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animals of Sicilian breeds and from other 1,543 animals belonging to 134 domesticated boyid breeds (DRYAD) were used. These breeds arose from 3 domesticated (sub)species: Bos javanicus, B. taurus indicus, and B. t. taurus. Principal Component Analysis (PCA) generated using PLINK and model-based clustering algorithm implemented in Admixture were performed. SNPs that did not satisfy the following quality criteria were discarded: SNP located on autosomes and common to all breeds; MAF \ge 0.0005; SNP with genotyping rate ≥ 0.90 . A total of 40.958 SNPs shared among all 136 breeds were analyzed. The Sicilian breeds showed outlier behavior for the values of PC2, with all individuals spread over the entire range of variability pertaining to the second component, therefore results of PCA were plotted using PC1 and PC3. The results showed the separation between B. t. taurus and B. t. indicus breeds and the divergences between African and Eurasian taurines. PC1 separated the individuals into several non overlapping clusters that corresponded with (sub)species and the geographical origin of each breeds. Using PC3, the Sicilian cattle breeds were closer to individuals of B. t. taurus from Europe that included some Italian cattle breeds, according to their geographic distribution, and to individuals of B. t. taurus from Asia. In fact, European cattle breeds were exported to Asia and admixed with Asian taurines. Ancestry models with 4 ancestral populations showed the 3 major groups of Asian indicine, Eurasian taurine, and African taurine; Sicilian cattle breeds formed a separate cluster, according to the findings based on the PCA using the first 2 components. These results reflected the differences between breeds resulting from separate domestic events, geographic dispersal and isolation, and breed formation.

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P-060

Italian autochthonous Grey Cows (BovGrAI) yet Podolian: factors affecting milk production and composition

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The study was carried out on 118 cows 'BovGrAI' machine milked and subjected to milk recording, according to the A4 method approved by the International Committee for Animal Recording (ICAR). The aim was to evaluate the effect of genetic polymorphism of 7 loci [α sl-casein (CSN1S), β -casein (CSN2), κ -casein (CSN3), α -lactalbumin (LALBA), β -lactoglobulin (LGB), Growth Hormon (GH) and prolactin (PRL)] as well as the effect of the order and the season of calving on milk production at different distance from calving. Data were analyzed by analysis of variance (ANOVA) and, only for milk chemical components by analysis of covariance (ANCOVA) using as covariate the distance from calving. DNA was analyzed by PCR-RFLP. The milk yield per cow (for each test day) was standardized (as a milk with 3.7% of fat, 3.5% of protein and 4.9% of lactose, according to Bettini's method,1972). ANOVA showed that milk production (evaluated at 30, 60, 90, 120, 150, 180, 210 and 240 days of lactation) was significantly influenced by: (a) genetic polymorphism of β -cn locus (BB genotype gives a higher milk yield than AB and AA genotype, P<0.01, P<0.05, respectively); (b) order of calving (P<0.001) multi-calving cow gave a higher milk yield than firstcalving cow, as expected; (c) 'season of calving', in spring the milk production was significantly higher than other seasons (P<0.001). ANCOVA showed that: 1) a higher protein percentage characterizes the milk produced by cow with: CC (4.14) and BB genotype (4.10) respect to BC genotype (4.02) (P<0.01) at α s1cn locus; BB genotype (4.14) respect to AA (4.02) (P<0.01) at kcn locus; BB and AB genotype (4.11) respect to AA (4.04) (P<0.05) at β -lg locus; LV (4.17) and LL (4.16) genotype, respect to VV (3.94) (P<0.001) at GH locus; as well as a higher protein percentage characterizes the milk produced in spring respect to milk produced in winter (4.13 vs. 4.01; P<0.05); 2) a higher fat percentage characterizes the milk produced by cow with: BB genotype (4.36) respect to AB (4.18) (P<0.05) and AA genotype (3.90) (P<0.01) at k-cn locus; BB (4.27) and AB genotype (4.19) respect to AA (3.99) (P<0.05) at β -lg locus; AA genotype (4.22) respect to AB (4.08) (P<0.05) at PRL locus; LL (4.28) and LV genotype (4.26) respect to VV (3.91) (P<0.01) at GH locus.

P-061

Estimates of litter size traits in two local pig populations in the Mediterranean region

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Local pig populations such as Black Slavonian (BS) and Nero di Parma (NP) contribute to genetic diversity and represent a





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unique genetic material of the Mediterranean region. The objective of this study was to evaluate differences between the two genotypes in reproductive efficiency, as one of the most important factors for biological and economic sustainability of breeding. Data were collected from 1835 parities of 685 sows (264 BS and 421 NP). The following parameters were included in the analysis: total number of born (TNB), number of born alive (NBA), number of stillborn (NSB), number of weaned (NW) piglets. The effects included in the model were analyzed (GLM procedure in SAS), separately for each parity (from 1st to \geq 4th) and for all parities taken together. The following fixed effects were tested: breed (BR), herd (HD), interaction breed*herd (BR*HD), year-month of farrowing (YMF) and parity order (PO); boar (BO) was added as a random effect. Primiparous BS vs. NP sows showed 5.9±1.9 vs.7.3±2.1 TNB and 5.6±2.1 vs. 6.9±2.3 NBA, with 0.25±0.96 vs. 0.38±1.20 NSB and 5.0±2.4 vs. 5.5±2.7 NW, respectively. BR, BO and YMF had a significant effect (P<0.05) on litter size traits. Higher values in litter size traits were recorded in 2nd parity sows, with 6.7 ± 2.4 vs. 8.3 ± 2.1 TNB, 6.3±2.4 vs. 7.9±2.2 NBA, 0.34±1.20 vs. 0.32±1.80 NSB and 6.1±2.4 vs. 6.3±2.6 NW for BS and NP, respectively. A significant effect (P<0.05) was found for BR, BO, BR*HD and YMF. No significant effects (P>0.05) were found in 3rd parity sows, with 7.1±2.1 vs. 8.1±2.1 TNB and 6.6±2.4 vs. 7.8±2.4 NBA, 0.40±1.13 vs. 0.29±1.10 NSB and 6.4±2.4 vs. 6.3±2.6 NW, for BS and NP, respectively. Fourth and >4th parity sows showed 7.4 ± 2.4 vs. 8.3±2.4 TNB, 6.9±2.6 vs. 8.1±2.5 NBA, 0.53±1.31 vs. 0.31±0.91 NSB and 6.2±2.9 vs. 6.8±2.7 NW, for BS and NP, respectively, with a significant effect (P<0.05) of YMF and BO. The analysis of all parities together yielded significant effects (P<0.05) of BR, BO, BR*HD, YMF and PO. Reproductive parameters of the two local populations showed interesting results, probably related to both genetic and environmental effects. Future investigations of prolificacy are expected to establish genetic variation between the two local populations of pigs by use of the genetic markers that are involved in physiological process controlling reproduction. Knowing the variability between the two local populations of pigs will contribute to better preservation of local pig genetic types.

P-062

Phenotypic characterization of the Italian chicken breed Milanino

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In Italy, 90 local avian breeds were described, the majority (61%)

were classified extinct and only 8.9% still present in rural farms. Therefore, efforts for conservation of Italian avian breeds are urgently required. Milanino is a chicken composite breed selected at the beginning of the 20th century in Lombardia region and was included in a conservation project run by the University of Milan since 2012. This study was aimed to characterize the phenotypic features of Milanino chickens in a small breeder population according to FAO guidelines for phenotypic characterization of animal genetic resources. Ten cockerels and 47 hens were kept in indoor floor pens with controlled environment at the Poultry Unit (University of Milan, Lodi) during the reproductive season (January-June) in 2014. The following phenotypic traits have been recorded at 36 weeks of age: colour of plumage, skin, eye, earlobe, tibia tarsus and comb type. Body weight, body length, wing span, tibia tarsus length and circumference, and chest circumference have been measured. Egg production and egg weight have been recorded daily. The birds had beautiful plumage plain white and soft, simple comb and orange eyes. The birds had white skin, white tibia tarsus and white or red earlobe. Phenotypic quantitative traits showed a great variability. Milanino breed is characterized by sexual dimorphism; males had heavier body weight and higher chest circumference compared to females. Mean body weight recorded in males was 3562 \pm 358 g and in females was 2545 \pm 373 g. The mean egg production was 3.24 eggs/female/week and mean egg weight was $58.9 \pm$ 3.4 g. The results of this trial will be fundamental to include Milanino into "Registro anagrafico delle razze avicole autoctone", established by Ministero delle Politiche Agricole, Alimentari e Forestali in Italy on 2014 (MIPAAF, prot. 1st October 2014 n. 0019536).

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P-063

Genetic variability at the FASN locus in the Italian Mediterranean river buffalo (*Bubalus bubalis*, 2n=50)

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Fatty acid synthase (FASN) is a enzyme complex that plays a central role in *de novo* synthesis of long-chain satured fatty acids (SFA). The structural and functional characterization of the

