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

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Project

CHOICE Plus Open Innovation Partnership for the
Circular Economy - No. code ΓΤ2CL-0374321

Partners 10 SMEs



Βίωμαέστη



ΓΝΩΣΗ ΙΔΙΩΤΙΚΗ
ΚΕΦΑΛΑΙΟΥΧΙΚΗ ΕΤΑΙΡΙΑ –
ΓΝΩΣΗ ΙΚΕ



KiNNO



European Union
European Regional
Development Fund



ΕΡΑνηΕΚ 2014-2020
OPERATIONAL PROGRAMME
COMPETITIVENESS
ENTREPRENEURSHIP
INNOVATION



INTERCOMM FOODS



Co-financed by Greece and the European Union

Aims - Objectives

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

Introduction

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



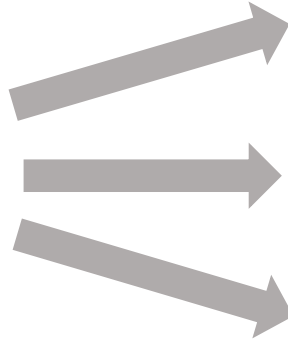
Development of a Decision Support System (DSS)

collect, analyze, and evaluate data for biomass conversion into animal feed environmentally & financially beneficial



Decision Support System (DSS)

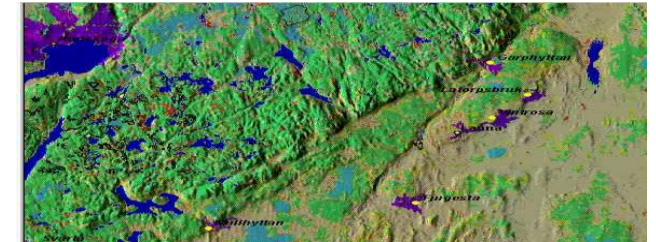
Aim & Innovation



Collect

Analyze

Evaluate



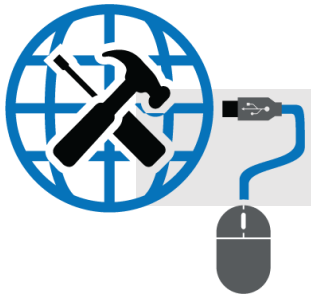
Economical & environmentally friendly collection, treatment and transportation of agricultural & agro-industrial waste

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



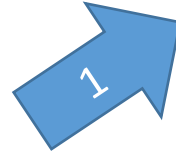
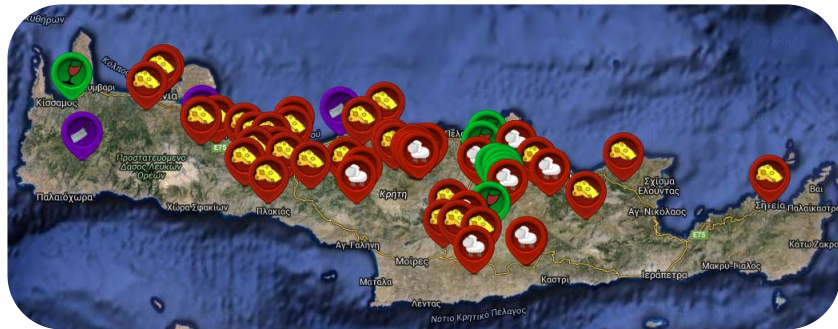
4 different feed components for:

- Ruminants
- Poultry
- Pets (cats & dogs)

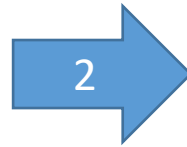


Decision Support System (DSS)

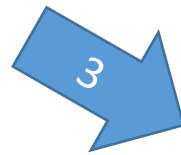
3 different Scenarios



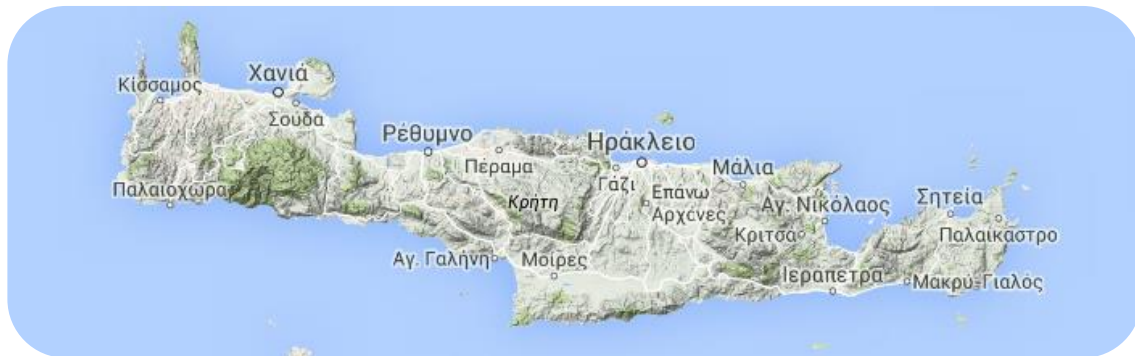
Units with at least total **3.000 tn/year** dry Biomass for animal feed components with the optimum characteristics



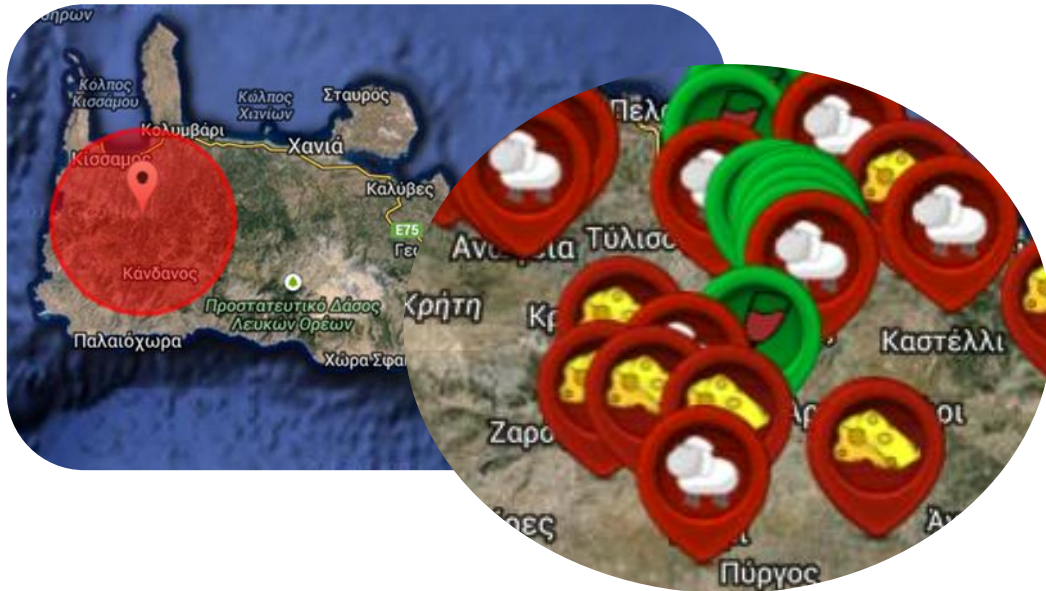
In a selected radius area calculate the total tones of crude proteins, crude fibers, carbohydrates and fats



Proposal of the system, in which area, a unit could be installed for the selected feed component



DSS – Scenario 1



Units with at least total **3.000 tn/year** dry Biomass for the production of animal feed components with the optimum characteristics

INput

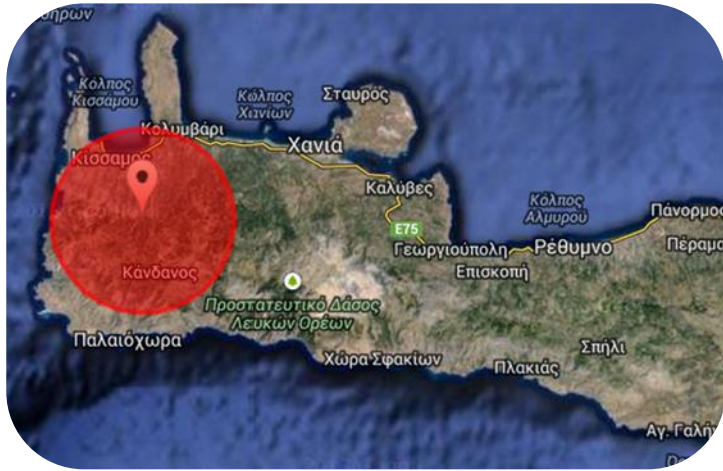
- **Point:** End user select a point
- **Animal:** End user select an animal
 - Ruminants
 - Poultry
 - Pets

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)

DSS – Scenario 2



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

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)

DSS – Scenario 3



Proposal of the system, in which area,
a unit could be installed for the selected
feed component

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

Decision Support System (DSS)



Data Base

All

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

Find

Πίσω Αποθήκευση Προσθήκη

Πόλη: Ηράκλειο Τύπος Μονάδας: ΟΛΟΙ Ελάχ. Δυναμικότητα: Εφαρμογή φίλτρου

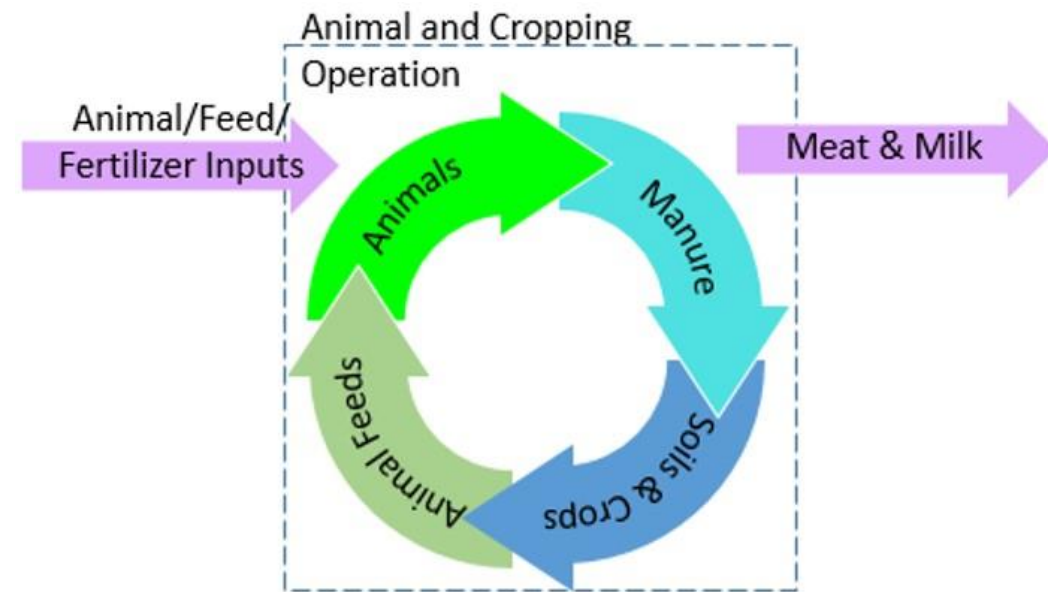
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<input checked="" type="checkbox"/> ΑΝΔΡΟΥΛΑΚΗΣ ΠΑΥΛΟΣ	Πυρηνελαιουργεία	0,0	Καστελιανά Μεσαρό
<input checked="" type="checkbox"/> ΒΙΔΑΚΗΣ ΤΕΣΤ	Ελαιοτριβεία	36.11436080932617,25.994533538818	ΤΕΣΤ
<input checked="" type="checkbox"/> Α.Σ. ΑΓΙΟΥ ΒΑΣΙΛΕΙΟΥ ΒΙΑΝΝΟΥ	Ελαιοτριβεία	0,0	ΑΓ. ΒΑΣΙΛΕΙΟΣ ΒΙΑΝΝ
<input checked="" type="checkbox"/> ΜΑΡΙΝΟΣ & ΑΝΔΡΕΑΣ ΨΑΡΟΛΟΓΑΚΗΣ ΟΕ	Ελαιοτριβεία	0,0	ΧΟΝΔΡΟΣ ΒΙΑΝΝΟΥ
<input checked="" type="checkbox"/> Α.Σ. ΣΥΚΟΛΟΓΟΥ	Ελαιοτριβεία	0,0	ΣΥΚΟΛΟΓΟΣ
<input checked="" type="checkbox"/> Α.Σ. ΑΝΩ ΒΙΑΝΝΟΥ	Ελαιοτριβεία	0,0	ΑΝΩ ΒΙΑΝΝΟΣ

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



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Thank You

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