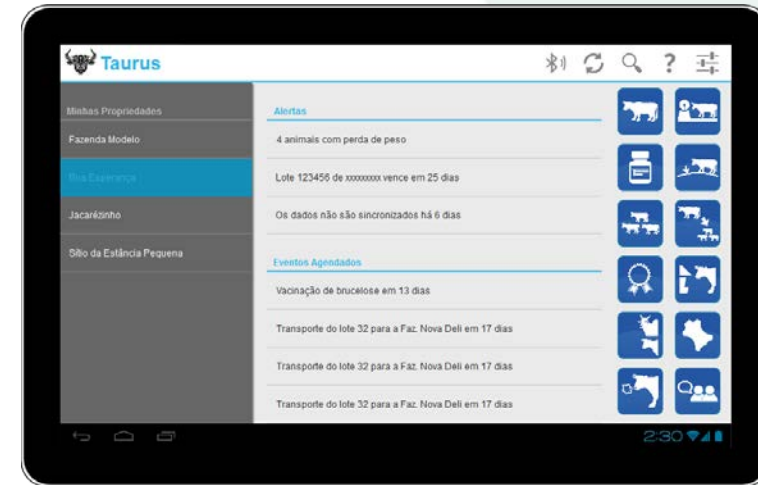
**Pioneering in Precision Livestock -  
Working in the area since 2001:**

web portal for information transfer to  
**SISBOV** service and access to the various  
applications;

many software packages for cattle  
management and production;

data transmission from the field;

mobile alert system;

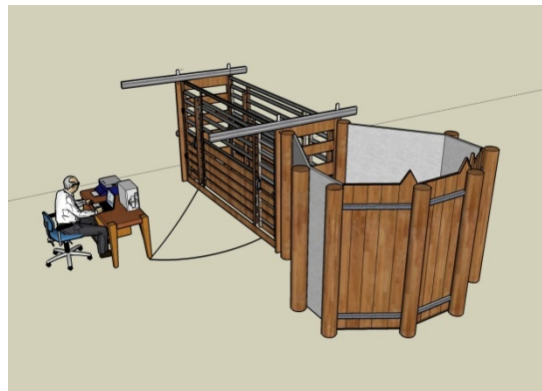
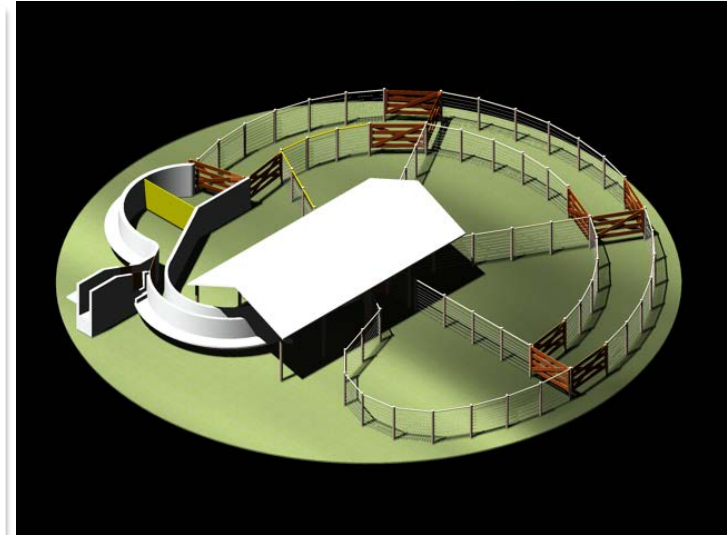


# History

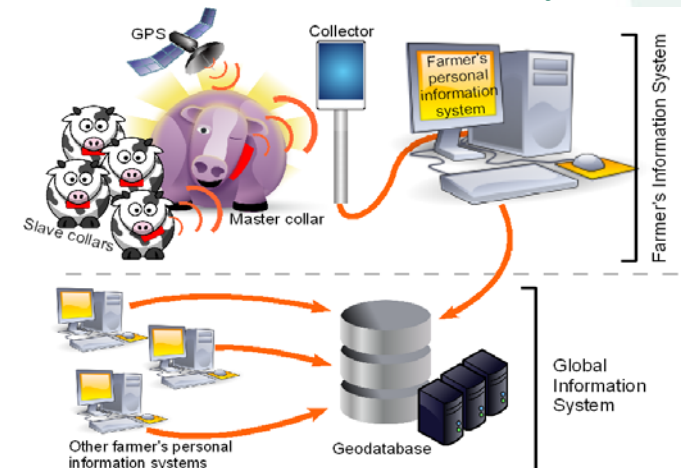
**Pioneering in Precision Livestock -**

**Working in the area since 2001:**

- ➔ **satellite assessment of pasture conditions;**
- ➔ **necklace with GPS for ethological evaluations;**
- ➔ **semantic analysis of displacement of animals;**
- ➔ **e-APART;**
- ➔ **preventive veterinary alerts, via the web;**
- ➔ **“Digital Corral” with range of recording systems.**



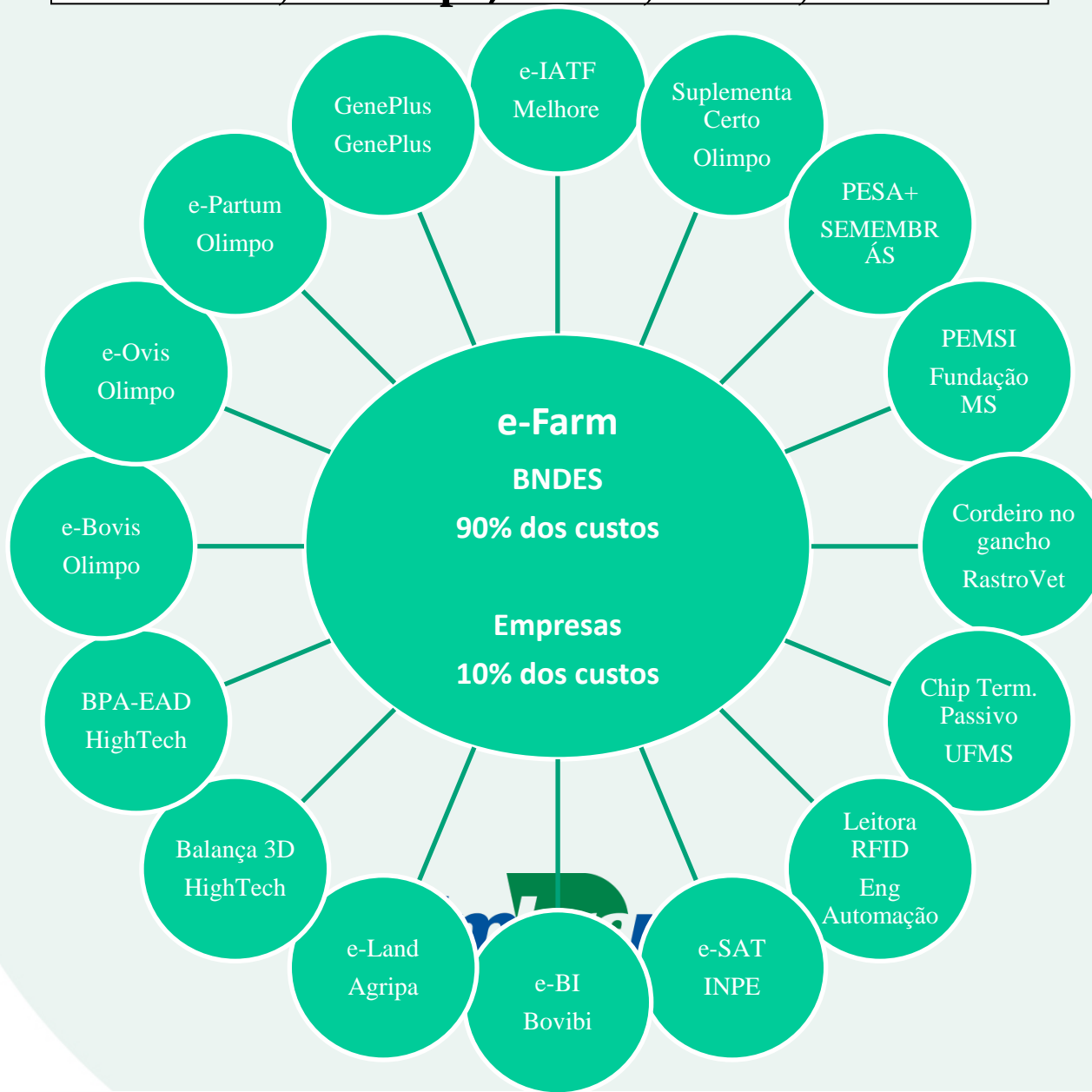
## Reminder of OTAG system





# Precision Livestock Farming

**BNDES, Embrapa, UFMS, UCDB, S-Inova**



**Thank You !**  
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