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## **SELECTIVE PEDIGREE BREEDING EFFICIENCY OF IMPORTED BREEDS OF DAIRY GOAT IN TROPICAL TAIWAN**

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Dairy goat industry is one of the highly barn farming in Taiwan. A total of 190 farms with sum of 35,595 heads including of 21,598 milking goats, 930 bucks and 13,067 young female goats on the year end of 2022 in Taiwan. Annual production of 13,000 tons of raw milk in 2022 gradually decreased from the production peak of 32,920 tons from 435 farms with sum of 67,817 heads in 1997. 1990s was a milestone for the development of dairy goat industry by importing occidental breeds in Taiwan. Major imported breeds were 70% of Alpine, 20% of Saanen, 8% of Nubian and others. Presently, these temperate originated breeds of dairy goat have been selected as tropical lines of correspondent breed after 30 years of relocation and acclimation. Based upon an average of 113 milking goats per farm in tropical Taiwan, adaption of ICAR guidelines for pedigree recording in dairy goats is essential to have genetic improvement on reproduction and milk traits under tropical summer heat stress. The sum of pedigree registration on breeding goats with phenotypic justification from 2004 to 2020 were 6,578 heads of Alpine from 24 farms, 1,403 heads of Saanen from 14 farms and 3,811 heads of Nubian (dual for meat production) from 20 farms, respectively. The number of selective breeding bucks were 795 heads of Alpine, 154 heads of Saanen and 1,013 heads of Nubian, respectively. Under pen group mating with one buck to 10~15 does, the buck had more than 20 mature progenies in pedigree registration recording was designated as the elite, prolific, and heat-tolerant buck. The sum of 50 Alpine bucks from 15 farms, 10 Saanen bucks from 6 farms and 43 Nubian bucks from 16 farms were identified. The index of selective pedigree breeding (number of pedigree registration progenies/ number of elite bucks) were 54.7 (2,737/50) heads per buck in Alpine, 27.7 (277/10) heads per buck in Saanen and 44.6 (1,918/43) heads per buck in Nubian, respectively. Breed difference on tropical adaptation of imported breeds of dairy goat in Taiwan was revealed with that their highest number of mature progenies in pedigree registration recording from individual buck was 149, 41 and 173 heads in Alpine, Saanen and Nubian, respectively. To evaluate the pedigree breeding efficiency of each doe in three breeds, reproduction data from top five farms in each breed ranked by the number of registered bucks were used. The percentage of registered doe had registered progenies were ranged from 25.3~40.1% in Alpine, 21.9~50.2% in Saanen and 31.7~43.7% in Nubian, respectively. In conclusion, relevant breed adaptation differences were found in terms of pedigree breeding efficiency. Therefore, routinely evaluating reproduction of individual buck seems to be a promising tool to improve female reproductive efficiency on imported breeds of dairy goat.