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Development of integrated livestock breeding and management strategies to improve animal health, product quality and performance in European organic and 'low input' milk, meat and egg production

Subproject 2: Sheep
Ethical Problems and Breeding Goals

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- **Lately production of various sheep and goat products has been raised especially in Mediterranean countries which have a long tradition in breeding such animals**
- **Sheep and goat breeding in those countries in fact in the best choice in order to exploit the specific area and climate conditions**

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Sheep welfare & product quality

Society in our times prioritized quality over quantity showing a special care for:

- **Food safety**
- **Public Health**
- **Living conditions of productive animals and**
- **Environment protection**

Sheep welfare & product quality

Product quality strongly connected to

- **Animal living conditions**
- **Animal Health**
- **Housing**
- **Nutrition, reproduction, management**

New consumers' concept

- Consumed product should come from animals that have been bred, transported and slaughtered under welfare standards
- This concept is mainly refers to ethical issues
- << happy animals >> είναι << healthy animals>> which this way produce safe high quality products (organic)

quality (according to EC)

Two levels:

a) ***defined by law*** related to safety and environment protection

b) ***relative,*** related to specific preferences which make each product unique in terms of taste, appearance, aroma etc. (local PDO)

welfare is being build via genotypes and environment

- EC recognizes that animals are sensitive beings and Regulatory Authorities should protect they way they are treated by rules and regulations.
- The main aims should be to avoid pain during: breeding, transportation and slaughtering

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welfare

- "its state as regards its attempts to cope with its environment"
- According to Dr. B.O. Hughes (1976) << *welfare is the status of mental and physical health in which the animal is in harmony with the environment* >>.

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5 welfare«freedoms»

- 1. Freedom from Hunger and Thirst - by ready access to fresh water and a diet to maintain full health and vigour (deprivation).
- 2. Freedom from Discomfort - by providing an appropriate environment including shelter and a comfortable resting area. (thermal and natural balance)
- 3. Freedom from Pain, Injury or Disease - by prevention or rapid diagnosis and treatment. (prevention, biosecurity, treatment)
- 4. Freedom to Express Normal Behaviour - by providing sufficient space, proper facilities and company of the animal's own kind. (harmony with environment)
- 5. Freedom from Fear and Distress - by ensuring conditions and treatment which avoid mental suffering (human care).

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5 welfare«freedoms»

- The 4 of those have to do with relief from factors causing discomfort pain or disease
- ONE is dealing with freedom of the animals to express according to their natural needs.

This is the freedom of choice and natural behavior, and is very different compared to the rest.

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sheep & goats welfare

- Sheep and goat breeding has as a goal to produce products with the desirable quality minimizing cost and ensuring their welfare.
- Their productivity depends on their genotype, the environment they live, their nutrition, their health status and the husbandry method applied.

To ensure their welfare we should apply :

- an integrated management system on a farm level and,
- an integrated management system on an area level
- ***Farm management greatly depends on the area and each area has special characteristics***

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Farm management

Basic principles:

1. Providing information to the farmer(weather).
2. Continuously monitoring of the animals and production data collection
3. Evaluation of productivity
4. Create such an living environment in which the factors that disturb health and welfare will be minimized

Final target of Farm Management is to achieved the desirable economic effect securing animal welfare

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Nutrition

- The higher capital spent on regular basis and its very important for animal welfare and production
- Sheep and goats can be bred and fed under various conditions
- Their nutrition can be based from total grazing/browsing of natural low/high -land pastures to total concentrated and coarse feed inside the farms
- Climatic conditions in different areas (eg semi-arid) which favor or not vegetation for specific time periods, and allow or not grazing have to be evaluated and taking care of.
- (an mesa foot-rot an vrexei de vrexontai)

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Nutrition

- Welfare standards in sheep are highly affected by the availability of safe and hi quality coarse and supplement feed.
- Animal nutrition should cover their basic needs according to their production phase
- One should always estimate the proportion of grazing in covering the animal needs (quantity, quality)
- Building a recipe should consider that is viable economically and cover their need in order to respect welfare and optimize production.

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Water

- **The availability of good water quality is highly important**
- **The needs vary a lot (sheep that graze grass do not need too much water. Sheep that mainly consume supplement and dry hay, especially during lactation have great needs)**
- **Fresh clean water should always be available and moreover it should be checked to be appropriate and not cause health problems.**

Housing.
EC regulations recently included
except 1.5 m^2

1. **Hygiene.**

Environmental safety

Odors

Soil and water contamination

Fit with the environment

2. **Welfare**

Which are connecting and maximizing production rates

"well being" which depends and varies from area to area

Farm facilities

Sheep have to have spaces and areas (in open air systems) in which they can be protected by bad weather conditions, feed, move, grow and milked.

Any construction should:

- **Serve their natural needs and protect their health**
- **Offer comfortable working environment for workers**
- **Do not pollute the environment.**
- **Have the appropriate infrastructure**

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When building facilities

- **To choose a location and except of the relevant regulations we should also consider:**
- **Climatic and area conditions (i.e. wind direction, humidity, underground nature, etc)**

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Farms

- The common mistake is than people tend to overlook that disease are connect to hygiene in a farm level.
- Diseases can be exclusively due to the farming system.
- Hygiene standards which support welfare refer to measures taken where animals stay as well as in all other areas in order to control pathogens (bacteria, parasites, viruses)

Milking parlor hygiene

- Mastitis problems are the most important ones and most often is a result of bad hygiene in the farm and especially in the milking parlor
- Proper cleaning and disinfection may result to proper animal welfare and product quality

Human Factor

- Welfare has change the human factor and set different basis than before
- The farmer is involved in production phases and should have the same principles as the consumer has to what welfare and environmental protection concerns.
- The standards are higher than ever

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How animal react

- In cases where the farmer relates with the animals productivity is high.
- Bad relations between animal and farmers reduces production rates and increase fear to humans
- Armegontai kathimerina steni -sxesi

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Transport and slaughtering are highly important but mostly common to the what applies to other species

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How to evaluate welfare levels

- **The development of a worthy marker of animal needs is a practical tool in order to ensure sheep welfare in their farming environment.**
- **For this all relevant factors should be defined and evaluated according to the farming system.**

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How to evaluate welfare levels

- **Such a marker has been created in various European countries and has a target to**

- **1) to provide a tool which can be used on a farm level for all different management systems**
- **2) to grade the results in different levels according to the farming system**

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How to evaluate welfare levels

6 parameters:

1. **To move**
2. **To socialize**
3. **Floor/soil quality in order to walk-lie-stand or and pasture quality**
4. **Microclimate (ventilation, light, noise, temperature)**
5. **Quality and frequency of human care**
6. **Hygiene quality and animal health and immune competence**

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Freedoms & Parameters

freedoms	relation	parameters
1Freedom from Hunger and Thirst		1. To move
2. Freedom from Discomfort – appropriate environment		2. To socialize
3. Freedom from Pain, Injury or Disease		3. Floor/soil quality in order to walk-lie-stand or and pasture quality
4. Freedom to Express Normal Behaviour		4. Microclimate (ventilation, light, noise, temperature)
5. Freedom from Fear and Distress		5. Quality and frequency of human care
		6. Hygiene quality and animal health and immune competence

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How to evaluate welfare levels

- **In each parameter there are factors scored**
- **Scoring is connected to welfare status**
- **Total score is evaluating each system.**
- **Bad scoring in one factor can be balanced by good scoring in another this way farmers have different ways to achieve a desirable effect**

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Factors and scoring

areas	characteristics	range
1Movement	-floor surface/ animal	-0,5 - 1,5
	-0/0 floor with bedding	-0,5 - 1,5
	-point to measure normal behavior (scratching-soil)	0,0 - 1,0
	-special parturition area	-0,5 - 1,0
	-outdoor area /animal	0,0 - 1,0
	- Nr days outdoors/year	-0,5 - 1,5
	-surface grazing area / animal Pasture distance from farm	-0,5 - 1,5

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Factors and scoring

areas	characteristics	range
2. Socialise	-nr animal/groups	0,0-1,0
	-floor and quality	-0,5 - 1,5
	-natural light	-0,5 - 1,0
	-nr males in the flock	-0,5 - 1,5
	-nr feeding and water spots	0,0 - 1,0
	-air quality in the stable	-0,5 - 1,0
	-microclimate in resting place	0,0 - 1,0

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Factors and scoring

areas	characteristics	range
3. Pasture quality & nutrition	- Total grazing	-0,5 - 0,0
	- Rotation grazing	0,0 - 2,0
	- Mixed grazing	0,0 - 1,5
	- supplementation	0,0 - 1,5
	- Bioactive pastures	0,0 - 2,0
	- Body Condition Score	-0,5 - 1,5
	- Type/ Quality of soil	-0,5 - 1,5
	- Grass quality	-0,5 - 1,0

Factors and scoring

areas	characteristics	range
4. Husbandry	- Facilities/Buildings	-0,5 - 1,0
	- Noise	-0,5 - 1,0
	- Animal replacement strategy	-0,5 - 1,0
	- Use local/resistant breeds	0,0 - 1,5
	-selection according to natural resistance to infection, enhance immunity	0,0 - 1,5
	-natural weaning	0,0 - 1,0
	-use hormones for reproduction	-0,5 - 0,5

Factors and scoring

areas	characteristics	range
5.Care taking	- Cleaning	-0,5 - 1,5
	- Equipment status	-0,5 - 1,5
	- Milking parlor	
	- dead/sick animal in farm	-0,5 - 1,0
	- Hygiene / Biosecurity	-0,5 - 1,5
	- hoof-skin disorders	-0,5 - 1,5
	- Marking –data recording	-0,5 - 1,5

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Factors and scoring

areas	characteristics	range
6.Animal Health	-parasitic burden	-1,0 – 2,0
	-Somatic Cell Counts in milk	-1,0 – 2,0
	- Lameness –foot rot (use of baths)	-0,5 - 1,5
	-mastitis incidence	-0,5 - 1,5
	-hygiene measures before after milking	-0,5 - 2,0
	- Antibiotics resistance	-0,5 - 1,5
	- Ectoparasites control	-0,5 - 1,5
	-Participation in national health programs	-0,0 - 1,5

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Categories

System score	*Categories according to welfare status*	*Ranking*	*Certification*
< 5	Not acceptable	Deficient	Not certified
5 - 15	Minimum welfare level	Deficient (may improved)	Not certified
16 - 25	Moderate welfare level	Sufficient	Certified after improvement
26 - 35	Satisfactory welfare level	Very good	Certified
36 -45	Very good welfare	Exemplary	Certified
>46	Excellent welfare	Excellent	Certified with special sign

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Sheep and goats bring natures' power and health in our table

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