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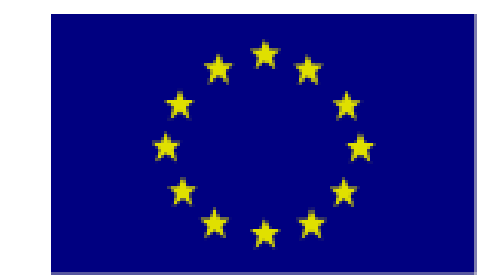
# WHICH ANIMAL DO FARMERS NEED FOR TROPICAL MIXED FARMING SYSTEMS?

## TOWARDS FARM AUTONOMY IN THE HUMID TROPICS

**N.Mandonnet & T.Ceresita**

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### Context

#### Major issues of agriculture in the Global South

World population of 9 billions by 2050 (+50% in Global South)  
 Decreased land availability for crop and livestock production /inhab  
 Global climate and energy crises

**Importance of agroecological approach to meet efficiency and sustainability**

**Crucial need of increased agriculture efficiency to reach food sovereignty**

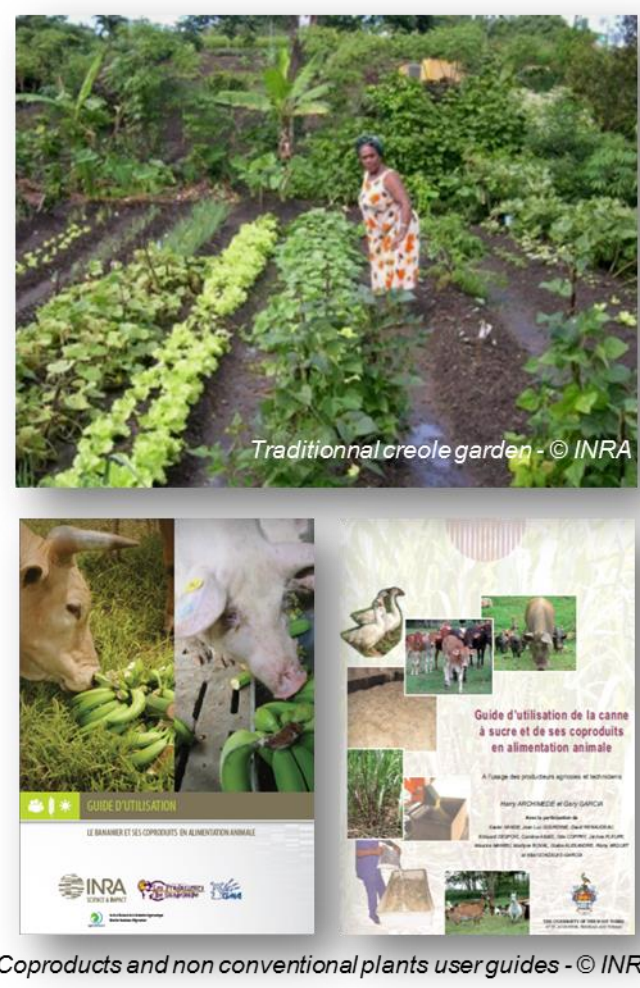
#### Key role of animal in the food chain

to cover protein needs, to add value to non-usable land for crops production, and to enhance the biological recycling processes.

Based on the observation and the evaluation of mixed farming systems (MFS) in the Caribbean, **3 principles for efficient livestock production in the tropics** must be prioritized:

## 1 Give priority to Food on Feed

1. Optimize a human food system in which the animal protein is *only* one component
2. Choose plant resources adapted to the agro-pedo-climatic environment of the farm



3. Match the animal (poly/mono gastrics) to the plant resources available on the territory
4. Promote domestication of natural process through smart and robust technologies

These guidelines lead research in animal sciences on **3 functions** at the animal (A) and farming system (S) scales:

- **Adaptation:** genetic and physiological characterization of an A/S in equilibrium with the environment
- **Resilience:** characterization and design of the A/S able to make/ allow the right compromise under stresses
- **Efficiency:** multicriteria evaluation and optimization at the A/plant/S scales

## 2 Promote the Right Animal at the Right Place

1. Prioritize low-input local adapted species and breeds
  - Optimize responses laws (production and adaptation) of conventional livestock
  - Exploit the potential provided by the non-conventional animals



2. Increase diversity within the flock (animals with complementary requirements/potentials) to enhance the existing diversity of the system
3. Develop genetic for low input systems/ balanced animals

## 3 Favour Farmers' Wills and Skills

1. Design a system consistent with farmer's wills and skills
  - Improve integration of productions in the MFS
  - Combine biotechnical and organizational innovations (smart agriculture)
2. Organize an area for hybridization of research knowledge and traditional know-how
3. Adapt public policies and transform the consumer as consum'actor



### Participatory research, Communication and Knowledge Sharing...

...to promote these 3 principles as levers to raise the self-sufficiency and the quality of life in tropical mixed farming systems.

