

*Icelandic* lambs are normally born in May. Most of the ewe lambs experience their first oestrus from late November to late December aged 6,5-7,5 months and weighing 30-45 kg. They may exhibit oestrus 4-5 times on the average during the breeding season, the mean oestrous cycle length being 16 days. It has now become a common practice to breed from ewe lambs weighing 35 kg or more in December so that they will lamb in May at 12 months of age. Normally some 70 per cent of all ewe lambs exposed to rams will conceive. They have an average gestation period of 141 days. The growth rate of their lambs from birth to weaning at 4 months exceeds that of twins reared by adult ewes. Early breeding does not have any detrimental effects on the overall lifetime productivity of the ewe provided well grown and adequately nourished ewe lambs are selected for breeding.

*Icelandic* ram lambs attain puberty, judged by their anatomical development, at an early age of 4-5 months and they are used successfully for breeding in December when 7 months of age.

#### MODEL EXPERIMENTS FOR DEVELOPING SHEEP POPULATIONS

##### I. INCREASE OF PROLIFICACY PER LAMBING

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The authors examined the possibility of developing such a population of great prolificacy and requiring intensive breeding, the genetic parameters of which are the following: first lambing about the age of one year, at least 3 lambs per lambing, lambing interval between 6 ans 8 months.

Nevertheless, it could be achieved, that 13 of 17 abundantly foraged tegs should lamb at the average age of 282 days, their lambs were not viable enough.

Data were collected concerning the reproductive quality of 37 *Finnish* tegs imported from Finland, 30 *Romanov* tegs imported from the Soviet Union and their progeny, originating from own breeding. The lambing rate of tegs, having lambed for the first time about at the age of one year was smaller than those of having lambed for the first time at an older age, but the earlier taking into breeding did not influence disadvantageously their later productivity and prolificacy.

In the average of 116 lambings the *Finnish* ewes had 2,00 lambs and the *Romanov* ones in the average of 159 lambings 2,42 lambs. Their lactation milk yield proved to be insufficient for the lambs, therefore the growth of them was not satisfying. Especially the F<sub>1</sub> lambs of *Finnish* mothers, originating from *Romanov* rams, were raising more poorly during the lactation period and could less compensate the lag after the weaning, too. Therefore it is not worth leaving more than 2 lambs with the mother and the lambs above this number must be raised artificially with reconstituted milk.

#### MODEL EXPERIMENTS FOR DEVELOPING SHEEP POPULATIONS

##### II. SHORTENING OF THE INTERLAMING PERIOD

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Both the *Finnish* and the *Romanov* breed, as a selection basis, are suited for the development of such an ewe population, which can fulfill the requested genetic parameters. But the development and application of breeding and feeding technologies is of fundamental importance. The special acclimatization ability of the *Romanov* breed must be emphasised. It can well tolerate the rearing in great — 100-200 heads — groups.

Not more than two lambs should be left together with the ewe.

The feeding of lambs with milk or milk substitute, whether they are raised artificially or suckled by the mother, is not reasonable over the age of 35-45 days. At this age they must be weaned.

Concerning the period of re-lambing with respect to both breeds, so great individual differences were obtained, that it can be advised for the future to put the examination of heredity and repeatability of this trait on the agenda.

The  $h^2$  values obtained for the prolificacy of sheep, must be revised.

#### IMPROVEMENT OF REPRODUCTION PERFORMANCE BY INTRODUCING

##### FINNISH LANDRACE GENES INTO MERINOLANDSCHAF (WÜRTTEMBERG-MERINO)

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The change of both, market requirement and husbandry techniques in the sheep industry of the FRG call for investigation of genetic alternatives to the most widespread breed in the country, the *Merinolandschaf (Wurtemberg Merino)*. In a first experiment from 1969 to 1973,