Κύπρος το αύριο

ΣΧΕΔΙΟ ΑΝΑΚΑΜΨΗΣ ΚΑΙ ΑΝΘΕΚΤΙΚΟΤΗΤΑΣ

AGRICYGEN:
Innovative phenotyping and high-throughput genotyping studies of Cyprus sheep and goats

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Με τη χρηματοδότηση της Ευρωπαϊκής Ένωσης
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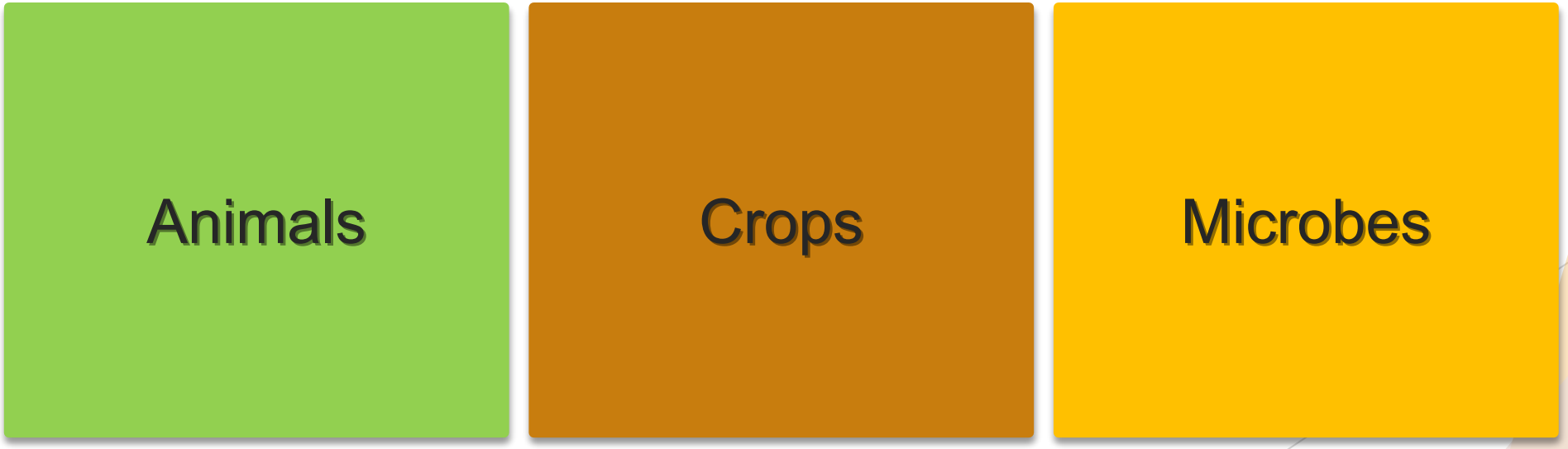
AGRICYGEN project overview and objectives

Establish an Agricultural Genomics Centre in Cyprus

-Cutting-edge phenotyping and genotyping technologies

-Unified Approach for Sustainable Agricultural Development across the whole system

Total budget: 7 million euros (2021-2027)



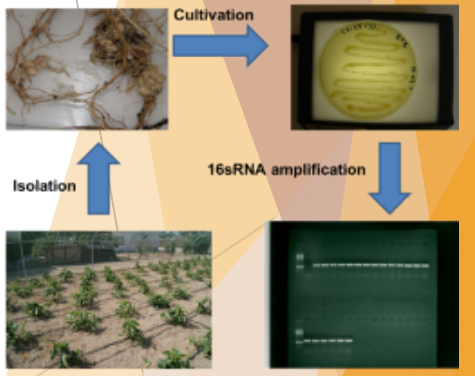
AGRICYGEN project- Overview and Objectives

- Initial Focus: **Halloumi cheese production and value chain**
  - Cyprus' **3rd biggest source of income** from exports

- **Expected AGRICYGEN Outcomes of Economic Value**

1. Increased production of sheep and goat milk from local breeds
2. Increased yield and nutritive value of local feedstuff
3. Ecological approaches to enhance Cyprus soil productivity

  - Project findings, strategic processes and recommendations developed highly relevant to Mediterranean agricultural production systems



AGRICYGEN project- Overview and Objectives

Sheep and goats

- Latest **genomic mapping technologies** to evaluate large numbers of Cyprus Chios sheep and Damascus goats
- **Genomic diversity** assessment per species and breed
- **Genome-wide association studies** for milk and growth traits
- **Genomic predictions** for more accurate genetic improvement
- **Additional trait incorporation** within genomic evaluations per breed (production, health, survival, adaptation…)
- Expedited **dissemination of genomic findings** from reference to base populations for each breed to increase overall productivity

AGRICYGEN project- Results to-date

- **Andreou *et al*.** Genetic improvement of milk production traits in the Cyprus Damascus goat population **Session 13**

- **Christofi *et al*.** Genetic and environmental effects on the survival and growth rates of Cyprus Chios lambs. **Session 13**

- **Koniali *et al*.** Genetic and non-genetic factors affecting survival and growth of Cyprus Damascus goat kids. **Session 13**

- **Maimaris *et al*.** How to use genomic information for breed assignment: A pilot study on Cyprus Chios sheep. **Session 25 Monday** 28 August 2023 **14:00 - 18:00**

AGRICYGEN project- Results to-date

- **Panayidou *et al*.** Evaluation of milk parameters and mastitis predisposition in Cyprus Chios sheep. **Session 28 Tuesday** 29th August 2023 **14:00-15:00. Poster 28.26**

- **Georgiou *et al*.** Genetic and genomic study for milk production traits in the Cyprus Chios sheep. **Session 70 Thursday** 31 August 2023 **8:30 - 12:00**

- **Dimitriou *et al*.** Genetic diversity and population structure of the Cyprus Chios sheep and Damascus goat breeds. **Session 83 Thursday** 31 August 2023 **14:00 - 18:00**

Funding scheme for sheep and goat genetic improvement in private farms

Primary objective

Technological advancement of the Cyprus sheep and goat sector to achieve systematic increase in milk quantity and quality

- Direct implementation of AGRICYGEN findings in private farms-beneficiaries of the funding scheme
- Approved and implemented as part of the EC-funded Cyprus Recovery and Resilience Plan (RRP)

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Funding scheme for sheep and goat genetic improvement in private farms

Primary objective

Technological advancement of the Cyprus sheep and goat sector to achieve systematic increase in milk quantity and quality

Implementation period: 2022-2026

Total budget: 5 million euro

Maximum funding per beneficiary: € 87760

1

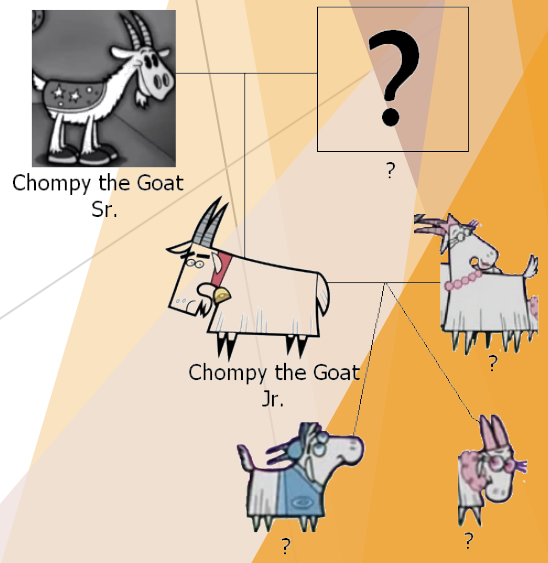
Funding scheme implementation /Specific objectives

- ***Pillar 1 (A)***

Targeted technological **equipment and infrastructure upgrades** to systematically collect digital records on individual animals (e.g. digital milk metre installation in milking parlours) (max. funding of €49700)

- ***Pillar 1 (B)***

Funding of beneficiary running costs to collect and continuously update **digital parentage and pedigree records** (one-off payment of €7800)



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Funding scheme implementation /Specific objectives

➢ ***Pillar 2***

Individual animal milk sample analyses to improve milk quality and assess mastitis susceptibility (max. funding of €30260, split into 6 semesters (2023-2026)

Parameters analysed:

- Fat percentage
- Protein percentage
- Lactose percentage
- Total solids
- Somatic cell number

Funding scheme implementation /Specific objectives

➢ ***Pillar 3***

Beneficiary **sheep and goat genetic evaluations**

- Genetic/genomic improvement of breeding stock
- Increased farm productivity

Implemented by ARI

- Blood sampling and DNA extraction from selected animals (~20000)
- Genetic assessment of individual animals
  - ✓ Genetic/genomic breeding value for milk traits
  - ✓ Parentage identification/verification (sire line)
  - ✓ Scrapie genotyping
  - ✓ Inbreeding assessment

4

Funding scheme implementation /Specific objectives

Pillar 4

Provision of customized **consulting services** to beneficiaries

Implementation

- Selection of best-performing animals for reproduction
- Optimal protocols for phenotypic data collection and update on production, reproduction and management aspects per animal and at farm level
- Monitoring and improvement of overall animal and farm productivity indicators

Funding scheme implementation to-date

- Approval of 39 beneficiary applications (28 for sheep and 11 for goats)
- Signed public funding agreements with 31 beneficiaries up to August 2023
- Implementation of Pillar 1-3 objectives commenced in August 2023

Concluding remarks

- Implementation of the latest technological, digital and methodological upgrades to effectively improve Cyprus sheep and goat farm productivity

- Concerted AGRICYGEN research and RRP funding scheme efforts:
  - Enable expedited, targeted and more accurate genetic improvement of the Cyprus sheep and goat population
  - Lead to increased animal and farm productivity with respect to milk traits

- **Combined private-public applied research and technological advancement efforts to benefit the entire sheep and goat milk production and value chain**

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