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Early Preliminary Assessment of Breeding Qualities of South Kazakh Merino Sheep Breed

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Abstract: Researches on a theme were carried out on sheep of breed of the Southern Kazakh merino, for identification of rams - improvers by the method of early forecasting of breeding and productive qualities of posterity. The analysis of results of our researches is showed that on live weight the rams 200297 and 200383 were as retrogressers on the young ewe group, rams No. 209620, 20079, 219683 on live weight same of the group were improvers, the same regularity was observed on group of rams.Wool clip at fine-fleece sheep is one of the main indicators of efficiency, data is testified that at the 7th monthly age, rams No. 209620, 20079, 219683 were improvers and rams No. 200297, 203383 on this indicator were retrogressers.Results of research were showed that check of rams at the age of 7 months with an assessment of their posterity 4,5 monthly age is allowed to predict and estimate their breeding qualities for 2 years earlier, at the same time, introduction of forecasting of an assessment of ram-producers at early age (7 months) by results of indicators of live weight, length and wool clip of posterity in 4,5 and 7 months is allowed to reduce charges on the housing of revealed rams which are neutral and retrogressers.

Key words: Producer-Rams · Quality of Offspring · Estimation · Live Weight · Classiness of Sheep · Appraisal · Early Forecast

INTRODUCTION

South Kazakh Merino sheep are well adapted to harsh continental climatic conditions of southern Kazakhstan and differ by good vitality and high enough productivity of meat and wool.

Development of new forms of management in the agricultural economy is main requirement of market economy, the talk is about the formation of farm, peasant and corporative mode, which as a form of free enterprise can work adequately according to market laws. Nazarbayev [1] noted that private (peasant) and cooperative farms operate on the basis of self-regulation, competing with other producers, but all this is possible only if there are available investigated new methods of technology, production of sheep goods, supported by evidence-based arguments.

Yespolov [2] reported that perspective direction of successful sheep breeding development in the Republic is the intensification of production, based on scientific research on breeding issue, technology, biotechnology of reproduction and agrobiological industry.

Medeubekov *et al*. [3] and Medeubekov and Beysembay [4] stated that high quality of products is the main way for achieving competitiveness of products in market conditions, that's why at this stage main trends of sheep breeding should be the following: market conjuncture for basic products - lamb, wool, fat-tailed fat, sheep skin, sheep milk - which give priority to some trends.

Torekhanov [5] recorded that in annual message of Nursultan Nazarbayev, the President of the Republic of Kazakhstan, the main task of "KazAgro" - is to solve systematically the issues of raising agricultural productivity, to produce qualitative analysis of all industries, determine sectors that need to be developed in the first place. One of them is rapidly growing in the world new market for agricultural eco- friendly products and raw materials

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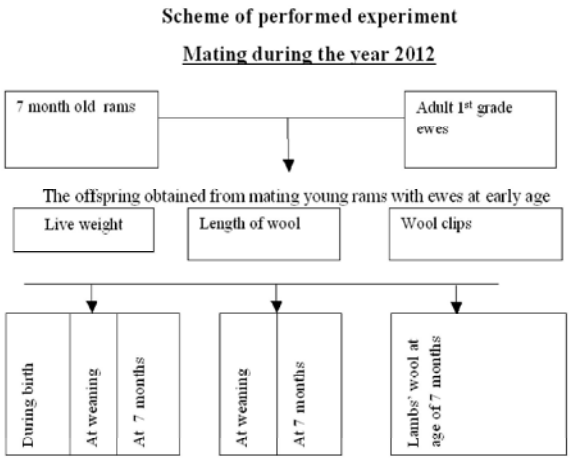
produced in ecologically clean area on natural feed, which in our case is the territory of the Republic of Kazakhstan.

In recent years andy Bray [6] in New Zealand assessed producer- rams by comparing data from peer lambs by growth and development of meat qualities. Estimation by previous methods increases the time needed to determine their breeding value and in addition keeping untested producer- rams leads to products' appreciation in market conditions. Depraving rams also can negatively affect breeding values of the herd, so early preliminary assessment of breeding and product qualities of producer- rams using techniques for early evaluation of their breeding and productive qualities is very urgent topic that has great practical significance. the aim of this research is to test the producer-rams by descendants' quality which is the main criterion for evaluating their breeding qualities.

MATERIALS AND METHODS

Sheep of South Kazakh merino from breeding farm Production Cooperative "Sharbulak" of Kazygurt district in South Kazakhstan region during the period from 2012-2013 were used in this study. The following parameters were studied as productive quality of the initial herd of rams and ewes, their live weight, wool clips, fur length, classy composition of younglings derived from rams used in mating ewes at early age, i.e. 7 months.

All research work was carried out according to the research methodology which is relevant to former union and republican techniques under the general scheme (Scheme 1).



RESULTS AND DISCUSSION

Among the fine-wool sheep some breeds have light bodyweight - Grozny breed ewes have average body weight of just 48-53 kg. However, many breeds (Caucasian, Askanyan, Altai, etc.) are characterized by large mass; average weight of ewes reaches 60-65 kg. But at the same time within each breed and each heard there's a significant variance of size and live weight of animals. Heritability coefficients of live weight in sheep, according to some authors, vary 36-54 %. This indicates the possibility of successful selection in this direction. It is very important that the increase of live weight is accompanied by the increase of maturity terms and body weight in order to reach maximum live weight at earlier age. Even those species for which wool productivity is of major importance precocity is advantageous because it allows meat sale at younger age. Live weight heritability indicators vary greatly depending on breed features, age of animals. Undoubtedly, the environmental conditions and especially feeding level by all means affect the manifestation of genotypic diversity of this trait in the fine-wool sheep herds.

Live weight of lambs derived from rams used in mating at the age of 7 months complies well with the requirements. Based on analysis of 1000 lambs at Production Cooperative "Sharbulak" of Kazygurt district in South Kazakhstan region during the period from 2012-2013 it is estimated that difference of live weight by groups of young rams is respectively from 0.8 to 2.2% less and 1.5 to 2.0 % more; note that the excess is a reliable with $P > 0.95$, i.e. higher than the first reliability threshold.

Growth of live weight is an individual indicator of growth, our findings showed that from birth to 4.5 months of age the absolute growth of ewes was 27.13 kg, the relative growth was 835.2%, while for rams these figures were as follows - 27. 74 kg and 774.9%, which means that with highest absolute growth of young rams, the relative growth is 60.3% less, also the average daily gain of young ewes in group was 290, 9 g and 205.5 g within group of young rams.

Live weight difference by gender between rams and ewes is confirmed by foreign scientists Mohammadi [7], Afolayan [8], Lachari and Tasawar [9] in favor of the rams since they are larger and the difference from birth to 5-6 months of age has a significant effect in favor of the rams.

Table 1 has data on ewes' live weight at 4.5 months indicating that the offspring of ram #209620, 200279 and 219683 exceeded the average data by 1.8-3.8 % and the offspring of ram #200297, 203383 were less than the

Table 1: Live weight of younglings derived from rams tested by descendants' quality at age of 7 months

No	Individual numbers of rams	Live weight, kg, At age of 4.5 months: Young ewes, n=150	Young rams, n=150
1	209620	31.39±0.64	32.79±0.48
2	200279	30.93±0.67	32.33±0.52
3	200297	30.04±0.62	31.53±0.56
4	203383	29.53±0.47	29.64±0.56
5	219683	31.99±0.62	33.13±0.50
	On average	30.82±0.28	31.85±0.24

Table 2: Live weight of younglings derived from rams tested by descendants' quality at age of 7 months

No	Individual numbers of rams	Live weight, kg, At age of 7 months: Young ewes, n=143	Young rams, n=143
1	209620	38.05±0.77	38.85±0.52
2	200279	37.47±0.86	38.29±0.52
3	200297	36.35±0.88	36.91±0.54
4	203383	35.69±0.72	37.50±0.66
5	219683	37.92±0.73	38.41±0.41
	On average	36.58±0.26	37.99±0.24

average by 2,5-4,4 %, which is a significant difference at P> 0.95, for a group of rams #209620, 200279 and 219683 the excess averages ranged from 1.5 to 4.0 % and rams # 200297 and 203383 had averages lower by 1.0 to 7.4%, this implies that rams #209620, 200279 and 219683 are improvers and rams #200297, 203383 are deprivers on this feature.

The absolute growth from birth to 7 months of age for the ewes' group is 32.89 kg. with an average daily gain of 156.6 g and 991.3 % relative increase and respectively for the young rams' group: 33.88 kg. 161.3 g and 924.3 %, i.e. ewes evolved better and their growth rate is higher by 67%. Absolute growth rate of ewes from weaning to age of 7 month was 5.76 kg. with average daily weight gain of 82.3 g and relative growth of 118.7 % and respectively for the young rams' group: 6.14 kg. 87.7 g and 119.3 %, which means that although in certain periods ewes grew more intense, by age of 7 month rams leveled off with a group of ewes by growth intensity.

Table 2 illustrates the live weight of lambs obtained from tested rams at early age, which means that rams #209620,219683 and 200279 are improvers, their performance exceeded from 2.3% to 4.0%, the difference accuracy is P>0.95 which is greater than a first threshold and descendants of rams #200297, 203383 are less than the average values by 0.6-2.9%.

It means that early use of rams for mating ewes allows to forecast their breeding qualities and highlight certain rams which are improvers, neutral or deprivers. According to the results of our research by live weight rams #209620, 219683 and 200279 are improvers, ram #200297 is neutral and ram #203383 is depriver.

Wool Length: The main technical characteristics of wool are: length, thinness, evenness, tortuosity, strength, extensibility, resilience, elasticity, color, luster. Many of them form the basis for determining wool quality and serve as an important indicator during selection and assortment of animals.

Along with other indicators wool length determines its value and purpose when used in production. When spinning long fibers, due to multiple interlacements of fibers the strong pressure is created during torsion, resulting in enhanced adhesion of fibers and a denser yarn. Long fibers make it possible to obtain the most delicate yarn.

Depending on measurement methods, we distinguish natural and true length of wool. Under the natural length we refer to the length of fibers in the staple or braids with inherent tortuosity. The depth and length of staple and braids at sheep appraisal or wool classification is measured with a ruler from the bottom to the top, up to 0.5 cm precision. The true length of wool is the length of straightened but not stretched fibers. To determine it take sampled wool, preferably from different parts of sheep body of fleece and then straighten each fiber, avoiding tension, i.e. without twists and measure with an accuracy of 1 mm. Only the natural length of wool is used in zoo-technical work, while in the industry both natural and true lengths are counted.

Table 3 shows that length of wool from ewes at weaning is 2.88 cm on average, the offspring of rams # 209620, 200279, 219683 exceeds this value by 4.9-29.5 %, which indicates the reliability of this indicator by P > 0.95 and P > 0.99 and the offspring of rams # 200297, 203383 is less than the average data by 4.0-17.5 %, the average length of wool by group of rams is 3.38 cm, the excess of offspring of rams #209620, 200279, 219683 - is from 3.2-11.2 %, at P> 0.95 and P > 0.99 and values of offspring of ram #200297 is less by 18.6%, data of ram # 203383 is equal to average values, which means that rams #209620, 200279, 219683 are improvers, ram # 200297 is depriver and ram #203383 is neutral.

Table 4 shows that the length of wool averaged 5.01 cm by ewes' group at age of 7 months, the offspring of rams # 209620, 200279, 219683 exceeded the benchmark by

Table 3: Length of younglings' wool from rams tested by descendants' quality at age of 7 months

No	Individual numbers of rams	Wool length, cm: At weaning: Young ewes, n=150	Wool length, cm: At weaning: Young rams, n=150
1	209620	3.02 ± 0.15	3.49 ± 0.08
2	200279	3.45 ± 0.11	3.65 ± 0.15
3	200297	2.45 ± 0.18	2.85 ± 0.02
4	203383	2.77 ± 0.13	3.38 ± 0.03
5	219683	3.73 ± 0.12	3.76 ± 0.13
	On average	2.88 ± 0.04	3.38 ± 0.05

Table 4: Length of younglings' wool from rams tested by descendants' quality at age of 7 months

No	Individual numbers of rams	Wool length, cm: At age of 7 months: Young ewes, n=125	Wool length, cm: At age of 7 months: Young rams, n=125
1	209620	5.59±0.13	6.03±0.04
2	200279	5.31±0.11	5.41±0.05
3	200297	4.09±0.12	4.53±0.11
4	203383	4.71±0.12	5.39±0.05
5	219683	5.39±0.10	6.17±0.11
	On average	5.01±0.06	5.31±0.05

Table 5: Wool clipping of younglings from rams tested by descendants' quality at age of 7 months

No	Individual numbers of rams	Wool length, cm: Lambs' wool at age of 7 months: Young ewes, n=15	Wool length, cm: Lambs' wool at age of 7 months: Young rams, n=15
1	209620	2.50±0.11	2.54±0.11
2	200279	2.54±0.10	2.60±0.12
3	200297	2.31±0.07	2.36±0.08
4	203383	2.25±0.08	2.28±0.04
5	219683	2.61±0.08	2.74±0.05
	On average	2.44±0.02	2.50±0.03

5.9-11.6%, at P> 0.95 and P> 0.99, while offspring of rams # 200297, 203383 had value less by 6.4-22.5%. The same trend has the wool length measurement: among rams # 209620, 200279, 219683 excess ranged from 2.5-13.6%, at P> 0.95 and P> 0.99, the offspring of ram # 200297 had results less by 17.2% and ram # 203383 had value by 1.2% exceeding the average.

This means that by given feature by both groups (ewes and young rams) rams #209620, 200279, 219683 are improvers, ram #200297 is depriver and ram #203383 is neutral.

The wool length is one of the main parameters if wool clipping, the absolute growth of wool length on average was 2.13cm for the ewes' group, with 219.7% relative growth and by group of young rams the absolute growth was 1.93 cm, with relative increase by 275, 7%, meaning that the intense growth among young rams was more by 56%.

Wool Clipping: Picering et al. [10]proved that wool clips characterize primary productivity of fine-wool sheep. Wool clipping is characterized by two parameters: clipping physical wool clipping washed wool. Washed wool is most valuable and has big importance in sheep selection.

Fleece taken from sheep contains wool fibers, fats, dust and other foreign impurities. The weight of such wool is known as the original weight and shorn wool - as wool clipling. Wool clip depends on the age, sex, time of shearing, length, density and fineness of wool. To determine the efficiency of sheep the weight of clear (washed) wool needs to be determined. Weight of wool obtained after washing and calculated in percentages from weight of unwashed wool is known as the output of clean (washed) wool.

The wool clipping data from fine-wool sheep is one of the main indicators of productivity, the data in Table 5 shows that at age of 7 months among groups of ewes and young rams the offspring of rams # 209620, 200279, 219683 exceeded the average data by 2.4- 9.6% with P> 0.95 and P> 0.99 and the offspring of rams # 200297, 203383 had the lowest wool clip values less than average by 5.6-9.6%. It means that rams # 209620, 200279, 219683 are improvers by this feature and rams # 200297, 203383 are deprivers.

CONCLUSION

Implementation of forecasting evaluation of producers at early age (7 months) by the results of live weight, wool length and wool clips from descendants at 4.5 and 7 months allows 2 years ahead identify and assess the quality of breeding rams at the same time reducing the cost of maintaining neutral or depriving rams.

REFERENCES

1. Nazarbayev, N.A., 2007. New Kazakhstan in new world// Strategy "Kazakhstan- 2030" on new stage of Kazakhstan's development. The message of the President of RK to people of Kazakhstan.- Almaty. pp: 66.

2. Yespolov, T.I., 2012. New level of animal husbandry development// Materials of International science and practice conference "Veterinary and animal husbandry: theory, practice and innovations" dedicated to Academician K. Sabdevov's 80th birthday, KazNAU print-house, Almaty. pp: 4-7.
3. Medeubekov, K.U., A.K. Smagulov and G.S. Beysembay, 2005. Cluster system of producing and recycling high-quality mutton and wool of Kazakhstan sheep // proceedings of International science and practice conference. Cluster-industrial development of agricultural production: main problems and perspective directions. Amaty, "Agrouniversity" print-housep. pp: 152-155.
4. Medeubekov, K.U. and G.S. Beysembay, 2005. Aspects of cluster production, standardization and certification of meat, dairy and wool production of sheep in terms of market competition. // proceedings of International science and practice conference. Cluster-industrial development of agricultural production: main problems and perspective directions. Amaty, "Agrouniversity" print-housep. pp: 156-159.
5. Torekhanov, A., 2004. Ways to provide scientific background for animal husbandry and fodder production // proceedings of International science and practice conference on animal husbandry issues dedicated to 75th year of Kazakh National agricultural university and K.U. Medeubekov - the Academician of NAS RK and Russian Academy of Agriculture.- Almaty. pp: 19.
6. Andy Bray. 2010.Journal Central Progeny Test Results, New Zealand, 11: 3-5.
7. Mohammadi, A.R., M.A. Abbasi, A.A. Moghaddam and A. Zare Shahneh, 2009. Estimation of Growth Traits in Iranian Afshari Sheep Breed Under Rural Production System. Journal of Animal and Veterinary Advances, 8: 1449-1454.
8. Afolayan, R.A., I.A. Adeyinka and C.A. Lakpini, 2006. The estimation of live weight from body measurements in Yankasa sheep. Czech Journal of Animal Science, 51: 343-348.
9. Lachari, M.H. and Z. Tasawar, 2013. Genetic potentials of Lochi sheep of Multan, Pakistan. Scientific Journal of Animal Science, 2: 253-264.
10. Picering, N.K., N.T. Blair, R.E. Hickson, K.G. Dodds, P.L. Johnson and J.C. Mcewan, 2013. Animal Genetics- Quantitative Genetics: Genetic relationships between daginnes, brech bareness and wool traits in New Zealand dual-purpose sheep. Janim SCI October.