



Innovation for Sustainable
Sheep and Goat
Production in Europe

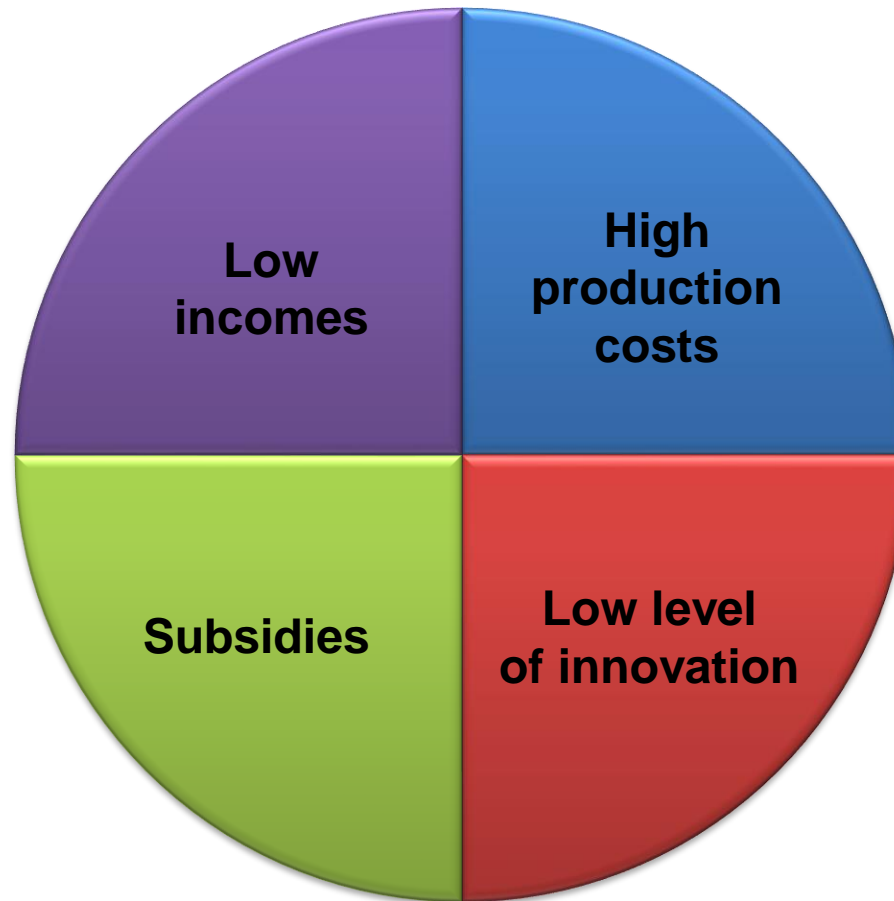


The iSAGE decision support system (DSS)

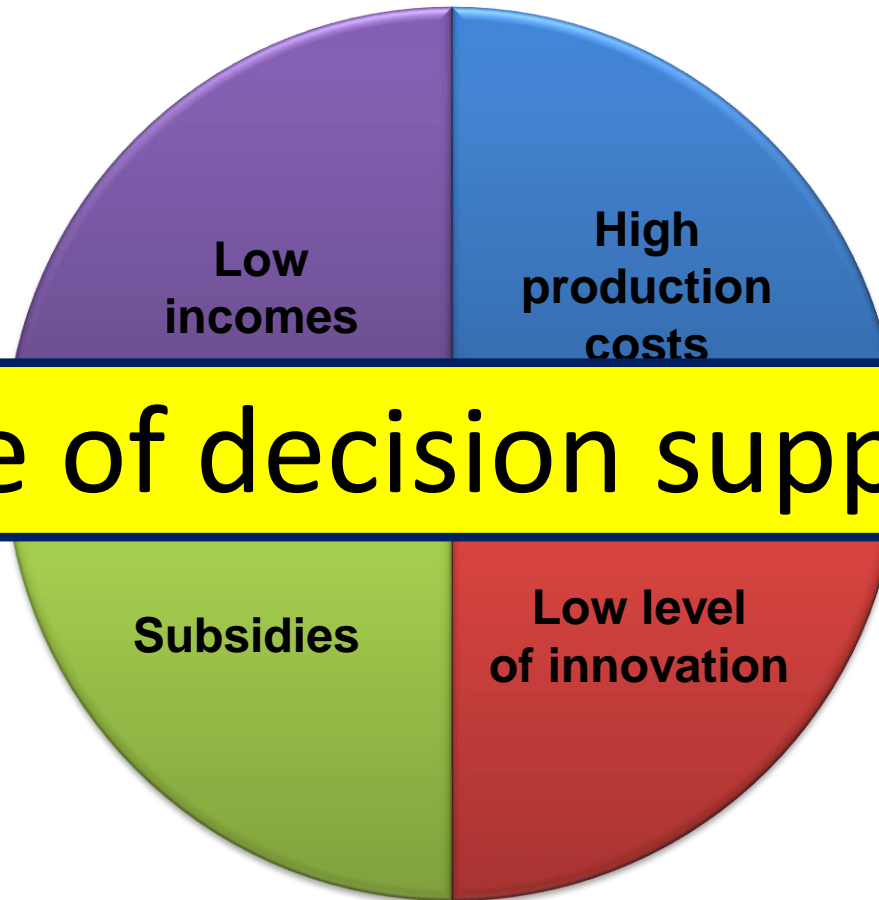
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European sheep & goat sector



European sheep & goat sector



Shortage of decision support tools



Innovation for Sustainable
Sheep and Goat
Production in Europe



WP4 – Task 4.4

Produce user friendly tools that can be provided to industry

Objective: Develop a ***decision support tool*** that will optimise sheep and goat production and will incorporate the recommended changes



www.isage-dss.eu



iSAGEDSS



Model-driven, web-based, decision support system for sustainable small ruminant farming

Features

- Future what-if scenarios
- Different production systems
- Important farm aspects
- Simple and comprehensible reports focused on:
 - ✓ **Profitability**
 - ✓ **Productivity**
- Human readable advice
- Create/compare different scenarios

Impacts & Benefits

- Visualization of impact of choices
- Action plan on **efficient farm management**
- Production and profitability optimisation

Production and farming systems

- Dairy sheep and goat production systems
 - Intensive
 - Extensive
- Meat sheep production system
 - Intensive
 - Extensive



Potential users

- **Sheep and goat farmers**
- **Consultants**
 - ✓ Veterinarians
 - ✓ Animal scientists
 - ✓ Co-operatives
- **Companies**
 - ✓ Dairies
 - ✓ Machinery construction companies
 - ✓ Feed companies



Methodology

Input parameters

- Flock size
- Production (*targeted milk or meat, animal weight*)
- Grazing (*yes / no, area grazed, grazing time & distance, pasture availability*)
- Feeding (*amounts & nutritional values of feeds*)
- Income from subsidies
- Costs (*detailed breakdown of variable costs*)
- Farm prices (*products & feeds*)

Methodology

Data collection – Defaults values & acceptable ranges

- Meat sheep production system
 - ✓ **UK**
 - Agriculture and Horticulture Development Board (AHDB)
 - National Sheep Association (NSA)
 - ✓ **Spain** - Oviaragón – Pastores Grupo Cooperativo
- Dairy sheep production system
 - ✓ **France** - Institut de l' élevage (idele)
 - ✓ **Greece** – Laboratory of Animal Husbandry, AUTH
- Dairy goat production system
 - ✓ **Greece** - Laboratory of Animal Husbandry, AUTH



Methodology

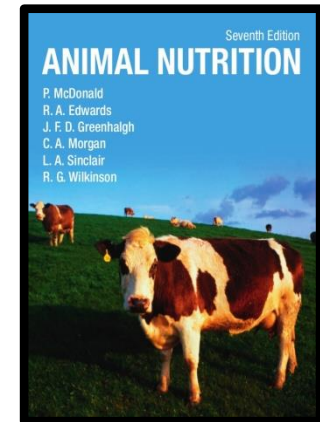
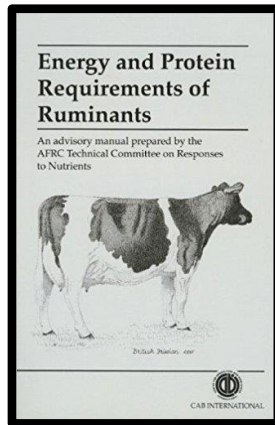
Projectional model

**Energy & protein
requirements
of different categories
of sheep and goats**

Algorithm



**Assessment
of nutritional management
and impact on production
and farm economics**



Methodology

Estimates - Outputs

- Simulations of scenarios - Reports on profitability & productivity
- Farm income, variable costs and gross margin
- Production estimates

Dairy sheep & goat farms

Live weight
Milk production

Meat sheep farms

Live weight
Carcass weight

- Pasture availability at the end of the year
- Useful farm statistics (e.g. ram to ewe ratio, stocking rate)
- Other advanced outputs

Methodology

Cloud-based app

- Input of data to designated web forms
- Check for correctness
- Comparison with theoretical min and max limits
- Central collection and storage on a cloud server
- Processing with a model algorithm
- Guide for farm management decisions

How does it work?

1st Step: Login



Login

User Login

Username

Password

Sign in

2nd Step: My farms



iSAGEDSS

farms

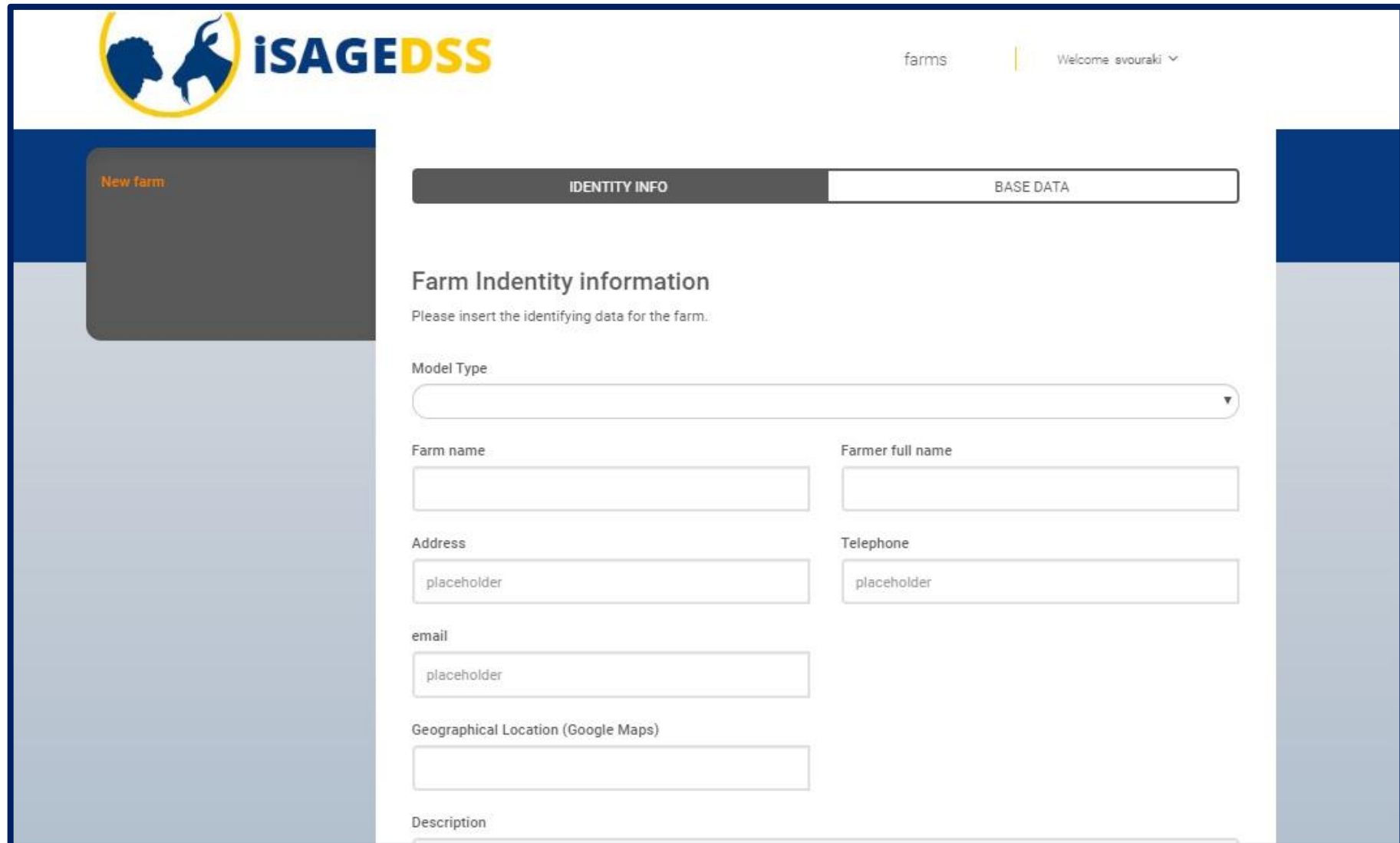
Welcome svouraki ▾

My farms:

NAME	TYPE	LOCATION	ANIMALS	EWES	GROSS MARGIN /ANIMAL	GROSS MARGIN	INCOME	COSTS	
UK meat sheep farm	Sheep	Yorkshire, United Kingdom	1100	500	40 €	20000 €	70000 €	50000 €	view
Spanish meat sheep farm	Sheep	Monnels	2000	800	60 €	50000 €	110000 €	60000 €	view
French dairy sheep farm	Sheep	Bordeaux, France	500	370	97 €	120000 €	200000 €	80000 €	view
Greek dairy goat farm	Goat	Xrisopetra, Kilis	265	200	70 €	14000 €	46000 €	32000 €	view
Greek dairy sheep farm	Sheep	Vasilika, Thessaloniki	265	200	100 €	20000 €	60000 €	40000 €	view

+ CREATE NEW FARM

3rd Step: Create farm



The screenshot shows the 'New farm' creation interface of the iSAGEDSS system. The header includes the iSAGEDSS logo and a user welcome message. The form is divided into two tabs: 'IDENTITY INFO' (active) and 'BASE DATA'. The 'Farm Identity information' section prompts the user to provide identifying data. The form fields include a 'Model Type' dropdown, 'Farm name' and 'Farmer full name' text boxes, 'Address' and 'Telephone' text boxes with placeholder text, an 'email' text box with placeholder text, a 'Geographical Location (Google Maps)' text box, and a 'Description' text box.

iSAGEDSS

farms | Welcome svouraki

New farm

IDENTITY INFO | **BASE DATA**

Farm Identity information

Please insert the identifying data for the farm.

Model Type

Farm name

Farmer full name

Address

Telephone

email

Geographical Location (Google Maps)

Description

3rd Step: Create farm



farms

Welcome svouraki ▾

New farm

IDENTITY INFO

BASE DATA

Basic farm data

Please insert the data for size and output of the farm according to the previous year's production. These basic information is used in order to facilitate the comparison with the results of the projectional scenarios that you will be creating.

Total number of sheep

animal

Number of ewes milked

animals

Profit

€/year

Profit per ewe

€/year

Income

€/year

Costs

€/year

Save farm

CANCEL

4th Step: My farm



farms

Welcome svouraki ▾

Greek dairy sheep farm

Animal type
SHEEP

Produces
DAIRY

Country Model
GR

Basic Farm Information

NUMBER OF SHEEP
265

MILKED EWES
200

GROSS MARGIN PER EWE
100€

Scenarios

[+ Create Scenario](#)

Scenario with default values

[Edit Scenario](#) | [View Report](#)

This scenario describes the management of an average dairy sheep farm in Vasilika, Greece. The flock consists of 200 milked ewes, 5 rams and 55 replacement lambs.

NUMBER
OF SHEEP
265

MILKED
EWES
200

GROSS MARGIN
PER EWE
136,73

GROSS_MARGIN
€
28.029

INCOME
€
68.250

COSTS
€
40.221

5th Step: Create scenario-Input data

Save Scenario

CANCEL

Index

1. Flock characteristics

2. Production

3. Processing

4. Grazing

5. Feeds

0. Concentrate fed per day

1. Straw fed per day

2. Hay fed per day

3. Silage fed per day

4. Dry matter of feeds

5. Metabolisable energy in feeds

6. Digestible undegraded true protein in feeds

7. Effective rumen degradable protein in feeds

6. Income and costs

0. Subsidy

1. Cost of labour

2. Cost of seasonal labour

3. Area rented

4. Cost of renting

5. Transport

6. Utility bills

7. Milking parlour

8. Processing costs

10. Veterinary costs

12. Grazing land costs

7. Prices

0. Milk processed products price

1. Farm prices

Scenario name

Scenario description

Fill form with default values

1. Flock characteristics

How many animals do you have and sell?

Number of lambs

55

animals

Number of milked ewes

200

animals

Number of not milked ewes

5

animals

Number of rams

5

animals

Number of lambs slaughtered

240

animals

Number of adult sheep slaughtered

10

animals

Number of lambs sold

5

animals

Number of adult sheep sold

5

animals

Stable size

400

m2

(Show help)

5th Step: Create scenario-Input data

[Fill form with default values](#)

1. Flock characteristics [\(Show help\)](#)

How many animals do you have and sell?

Number of lambs <input type="text" value="55"/> animals	Number of milked ewes <input type="text" value="200"/> animals
Number of not milked ewes <input type="text" value="5"/> animals	Number of rams <input type="text" value="5"/> animals
Number of lambs slaughtered <input type="text" value="240"/> animals	Number of adult sheep slaughtered <input type="text" value="10"/> animals
Number of lambs sold <input type="text" value="5"/> animals	Number of adult sheep sold <input type="text" value="5"/> animals
Stable size <input type="text" value="400"/> m2	

5th Step: Create scenario-Input data

2. Production

[\(Show help\)](#)

How much do your animals produce?

Average ewe weight	Potential milk production
<input type="text" value="60"/> kg	<input type="text" value="300"/> kg/year
Duration of lactation period	Lamb carcass weight sold
<input type="text" value="8"/> months	<input type="text" value="9"/> kg
Fat in milk	Protein in milk
<input type="text" value="6.5"/> %	<input type="text" value="5"/> %
Birth weight	Weight at weaning
<input type="text" value="3.5"/> kg	<input type="text" value="15"/> kg
Age at weaning	Age at first mating
<input type="text" value="2"/> months	<input type="text" value="8"/> months

5th Step: Create scenario-Input data

3. Processing

[\(Show help\)](#)

What products do you produce on farm from your milk?

Cheese produced

kg

Yogurt produced

kg

Bottled milk produced

kg

Cream produced

kg

Butter produced

kg

Other processed

kg

5th Step: Create scenario-Input data

4. Grazing

[\(Show help\)](#)

Which of your animals graze pasture at any time of the year and how much pasture is there?

☐ Lambs

☐ Milked ewes during lactation period

☐ Milked ewes during dry period excluding last month before birth

☐ Milked ewes during last month before birth

☐ Not milked ewes

☐ Rams

Area grazed

10

hectare

Grazing time

7

hours/day

Grazing distance

7

km/day

Annual pasture available

2300

kgDM/hectare

5th Step: Create scenario-Input data

5. Feeds

What and how much do you feed your animals?

▼ 5.0 Concentrate fed per day

[\(Show help\)](#)

How much concentrate do you feed to each of your animals daily?

Concentrate fed to lambs per day

kg/animal/day

Concentrate fed to milked ewes per day during lactation period

kg/animal/day

Concentrate fed to milked ewes per day during dry period excluding last month before birth

kg/animal/day

Concentrate fed to milked ewes per day during last month before birth

kg/animal/day

Concentrate fed to not milked ewes per day

kg/animal/day

Concentrate fed to rams per day

kg/animal/day

5th Step: Create scenario-Input data

6. Income and costs

0. Subsidy

1. Cost of labour

2. Cost of seasonal labour

3. Area rented

4. Cost of renting

5. Transport

6. Utility bills

7. Milking parlour

8. Processing costs

10. Veterinary costs

12. Grazing land costs

6. Income and costs

What are your income and costs

▼ 6.0 Subsidy

(Show help)

How much money do you get from subsidies?

Direct payments last year

2600

€/farm

Coupled subsidies paid per animal per year

12

€/animal

Compensations

0

€/farm

▼ 6.1 Cost of labour

(Show help)

How much money do you spend each year for labour?

Hired workers used

1

people

Family labour used (unpaid)

2

people

Hours of work per hired worker

240

hours/month

Cost of labour

2

€/hour/person

5th Step: Create scenario-Input data

7. Prices

Prices for products and feeds

▼ 7.0 Milk processed products price [\(Show help\)](#)

How much do you get for each Kilogram of milk you process to products you sell?

Cheese

€/kg

Yogurt

€/kg

Bottled milk

€/kg

Cream

€/kg

Butter

€/kg

Other milk processed products price

€/kg

▼ 7.1 Farm prices [\(Show help\)](#)

Prices for milk, meat and feeds

Milk price

€/kg

Lamb meat price

€/kg carcass

Adult meat price

€/kg carcass

Lambs sold price

€/animal

Adult sheep sold price

€/animal

Concentrate for lambs price

€/kg

Concentrate for lactation period price

€/kg

Concentrate for dry period/ewes not milked price

€/kg

Concentrate for last month before birth price

€/kg

Concentrate for rams price

€/kg

Straw price

€/kg

Hay price

€/kg

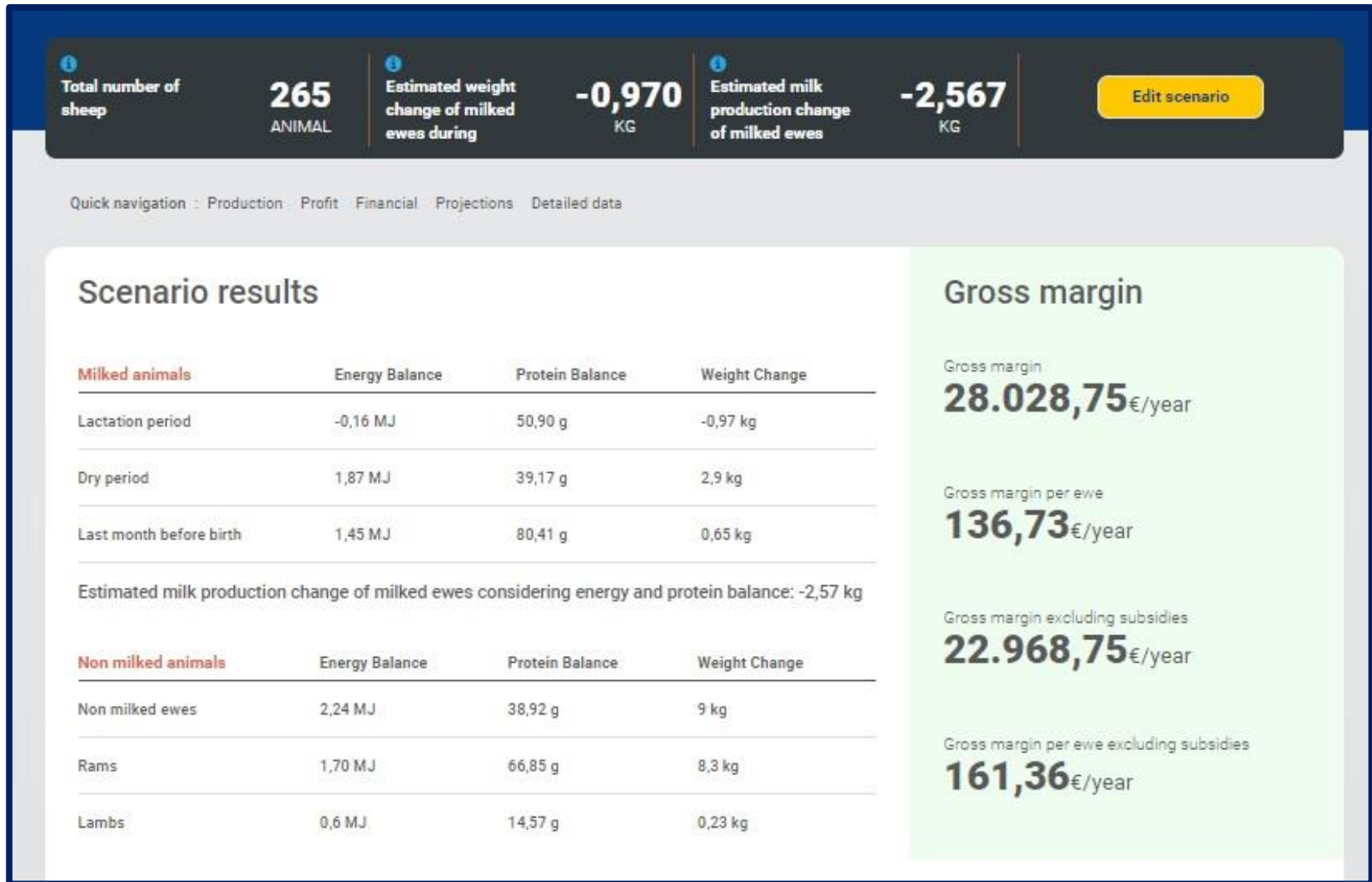
Silage price

€/kg

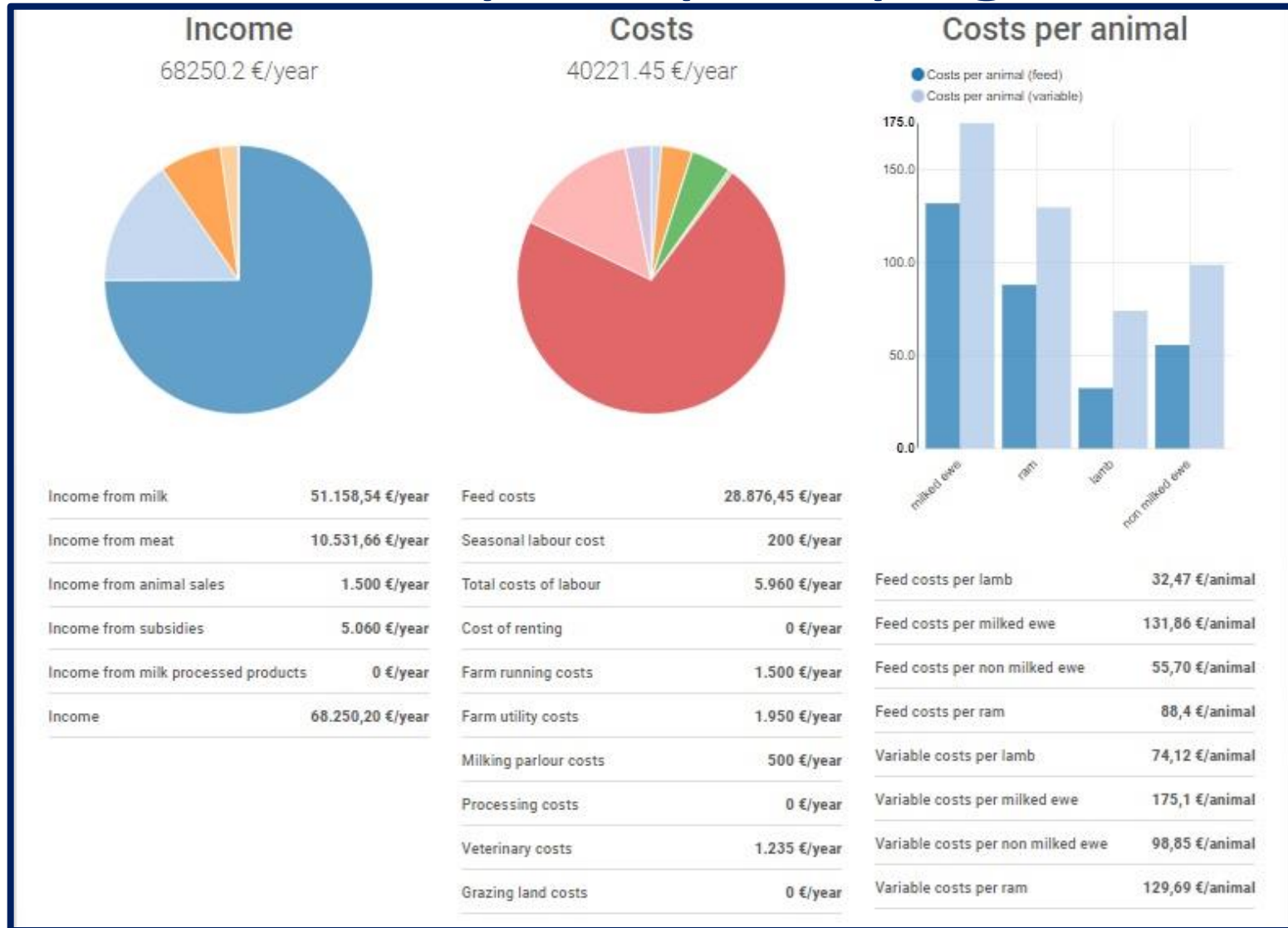
Fluctuating number animals (internal use only)

number

6th Step: Report page



6th Step: Report page



Basic simulated scenarios

- Flock size optimisation
- Production optimisation
- Pricing: Lower milk/meat prices & higher feed prices
- Extensification of the production system
- Different feeding strategies

Goal
Remain sustainable

Next steps

- Testing and feedback from sector/industry
- Improvements on the system
- Obtain defaults and ranges from other countries to create customised models

Thank you!