ACTA SCIENTIARUM POLONORUM *Acta Sci. Pol., Zootechnica 13 (2) 2014, 41–50*

SLAUGHTER VALUE AND MEAT QUALITY OF POLISH MERINO AND BERRICHON DU CHER RAM LAMBS IN INTENSIVE HOUSING SYSTEM

Roman Niżnikowski[1], Artur Oprządek[2], Marcin Świątek[1], Grzegorz Czub[1], Krzysztof Głowacz[1], Magdalena Ślęzak[1]

[1]Warsaw University of Life Sciences, Poland
[2]Agricultural Property Agency, Poland

Abstract. The study was conducted on 13 ram-lambs of Berrichon du Cher and 19 ram-lambs of Polish Merino in Grotkowo flock belonging to GRH Żydowo. The lambs were fed ad libitum using TMR. The lambs were slaughtered at a body weight 40 kg. The slaughter and carcass value and meat (*mld*) quality were estimated. Carcasses of Polish Merino lambs were in better fat class (in EUROP classification) compared to Berrichon du Cher. Higher levels of fat in Berrichon du Cher's carcasses would have an impact on higher weight of primary cuts compared to Polish Merino. The studies showed favorable level of physico-chemical characteristics and fatty acid profile of the meat (*mld*) of Berrichon du Cher compared to Polish Merino. Intensive hausing system connected with feeding ad libitum (using TMR) causes a high level of fatness of carcasses of Berrichon du Cher rams. Although its carcasses characterized better pH_{24} and favorable fatty acid profile compared to Polish Merino. Taking into account the requirements of consumers, carcasses of rams fattened to a weight of 40 kg, may meet with difficulties in the disposal and therefore should be consider the wider use of Berrichon du Cher breed as a paternal breed in crossbreeding.

Key words: meat quality, sheep, slaughter traits

INTRODUCTION

Currently, revenue from the production of slaughter lambs determine the profitability of all sheep production, and therefore research of many authors largely

Corresponding author – Adres do korespondencji: Prof. Roman Niżnikowski, PhD, Warsaw University of Life Sciences, Sheep and Goat Breeding Division, Department of Animal Breeding and Production, Faculty of Animal Sciences, Ciszewskiego 8, 02-786 Warszawa, Poland, e-mail: roman_niznikowski@sggw.pl

relate to aspects of quality of carcasses [Strzyżewski et al. 2008, Juarez et al. 2009, Niżnikowski et al. 2010 b, 2010 c, 2010 d, Horoszewicz et al. 2011] and the improvement of reproduction traits. In the Wielkopolskie Voivodeship practically most sheep breeds are kept in intensive hausing system, including the Polish Merino – known as mother breed and Berrichon du Cher known as paternal breed which was imported to the Poland in the 1980s. Research carried out in the our country have shown for Polish Merino breed good results of reproduction traits and decent on the characteristics of meatiness and carcasses [Niżnikowski et al. 2005, 2010 a] and in the case of Berrichon du Cher breed good results of meatiness [Niżnikowski et al. 2010 a, 2010 b, 2010 c] and average reproductive traits [Niżnikowski et al. 2010 c] while maintaining outstanding suitability for the production of slaughter lambs derived by crossbreeding. [Niżnikowski et al. 2010 d]. Sheep farming is often accompanied with the maintenance of fattening cattle, which gives the possibility of feeding ad libitum both species using a mixture of TMR as a balanced feed. [Niżnikowski et al. 2005, 2010 a, 2010 b, 2010 c]. Therefore, this studies were undertaken to the assessment the impact of breed on a the features of slaughter value and meat quality of Polish Merino and Berrichon du Cher lambs fattened to a weight of 40 kg.

MATERIAL AND METHODS

The study was conducted on 13 rams of Berrichon du Cher breed and 19 rams of Polish Merino breed, held in the Grotkowo flock belonging to GRH Żydowo. Lambs were born in the period from January to end of February in the case of Berrichon du Cher and from September to the beginning of December for Polish Merino. Lambs of both breeds were kept with their mothers in the same building, and after a period lasting for 100 days of rearing, were separated and moved to another building in which they were to slaughter. During the rearing used feed produced on the farm, and after weaning the basis of nutrition was a mixture of TMR derived for both groups from the same silo, that provide the same feed throughout the period of rearing lambs and feeding mothers. Ad libitum feeding system was used with the addition of salt lick and mineral additives, ensuring sustainable access to water. Thus environmental conditions were standardized and the impact of the lambing term on the results of fattening was limited. After reaching 40 kg body weight ($\pm$ 2.5 kg) lambs were slaughtered and the carcasses were cooled for 24 hours in a temperature of +4°C. The next step was to assess muscularity and fatness on the carcasses according to EUROP. Carcasses class (E, U, R, O, P); fatness level (1, 2, 3, 4, 5 – least – 1 and the largest – 5); consistency of fat (very cohesive, cohesive, soft, very soft) and fat color (white or color). Then set the weight of pelt, slaughter value, weight of the carcass and left half-carcass. On

the carcass, the following measurements were done: spreed of hock joint, depth, length and round of leg, index of leg (round /length of leg × 100); spread, height and area of the "eye" of the loin and fat over the "eye" of the loin [Nawara et al. 1963]. On The half-carcass were assessed the composition of cuts [Nawara et al. 1963]: kidney with fat, foreshank, hideshank, shoulder, neck, middle neck, loin, rack, tenderloin, leg and valuable cuts (leg, loin, rack and tenderloin). These features are presented in the percentages and in kilograms. Tissue composition was assessed based on the dissection of the leg and the determination of the weight and percentage of meat, bone and fat in leg [Nawara et al. 1963]. In the study pH measurement was taken on the carcass at 24 hours after slaughter and the physical and chemical traits: free water content [Hamm 1986]; dry matter according to ISO 1442: 2000P [2000]; total protein by the Kjeldahl method using a multiplier N * 6.25 (Test Procedure 1, Release 5 of 07 March 2012); fat by Soxhlet method using a n-hexane as a solvent. Extraction of the fat constituting the basis for the study of fatty acids was performed according to the method of Rose-Gottlieb [AOAC, 1990].

The fatty acid composition of the fat extracted from the meat was analyzed using a gas chromatograph according to standard ISO 1442: 2000P. In terms of the characteristics of the slaughter value, the composition of the half-carcass cuts and tissues of the leg and the physico-chemical characteristics of meat (*mld*), calculations were performed using least squares method using SPSS 21.0 [2012] software, according to the model calculations taking into account influences: breed, birth type of lambs, two-way interaction breed × type of birth and regression for body weight at slaughter. In the case of the breed impact on a examined features, the differences between experimental groups were evaluated by F-test [Ruszczyc 1981]. The results of carcass classification according to EUROP system has been assessed using the χ^2 test [Ruszczyc 1981]. This test was conducted on the frequency evaluations within each category of traits, ie. muscularity, fat, fat color and consistency.

RESULTS AND DISCUSSION

The results of the subjective assessment of the quality of carcasses according to the EUROP are shown in Table 1. There was no statistically significant effect of breed on the muscularity, fat color and its consistency. Highly significant effect of breed on a level of fatness of carcasses was found, which turned out to be more favorable in Polish merino rams, compared to the Berrichon du Cher rams which were characterized by a greater fatness. Moreover, the carcasses of Polish Merino exerted favorable impression in terms of assessing fatness which was expressed

their eligibility for the most anticipated category, mostly in 2nd and in small share in 3rd categories.

Table 1. Assessment of muscle, fat, fat color and consistency by EUROP system

Tabela 1. Ocena umięśnienia, otłuszczenia, barwy i konsystencji tłuszczu wg systemu EUROP

		Polish Merino Merynos polski	Berrichone du Cher	Total Ogółem	Statistical significance Istotność statystyczna
EUROP class – Umięśnienie w skali EUROP					
E	n	6	5	11	NS
	%	32	38	34	
U	n	11	8	19	
	%	58	62	60	
R	n	2	0	2	
	%	10	0	6	
Fat class – Stopień otłuszczenia					
2	n	15	1	16	XX
	%	79	8	50	
3	n	4	10	14	
	%	21	77	44	
4	n	0	2	2	
	%	0	15	6	
Fat color – Barwa tłuszczu					
White – Biały	n	15	9	24	NS
	%	79	69	75	
Colored – Kolorowy	n	4	4	8	
	%	21	31	25	
Fat consistency – Konsystencja tłuszczu					
Very cohesive – Bardzo Spoisty	n	2	5	7	NS
	%	11	39	22	
Cohesive – Spoisty	n	17	6	23	
	%	89	46	72	
Tender – Miękki	n	0	2	2	
	%	0	15	6	

Statistical significance at: X – $P \leq 0.05$; XX – $P \leq 0.01$; NS – non-significant.
Istotność statystyczna: X – $P \leq 0,05$; XX – $P \leq 0,01$; NS – nie istotne.

In contrast carcasses of Berrichon du Cher rams were eligible to category 4th, which is, due to the demands of the market not acceptable by consumers. However, it can be assessed preferably in terms of the characteristics of subjective evaluation, which is evidenced by no classified in O and P categories, and so these are suitable only for processing, which is confirmed by studies [Niżnikowski et al. 2010 b, 2010 c]. Assessment of the effects of the sources of variation on the features of slaughter, the cuts composition and leg tissue composition (Table 2) showed a highly significant impact of breed on a the weight of the pelt, slaughter value and weight carcasses of and half-carcasses. Among the measurements of leg and mld muscle (Table 3) only area of "eye" of the loin was subject to significant

Table 2. The effect of chosen factors and interaction on study traits of Berrichon du Cher (n = 13) and Polish Merino lambs (n = 19)

Tabela 2. Ocena wpływu wybranych czynników i interakcji na cechy użytkowości rzeźnej jagniąt rasy berrichon du cher (n = 13) oraz merynos polski (n = 19)

Traits Cechy	Unit Jednostka	Factors Czynniki		Interaction Interakcja	Berrichon du Cher		Polish Merino Merynos polski	
		Breed Rasa	Type of birth Typ urodzenia	Breed x type of birth Rasa x typ urodzenia	LSM	SE	LSM	SE
Pelt Masa skóry	kg	XX	NS	NS	3.775	0.217	3.254	0.176
Slaughter value Wydajność rzeźna	%	XX	NS	NS	44.717	0.533	40.394	0.432
Carcass Masa tuszy	kg	XX	NS	NS	19.229	0.234	17.363	0.189
Halfcarcass Masa półtuszy	kg	XX	NS	NS	9.716	0.135	8.756	0.109
Half-carcass cuts composition – Skład wyrębów w półtuszy								
Kidney with fat Nerka z tłuszczem	kg	NS	NS	NS	0.280	0.020	0.237	0.016
okołonerkowym	%	NS	NS	NS	2.861	0.234	2.704	0.190
Foreshank	kg	NS	NS	NS	0.313	0.006	0.298	0.005
Goleń przednia	%	NS	NS	NS	3.242	0.083	3.419	0.067
Hideshank	kg	X	NS	NS	0.388	0.011	0.342	0.009
Goleń tylna	%	NS	NS	NS	4.042	0.145	3.934	0.117
Neck	kg	NS	NS	NS	0.812	0.029	0.701	0.024
Szyja	%	NS	NS	NS	8.339	0.298	8.006	0.241
Middle neck	kg	NS	NS	NS	0.619	0.020	0.604	0.016
Karkówka	%	NS	NS	NS	6.362	0.207	6.919	0.167
Shoulder	kg	NS	NS	NS	1.596	0.045	1.438	0.036
Łopatka	%	NS	NS	NS	16.351	0.394	16.454	0.319
Breast	kg	XX	NS	NS	1.533	0.038	1.252	0.031
Łata z mostkiem	%	NS	NS	NS	15.813	0.471	14.274	0.382
Rack	kg	XX	NS	NS	0.786	0.025	0.644	0.020
Antrykot	%	NS	NS	NS	8.043	0.231	7.349	0.187
Loin	kg	X	NS	NS	0.684	0.032	0.537	0.026
Comber	%	NS	NS	NS	6.982	0.286	6.124	0.232
Tender loin	kg	NS	NS	NS	0.162	0.009	0.146	0.007
Polędwiczka	%	NS	NS	NS	1.664	0.100	1.669	0.081
Leg	kg	NS	NS	NS	2.519	0.068	2.286	0.055
Udziec	%	NS	NS	NS	25.925	0.510	26.149	0.413
Prime cuts	kg	XX	NS	NS	1.734	0.042	1.650	0.034
Części cenne tuszy	%	NS	NS	NS	69.156	1.084	72.237	0.878
Tissue composition of leg – Skład tkankowy udźca								
Lean	kg	NS	NS	NS	0.456	0.035	0.309	0.028
Mięso	%	NS	NS	NS	18.294	1.541	13.508	1.248
Fat	kg	X	NS	NS	0.290	0.011	0.307	0.009
Tłuszcz	%	NS	NS	NS	11.686	0.526	13.529	0.426
Bone	kg	NS	NS	NS	3.989	0.104	3.467	0.085
Kości	%	NS	NS	NS	40.950	0.723	39.622	0.586

Statistical significance at: X – $P \leq 0.05$; XX – $P \leq 0.01$; NS – non-significant.
Istotność statystyczna: X – $P \leq 0,05$; XX – $P \leq 0,01$; NS – nie istotne.

influence of breed. There were significant or highly significant effect of breed on the tissue composition of the leg (on fat weight) and weight of cuts: hideshank, breast, rack, loin and valuable cuts. For other features, listed in Table 2 and 3 breed did not significantly impact, as well as the type of birth and the interaction of breed × type of birth on the all analyzed features.

Table 3. Leg and eye of the loin measurements of Berrichon du Cher (n = 13) and Polish Merino lambs (n = 19)

Tabela 3. Pomiary liniowe udźca i oka polędwicy jagniąt rasy berrichon du cher (n = 13) oraz merynos polski (n = 19)

Traits Cechy	Unit Jednostka	Factors Czynniki		Interaction Interakcja	Berrichon du Cher		Polish Merino Merynos polski	
		Breed Rasa	Type of birth Typ urodzenia	Breed x type of birth Rasa x typ urodzenia	LSM	SE	LSM	SE
Leg measurement – Pomiary udźca								
Spread of hock joint Szerokość stawu skokowego	cm	NS	NS	NS	3.551	0.072	3.551	0.072
Depth of leg Głębokość udźca	cm	NS	NS	NS	23.738	0.470	23.873	0.380
Length of leg Długość udźca	cm	NS	NS	NS	24.290	1.105	23.952	0.895
Round of leg Obwód udźca	cm	NS	NS	NS	40.530	0.452	39.636	0.366
Index of leg Indeks udźca	%	NS	NS	NS	174.232	7.860	166.698	6.367
Eye of the loin measurement – Pomiary „oka" polędwicy								
Area Powierzchnia „oka"	cm^2	NS	NS	NS	15.176	0.448	14.356	0.363
Spread Szerokość „oka"	cm	NS	NS	NS	5.569	0.119	5.166	0.096
Height Wysokość „oka"	cm	NS	NS	NS	2.986	0.114	3.031	0.092
Fat over the loin eye Grubość warstwy tłuszczu nad „okiem" polędwicy	mm	X	NS	NS	2.825	0.266	1.706	0216

Statistical significance at: X – $P \leq 0.05$; XX – $P \leq 0.01$; NS – non-significant.
Istotność statystyczna: X – $P \leq 0,05$; XX – $P \leq 0,01$; NS – nie istotne.

The assessment of the characteristics of slaughter showed significant or highly significantly higher value in Berrichon du Cher compared to Polish merino. A higher level of fatness in Berrichon du Cher rams need to be known as a crucial (the fat layer over the "eye" of the loin, fat weight in leg) which shows much higher fatness carcasses of this breed, confirming the results of subjective evaluation carcasses presented in Table 1. Particularly important value obtained for the thickness of the fat layer over the "eye" of loin in comparison to Polish Merino,

may suggest that the level of carcass's back fatness can affect on the weight of cuts (expressed in kilograms), and thus not be the result of better muscularity but greater level of fat. Carcasses of Berrichon du Cher rams which characterized by

Table 4. The effect of chosen factors and interaction on physical and chemical characteristics of mld muscle of Berrichon du Cher lambs (n = 13) and Polish Merino (n = 19)

Tabela 4. Wpływ badanych czynników na cechy fizyko-chemiczne mięsa jagniąt rasy berrichon du cher (n = 13) i merynos polski (n = 19)

Traits Cecha	Factors Czynniki		Interaction Interakcja	Berrichon du Cher		Polish Merino Merynos polski	
	Breed Rasa	Type of birth Typ urodzenia	Breed x type of birth Rasa x typ urodzenia	LSM	SE	LSM	SE
Physical characteristics of mld muscle – Cechy fizyczne mięśnia mld							
pH 24	XX	NS	NS	5.704	0.071	6.133	0.057
Free water Wodochłonność	NS	NS	NS	18.612	1.086	15.070	0.880
Chemical characteristics of mld muscle – Cechy chemiczne mięśnia mld							
Crude protein, % Białko ogólne	NS	NS	NS	20.603	0.206	21.050	0.167
Fat, % Tłuszcz	XX	NS	NS	6.053	0.340	4.046	0.276
Dry matter, % Sucha masa	NS	NS	NS	26.521	0.352	25.739	0.285
Fatty acids profile, g · 100 g^{-1} of fat – Profil kwasów tłuszczowych, g · 100 g^{-1} tłuszczu							
C10:0	XX	NS	NS	0.122	0.011	0.174	0.009
C12:0	XX	NS	NS	0.093	0.018	0.176	0.014
C14:0	X	NS	NS	2.208	0.139	2.844	0.113
C14:1	NS	NS	NS	0.187	0.021	0.175	0.017
C15:0	XX	NS	NS	0.305	0.016	0.430	0.013
C15:1	XX	NS	NS	0.161	0.012	0.227	0.009
C16:0	NS	NS	NS	24.452	0.394	23.948	0.319
C16:1	NS	NS	NS	1.531	0.061	1.719	0.049
C17:0	XX	NS	NS	1.085	0.028	1.234	0.023
C17:1	NS	NS	NS	0.554	0.029	0.662	0.023
C18:0	NS	NS	NS	20.227	0.447	19.074	0.362
C18:1c9	NS	NS	NS	35.978	1.578	38.365	1.278
C18:3n6	XX	NS	NS	0.285	0.012	0.152	0.009
C18:3n3	NS	NS	NS	0.425	0.023	0.352	0.018
CLA	XX	NS	NS	0.125	0.022	0.417	0.018
C20:1	XX	NS	NS	0.047	0.006	0.177	0.005
C20:3n3	XX	NS	NS	0.390	0.023	0.055	0.019
C20:4n6	XX	NS	NS	0.050	0.045	0.596	0.036
C20:5n3	NS	NS	NS	0.119	0.012	0.087	0.010
C22:5n3	XX	NS	NS	0.035	0.016	0.202	0.013
C22:6n3	NS	NS	NS	0.037	0.005	0.044	0.004
SFA	NS	NS	NS	48.491	0.667	47.880	0.540
PUFAn3	X	NS	NS	0.581	0.043	0.388	0.035
PUFAn6	XX	NS	NS	0.334	0.045	0.748	0.036
MUFA	NS	NS	NS	38.457	1.584	41.325	1.283
PUFA	XX	NS	NS	1.466	0.088	1.905	0.071

Statistical significance at: X – $P \leq 0.05$; XX – $P \leq 0.01$; NS – non-significant.
Istotność statystyczna: X – $P \leq 0{,}05$; XX – $P \leq 0{,}01$; NS – nie istotne.

much higher levels of fat could not get consumer interest in the meat market. That confirmed the information previously signaled by Niżnikowski et al. [2010 b].

Evaluation of physical and chemical characteristics of Polish merino and Berrichon du cher lambs meat is presented in Table 4. The compiled data show that breed has significantly high influence on values: pH_{24}, the percentage of fat in meat and on 13 fatty acids among all of the fatty acid profile. Other sources of variation does not affect on the examined features which are summarized in Table 4. For interesting to be considered is the impact of breed on 5 saturated acids, 5 unsaturated acids and polyunsaturated acids in meat that might indicate the effect of breed on the quality of meat. The breed also has a significant or highly significant effect on the of fatty acids profile composition in meat (*mld*) especially on following acids: C10: 0, C12: 0, C14: 0, C15: 0, C15: 1, C17: 0, C18: 3b6, CLA, C20: 1, C20 : 3n3, C20: 4n6, C22: 5n3, as well as, PUFA, PUFA n3 and PUFA n6, as also reported in elsewhere [Niżnikowski et al. 2010 a; c, Horoszewicz et al. 2011, Strzyżewski et al. 2008].

In assessing the physico-chemical properties and fatty acid profile found significantly higher following fatty acids: C18: 3N6, C20: 3n3 and PUFA n3 in meat of Berrichon du Cher rams. Other features, including pH_{24}, proved to be far higher in Polish Merino rams. Generally, it can be stated, that in terms of physico-chemical characteristics and fatty acid profile Berrichon du Cher rams achieve better results than Polish Merino rams. Similar results were obtained using Berrichon du Cher breed as paternal breed to crossbreeding, where its crosses reached significantly better values than the control group [Niżnikowski et al. 2010 d]. That lead to a general statement, that the carcasses of Polish Merino rams characterized by a better quality of slaughter and meatness, while the Berrichon du Cher rams has favorable physico-chemical characteristics and fatty acid profile. Taking into account the requirements of consumers, exemplified by the results of the EUROP classification (Table 1), it would be better to supply the market with carcasses (In the case of 40 kg of slaughter weight) from Polish Merino breed and its crosses with mutton breeds such Berrichon du Cher [Niżnikowski et al. 2010 d], rather than on pure-bred French mutton breed.

CONCLUSIONS

Based on the study carried out in GHR Żydowo for the assessment of the slaughter value, carcass and (*mld*) meat quality of Berrichon du Cher and Polish Merino lambs, slaughtered with a body weight of 40.0 kg, we can draw the following conclusions:

– Better results of fatness, in EUROP system, were obtained in Merino Polish compared with Berrichon du Cher rams.

- Higher level of fat on carcasses in Berrichon du Cher, which could have an impact on the greater weight of primary cuts, compared to Polish merino rams
- Favorable level of physicochemical features and fatty acid profile of the mld meat in Berrichon du Cher compared to Polish merino rams

Intensive maintenance system using a feeding ad libitum with TMR, led to too high levels of fatness in Berrichon du Cher with a better level of pH_{24} and fatty acids profile in comparison to the Polish Merino breed. Taking into account the requirements of consumers, carcasses of rams fattened to a weight of 40 kg, may face with difficulties in selling. For this reason, it should be consider the wider use of this breed as a paternal breed to crossbrreding, or the production of slaughter lambs in the lower weight standards.

REFERENCES

AOAC, 1990. Food Composition, Additives, Natural Contaminants. (In) Official methods of analysis of the Association of Official Analytical Chemists. K. Helrich (Ed.), Vol. 2 (15th ed.), Virginia, USA.

Hamm R., 1986. Functional properties of the myofibril system and their measurement, Muscle as food, Ed. P.J. Bachtel. Academic Press, London, 143–147.

Horoszewicz E., Pieniak-Lendzion K., Niedziółka R., Wójcik E., 2011. Fatty acids profile and physicochemical propetries of muscle tissue from male kids and ram lambs offered feed supplemented with flaxseed. Acta Sci. Pol., Zootechnica 10(1), 13–18.

Juarez M., Harcada A., Alcade M.J., Valera M., Polvillo O., Molina A., 2009. Meat and fat quality of unweaned lambs as affected by slaughter weight and breed. Meat. Sci. 83, 308–313.

Nawara W., Osikowski M., Kluz I., Modelska M., 1963. Wycena tryków na podstawie badania wartości potomstwa w stacjach oceny tryków Instytutu Zootechniki za rok 1962. PWRiL, Warszawa [in Polish].

Niżnikowski R., Oprządek A., Popielarczyk D., Strzelec E., Groberek J., 2005. Wielkość miotu i wskaźniki odchowu jagniąt u owiec rasy merynos polski utrzymywanych w stadach należących do Agencji Nieruchomości Rolnych. Rocz. Nauk Zootech. 21 (Supl.), 19–22 [in Polish].

Niżnikowski R., Oprządek A., Strzelec E., Popielarczyk D., Głowacz K., 2010 a. Analysis of reproduction performance in flocks of Polish Merino sheep bred in five companies of the Polish Agricultural Property Agency. Annals of Warsaw University of Life Sciences – SGGW, Anim. Sci. 47, 119–126.

Niżnikowski R., Oprządek A., Strzelec E., Popielarczyk D., Głowacz K., Kuczyńska B., 2010 b. Effect of sex on slaughter value of lambs of Berrichon du Cher bred in Poland. Annals of Warsaw University of Life Sciences – SGGW, Anim. Sci. 47, 127–134.

Niżnikowski R., Oprządek A., Strzelec E., Popielarczyk D., Głowacz K., 2010 c. Level of reproduction performance and body conformation of Berrichon du Cher sheep bred

in Poland. Annals of Warsaw University of Life Sciences – SGGW, Anim. Sci. 47, 135–142

Niżnikowski R., Oprządek A., Strzelec E., Popielarczyk D., Głowacz K., Kuczyńska B., 2010 d. Effect of Rams of meat sheep breeds used in crossing schemes with Polish Merino ewes on slaughter value and meat quality of lambs, Annals of Warsaw University of Life Sciences – SGGW, Anim. Sci. 47, 149–160.

PN-ISO 1442:2000P. Mięso i przetwory mięsne – Oznaczanie zawartości wody (metoda odwoławcza). 14 czerwca 2000 [in Polish].

Ruszczyc Z. 1981: Metodyka doświadczeń zootechnicznych. PWRiL, Warszawa [in Polish].

Strzyżewski T., Bilska A., Krysztofiak K., 2008: Zależność pomiędzy pH mięsa i jego barwą. Nauka–Przyroda–Technologie. Wydaw. Uniwersytetu Przyrodniczego w Poznaniu 2 (2), 1–9.

SPSS 21.0 for Windows, IBM Ltd. 2012.

PORÓWNANIE WARTOŚCI RZEŹNEJ I MIĘSNEJ TRYCZKÓW RASY MERYNOS POLSKI Z BERRICHON DU CHER, UTRZYMYWANYCH W WARUNKACH CHOWU ALKIERZOWEGO

Streszczenie. Badaniami objęto 13 tryczków rasy berrichon du cher oraz 19 merynosów polskich utrzymywanych w owczarni Grotkowo należącej do GRH Żydowo. Stosowano żywienie do woli przy zastosowaniu mieszanki TMR. Oszacowano wartość rzeźną, jakość tusz i mięsa mld u jagniąt-tryczków. Zwierzęta zostały ubite przy masie ciała ok. 40 kg. Stwierdzono lepsze wyniki oceny systemem EUROP w zakresie otłuszczenia u tryczków rasy merynos polski w porównaniu z berrichon du cher. Wyższy poziom otłuszczenia tusz u tryczków berrichon du cher, mógł mieć wpływ na wyższe masy wyrębów podstawowych, w porównaniu do tryczków rasy merynos polski. Ponadto wykazano korzystny poziom cech fizykochemicznych i profil kwasów tłuszczowych w mięsie mld tryczków berrichon du cher w porównaniu do merynosa polskiego. Stwierdzono, że intensywny system utrzymania przy zastosowaniu żywienia do woli mieszankami TMR w warunkach utrzymania alkierzowego, prowadzi do uzyskania zbyt wysokiego poziomu otłuszczenia tusz tryczków rasy berrichon du cher przy korzystniejszym poziomie pH_{24} i lepszym profilem kwasów tłuszczowych, w porównaniu do merynosa polskiego. Biorąc pod uwagę wymagania konsumentów, tusze tryczków tuczonych do masy ciała 40 kg, mogą spotkać się z trudnościami ze zbytem i z tego też względu należy rozważyć szersze wykorzystanie tej rasy jako ojcowskiej w krzyżowaniu towarowym.

Słowa kluczowe: cechy rzeźne, jakość mięsa, owce

Accepted for print – Zaakceptowano do druku: 22.04.2014