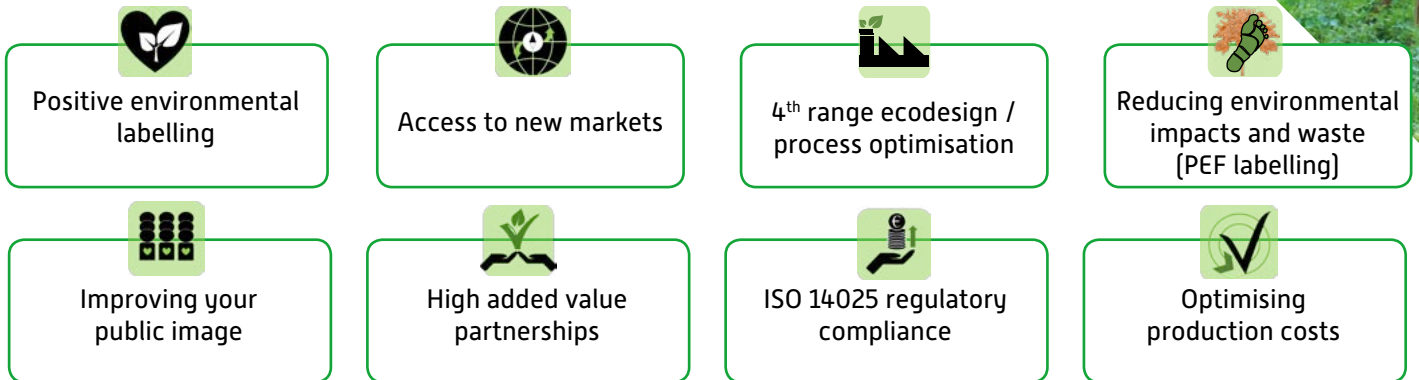


## Environmental Life Cycle Assessment (LCA)

# ▶ From the agricultural product to the processed food product

At every stage of your activity, we identify the indicators of your success



### SELECTING RELEVANT PERFORMANCE INDICATORS

## Cirad facilitates your management decisions

- ▶ Specific expertise in Life Cycle Assessment of tropical value chains, from production to export
- ▶ Identification of points requiring progress and decision support
- ▶ Benchmark – comparative study (independent critical review) required by ISO standards
- ▶ Bespoke training courses on environmental Life Cycle Assessment of tropical products



## A well-established methodology

Operational implementation of environmental LCA integrating the specificities and constraints of the southern countries, in compliance with ISO 14040 and 14044 standards

### DEFINITION OF OBJECTIVES AND FRAMEWORK

Definition of system, selection of indicators and functional unit, definition of presentation method, etc.

### QUANTITATIVE ANALYSIS

Inventory and quantification of all contributions and resources, in connection with the functional unit defined, based on environmental criteria

### INTERPRETATION AND PRESENTATION OF RESULTS

### IMPACT ASSESSMENT

Calculation of environmental impact indicators integrating classification and characterisation stages

## Our strengths

10 years' experience in the evaluation and development of environmental impact tools.

The largest team of LCA researchers in France on tropical products.

150 international agricultural researchers with specific expertise in food products and value chains in the South.

A renowned database of life-cycle inventories (LCI) dedicated to tropical products and the LCA tools required for the production of professional studies.

**CONTACT** ▶ [lca@cirad.fr](mailto:lca@cirad.fr)

## Les Domaines agricoles Environmental assessment of small citrus fruits produced in Morocco and exported to France

### The problem

How to implement an effective and meaningful sustainable development strategy with an emphasis on continuous improvement ?

### The idea

Building an LCA model for fruit farming that can be replicated for all of the different small citrus fruit production systems in Morocco.

### OUTCOMES

Modelling of the perennial cycle (LCA base)

Better image among distributors

Possibilities for reducing impacts linked to water use

### Support

Analysis of data concerning agricultural operations throughout the orchard production cycle, with quantification of inputs used, mechanisation level and outgoing products (yields, waste, by-products).

Study of sustainability of agricultural practices in relation to soil type and climate.

Focus on the assessment of impacts linked to water use with a view to developing a tool/model for the operational inventory of water and pollutant flows (nutrients, pesticides, etc.) at the plot level, which can be used across all of the different production situations identified.



## DANONE Assessment of agricultural practices for cattle feed in Morocco, Algeria and Egypt

### The problem

Part of Danone's supply chain for milk is situated in North Africa, and the group wishes to identify the environmental impact of agricultural practices associated with the life cycle of its products.

### The idea

Analysing to what extent fodder impacts the upstream life cycle of products at the environmental level and identifying areas for improvement.

### Support

Selection of key indicators: diversity of fodder and nutritional inputs, management of nutrition/productivity ratio, accessibility of feed, associated management systems :

- nutrition and animal health
- agricultural practices
- water resources and soil health

Analysis of environmental indicators in relation to production in the field.

Analysis of the current situation for each of the key indicators, definition of objectives and target sub indicators.

Recommendations concerning the evolution of indicators in connection with stakeholders in the improvement process for the value chain identified. Genericity of recommendations to extend them to all of the territories studied, accompanied by an analysis of resources and potential risks.



### Some key recommendations

- Association of cereals and legumes
- Feed available locally, requiring less water, with a good nutritional impact
- Inadequacy of sub-Saharan fodder
- Bringing small and large farms together
- Modification to avoid depletion of groundwater resulting in heavy soil salinisation
- More efficient management of the most suitable and most productive breeds