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THE FURRIER VALUE OF YOUNG MEAT RABBITS

Apart from meat, rabbits give fur which is a more valuable raw product for the national developing furrier industry. Since rabbit breeding in Poland is geared towards the production of slaughter material and commercial production is based on meat breeds it was necessary to research the fur and hair covering quality of these animals reared on commercial farms. Research to date has been limited to 1 or 2 breeds and has not taken into consideration, for example, the season of slaughter /Bednarz et al., 1973; Kawińska et al., 1975; Niedźwiadek, 1983/.

Material and Methods

The experiment included White New Zealand /BN/, White Danish /BD/, White Termonde /BT/, Red New Zealand /CN/ and Chinchila /SD/. All rabbits were raised on the large-scale farm of the Animal Science Research Station at Chorzelów under uniform conditions /cages and nutrition/. The animals were slaughtered at 90 days of age and the 4 seasons of the year /spring, summer, autumn, winter/ were recorded. A total of 1,200 raw and /dressed/ furs were examined organolepticallyk by a group of 3 experts from the Cracow Furrier. For research purposes 24 furs were chosen at random from each of the seasons. There were equal numbers of both sexes in

each group.

Laboratory methods were according to Kaszowski /1957/. The weight, surface area and weight of 1 dm^2 of both raw and dressed furs were recorded. Hair covering measurements were made in 5 topographical areas /Fig. 1/ of the furs and included:

- hair covering compactness - collective SGM trait,
- thickness of down and covering hairs,
- length of down and covering hairs,
- hair covering density.

Results and Discussion

The values for fur and hair covering traits are given for both sexes together since differences between sexes and seasons in a given breed were statistically insignificant. Interactions between breed x sex and breed x sex x season of slaughter were not statistically significant. The weight of raw furs and surface area were similar for all breeds in each season /tab. 1/. However there was a tendency for higher values in the BT and SD breeds. This was related to the weight of the slaughtered rabbits which is an interdepent with the above traits /Niedźwiadek, 1983/. Tinaev /1980/ gave similar weights and surface areas for rabbits slaughtered at 90 days of age. The surface area was 4-5 dm^2 smaller than that obtained from adult animals /Duda, 1974; Kawińska and Niedźwiadek, 1967/.

After dressing the examined traits were lower in value. Weight was approximately 100 g less, and surface area, from 10 to 11 dm^2.

The SGM measurement, characterizing the entire fur, showed significant differences between both season and breeds within seasons /Tab. 2/.

It can be noted that covering compactness in the winter /the highest/ was similar to compactness during the autumn and spring.

Summer furs had significantly lower values, indicating less resilent hair. The values obtained in the summer were more than 12 mm which qualified them for furrier use /Duda, 1974; Kaszowski, 1957/.

Down hair thickness, an important coefficient of fur quality, did not differ between breeds either within seasons or between seasons within a breed /Tab. 3/. Hair thickness was more than 11 microns which is the lower limit of hair thickness suitable for dressing /Duda, 1974/.

It should be noted that during the summer covering hairs were the thickest although the difference was statistically significant only for the BD breed between summer and the autumn and winter coats. The thickness of covering hairs fits within the limits given by other authors for BN and BT /Bednarz et al., 1973; Niedźwiadek, 1983/.

Down hair length was more than 18 mm /Tab. 3/. This is within the range for the BN and BT breeds given by Bednarz et al. /1973/, Niedźwiadek /1983/ and for other breeds /Duda, 1974; Kawińska, 1963/.

One of the basis traits determining the value of a fur is hair covering density. The SD breed was characterized by the densist hair during all the seasons /Tab. 4/. The least density was found for the BT breed also during all seasons . In comparing the seasons it should be noted that the greatest density /6.1 - 6.4 thousand / / 1 cm^2 skin/. In general, down hair density was more than 6,000/ / 1 cm^2 during the winter, autumn and spring - excluding the BT breed - qualifying it as raw furrier material /Duda, 1974; Kaszowski, 1957/. During the summer the BN and BT breeds had densitites a bit greater than 6,000 hairs/ 1 cm^2 skin.

Organoleptic analysis of the raw furs showed that the furs from all breeds had higher class during the winter /Tab. 5/. During the summer the average class varied from 3.3 to 3.8 . During the

remaining seasons values in between were obtained. An analysis of the fur classifications shows that the highest class /3.1 - 3.2/ was found in the SD breed during all seasons and the lowest class - the BT breed /3.5 - 3.8/. The percentages of furs qualifying as fur were similar. The highest was seen during the winter /65.2 - - 73.2% /, the lowest in summer /61.4 - 65.7 %/. The greatest percent of furs qualifying for furier dressing during all seasons was found in the SD breed /65.7 - 73.1 %/, the lowest was for the BT breed /61.4 - 65.2 %/.

A similar relationship was found for dressed furs. Those from the average class were higher by approximately 0.2 - 0.3, and those higher by 3-6% were classified for fur.

Conclusions and results

In summarizing the laboratory and organoleptic results the following conclusions can be made :

- the furs of rabbits raised with regulated micro-climates and slaughtered at 90 days of age had high quality hair covering,
- of the analyzed breeds, best results were obtained by the big breed, and somewhat higher values were found in the Red New Zealand, White Danish and White New Zealand breeds,
- the furs of White Termonde rabbits were characterized by poorer traits that determine furrier quality. This was confirmed by organoleptic evaluation, qualifying it into an average class and percent for raw furrier material,
- the best furrier traits were seen when the animals were slaughtered in winter. Summer pelts had the poorest hair covering. Pelts obtained in the spring and autumn for most traits had values similar to hair covering in the winter.

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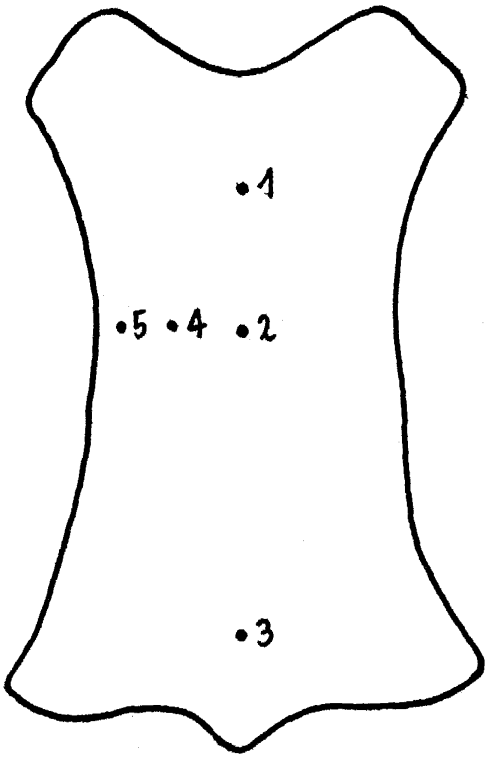

Fig. 1 Sampling areas :

1,2,3 - dorsal part

4 - lateral part

5 - ventral part

Table 1

Results of measurements of rough and dressed skins

Pelting time	Breed[x]	Rough skins			Dressed skins		
		Weight /g/	Area /dm^2/	Weight of 1 dm^2 /g/	Weight /g/	Area /dm^2/	Weight of 1 dm^2 /g/
Spring	BN	147	12,3	11,8	98	10,7	9,2
	BT	158	13,0	12,1	109	11,0	9,9
	GN	147	12,0	12,2	97	10,2	9,5
	BD	145	12,1	11,9	96	10,3	9,3
	SD	152	12,7	11,9	102	11,4	9,0
Summer	BN	151	12,1	12,4	97	10,1	9,6
	BT	154	13,1	11,7	103	11,1	9,3
	GN	150	12,1	12,3	99	10,2	9,7
	BD	147	12,0	12,2	97	10,0	9,3
	SD	150	12,6	11,9	101	10,9	9,3
Autumn	BN	149	12,4	12,1	98	10,3	9,5
	BT	157	13,0	12,0	106	11,0	9,6
	GN	152	11,9	12,6	99	10,0	9,8
	BD	148	11,8	12,5	96	10,1	9,5
	SD	151	12,9	11,8	102	10,8	9,4
Winter	BN	153	12,8	11,9	103	10,5	9,8
	BT	167	13,3	12,6	110	11,4	9,6
	GN	151	12,7	11,9	100	10,6	9,4
	BD	150	12,5	12,0	99	10,9	9,1
	SD	162	13,1	12,4	108	11,3	9,5

x - BN - White New Zealand
BT - White Termonde
GN - Red New Zealand
BD - White Dunish
SD - Chinchila

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Table 2

Compactness of hair - E SGM /mm/

Breed	Spring		Summer		Autumn		Winter	
	$\bar{x}$	v	$\bar{x}$	v	$\bar{x}$	v	$\bar{x}$	
BW	$13,4^{a}$	10,6	$12,6^{def}$	9,7	$13,8^{a}$	10,2	$14,0^{f}$	9,1
BT	$12,7^{a}$	12,3	$12,1^{gh}$	10,8	$12,9^{bg}$	11,7	$13,3^{ch}$	10,1
CW	13,5	9,8	$12,8^{ik}$	12,3	$13,9^{i}$	13,2	$14,1^{k}$	9,8
BD	13,7	11,4	$13,0^{lm}$	9,7	$13,8^{l}$	11,2	$14,1^{m}$	11,2
SD	$13,9^{a}$	10,8	$12,9^{no}$	10,4	$14,0^{bn}$	10,1	$14,5^{co}$	10,8

x - Explanation see table 1

Mean followed by the some letters are significantly ənt /P≤0,05/

Table 3.

Thickness /microns/ and length /mm/ down and cover hair.

Breed[x]	Thickness /average for skin/				Length /average for skin/			
	Spring	Summer	Autumn	Winter	Spring	Summer	Autumn	Winter
	down hair				down hair			
BN	11,6	12,0	11,6	11,5	19,7^{a}	18,9	20,3^{e}	20,6^{i}
BT	11,7	12,0	11,7	11,6	20,0^{b}	19,4	20,4^{f}	21,2^{k}
CN	11,7	12,1	11,8	11,7	20,4^{c}	19,5	20,5^{g}	21,8^{l}
BD	11,7	12,0	11,7	11,5	20,3^{d}	19,1	20,4^{h}	22,0^{m}
SD	11,6	12,2	11,7	11,7	21,8^{abcd}	19,5	21,4^{efgh}	23,1^{iklm}
	cover hair				cover hair			
BN	64,7	67,4	64,4^{c}	63,5	27,5	25,5^{o}	27,9	28,6
BT	64,6^{a}	68,5	64,3^{b}	63,6	27,0	25,1^{p}	27,1	28,0
CN	65,3	68,5	64,7^{d}	64,0	27,6	25,5^{r}	27,8	28,6
BD	63,2^{g}	67,8^{h}	62,5^{eg}	62,1^{fh}	26,7^{n}	25,6^{s}	27,2	28,5
SD	70,2^{a}	71,5	69,8^{bcde}	68,0^{f}	28,8^{n}	27,4^{oprs}	28,7	29,4

x - Explanation see table 1

Mean followed by some letters are significantly different / $P \leq 0,05$ /

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Table 4

Hair density per 1 cm^2 of skin

Breed[x]	Spring	Summer	Autum.	Winter
	Density of down hair - average for skin /FHS/			
BN	6,0[l]	5,9[m]	6,1	6,3[lm]
BT	5,9[ab]	5,7[cdeop]	6,0[fo]	6,1[ep]
CN	6,2[b]	6,0[dr]	6,2	6,3[r]
BD	6,1	6,0[es]	6,2	6,3[s]
SD	6,2[a]	6,1[ct]	6,3[f]	6,4[gt]
	Density of cover hair - average for skin /psc/			
BN	106	99	104	109
BT	101	95[h]	99[i]	102[k]
CN	106	101	107	114
BD	107	100[u]	109	116[u]
SD	109	107[hw]	115[i]	121[kw]

x - Explanation see table 1

* Mean followed by some letters are significantly different /P<o,o5/

Table 5

Organoleptic evaluation of rough skin and tanned fur

Breed[x]	Spring		Summer		Autumn		Winter	
	Average class	Per cent of fur skins	Average class	Per cent of fur skins	Average class	Per cent of fur skins	Average class	Per cent of fur skins
			Rough skins					
BN	3,4	68,4	3,5	65,4	3,4	67,2	3,3	69,3
BT	3,6	63,9	3,8	61,4	3,6	65,1	3,5	65,2
CN	3,3	68,7	3,6	63,8	3,4	67,9	3,3	70,1
BD	3,3	67,4	3,4	64,1	3,3	69,4	3,2	70,3
SD	3,2	71,2	3,3	65,7	3,2	70,8	3,1	73,2
			Tanned skins					
BN	3,2	70,8	3,4	67,3	3,1	71,0	3,0	72,3
BT	3,3	67,4	3,5	65,1	3,3	68,3	3,2	70,1
CN	3,1	71,4	3,4	66,4	3,1	72,1	2,9	76,4
BD	3,2	72,3	3,1	68,3	3,2	71,8	2,9	77,2
SD	3,0	73,2	3,1	69,4	3,0	74,3	2,8	79,8

x - Explanation see table 1