

ECOLOGICAL ASPECTS OF TSIGAI AND VALACHIAN SHEEP REARING SYSTEM

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The paper evaluates ecological aspects of Tsigai and Valachian sheep rearing system in select farms, comparing the present and the pre-1989 states. Discussed are weakpoints in plant production with an ongoing low share (10.2 per cent, 9.0 per cent) of perennial forage crops in the sowing structure of arable land. A lowered intensity of fertilization and treatment of permanent grasslands reduced their average hectare yields. Free pasture is the most frequent but the least effective form of pasture. Sheep density per area unit decreased. The utilization of the production potential of sheep (only 67.8 per cent of the rearing objective in fecundity) is insufficient. Meat production saw a principle change in technology by replacing intensive fattening of lambs with production of milky lambs. The applied rearing system allowing an efficient and long-time utilization of natural resources has no negative effect on the environment. Indicated are potential solutions to further development from the ecological aspect.

ecology; sustainable development; rearing system; Tsigai and Valachian sheep

INTRODUCTION

At the time being more attention is paid to ecology in agricultural production, incl. sheep rearing, than before 1989. Sheep rearing is a supplementary section of the Slovak agriculture registering 417 thousand sheep of 1 January 1998. Allocated mainly to submontane and upland regions, the population of the most frequent Tsigai and Improved Valachian breeds plays a more important role in the local structure of production. Besides the important production function sheep in these regions have also significant off-production functions of which ecological ones will be discussed below.

The issue of ecology was dealt with by a number of researchers. Following are at least the leading ones whose papers correspond to the largest extent with the issues addressed in this one. Petr, Dlouhý et al. (1992), Pražan, Doucha (1994) and Šarapatka, Dlouhý (1995) paid

a considerable attention to the relation between agriculture and the environment as well as issues of sustainable development.

A distinctive issue are externalities addressed in terms of agriculture by Doucha (1994) and discussed in more details in terms of economic theory by Soukup (1997).

A problematic issue concerning ecological production of forage crops in relation to plant production restructuring is presented mainly by Krajčovič, Knotek (1995) and Zubaľ, Svetlíková (1995). The ecological importance of perennial forage crops and permanent grasslands was described by Jamriška (1995) and Vološín (1997), respectively.

Ecological aspects and utility of Tsigai and Valachian sheep rearing were studied by Vláčil (1989, 1993, 1997), Margetín (1997) and Zvara (1997), respectively.

This paper aims at accentuating ecological aspects of the most frequent Tsigai and Valachian sheep rearing system, describing changes in comparison to the pre-1989 period and indicating after an analysis solutions to a development strategy of Tsigai and Valachian sheep rearing with accent on ecology for the coming future.

MATERIAL AND METHOD

The background material was raised by the method of face-to-face interviews with the management of select farms rearing Tsigai and Valachian sheep with meat and milk production system. The farms managing an area of 22,584 ha of agricultural land rear 8,395 cattle, 8,623 pigs, 5,898 sheep and 56,681 poultry (1995 data).

The criterion for selection of farms in the above mentioned system required that the highest share in revenues from sheep rearing come from sale of sheep lump cheese. The farms under survey reached average revenues from sale of cheese and milky lambs of 46.9 per cent and 33.5 per cent of the total revenues from sheep rearing, respectively.

The paper is split into two parts from the matter-of-fact aspect. The first part evaluates ecological aspects of the part of plant production which has a closer relation to the existence and functioning of Tsigai and Valachian sheep rearing system. This concerns mainly the degree of utilization of agricultural land, the level of yields of forage crops and a framework view of the agrotechnical treatment of permanent grasslands. The other part evaluates the structure and density of farm animals, the utilization of permanent grasslands, utility, rearing system and sheep produce market.

The method of relative numbers was used for processing the data. To re-calculate farm animals to livestock units the following coefficients were

used, namely 0.8 for cattle, 0.2 for pigs, 0.1 for sheep and 0.004 for poultry. The standard statistical factors were used to evaluate the indicators: soil, plant production and sheep utility. The above mentioned implies that the overall methods applied to the paper will be those of analysis, synthesis and, especially, comparison.

RESULTS AND DISCUSSION

One of the key pre-conditions for functioning of a material real system in agricultural production, incl. Tsigai and Valachian sheep rearing, is land. From the aspect of land fund management, this paper will focus on agricultural land (for the structure of agricultural land, see Table I). An evaluation

I. Select factors of plant production in the farms under survey

Factor	State before 1989	Present state
Agricultural land structure (%)		
Agricultural land	100.0	100.0
of which – arable land	23.2	30.4
– permanent grasslands	77.3	69.5
Arable land structure (%)		
Arable land	100.0	100.0
of which – cereals	56.9	55.3
– technical crops	–	5.6
– annual forage crops	17.1	17.2
– perennial forage crops	10.2	9.0
Average hectare yields (t.ha ⁻¹)		
Cereals	3.86	3.98
Annual forage crops on arable land	34.66	27.28
perennial forage crops on arable land	8.52	6.57
Permanent grasslands	2.94	1.69
Treatment of permanent grasslands (%)		
Dragging harrowing	50.0	14.3
Industrial fertilization	61.9	28.6
Folding	90.5	100.0
Supplementary sowing	61.9	28.6
Mowing of leftovers	50.0	14.3

of the share of individual cultures in the farms under survey shows that although the share of permanent grasslands in agricultural land is high, it is lower by 7.8 per cent than that in the same sample before 1989. Permanent grasslands account for 34.5 per cent of all Slovak agricultural land. The above mentioned makes it clear that Tsigai and Valachian sheep are reared in submontane and upland regions in Slovakia. For the Tsigai and Improved Valachian sheep allocation to regions with a different share of permanent grasslands in agricultural land, see Table II.

Areas where permanent grasslands covered over 70 per cent of agricultural land accounted for 43.6 per cent of Tsigai ewes. As their share grew dramatically with the expansion of grasslands in agricultural land from 46 per cent up, areas of more than 46 per cent of permanent grasslands accounted for 90.7 per cent of all ewes of the breed.

Improved Valachian ewes were concentrated mainly in areas of more than 70 per cent of permanent grasslands which accounted for 82.7 per cent of all ewes of the breed. The rest of the ewes was dispersed in areas with a share of permanent grasslands in agricultural land between 1.6 and 4.7 per cent.

Table I includes also the degree of utilization of arable land. No significant changes against the pre-November period were determined in the structure of crops grown by the farms under survey.

An evaluation of the sowing structure of these submontane and upland regions shows a higher share of cereals and arable forage crops and a lower share of perennial forage crops in arable land. The figures for cereals, arable forage crops and perennial crops grown in the submontane and upland regions proposed by the all-Slovak plant production restructuring proposal drawn up by VÚRV Piešťany and VÚTPHP Banská Bystrica are 45.9 per cent, 11.6 per cent and 19.8 per cent of agricultural land, respectively (Zubal, Svetlíková, 1995). Although the said proposal is to be seen as information at a level of an indicative plan (instead of a directive one from the pre-November period) it corresponds basically with the above mentioned evaluation of plant production structure.

The factors which decide in forage crop production are not only areas under crops but also the level of actual average hectare yields (Table I). The level of actual yields in all farms under survey can be assessed as adequate to the given production area although they should be higher in the all-Slovak terms. A decrease in the production of forage crops by 21.3 per cent for arable annual forage crops, 22.9 per cent for perennial forage crops and 42.5 per cent for permanent grasslands is related mainly to a cut in intensification investments due to a negative economic situation and considerable insolvency of farms. While pure nutrients amounted to 260 kg per ha before 1989, the amount fell to 42 kg after 1990 (1995). For comparison, the data obtained

II. Tsigai and Valachian sheep representation in the farms under survey according to the share of permanent grasslands in agricultural land

Share of permanent grasslands in agricultural land (%)	Breed			
	Tsigai		Improved Valachian	
	number of ewes	%	number of ewes	%
Less than 26	—	—	—	—
26.1-32	1 218	3.0	597	1.6
32.1-40	—	—	—	—
40.1-46	2 570	6.3	1 535	4.2
46.1-52	3 844	9.4	690	1.9
52.1-58	7 372	18.1	1 733	4.7
58.1-65	5 799	14.2	1 052	2.9
65.1-70	2 197	5.4	731	2.0
More than 70	17 725	43.6	30 297	82.7
Total	40 725	100.0	36 635	100.0

Source: VLÁČIL, R.: Ekologické dimenzie rozvoja chovu oviec v podhorských a horských regiónoch (Ecological dimensions of sheep rearing development in submontane and upland regions). *Agroekonomika*, II, 1993: 573-575.

for calculation of own costs of agricultural produce of the farms under survey shows that the average hectare yields in potato, potato-oat and upland regions of perennial forage crops and of hay in permanent grasslands make 6.12 t.ha⁻¹ and 1.66 t.ha⁻¹, respectively.

The importance of correct sowing structure is underestimated by the management of the farms even under the conditions of an economic recession when there is an ongoing low share of perennial forage crops. As emphasized by Jamříška (1995) nitrogen produced by clover crops is cheaper and ecologically fitter than that from industrial fertilizers whose price (20 Sk per kg) is going to grow further in the coming days, whose production releases CO₂ and whose application boosts the risk of N₂O emissions into the air. Clover crops, on the contrary, have also a positive effect on the balance of organic mass leaving an annual amount of 5 to 9 t of root mass and stubble ends which equals to 10 t of manure. As the land in the areas of Tsigai and Valachian sheep rearing is especially poor in humus, the choice of sowing has to consider also the above mentioned findings.

As permanent grasslands make up a major part of land fund, following is a brief description of the application of pratotechnical treatment. Given the current unfavourable economic situation of the farms against the period be-

fore 1989, a relative evaluation shows a smaller extent of operations of the surface treatment of pastures and meadows such as, e.g. dragging, molehill raking, etc. A clear drop appears also in industrial fertilization. Supplementary sowing which used to be made without tillage as the folding sheep embedded the seeds draws a similar picture. The applied system of sheep rearing utilizing sheep manure produced during the winter season and folding during the pasture season has a reverse effect on the bioenergetic potential and fertility of plants. One flock folded an average area of 9 ha of pasture during the pasture season. There is a number of areas in Slovakia where such supply of animal manure is the only possible way of ensuring nutrition of the stand from the ecological as well as economic aspect. The biodiversity of pasture community is greatly affected by the frequency of moving folds. The current average interval of moving folds in the farms under survey are two days against 1.7 day of the pre-November period in the select sample of Tsigai and Valachian sheep. Both frequencies of moving folds are sufficient, comply with the current rearing-technological procedures and have a positive effect on the floristic structure of stands. Vološin (1997) also describes full two days' folding as the most fit, except days of rainfall with the need of a daily moving of folds.

The evaluation from the all-Slovak point of view has to respect the interests and priorities of the protection of forests, protected areas and waters. The sample under survey takes use of 4.5 per cent of lands under protected areas. Agricultural activities are pursued on an area of 138,000 ha of 16 protected areas and 5 national parks in Slovakia. These facts limit to a considerable extent the development of agricultural production in the sense of its production functions.

The land pre-conditions having been evaluated, the situation in animal production can be discussed. At the time being, cattle rearing accounts for the main share in the structure of animal production followed by pig rearing. Sheep rearing accounting for 6.4 per cent can be described as one of the supplementary rearings. In the farms surveyed before 1989, sheep rearing followed second after cattle in the structure of animal production with polygastric animals accounting for a share exceeding that in the currently surveyed farms by 16 per cent.

The 1995 structure of animal production in Slovakia was as follows: 59.1 per cent of cattle, 33.0 per cent of pigs, 3.4 per cent of sheep and the rest of poultry. Compared to the state before 1989 the data makes it clear that the farms under survey reared a higher share of polygastric animals.

An important factor for rearing organization is the structure of flock. Ewes have the top share in the category of sheep in both survey periods with the current share exceeding that before 1989 by 11.0 per cent. The share of

reproduction ewe lambs saw a negative change to 16.2 per cent, or by 11.2 per cent less than before 1989. According to the Slovak Ministry of Agriculture Situation and Outlook Paper – Sheep (Žatkovič, Borecká, 1997) the all-Slovak share of 31 December 1996 of ewe lambs under 1 year and above 1 year made 11.1 per cent and 10.5 per cent, respectively. In order to improve their economic standing, business entities rearing Tsigai and Valachian sheep prefer selling of weanlings to slaughter to ranging of ewe lambs for reproduction in the flock. Export of milky lambs is attractive in price terms for sheep-farmers. A potential solution to overcoming the situation lasting for several years can be an increased efficiency of the subsidizing system (with a new subsidizing quota of Sk 300.– per ranged ewe lamb).

The factor used to evaluate the area intensity of rearing is the density of farm animals per 100 ha of agricultural land (Table III). Sheep density and polygastric animal density fell by 71.8 sheep and by 16.7 livestock units against the figures in the farms surveyed before November 1989. The 1995 average sheep density in Slovakia made 17.5 sheep per 100 ha of agricultural land. According to Krajčovič and Knotek (1996) ruminant load decreased to 31.65 livestock units per 100 ha of agricultural land. The declining number of cattle and sheep in uplands results into a worse utilization of permanent grasslands and expanding succession of forests contributing to the land wasting. The post-1990 drop in the number and density of polygastric animals relates to changes in the political and economic system and, subsequently, to the transformation process in agriculture.

Permanent grasslands are utilized by pasturing animals and mowing grass, especially for hay production (Table IV). Given the current lower number of polygastric animals all farms under survey pasture both cattle and sheep. The overall evaluation of pastoral farming is positive both from the economic and the ecological aspect. Pasturing is not only the most efficient way of utilizing the grass but also a prevention of weed infestation of the stands which generates an environment fit for spread of allergies, especially if the pasture is close to local communities. The overgrown grass left over is a potential risk to fire safety. The utilization of pastures, even if it is not perfect, contributes to landscaping.

No improvement was observed in sheep pastoral farming from the aspect of used forms of pasture. The most frequent is the least efficient free pasture while enclosed pasture is only sporadic and electric fencing absent. Free pasture enables selective grazing when sheep eat only some species of graminoids they like while leaving the other, even less cultural ones to reach the phenological stage after grazing maturity. These and many other problems are tackled by enclosed pasture. Increasing labour productivity, a correctly treated and rationally used pasture under fencing of a fit material has a very

III. Structure and density of farm animals in the farms under survey

Factor	State before 1989	Present state
Animal production structure (%)		
Cattle	76.9	72.5
Pigs	4.1	18.6
Sheep	18.0	6.4
Poultry	0.4	2.5
Total	100.0	100.0
Sheep structure by categories (%)		
Ewe lambs under 1 year	13.5	8.5
Ewe lambs above 1 year	13.9	7.7
Ewes	67.2	78.2
Breeding rams	2.4	3.2
Other sheep rams and wethers	3.0	2.4
Total	100.0	100.0
Polygastric animal density per 100 ha of agricultural land		
Cattle (number)	48	37.2
Sheep (number)	98	26.2
Polygastric animals total (livestock units)	49	32.3

aesthetic appearance. The feeling of tourists passing by such a pasture is much more pleasant than when passing by wasted sites missing treatment and overgrowing with weeds. In broader terms of an economic benefit for the whole nation, this can be assessed as a positive externality.

The current farms under survey leave sheep on remote pastures during the pasture season. As shown by Table IV, the pasture season is extended by 19 days, which has to be assessed positively. Given the considerable reduction of polygastric animals, the production of hay seems to be sufficient regardless of a smaller production of forage crops; an evidence of this fact is the 100 per cent coverage of sheep consumption by own production.

The success or prosperity of Tsigai and Valachian sheep rearing system depends to a great extent on utility. For actual results of the farms under survey, see Table V. The 1995 ewe fecundity reduced by 5.7 per cent against the pre-November period. According to ŠPÚ Bratislava (Zvara, 1997) the fecundity of a ewe of Tsigai breeding and reproduction sheep reached 123.5 per cent and 117.2 per cent, respectively. The same figures for Im-

IV. Utilization of permanent grasslands in the farms under survey

Utilization	State before 1989	Present state
Utilization of permanent grasslands (%)		
Pasture utilization		
Cattle and sheep pasture	85.9	100.0
Sheep pasture	100.0	100.0
Pasture by forms – free	81.0	85.7
– driving	9.5	0.0
– enclosed	9.5	14.3
Pasture by stay at grass – stay at grass during the pasture season	76.2	100.0
– everyday return to the farm	23.8	0.0
Duration of pasture season (days)	205	224
Mowing utilization		
Own-production hay consumption by sheep	85.9	100.0
Own-production plus purchased hay consumption by sheep	14.1	0.0

V. Sheep utility and production orientation of sheep rearing in the farms under survey

Factor	State before 1989	Present state
Annual sheep utility per average ewe		
Ewe fecundity (%)	100.6	94.9
Unweaned lamb loss-rate (%)	5.9	5.7
Reared lambs from 100 ewes (number)	94	89.5
Sheep lump cheese produce (kg)	15.5	12.8
Sheep raw wool produce (kg)	4.37	3.40
Annual sales per average ewe (kg)		
Slaughter lambs	28	7.4
Sheep lump cheese	14.9	12.7
Sheep raw wool	4.27	3.40
Revenues from sheep produce (%)		
Revenues total (Sk)		
Of which – slaughter lambs	36.6	33.6
– sheep lump cheese	28.0	46.9
– sheep raw wool	29.9	5.6

proved Valachian sheep were 116.0 per cent and 113.8 per cent, respectively. According to Žatkovič and Borecká (1997) a low fecundity was an all-Slovak phenomenon in sheep rearing (an average of 88.0 per cent). Margetín (1997) quotes a fecundity of 140 per cent as the rearing objective for both above mentioned breeds. A comparison between the fecundity of Tsigai and Valachian sheep in the farms under survey and that of the breeding or reproduction sheep shows a very little utilization of potential abilities. Compared to the rearing objective, it means only a 67.8 per cent utilization of the production potential.

The level of unweaned lamb loss-rate in the farms under survey is good and comparable to common standards in animal production intensity planning.

An average number of 89.5 lambs reared from 100 ewes in the farms under survey has also to be assessed as low. The all-Slovak situation with an average number of 80.1 lambs reared from 100 ewes was similar.

The sheep milk produce was processed into lump cheese in the farms under survey. The current average cheese produce per ewe is lower by 17.4 per cent against that before 1989. As shown by the milk utility control data re-calculated to a 150 days' milking period, the milk produce (after weaning) was 88.3 kg and 93.8 kg per Tsigai and Improved Valachian ewe, respectively. After re-calculation of this milk produce to sheep lump cheese produce, one ewe produced an average amount of 20 kg of cheese. Hence there are considerable reserves also in milk production. The rearing objective for Tsigai and Improved Valachian breed counts with a production of 120 l of milk per ewe (after weaning) (Margetín, 1997).

The current produce of sheep wool per ewe is lower against that before 1989. According to the Situation and Outlook Paper, the all-Slovak annual average made 2.73 kg of sheep raw wool per ewe.

The sheep rearing production before 1989 was characterized by a narrow scale of sheep products. The effect on the sheep products' market of the production arrested in a stage of intermediate production in the farm without further expansion of the vertical chain by processing and finishing was very negative. With several exceptions, most farms used sheep milk for a large-scale production but of lump cheese sold through sheep cheese dairies in the position of a monopson, i.e. the only buyer. The 1990 lift of the negative turnover tax on milk and meat products boosted the consumer price of sheep cheese with a subsequent decrease in demand. As sheep cheese and sheep lump cheese are complementary products, this reduced also the demand for sheep lump cheese and, subsequently, the price paid to the original producers.

Slaughter animals were bought as intensive and semi-intensive fattening lambs, milky lambs and adult slaughter sheep. Contractual prices and problems in sales after 1990 reduced the volume of purchases by 30 per cent

against 1989. The biggest problems in buying sheep raw wool followed the 1991 price liberalization.

The period after 1990 saw a gradual development of capital synergies between the original production and processing and finishing capacities. A partial improvement appeared with the construction of specialized dairies (totalling approximately 10 at the time being) and slaughter-houses and lamb and sheep meat processing units of which one slaughter-house has the export licence.

Besides production, a special accent is put under the conditions of transformation to market economy on efficient sales of sheep products (Table V). A drop in the number of sold slaughter lambs by 73.6 per cent after re-calculation to an average ewe is the biggest change against the situation before 1989 which relates to a change in slaughter lambs' production technology. While the vital orientation of slaughter lambs' production before 1989 was towards the intensive fattening of slaughter lambs of an average live weight of 30 kg, the current orientation is towards milky lambs of an average live weight of 11.9 kg or 12.20 kg in the farms under survey or in the entire Slovakia, respectively.

The Slovak Tsigai and Valachian rearing system is oriented towards milk or cheese production and milky lambs' production. This system can be assessed as positive from the aspect of permanently sustainable development as its outputs serve needs of the society. First of all, they generate important production commodities and contribute to food safety of the nation. The technology used in the rearing system or cheese or milky lambs' production has no negative effect on the environment allowing a productive utilization of resources, especially permanent grasslands even of such quality which could not be utilized by cattle. If technological discipline is complied with in treatment and utilization, these resources can be used in a long term and permanently recovered.

The results of the analysis allow of the conclusion that as the Slovak rearing system of meat and milk production-oriented Tsigai and Valachian sheep enables a permanently sustainable development it is necessary to count with its improving. It is also necessary to plan a potential allocation of Tsigai and Valachian sheep to submontane and upland regions.

A pre-condition of the system development is the creation of fit conditions in the area of plant production. The optimization of plant production structure at the level of farms needs to respect not only production and economic but also ecological aspects. Crops of a stabilizing effect from the ecological aspect (forage crops) have to be applied to a greater extent than before. In order to ensure growing average hectare yields it is necessary to improve their fertilization and treatment without forgetting permanent grasslands which

make up the main part of agricultural land fund under the given conditions. Regarding the utilization of permanent grasslands, the transfer to the form of enclosed pasture is required in order to regulate the intake of forage in the sense of enhancing the scale of eaten graminoids and of eating them at the time of grazing maturity. Enclosed pasture boosts labour productivity and brings other effects.

An expansion of Tsigai and Valachian sheep rearing system will require increased ranging of young reproduction categories. A higher utilization of the production potential of Tsigai and Valachian sheep is expected in the interest of an improved economic prosperity.

As the development of the rearing system of milk and meat production-oriented Tsigai and Valachian sheep complies with the Slovak agrarian policy as well as the EU policy and harmonizes with the postulates of permanently sustainable development it is desirable and prospective also from the ecological aspect.

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Ekologické aspekty systému chovu cigájskych a valašských oviec.

Scientia Agric. Bohem., 29, 1998: 51–64.

Práca hodnotí z ekologického hľadiska systém chovu cigájskych a valašských oviec (5 898 ks) zameraných na produkciu mlieka a mäsa. Podkladový materiál sa získal metódou riadených rozhovorov s managementom vybraných podnikov (rok 1995), ktoré hospodária v podhorských a horských oblastiach. Porovnáva sa súčasná situácia s obdobím do roku 1989.

V prvej časti práce sa analyzuje rastlinná výroba, resp. využitie pôdneho fondu, základné ukazovatele sú uvedené v tab. I. Z nich vyplýva, že trvalé trávne porasty participujú na poľnohospodárskej pôde vysokým podielom. Ovce sú alokované predovšetkým do podhorských a horských oblastí (tab. II). Prejavuje sa nesprávna štruktúra osevu, keď podiel viacročných krmovín na ornej pôde je nízky (10,2 %, 9,0 %). Zubal a Svetlíková (1995) v celoslovenskom návrhu reštrukturalizácie rastlinnej výroby v horských a podhorských oblastiach uvádzajú 19,8 %. V dôsledku

nižšej intenzity hnojenia a ošetrovania trvalých trávnych porastov sa znížili ich priemerné hektárové úrody. Jedno stádo počas sezóny vykošarovalo 9 ha plochy. Košiare sa prekladali po dvoch dňoch, čo je v súlade s technologickým postupom (okrem dní s daždivým počasím) a z toho možno odvodzovať i pozitívny vplyv na floristické zloženie porastu.

Chov oviec vo vybraných podnikoch participoval na štruktúre živočíšnej výroby podielom 6,4 % a v rámci Slovenska 3,4 %. V súčasnosti sa ukazuje nedostatočné zaraďovanie mladých jahničiek do reprodukčného procesu, to znamená, že podiel jahničiek na celkovej počte oviec je nízky (tab. III). V ponovembrovom období sa v SR markantne znížila hustota oviec – v roku 1995 pripadlo na 100 ha p.p. len 17,5 oviec. S ohľadom na celkový pokles polygastrických zvierat – 31,65 DJ na 100 ha p.p. (K r a j č o v i č , K n o t e k , 1996), vo všetkých sledovaných podnikoch pasú hovädzí dobytok aj ovce (tab. IV). Uplatňuje sa prevažne voľné pasenie, ktoré sa radí medzi najmenej efektívne spôsoby využitia pasienkov (nemožno regulovať príjem škály tráv a bylín a tiež i spásaciu zrelosť).

Úžitkovosť má vo vybraných podnikoch nízku úroveň (tab. V). Napríklad dosiahnutá plodnosť bahnic 94,9 % v komparácii s chovným cieľom (140 jahniat od 100 bahnic) znamená využitie produkčného potenciálu len na 67,8 %. Z tab. V je tiež zrejme, že sa znížila i výroba ovčieho hrudkového syra v priemere na jednu bahnicu.

Pokiaľ ide o hodnotenie produkcie mäsa z hľadiska zmien v technológii, do roku 1989 prevládala intenzívny výkrm jahniat s priemernou živou hmotnosťou 30 kg.

Zvýšený záujem na zahraničných trhoch o jahňatá v nižšej hmotnosti i cenová preferencia v období pred veľkonočnými, resp. vianočnými sviatkami výrazne ovplyvnili orientáciu na mliečne jahňatá – priemerná živá hmotnosť jahňatá je 12,2 kg v rámci SR. Tieto skutočnosti spolu s poklesom počtu bahnic a ich plodnosti značnou mierou znížili objem predaja jatočných jahniat v porovnaní s prednovembrovým obdobím.

Celkovo možno systém chovu cigájskych a valašských oviec, zameraný na produkciu mlieka a mäsa, z pohľadu trvale udržateľného rozvoja hodnotiť kladne. Jeho realizácia v praxi nepôsobí negatívne na životné prostredie, umožňuje produktívne a dlhodobo využívať zdroje (trvalé trávne porasty). Perspektívne možno rátať s obnoviteľnosťou zdrojov, preto v závere práce poukazujeme na východiská, ktoré prispievajú k rozvoju systému chovu oviec z ekologického hľadiska.

ekológia; trvale udržateľný rozvoj; systém chovu; cigájske a valašské ovce

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