The **Agricultural Research Institute (ARI)** in Cyprus is a Department under the Ministry of Agriculture, Rural Development and Environment (MARDE), historically established in 1962 as the first Research Institute in Cyprus, with the aid and guidance of the United Nations Development Programme (UNDP) and the Food and Agriculture Organisation of the United Nations (FAO). ARI is the only institute in Cyprus that conducts innovative agricultural research aiming to create and transfer knowledge for the development of the primary sector and to resolve issues at the farmer level. The research results are transferred to stakeholders through novel educational programmes and dissemination tools. ARI is a highly dynamic organization, maintaining fruitful collaboration with national, regional and international organizations and research networks, as well as numerous academic institutions in Cyprus and abroad, having successfully implemented several research and innovation projects funded on a competitive basis by the National, the European Framework, and other Regional and International Funding Programmes. ARI scientists have been leading the research fields of animal and plant breeding in Cyprus and in the east Mediterranean region.

ARI Animal Production Section

The research activities of the ARI Animal Production Section focus on ruminant nutrition, management, animal breeding, genetic improvement and physiology of reproduction. Research is directed towards increasing milk and meat yields under semi-intensive or intensive systems of management in sheep, goats and dairy cattle. In addition, genetic methods and animal husbandry practices are employed, aiming at controlling and/or preventing animal diseases. More specifically, research pursued aims at studying and preventing the Scrapie disease in sheep and goats. Additionally, the Animal Production Section is responsible for monitoring farm animal genetic resources and is active in organizing educational seminars for sheep and goat breeders and other stakeholders, such as colleagues from other departments in the Ministry of Agriculture.

Animal Breeding, Genetics and Genomics (Dr Georgia Hadjipavlou ghadjipavlou@ari.moa.gov.cy)

The ARI small ruminant herds consist of 350 Cyprus Chios sheep and 300 Cyprus Damascus goats. Daily milk yield is recorded automatically during milking, and this led to improved phenotyping for genetic evaluations. Male and female replacement

stock is selected based on a continuously updated index combining 60-day milk yield of dam and grand dam and individual body weight at 98 days of age for lambs and at 120 days for kids. The breeding scheme is updated yearly and directed toward minimal inbreeding for both sheep and goats. Matings take place two times per year for each species.

In 2021, the nationally-funded AGRICYGEN project had commenced, aiming at the establishment of a Centre of Excellence in Cyprus, which will take advantage of cutting-edge technologies and expertise in order to facilitate:

a) Increased milk production from local sheep and goat breeds

b) Increased production of local ruminant feed

c) The ecological enrichment of Cyprus soils

The project outcomes have direct impact on the Cyprus economy and society, and will significantly contribute to sustainable development of agriculture and animal production on the island. The initial focus of the project is on employing research approaches for fulfilling the halloumi cheese PDO requirements in small ruminant milk and feed production, within the harsh and fluctuating environmental and climatic conditions of Cyprus. In conjunction with the AGRICYGEN research project, another project was approved for funding within the Cyprus Government Recovery and Resilience Plan. The aim of the project is to pursue the implementation of the national plan on genetic improvement of the Cyprus sheep and goat populations, through the support of the sheep and goat farmers to upgrade their record keeping on farm, their production processes, product quality evaluation efforts and their participation in the nationally funded AGRICYGEN project.

Animal Nutrition and Farm Management (Dionysis Sparaggis dsparaggis@ari.moa.gov.cy)

Research projects in the field of animal nutrition focus on nutritional evaluations of various concentrate and roughage feeds for ruminants. More specifically, the substitution of barley hay with alternative feeds is examined, along with its effects on milk production, milk quality and on live weight changes for animals at the beginning of lactation. The effects of corn processing and concentrate mixture form on the growth rates of weaned Damascus kids are also studied. In addition, artificial rearing systems using automated feeders and milk substitute for lambs and kids are evaluated. Research

is conducted on zero suckling systems in Chios ewes and Damascus goats. Results show that such systems can be used to increase the marketable milk with no adverse effects on lamb and kid growth. Lambs and kids on zero suckling are reared artificially on milk substitute using four automatic milk-feeding machines. Marketable milk of mature ewes on zero suckling has been found to be 70 kg more than ewes that suckled their lambs for 35 days and that of mature goats 85 kg more than goats that suckled their kids for 49 days. Further research comparisons of reduced suckling period, both for natural and artificial rearing (28 versus 35 days for lambs and 42 versus 49 days for kids) are in progress. It is worth noting that research results and recommendations from this nutritional and management scheme have immediate and important financial benefits for the breeders.

Website: www.ari.gov.cy