material is always caught in nature. The aim of the work was to evaluate the effectiveness of restocking using wild-caught farmed glass eels. We explored the growth and survival rate of glass eels raised in captivity and their adaptation when released into the wild, and the effectiveness of restocking. The captivity phase of the experiment was carried out from February to November 2018. A total of 1450 g (7398 specimens estimated, with average length 6.34 ± 0.66 cm and weight 0.20 ± 0.24 g) of glass eels were captured using a fike-nets during February 2018 in Pramaera river (Sardinia, Italy). Glass eels were immediately transported in an intensive eel farm and fed with a diet based on mullet eggs and fish feed. Every 2 weeks, a sample of 50 specimens was analyzed. Total length (TL) and total weight (TW) were measured, and their sanitary status was evaluated. Environmental parameters were recorded every sampling day using a multiparameter probe: temperature, salinity, pH, dissolved oxygen. Environmental conditions in breeding tanks were stabilized by controlled systems. Initially, glass eels showed mean TL of 5.97 ± 0.41 cm and mean TW of 0.18 ± 0.04 g. After nine months of growth the specimens were 2073, for a total survival of 28.02%. and the mean TL was 17.29 ± 4.24 cm, and mean TW was 8.06 ± 7.75 g, showing increases of 190% and 4378 %, respectively. The total biomass of eels was 22.3 kg (increase in 1438%.). A biomass of 10.8 kg of eels (1367 specimens) was returned to the original capture site, and released after brief acclimatization. A biomass of 11.5 kg (706 specimens) was released into the wild in the Ulassai stream (Sardinia, Italy), where 136 eels have been marked with PIT tags. Monitoring activities are currently underway to verify the growth of specimens in nature and some of them have now been found, suggesting that they have been readjusted to wildlife. In conclusion, we suggest as a management practice, as well as for breeding for production purposes, for eels population the restocking with farmed elvers or juvenile yellow eels starting from glass eels. This action may represent a solution to ensure a greater percentage of success, rather than the direct release of glass eels in natural environment.

P063

Awassi sheep and Baladi goat milk composition in extensive production systems in Lebanon

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Small ruminant production represents an integral part of the Lebanese economy, where extensive systems for sheep and goats are the most widespread type of production. In these systems, Awassi sheep and Baladi goat represent the majority of small ruminants (100% of sheep and 95% of goats). The aim of this work is to study the socio-economic status of extensive systems of sheep and goats in Lebanon and to analyze the milk samples collected from Awassi sheep and Baladi goats. A structured survey was assessed and 43 shepherds from all over Lebanon were interviewed, to have an overview on the flock structure, milk and dairy production, the different types of feed used and the health problems and constraints facing the extensive production systems. Sheep and goats milk samples were collected from 10 traditional farms (semi nomadic, transhumant and sedentary systems) from different regions and at different altitudes, at the final stage of lactation in August. Results showed a dominance of farms with both species represented by Awassi sheep and Baladi goats. The yearly management of the flock in these farms were similar for both species and animals were dry during August-September and January-February. Grazing is practiced all over the year and is supplemented during winter by hay, concentrate and green leaves (100%, 41% and 27% of the farms respectively). The average milk yield for Awassi is 1.44 ± 0.45 L/head/day, while for Baladi goats is 1.66 ± 0.61 L/head/day. Milk is sold directly to the market, industry or cooperatives (55%, 28% and 17% respectively) to produce yoghurt, cheese and labneh. The sanitary and health services are supported by a veterinary only in 32% of the farms. The most small ruminant diseases encountered were: Pasteurella, Enterotoxemia, and foot and mouth diseases. The analysis of the milk samples has shown that the average fat content in Awassi sheep milk is 9.17 ± 1.65% while the average protein content is 6.76 ± 0.81%. For Baladi goats, the average fat is 4.08 ± 1.43% while the protein content is 3.52 ± 0.62%. The high values of fat and protein may be due to the sampling carried out in August at the advanced stage of lactation. In conclusion, in Lebanon, efforts should focus on ameliorating the productivity of local races and feed quality thus increasing the quality of the dairy products.

P064

Effect of queen cell size on acceptance rate and morphometric characteristics of queen honey bees (*Apis mellifera*)

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Rearing techniques are important to determine a successful honey bee production. For example, queen cell cup size may affect the acceptance rate of grafted larvae and queen's size, which in

turn may have an effect on the quality of the colonies (e.g. larger queens give rise to larger colonies). The present study was carried out to compare the effect of different queen cell cup sizes (0.8 vs. 0.9 mm diameter) on the acceptance rate of grafted larvae and on morphometric characteristics of queen honey bees. Sixty-five larvae were allocated to each treatment. Grafting took place once a week in June and once at the end of August. As soon as they emerged from the pupal case, virgin queen bees were collected and immediately frozen at –20 °C in order to prevent weight losses and dehydration. Head, thorax and abdomen width (mm) were measured using an electronic caliber; the weight of each of the three segments was recorded using a precision scale. One-hundred and ten grafted larvae out of 130 were accepted. The acceptance rate was higher in larger cell cups, but differences were not statistically significant (larger cells: 89.2%; smaller cells: 80.0%; $\chi^2 = 2.1273$; $p = .1474$), confirming the results of previous research on the effect of cell cup size on acceptance rate. All morphometric traits measured on the accepted larvae (large cups: $n = 58$; small cups: $n = 52$) were significantly higher in queen bees raised in larger cell cups ($p < .001$; GLM with cell cup size and grafting period as fixed factors), except for head width. Principal Component Analysis on morphometric traits confirmed a trend of queens raised in larger cells to show higher values on PC1 (58.4% of explained variance), characterized by particularly high loadings of variables related to the weight of the three segments.
In conclusion, increasing cell cup size seems to have a positive effect on queens' quality, especially in terms of a higher weight, which is expected to positively affect the dimension of the colonies, with no detrimental effect on the acceptance rate of grafted larvae.

P065

Animal Bio Arkivi: establishment of a phenotype and tissue repository for farm animal and pet at the University of Milan

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Thanks to the new omic technologies, research on veterinary, and animal sciences will take advantage of large repositories of biological materials.
At the University of Milan, Dipartimento di Medicina Veterinaria, a biorepository (Animal Bio Arkivi) has been established. Animal Bio Arkivi consolidates, organizes, and promotes the collection, cataloging, and conservation of biological samples of different veterinary interest species. Samples and data are all available for research on biomedical aspects, risk assessment, sustainable breeding and conservation, leading to improvements for animal and human health.
The collection is registered in a database organized by species, but with uniform criteria for recording and storage. Each animal record includes: signaling (studbook ID, microchip), pedigree data, phenotype data (clinical information/ productive features/ other traits under selection), and genotype data (coding loci, microsatellite markers, SNVs profiles) when available. Samples are conferred with owners' permission and non-disclosure agreement. Procedures of periodic backups are set up.
The collection preserves samples from different animal tissues, mainly blood, but also frozen muscles and other organs, semen, hair and feathers. Specimens are stored (at –20 °C, –80 °C or liquid nitrogen) to ensure proper organization and quality of the conservation. The repository also hosts DNA extracted from relevant samples. The first collected specimens date back 35 years. Overall the repository includes specimens of approximately 45,000 animals of several species: 34,000 Equidae, 5000 Bovidae, 5000 Felidae,and 1000 Phasianidae. Cosmopolitan breeds from historic routine typing service are mainly represented. Many local and rare populations or cohorts/families segregating relevant traits and samples from wild species are also included. The repository benefits from close long-lasting strategic partnerships of the University scientists with breeding associations, service laboratories, Academic institutions, and scientific initiatives of practitioners, such as the Osservatorio Veterinario Italiano Cardiopatie, which provide valuable additional information on phenotypes and genotypes, bringing together the public and scientific communities.
Animal Bio Arkivi benefits from the newly established location in Lodi and its potential additional synergy with Veterinary Clinical and Husbandry Center of the University of Milan.

P066

Non-invasive acoustic detection of wolf's attack to livestock. Preliminary results of a prototype in two sheep farms

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The ongoing expansion of wolf population in Italy raises conflicts with farmers due to livestock predations, which are added predations from free-ranging dogs and wolf-dog hybrids. Livestock predations represent one of the main issues for wolf conservation in Italy, since most of the known illegal killings occur in areas with high farm densities and high levels of damages and, at the same time, they induce considerable economic losses to farmers. A series of prevention measures could be applied, such as guardian dogs, electric fences, and animal enclosure; compensation