

Economic Significance of Some Kiko Characteristics

In the course of the development of the Kiko goat considerable emphasis has been placed on the enhancement of a number of characteristics (see commentary at 'Selection parameters and production traits'). Rigorous application of the selection parameters has resulted in traits considered highly desirable by members of the Goatex consortium. The significance of some of these traits is self evident, some not so clearly so. Among these latter traits are enhanced maternal instinct - Kikos have been known to 'adopt' orphan kids without formal fostering - and a demonstrable predisposition to resistance from internal parasites. Both traits are of considerable economic significance.

An enhanced maternal instinct (that is, protection and mothering of the newborn kid) is of considerable import in ensuring that dams rear twins. While this is a multifaceted trait, it includes the ability to provide sufficient colostrum in the immediate post-parturition period to ensure survival of the offspring, innate protection of the kid against other animals which might threaten its survival, aggressive stimulation of the newborn kid to ensure that it rises and feeds in the shortest possible time and strong bonding with the newborn (and the attendant lack of abandonment of the kid). Since, in the New Zealand environment, Kiko does are never assisted at kidding those does failing to rear their kids have been systematically culled with the consequent strengthening of maternal traits. From field observation it appears that Kiko does generally have kids which exhibit a marked degree of vigor at birth. The kids rise and attempt to feed at a speed not usually seen in a breed of domestic goat. Accordingly, the period during which they are most exposed to predators and the vagaries of climate (that is, the time between birth and first feed) is significantly reduced.

Resistance to internal parasites has a three-fold benefit for the rancher. Firstly, there is the elimination of the growth check associated with parasitism. Every parasite (whether ectoparasite or endoparasite) borne by a growing animal has a deleterious effect upon its rate of growth as the host is forced to provide for the interloper: removal of the parasite allows the host to return to its inherent growth rate. Heavy parasite infestation can cause severe damage to the gut lining as a consequence of which the animal's ability to absorb nutrients is severely impaired. An animal so affected never recovers its true productive capacity even after the worms are destroyed. Secondly, there are the costs of labor and anthelmintic associated with parasite control programs. Where programs aim at the effective chemical control of internal parasites these costs can be significant. In the New Zealand farming environment such parasite control programs are standard and costly. Thirdly, there is the infection of pastures by infested animals. Every goat that carries mature worms is shedding onto the pasture viable eggs which ultimately will develop into larvae to infect others in the herd. The more goats carrying diminished numbers of parasites, the less infective the pastures may be at times of high infectivity.

Since the inception of the Kiko development program, minimization of parasite control programs has been a clear aim of the consortium. Goats (unlike sheep) do not develop resistance to internal parasites as they age and so are prone to parasitic predation throughout their productive life. Between 1995 and 1997 progress in reduction of susceptibility to internal parasites has been monitored by undertaking regular fecal egg of promising juvenile sires. While there has been a variation in results amongst the sire groups, some animals have consistently returned close to zero fecal egg counts. Research undertaken in New Zealand and elsewhere indicates that resistance to internal parasites is a genetically transmitted trait which can clearly be identified by gene mapping. In addition, scientists in New Zealand have developed a rapid blood screening test which measures the degree of immunity of goats to nematode infection. In the light of this ongoing research and the consortium's testing, animals displaying zero fecal egg counts have been elevated amongst the stud sires employed in the breeding program in recognition of the economic advantage such animals might contribute to their offspring.

One further trait requires consideration: new born vigor. The period between birth and the first substantial feeding of the kid is a period of high risk. More offspring that are not stillborn perish during this period than at any other time. A variety of factors can impact upon the survivability of the kid, many of them not of the kid's making:

- oversize kids. This is a factor that is influenced in two ways: over feeding of the dam and the genetic disposition of sire and dam. Overfeeding of the doe is, quite simply, poor management. Overfed does develop oversize kids and lose muscle tone leading to uterine inertia. The prolonged kidding that occurs impacts on the ability of the kid to survive. Kiko does respond to over feeding in the same fashion as any other breed of goat. Kiko does are not, however, genetically programmed for the production of oversize kids when they are on range conditions. In this situation the kids are born of average size without prolonged labor and rise and feed promptly. Field observations suggest that Kiko kids approximate native goats in the speed with which they rise and feed, and the time which it takes for them to vacate the birthing site.
- rate of growth. Although Kiko kids are born of average size the rate of growth of those kids sees them rapidly catching and surpassing other breeds of goat. The rate of growth permits Kiko kids to reach base slaughter rates quicker than slower growing breeds.
- low rates of mis-mothering. Abandonment of kids and inability to find laid up kids is observed infrequently amongst Kiko does.

All these factors contribute to enhanced kidding percentages. In many respects the kidding percentage is one of the most stable measures of management. Prices may rise and fall but constancy of output will smooth many of the financial fluctuations to which the rancher is subject. Goatex Group has always operated on a belief that the producer can endure fluctuations in market prices but cannot sustain poor production or more than minimal fluctuations in production output.

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