System Development for the Collection and Transport of Agricultural and Agro-Industrial Residues for Animal Feed Production

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Chania, June 2023
CHOICE Plus Open Innovation Partnership for the Circular Economy - No. code IT2CL-0374321

Partners 10 SMEs
CHOICE Plus Aims

support industrial research that will enhance the development of the Circular Economy in the food value chain

Objectives of CHOICE Plus concern the development of:

• Research activities with the aim of developing new circular economy products, processes or services

• Open innovation processes targeting the development of product, process, service innovations or the development of innovative circular economy business models

• Business development roadmaps for production/sales scaling
In Crete, more than 1,000,000 tons of biomass are produced annually.
The majority of which are now improperly disposed of (at the least) while they could be used to produce animal feed.

Biomass not financially sustainable:
• physiochemical properties
• seasonal production
• dispersion in a large mountainous landscape
• collection and exploitation

Biomass acceptable for animal feed units will be the main focus of the support system.

Development of a Decision Support System (DSS) collect, analyze, and evaluate data for biomass conversion into animal feed environmentally & financially beneficial.
Aim & Innovation

Decision Support System (DSS)

Collect
Analyze
Evaluate

Economical & environmentally friendly collection, treatment and transportation of agricultural & agro-industrial waste

its conversion into animal feed components

Support Decisions – Investors about the production of animal feed units
Agricultural & agro-industrial waste

Quantitatively Analysis of Biomass Production in Crete
✓ Identification of 570 agro-industrial units
  olive mills, wineries, cheese industries, slaughterhouses, packing units and juice factory

Qualitatively Analysis of Biomass Produced in Crete
✓ Analyzed 100 different samples
  crude proteins, crude fibers, carbohydrates and fats

4 different feed components for:
• Ruminants
• Poultry
• Pets (cats & dogs)
Decision Support System (DSS)

3 different Scenarios

1. Units with at least total **3,000 tn/year** dry Biomass for animal feed components with the optimum characteristics

2. In a selected radius area calculate the total tones of crude proteins, crude fibers, carbohydrates and fats

3. Proposal of the system, in which area, a unit could be installed for the selected feed component
Units with at least total **3,000 tn/year** dry Biomass for the production of animal feed components with the optimum characteristics

**INput**
- **Point**: End user select a point
- **Animal**: End user select an animal
  - Ruminants
  - Poultry
  - Pets

**OUTput**
DSS appears the units with total 3,000 tn/year dry biomass in a radius of 50 km with optimum:
- Crude Proteins (tn/year)
- Crude fibers (tn/year)
- Carbohydrates (tn/year)
- Fats (tn/year)
INput
➢ **Point:** End user select a point
➢ **Animal:** End user select an animal
   - Ruminants
   - Poultry
   - Pets
➢ **Radius:** End user select a radius
   - 10 km
   - 15 km
   - 20 km

OUTput
DSS calculate for the selected area the total:
   - Crude Proteins (tn/year)
   - Crude fibers (tn/year)
   - Carbohydrates (tn/year)
   - Fats (tn/year)

In a selected radius area calculate the total tones of crude proteins, crude fibers, carbohydrates and fats
DSS – Scenario 3

**INput**
- **Animal**: End user select an animal
  - Ruminants
  - Poultry
  - Pets
- **Feed component (FC)**: End user select a FC
  - FC 1
  - FC 2
  - FC 3
  - FC 4

**OUTput**
DSS appears the area(s) with the selected FC characteristics

Proposal of the system, in which area, a unit could be installed for the selected feed component
**Decision Support System (DSS)**

**Data Base**

- Olive mills
- Wineries
- Cheese Industries
- Fruit Industries
- Packing Units
- Beverage Industries
- Animal Farms
- Slaughterhouses

**Administrator**

**Units**
Conclusions / Benefit to the local economy

- DSS will decrease the amounts of bio-waste that end in landfills
- DSS will present the areas with the optimum animal feed characteristics for the selected animal
- DSS will give information to create feed component units
- DSS will assist the investors' decisions about the production of animal feed units
- DSS will promote Circular Economy
ACKNOWLEDGMENTS
This research is co-funded within the Partnership Agreement for the Development Framework 2014-2020 by European Union and Greek national funds, through the Operational Program Competitiveness, Entrepreneurship, and Innovation (project No. code ГГ2СЛ-0374321)