INBREEDING AND INBREEDING DILEMMA IN INDIGENOUS GOATS UNDER EXTENSIVE PRODUCTION SYSTEMS: A REVIEW

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In developing countries, indigenous goats make up approximately 90% of the total goat breeds. These goats are important to the livelihoods of rural households and the country's economy. They are raised mostly under an extensive production system. This system exposes them to inbreeding, inbreeding occurs when closely related breeds mate leading to autozygosity (two identical alleles at the same locus). The review aims to understand inbreeding and its effect on indigenous goats and recommend ways to control it based on available peer-reviewed papers, country reports and surveys. The review shows that indigenous goats' production system is characterised by small population size, intensive selection, lack of animal data, random mating, and uncontrolled breeding this exposes them to the risk of inbreeding depression that arises due to continuous inbreeding. Inbreeding depression affects reproductive and growth traits and even leads to reduced fertility (reduction in kidding interval), stunted growth, increased mortality and morbidity while necessitating the spread of inherited diseases across generations., ultimately affecting the general performance and conformation of these goats. Various studies have assessed the long-term effect of inbreeding on different livestock breeds and revealed that inbreeding is a prevalent problem in livestock under extensive production systems. Unfortunately, controlling it in such a system is so challenging. Hence the use of single nucleotide polymorphism (SNPs) has been proposed as a strategy to help control and conserve inbreeding within indigenous goat populations, thereby conserving their genetic potential and reducing the inbreeding rate.