

Innovative applications in animal production

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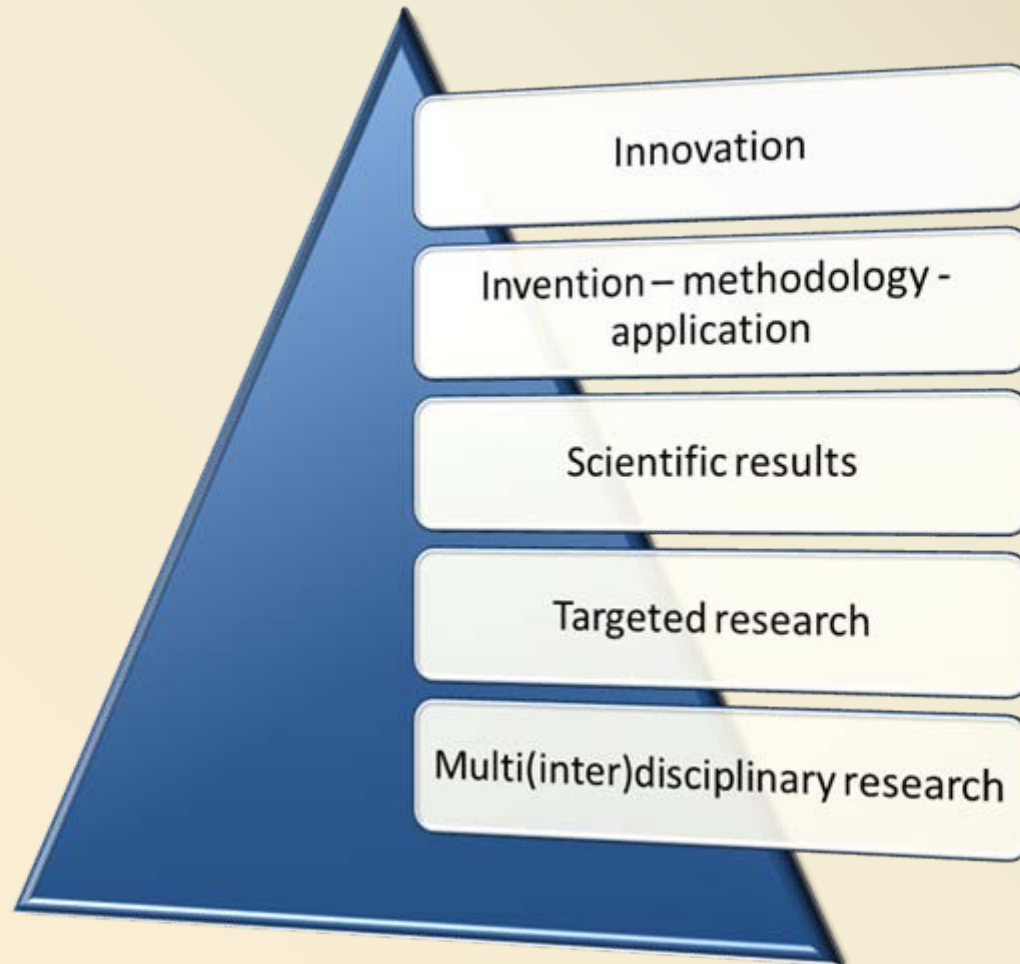


Overview of the presentation

- **Areas of innovation in animal production**
- **Needs and challenges**
- **The trends in the Mediterranean area**
- **The Laboratory of Animal Husbandry, AUTH**
- **The future in Greece**



Innovation: the pyramid



Areas of innovation in animal production

- **Animal breeding and reproduction**
- **Animal nutrition**
- **Animal health (disease control)**
- **Product safety & quality**



Areas of innovation in animal production

- **Animal breeding and reproduction**

- Animal nutrition

- Animal health (diseases)

- Product safety & quality

- ✓ Various breeding techniques according to species
- ✓ New technological applications on performance monitoring
- ✓ Artificial insemination
- ✓ Embryo transfer
- ✓ Genetics
- ✓ Robotics



Areas of innovation in animal production

- Animal breeding and reproduction

- **Animal nutrition**

- Animal health (diseases)

- Product safety & quality

- ✓ Software for least cost feed formulation
- ✓ New tools for digestibility improvement (feed enzymes)
- ✓ Development of various products for performance improvement



Areas of innovation in animal production

- Animal breeding and reproduction
- Animal nutrition
- **Animal health (disease control)**
- Product safety & quality

- ✓ New, reliable diagnostic tools
- ✓ New disease prevention protocols
- ✓ New methods of disease management
- ✓ -omics



Areas of innovation in animal production

- Animal breeding and reproduction
- Animal nutrition
- Animal health (disease control)
- **Product safety & quality**

- ✓ Functional foods
- ✓ -omics
- ✓ Nanotechnology
- ✓ Quality indicators



Needs and challenges



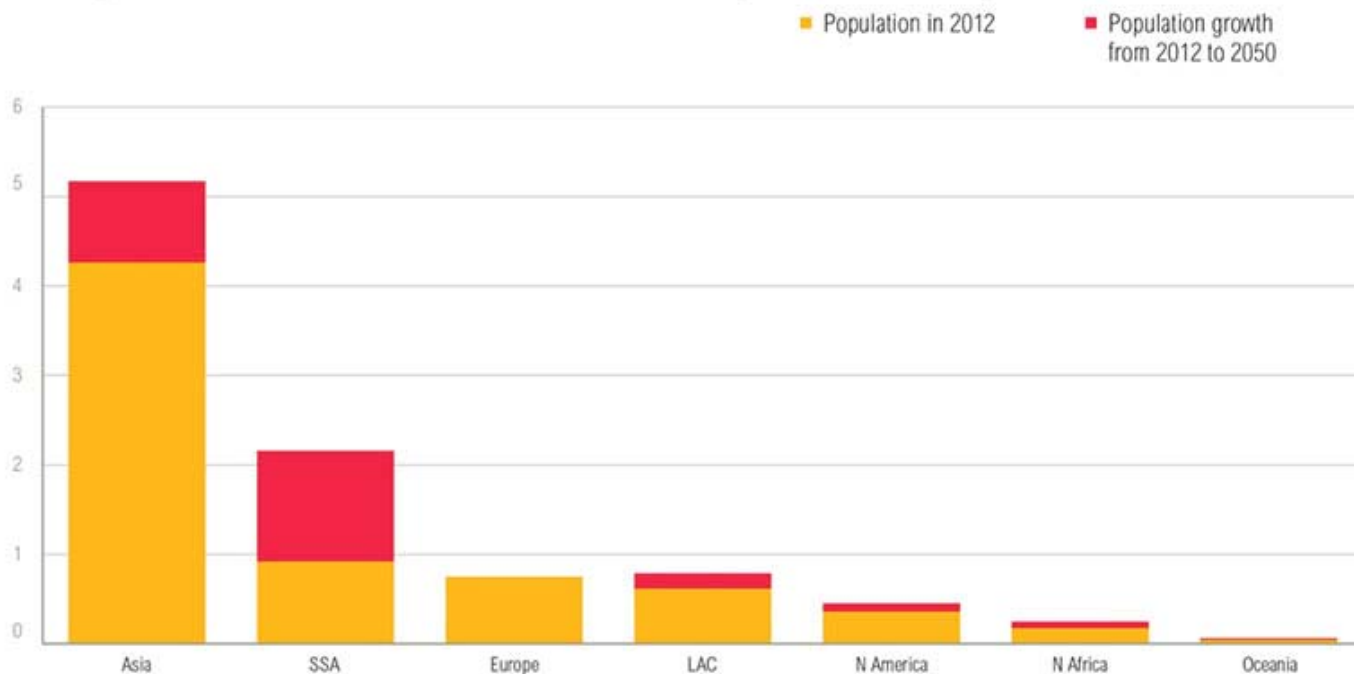
2015: 7.3 billions

2035: 8.3 billions

2050: >9.0 billions

Needs and challenges

Projected Population Growth (in billions)

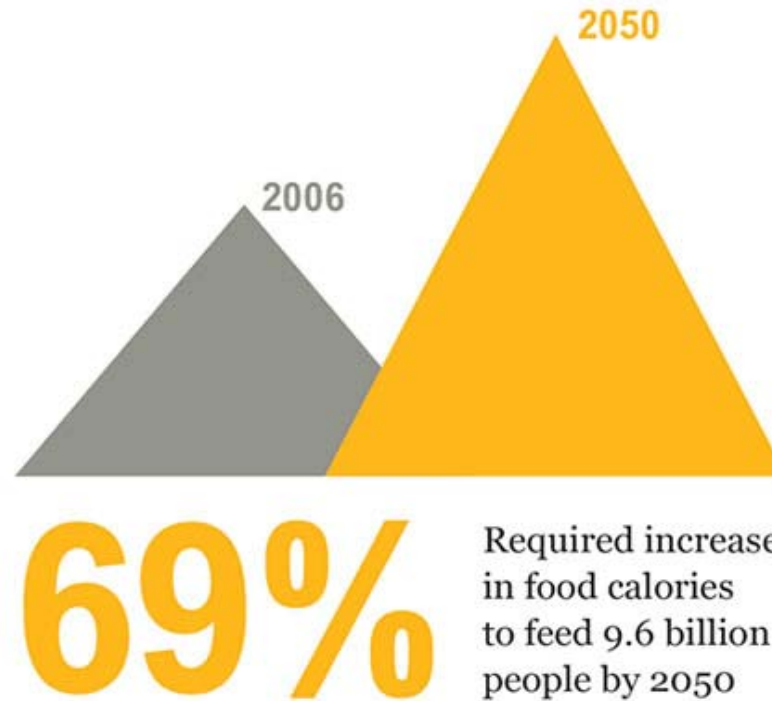


Note: "SSA" = Sub-Saharan Africa, including Sudan. "LAC" = Latin America and Caribbean. "N America" = North America. "N Africa" = Rest of Africa.

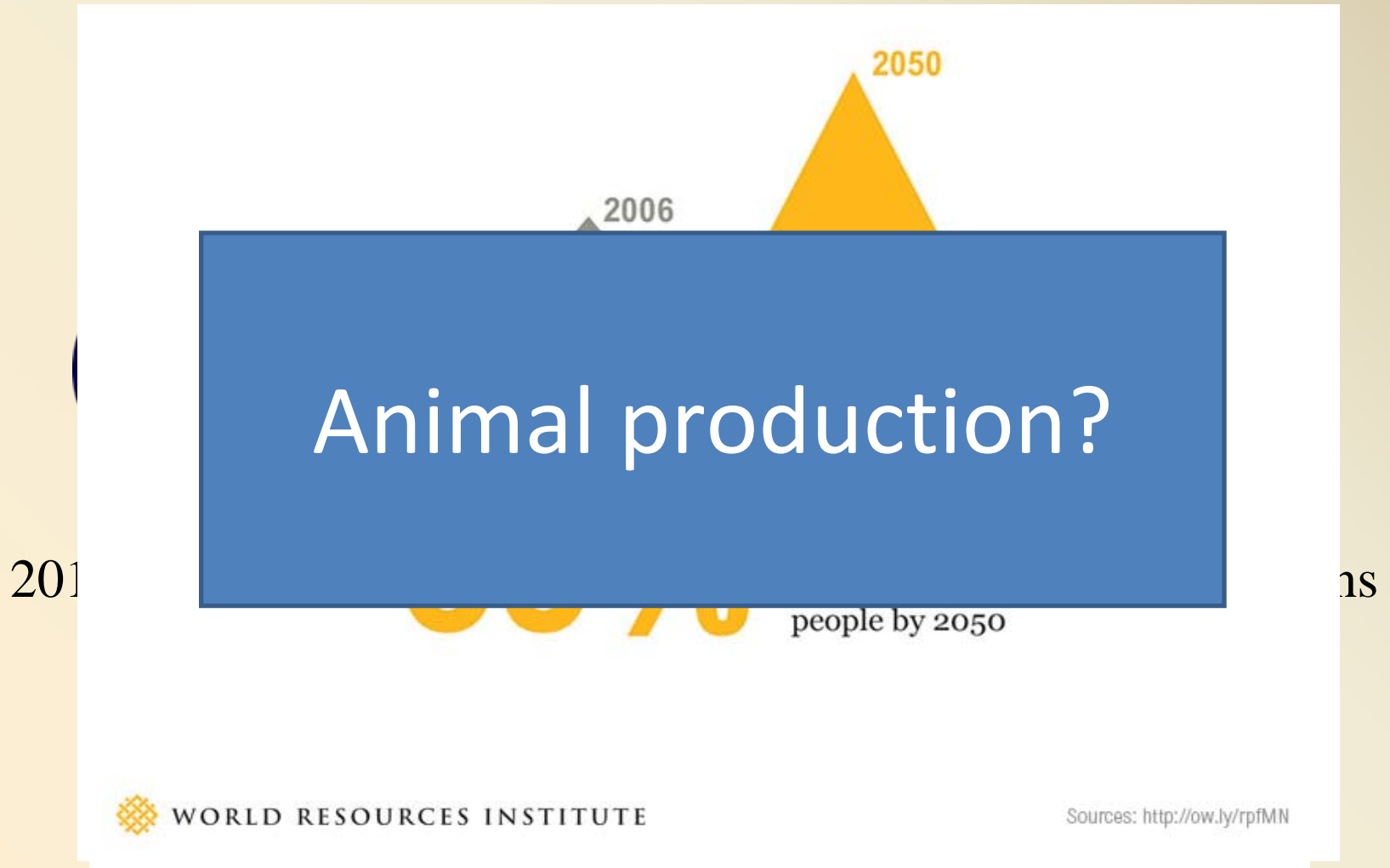
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Needs and challenges



Needs and challenges



Needs and challenges

The challenges in the animal production sector:

- Continuous demand for animal products
- Competition for Resources
- Climate change
- Socio-economic factors, differences between countries in terms of development
- Continuous ethical concerns
- Environmental impact (effects)



Mediterranean area

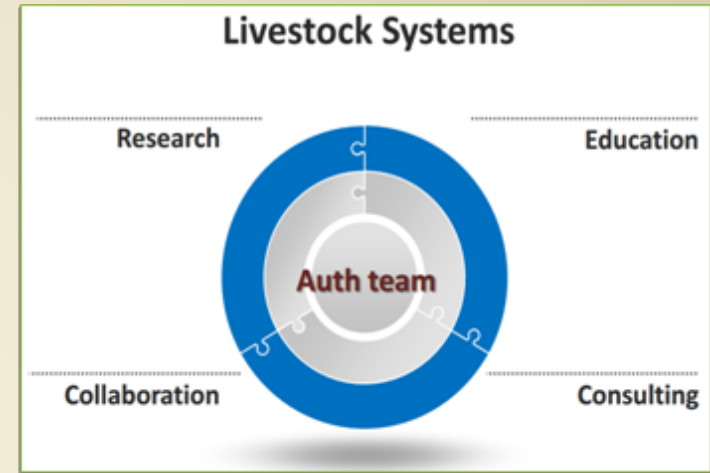
We need to:

- Compete with diversity of cultures
- Apply new technological elements
- Preserve animal species
- Increase the value of the local products
- Ensure the development of rural areas, to support local economy



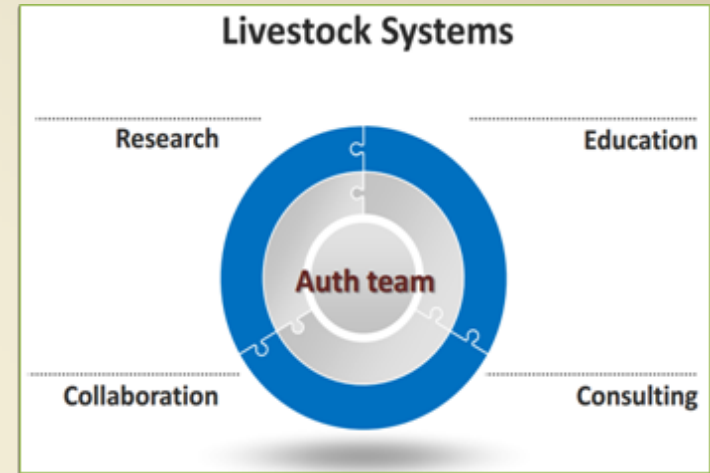
Our lab team

- >30 years qualified vet experience
- Capable of securing funds for research and delivering quality research projects
- Experts in ruminant and non-ruminant production systems
- Considerable expertise in consultancy
- Strong international links with researchers and pharmaceutical companies



Our lab team: Aims

- Local delivery, national impact and global collaborations
- National leaders in animal-based research and consultancy services
- Leaders in innovation and sustainability in the livestock sector



Products developed by our team

National Patents



BEEF CATTLE

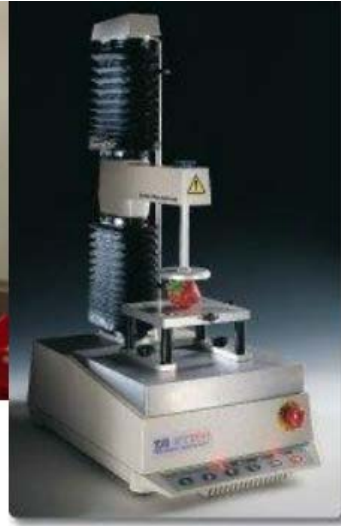
	Καθαρά Φυτοάρωμα (g/100g)	Συνολικά Φυτοάρωμα (g/100g)
Ω. Λιπαρά (%)	20,87	17,49
Ω. Υδατ. (%)	7,39	18,84
Ω. Υδατ. (g/100g υδατ.)	2,91	5,81
Ω. Υδατ. (g/100g υδατ. αλάτι)	19,29	18,84
	18,18	12,10

Δίπλωμα Ευρωπαϊκής ΟΒΙ, GR 1003646/2001
Εφαρμοσθείσαση HACCP



Novel results

PIG INDUSTRY

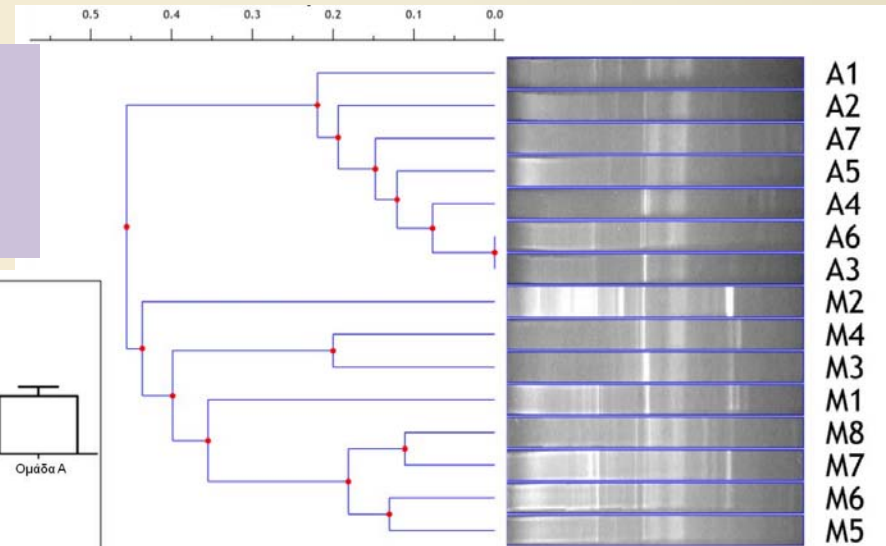
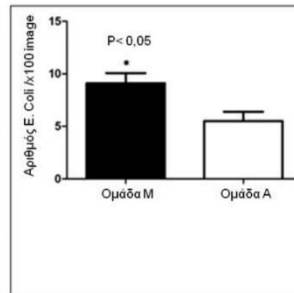
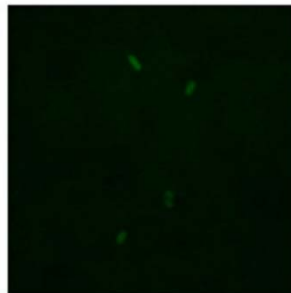
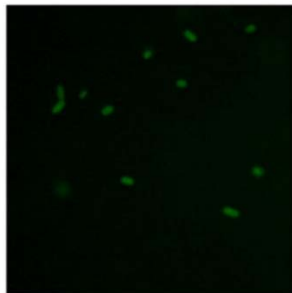


Novel results

Consumption of *Ocimum basilicum* and *Mentha spicata* in enriched pastures of free-range laying hens systems



“inclusion of **attapulgit** in the diet of laying hens reduces colonization of potential pathogens”



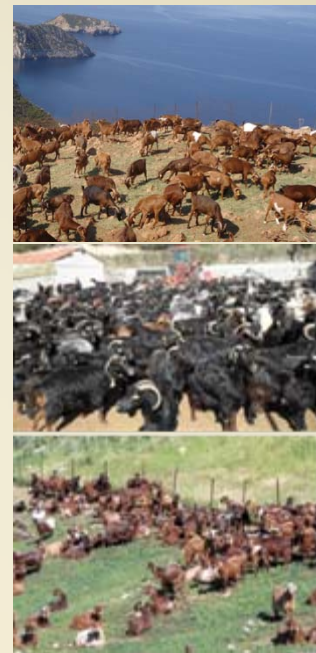
Novel results

3SR Sustainable Solutions for Small Ruminants



Large scale study of the goat sector in Greece

- a) farm structure and land use
- b) herd size and structure,
- c) facilities and equipment,
- d) feeding and grazing management,
- e) reproduction and breeding strategies,
- f) labor force and
- g) levels of milk and kids production.



SNP Genotyping



NEMATODE INFECTION

Nematode Resistance



MASTITIS

genetic variation in mastitis susceptibility



Novel results



<http://www.gene2farm.eu>

Next generation European system for cattle improvement and management



Premium quality beef



GOSHomics



Application of “omic” Technologies for the Genetic Characterization of Indigenous - Greek Dairy Breeds of Goats and Sheep, for the Improvement of their Production and for the Identification of Potential Bioactivity of their Milk



The future

- According to the ATF the key areas of research and innovation (HORIZON 2020) are:
 - ✓ Resource Efficiency
 - ✓ Healthy Livestock and People
 - ✓ Responsible Livestock Farming



The future

- **Our priority is in dairy sheep and goat production**
- **The demand for meat quality is likely to increase the pressure to implement novel technologies in production**
- **The need for milk from sheep and goats will become a priority**
- **Milk production per animal and milk quality will dictate prices and farm sustainability**
- **Animal health and welfare will be monitored using novel technologies**



Thank you



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