

Analysis of Hereford beef cattle recording results in Poland

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Abstract: *Analysis of Hereford beef cattle recording results in Poland.* The aim of the study was to assess the utility of selected results of the British Hereford breed with respect to their compliance with the goal of racial breeding and standards adopted by the Polish Association of Breeders and Producers of Beef Cattle (PABPBC). The subject of the analysis were recording results of the British Hereford beef cattle breed in Poland. The study was based on data for the years 1996–2001 the National Center of Animal Breeding (NCAB) and the PABPBC for 2002–2013. The data set included: N – the number of animals tested, \min – minimum values in the studied traits, \max – maximum value of the selected features, average – average values of the analyzed traits, SD – standard deviation. Evaluated properties are: the average weight of cows (kg), the average body weight of calves after birth (kg), the average daily gains for age 210 days (g), the average body weight of calves at the age of 210 days (kg), the average milk yield (kg), the terms of cows and heifers calving aptitude, the distribution of the population according to the order of calving cows. Since 2001 there is a clear, steady decline in the share of population of the breed in the female population of beef cattle. This decrease concern both purebred and crossbred populations. Analysis of the results of evaluation shows that the average body weight of cows did not differ from weights assumed in the breeding goal. The mean body weight of purebred calves at birth did not change significantly in 15 years of assessment. Bulls have demonstrated higher birth weight reaching 35.4 kg. The difference between bulls and heifers was 3.4 kg. Calves were characterized by a high

average gains during rearing: 876–1,039 g for heifers and 851–1,122 g for bulls over all years of assessment. In Polish Hereford cattle herds 30.9 to 46.9% of cows was calving during relevant period in recent years. It shows that more than half of the calves born at other times of the year only to a small degree can take full advantage of the pasture. Despite a steady decrease in the population of Hereford cows and cows calving for the second time constituted about 40% of the population. In 2000, only nine cows was after seven calving and in 2013 only 78 (11.8%).

Key words: beef cattle, Hereford, beef cattle recording

INTRODUCTION

Twenty years of the Programme of Beef Cattle Breeding Development in Poland passed in 2014 (Jasiorowski et al. 1996). Due to the sparse pure-bred female population is difficult to talk about own national breeding program. Therefore, the maintenance of high standards of breed is the main task of the PABPBC. Its implementation is, i.a., usability evaluation conducted in beef cattle herds. The PABPBC breeding goal for Hereford cows is maintaining body weight of adult cows on the level of approximately 550–600 kg, and in case of bulls around 900–1,000 kg, ease of calvings, a high level of ma-

ternal traits and maintenance of maturity class. Bulls should reach at adulthood the height at sacrum of about 135 cm and cows about 130 cm. In the national beef cattle breeding program there are set out, i.a., the following standards for breeding of Hereford cows entered in the introductory part of the book: the minimum weight gain from birth to 210 days of age – 800 g, the minimum weight at first calving – 460 kg. The aim of the study was to assess the selected results of the British Hereford with respect to their compliance with the breeding goal and standards adopted by the Polish Association of Breeders and Producers of Beef Cattle (PABPBC).

MATERIAL AND METHODS

The subject of the analysis were beef cattle recording results for the British Hereford breed in Poland with respect to their compliance with the goal of racial breeding and standards adopted by the PABPBC. The subject of the analysis were recording results of the Hereford beef cattle breed in Poland. The study was based on data for the years 1996–2001 the National Center of Animal Breeding (NCAB) and the PABPBC for 2002–2013. The data set included: *N* – the number of animals tested, *min* – minimum values in the studied traits, *max* – maximum value of the selected features, *average* – average values of the analyzed traits, *SD* – standard deviation. Evaluated properties are: the average weight of cows (kg), the average body weight of calves after birth (kg), the average daily gains for age 210 days (g), the average body weight of calves at the

age of 210 days (kg), the average milk yield (kg), the terms of cows and heifers calving aptitude, the distribution of the population according to the order of calving cows.

The calculation of standardized animal body weight for given day in its life was done according to the following formula:

$$MCS = [(MCB - MCU) / WW] \times WS + MCU$$

where:

MCS – standardized animal body weight (kg),

MCB – mean body weight of the animal on the actual weighing (kg),

MCU – actual body weight set for 48 h at birth (kg),

WW – mean age of the animal on the weighing (days),

WS – standardized age of the animal (days).

There were calculated the average daily weight gain of the animal from the day of birth to 210 days of age, according to the formula:

$$PDMC = (MCC - MCP) \times 1,000 / (WK - WP)$$

where:

PDMC – increase in daily body weight (g),

MCC – final body weight of the animal on the weighing day (kg),

MCP – initial body weight of the animal on the weighing (kg),

WK – age of the animal on the final weighing (days),

WP – age of the animal on the initial weighing (days).

Milk yield in dairy cows is expressed in kg of milk per convention, the conversion 210 day lactation and is calculated according to the formula:

$$WMM210 = McOds \times 1,700 / \text{calf age}$$

where:

WMM210 – value of mother milk – milk yield for 210th day of lactation conversion assuming calf birth weight of 35 kg (per 1 kg body weight gain), which drank 10 kg of milk per day during the first three months and 8–9 kg of milk per day for the remaining months,

McOds – actual weight of the calf at weaning (kg),

calf age – actual age of the calf at the time of weaning from the mother (days).

RESULTS AND DISCUSSION

Table 1 presents the quantitative changes of the female population of Hereford cattle in Poland in the years 1996–2013. Since 2001 there is a clear, steady decline in the share of the female population of the breed in beef cattle. This decrease concerned both purebred and crossbred populations.

The average body weight of purebred cows are shown in Table 2. Optimum cow body weight and dimensions depend mainly on cattle production system (Morris and Wilton 1976, Andersen

TABLE 1. Quantitative changes of the female population of Hereford cattle in Poland*

Year	Beef breed female population			Hereford breed – purebred	Hereford breed – crossbred	Hereford breed – purebred + crossbred	Hereford breed share in the population (%)
	purebred	crossbred	total				
1996	3 939	4 952	8 891	869	145	1 014	11.4
1997	6 063	5 772	11 835	1 554	271	1 825	15.4
1998	7 227	7 601	14 828	1 909	407	2 316	15.6
1999	8 375	8 243	16 618	2 222	438	2 660	16.0
2000	9 085	9 468	18 553	2 391	761	3 152	17.0
2001	9 129	9 748	18 877	2 583	781	3 364	17.8
2002	9 735	8 968	18 703	2 449	499	2 948	15.8
2003	11 768	9 382	21 150	2 758	634	3 392	16.0
2004	13 884	10 925	24 809	2 930	488	3 418	13.8
2005	17 130	11 710	28 840	3174	470	3644	12.6
2006	19 597	13 100	32 697	3 500	482	3 982	12.2
2007	14 541	11 676	26 217	2 350	280	2 630	10.0
2008	17 481	12 097	29 578	2 165	245	2 410	8.1
2009	15 435	7 711	23 146	1 042	105	1 147	5.0
2010	16 436	7 576	24 012	925	77	1 002	4.2
2011	16 216	7 459	23 675	762	67	829	3.5
2012	16 724	7 070	23 794	743	65	808	3.4
2013	17 481	6 633	24 114	741	61	802	3.3

* From 2007 the list includes only the cows.

TABLE 2. Body weight of purebred Hereford cows in 1999–2006

Year	N	Cow body weight (kg)			
		min	max	average	SD
1999	781	380	950	592.8	98.2
2000	1101	360	930	567.3	88.2
2001	1342	370	900	556.2	79.8
2002	1184	350	840	557.2	68.9
2003	1235	400	900	566.2	66.2
2004	1458	417	970	563.5	56.8
2005*	301	460	650	545.2	22.1
2006*	233	440	755	543.0	48.6

* Body weight after first calving.

1978, Dickerson 1978, Fitzhugh 1978, Nogalski et al. 2000). Genotype and weight of cows are always listed among the many factors responsible for normal growth and development of calves. Many studies have shown that the weight of the cow has a significant impact on calf birth weight as well as daily gains during rearing (Przysucha et al. 2002). Cited authors showed that body weight of cows had highly significant impact on calf weight at birth. Cows with the lowest body weight delivered calves lighter by 6.3 kg than calves born to the heaviest cows. Body weight of cows had significant and highly significant influence on weight of calves aged 120 and 210 days. Highly significant effect of cow body weight on calves weight daily gains for periods from 1 to 210 and 120 to 210 days of age. Highest daily gains in body weight during the whole period of rearing had calves delivered by cows with the highest weight. Therefore the weight of a cow in adulthood is an important feature to be considered for breeding programs (Anderson 1978). According to the breeding goal of the PABPBC, cow body weight in adulthood should be

550–600 kg for Hereford breed. Analysis of the results of usability evaluation shows that the average body weight of cows did not differ from weights assumed to breeding.

Tables 3 and 4 illustrate the average body weight of purebred calves at birth, which did not change significantly in 15 years of assessment. Higher birth weight have demonstrated the bulls reaching 35.4 kg. The difference between bulls and heifers was 3.4 kg. Kamieniecki et al. (1998) reported an average birth weight of Hereford heifers as 40.82 kg and bulls – 42.85 kg. These are higher weights than shown in the table and those reported by other authors, but they concern calves born to cows from imports. In studies of Trela et al. (1998), the figures were 34.7 and 37.4 kg respectively. Many authors have shown a significant effect of body weight after giving birth to a calf body weight at weaning at the age of 210 days. The highest weight of calves at birth typically have also the highest body weight at the end of the rearing (Przysucha et al. 2002). Przysucha et al. (2002) showed highly significant influence of calf birth

TABLE 3. Average body weight of purebred heifers at birth in 1999–2013

Year	N	Body weight (kg)			
		min	max	average	SD
1999*	864	15	49	32.9	5.3
2000	534	19	45	34.8	5.1
2001	666	20	52	34.7	5.5
2002	554	18	51	33.5	5.2
2003	579	15	50	32.1	4.3
2004	740	18	60	31.6	4.3
2005	838	20	43	32.6	3.9
2006	383	20	57	32.4	3.0
2007	456	20	50	32.3	3.5
2008	498	20	48	31.9	3.0
2009	436	21	53	32.9	3.8
2010	353	23	50	33.5	3.5
2011	323	19	48	32.1	3.8
2012	297	18	57	32.2	4.1
2013	284	17	48	32.0	4.3

* Regardless of sex.

TABLE 4. Average body weight of purebred bulls at birth in 1999–2013

Year	N	Body weight (kg)			
		min	max	average	SD
1999*	864	15	49	32.9	5.3
2000	524	17	46	33.1	4.8
2001	662	18	46	33.1	5.1
2002	575	15	47	32.2	4.8
2003	622	18	52	34.0	4.4
2004	694	19	47	33.4	4.4
2005	783	22	45	34.1	3.9
2006	768	20	53	34.1	3.2
2007	431	20	57	34.2	4.0
2008	472	29	49	34.1	3.7
2009	348	24	55	35.5	4.0
2010	363	20	65	36.2	5.0
2011	312	22	47	34.8	4.1
2012	318	24	60	34.7	3.7
2013	286	18	55	35.4	4.7

* Regardless of sex.

weight for its later body weight and the size of daily gains for periods of from 1 to 120 and 120 to 210 days of age. Lightest calves at birth (<30 kg) resolved calves with higher birth weight in later periods of fattening and obtained lowest daily gains.

Average daily weight gains of purebred calves to 210 days of age are shown in Tables 5 and 6. The presented data show that calves were characterized by

one month export the animals weighing about 300 kg at a good price is possible. The gains considerably in excess of the gains of heifers defined in the breeding standard ensure that after weaning with proper nutrition they obtain the required body weight for mating (Przysucha et al. 2005) at the age of 15 months. It should be emphasized that the average daily gains of calves fluctuated considerably

TABLE 5. Average daily gains of purebred heifers to 210 days of age

Year	N	Daily gains (g)			
		min	max	average	SD
2000	74	511	1 182	876.1	132.5
2001	145	509	1 456	876.2	205.6
2002	111	471	1 705	952.0	202.4
2003	97	481	1 536	910.3	169.8
2004	99	477	1 445	931.2	184.3
2005	42	738	1 157	959.8	99.0
2006	93	621	1 338	1 039.3	104.7
2007	326	354	1 565	930.3	179.4
2008	393	497	1 308	868.2	131.4
2009	365	576	1 498	894.7	151.6
2010	336	671	282	904.7	108.2
2011	288	545	1 521	937.4	125.5
2012	284	554	1 353	947.6	64.1
2013	274	654	1 554	949.7	124.7

high average body weight gains during the rearing: 876–1,039 g for heifers and 851–1,122 g for bulls within all the years of assessment. It should be noted that since 2009 bulls exceeded a daily gains of 1,000 g. These daily weight gains caused that after short extra supplementary fattening period of about

in the last years of assessment. This is confirmed by the high standard deviations. In studies of other authors daily weight gains of Hereford heifers and bulls from birth to 210 days of age were: 914 and 1,012 g respectively (Kamieniecki et al. 1998), and 1,090 and 1,238 g respectively (Trela et al. 1998).

TABLE 6. Average daily gains of purebred bulls to 210 days of age

Year	N	Daily gains (g)			
		min	max	average	SD
2000	240	504	1 370	851.7	155.8
2001	427	508	1 449	889.4	175.4
2002	318	462	1 292	885.1	134.6
2003	360	504	1 548	914.5	147.5
2004	461	502	1 625	998.3	168.9
2005	452	460	1 600	1 029.4	148.9
2006	515	595	1 449	994.2	112.4
2007	345	589	1 455	984.0	140.7
2008	380	527	1 386	996.6	126.1
2009	295	605	1 340	1 018.3	125.5
2010	305	407	1 338	1 001.3	107.2
2011	292	502	1 607	1 027.5	129.5
2012	263	629	1 590	1 045.0	157.9
2013	282	327	1 710	1 122.6	220.0

The average body weight of purebred calves at 210 days of age are presented in Tables 7 and 8. The body weights at the time of calves weaning were at the level of 207–237 kg for heifers and

218–257 kg for bulls. The studies lead to the conclusion that by the standards of breeding weight at weaning for both heifers and bulls were at medium level. According to other authors, body weight

TABLE 7. Average body weight of purebred heifers at 210 days of age in 1999–2013

Year	N	Body weight (kg)			
		min	max	average	SD
1999*	590	120	330	206.6	37.2
2000	214	148	290	207.6	28.9
2001	411	150	341	213.5	33.9
2002	356	119	305	207.2	29.2
2003	394	108	292	212.5	28.3
2004	569	114	405	233.8	35.2
2005	552	145	360	231.3	34.3
2006	446	154	362	234.5	29.7
2007	387	120	400	223.0	26.6
2008	393	133	320	218.5	33.0
2009	365	160	351	223.1	35.6
2010	336	145	320	223.5	34.3
2011	288	120	345	237.4	30.1
2012	285	160	338	230.8	31.7
2013	274	155	336	224.5	29.4

* Regardless of sex.

TABLE 8. Average body weight of purebred bulls at 210 days of age in 1999–2013

Year	N	Body weight (kg)			
		min	max	average	SD
1999*	590	120	330	206.6	37.2
2000	227	148	327	218.4	29.9
2001	419	151	344	223.5	35.6
2002	328	138	312	218.6	28.6
2003	363	132	355	225.3	31.7
2004	461	133	381	243.5	35.9
2005	452	128	375	248.6	32.0
2006	515	160	334	243.2	29.2
2007	345	156	400	246.5	26.8
2008	380	155	325	246.2	31.1
2009	295	124	340	249.6	35.7
2010	305	125	330	246.2	33.9
2011	292	155	352	257.9	26.8
2012	262	175	390	248.9	22.4
2013	282	60	495	254.8	33.0

* Regardless of sex.

of Hereford heifers and bulls at the age of 210 days were: 238 and 262 kg respectively (Kamieniecki et al. 1998), and 267 and 301 kg respectively (Trela et al. 1998).

Table 9 shows the average milk yield of purebred cows in different years of assessment. As can be seen from the fol-

lowing statement, the minimum milk yield of cows of the breed was about 2,040 kg and the maximum was about 2,196 kg. The data presented should be approached with great caution, because milk yield was calculated based on the weight gain of calves and as we know in the herd calves can always be found

TABLE 9. The average milk yield of purebred cows in 2000–2009

Year	N	Estimated milk yield of cows (kg)*			
		min	max	average	SD
2000	542	785	4 365	2 040.7	361.1
2001	517	1 055	3 422	2 196.2	420.3
2002	289	1 094	3 205	2 137.8	368.9
2003	300	1 214	3 011	2 186.3	260.7
2004	856	1 169	3 203	2 133.1	281.2
2005	804	1 004	2 510	2 170.0	229.9
2006	769	1 234	2 980	2 133.7	212.5
2009	1 000	984	2 845	1 863.3	263.2

that approach to other cows and choke or are additionally fed by the breeder. Przysucha et al. (2002) studied the relationship between milk yield of Hereford cows and growth of calves. The highest weight and growth reached calves which mothers had the highest milk yield. The direct relationship of mothers milk yield and calf rearing results indicate many authors, among others: Dobicki (1995), Jasiorski et al. (1996), Kamieniecki et al. (1998).

Table 10 summarizes the terms of cows and heifers calving aptitude analyzed in the coming months in the year in the years 1999–2013. Season of birth has a significant impact on the vitality and growth pace of reared calves which directly affects the economic effects of the rearing (Przysucha et al. 2005). In studies of Przysucha et al. (2002) Hereford calves born in the winter season (November to April) showed a slight weight advantage in body weight in all studied periods of life compared to calves born in the summer from May to October. Seasonality in calvings in breeding herds is very important because appropriate term of calving in the future allows to receive breeding material of a very good quality with the least amount of cost of rearing (maximum utilization of pastures). Many authors believe (Dobicki 1996, Jasiorski et al. 1996) period of mating and the resulting of calving aptitude time should not be longer than 2–3 months. Beef cows maintained all year round in grazing system should make the best offspring in the winter. Calves born in the period after the completion

of the first period of milk drinking are prepared to make full use of the pasture then their growth rate is fast calves are healthy and good developed and breeder bear the smallest rearing costs. It should also be noted that in the winter calvings weaning calves moment coincides with the impoverishment of pastures in autumn. the consequence is natural dry-off pregnant cows. With winter calvings cows mostly deliver in the barn so that it is easier to monitor deliveries and possible assistance in the event of complications. Analyzing the obtained results and assuming that the most favorable period of cows calving aptitude is the period from December to March. It should be noted that from 30.4 to 47.8% of the Polish Hereford cows delivered in recent years during the relevant period cows. It follows that more than half of the calves born at other times of the year only to a small degree can take full advantage of the pasture.

Table 11 shows the percentage distribution of calving aptitude of Hereford cows calving order. It should be noted that despite a steady decrease in the population of Hereford cows and cows calving for the second time constituted about 40% of the population. In 2000 there were only nine cows after seven calving and in 2013 already 78 (11.8%). It proves that the life of the cow increases which is of particular economic importance. Long life of cows in herds of beef cattle is one of the main factors allowing for reducing the cost so the breeders should try to use cows as long as possible.

TABLE 10. Time of purebred cows and heifers calving in 1999–2011

Year	Unit	Months												Total
		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	
1999	N	83	62	87	166	152	127	48	32	18	33	37	43	888
	%	9.3	7.0	9.8	18.7	17.1	14.3	5.4	3.6	2.0	3.7	4.2	4.8	100.0
2000	N	82	154	205	200	113	106	50	38	24	22	56	59	1109
	%	7.4	13.9	18.5	18.0	10.2	9.6	4.5	3.4	2.2	2.0	5.0	5.3	100.0
2001	N	139	142	243	287	187	107	68	51	25	36	40	37	1362
	%	10.2	10.4	17.8	21.1	13.7	7.9	5.0	3.7	1.8	2.6	2.9	2.7	100.0
2002	N	89	156	252	242	165	97	56	36	16	13	41	38	1201
	%	7.4	13.0	21.0	20.1	13.7	8.1	4.7	3.0	1.3	1.1	3.4	3.2	100.0
2003	N	94	158	236	212	146	105	74	55	56	34	28	37	1235
	%	7.6	12.8	19.1	17.2	11.8	8.5	6.0	4.5	4.5	2.8	2.3	3.0	100.0
2004	N	96	114	346	287	186	154	66	58	39	41	35	36	1458
	%	6.6	7.8	23.7	19.7	12.8	10.6	4.5	4.0	2.7	2.8	2.4	2.5	100.0
2005	N	134	189	201	255	145	187	86	67	87	65	56	89	1561
	%	8.6	12.1	12.9	16.3	9.3	12.0	5.5	4.3	5.6	4.2	3.6	5.6	100.0
2006	N	123	123	87	211	112	145	110	54	49	45	35	56	1151
	%	10.7	10.7	7.6	18.3	9.7	12.6	9.6	4.7	4.3	3.9	3.0	4.9	100.0
2007	N	132	162	272	296	218	221	170	140	92	122	133	127	2085
	%	6.3	7.8	13.0	14.2	10.5	10.6	8.2	6.7	4.4	5.9	6.4	6.1	100.0
2008	N	116	133	180	214	155	95	86	58	38	31	70	76	1252
	%	9.3	10.6	14.4	17.1	12.4	7.6	6.9	4.6	3.0	2.5	5.6	6.1	100.0
2009	N	87	57	140	196	104	71	73	52	32	30	59	88	989
	%	8.8	5.8	14.2	19.8	10.5	7.2	7.4	5.3	3.2	3.0	6.0	8.9	100.0
2010	N	50	61	206	135	62	63	66	22	25	26	56	86	858
	%	5.8	7.1	24.0	15.7	7.2	7.3	7.7	2.6	2.9	3.0	6.6	10.0	100.0
2011	N	75	50	90	85	85	68	39	26	22	24	63	88	715
	%	10.5	7.0	12.6	11.9	11.9	9.5	5.5	3.6	3.1	3.4	8.8	12.3	100.0
2012	N	64	65	78	79	82	58	30	26	13	345	96	75	700
	%	9.1	9.3	11.1	11.3	11.7	9.3	4.3	3.7	1.9	4.9	13.7	10.7	100.0
2013	N	64	39	109	76	66	57	28	20	27	21	75	81	663
	%	9.7	5.9	16.4	11.5	10.0	8.6	4.2	3.0	4.1	3.2	12.1	12.2	100.0

TABLE 11. Distribution of the order of calving in 2000–2013

Year	Unit	Order of calving												Total
		1	2	3	4	5	6	7	8	9	10	11	≥12	
2000	N	244	184	204	208	172	60	28	7	1	1	–	–	1109
	%	22.0	16.6	18.4	18.8	15.5	5.4	2.5	0.6	0.1	0.1	–	–	100.0
2001	N	331	252	184	172	181	135	46	18	6	2	1	–	1328
	%	24.9	19.0	13.9	13.0	13.6	10.2	3.5	1.4	0.5	0.2	0.1	–	100.0
2002	N	221	229	199	139	115	138	95	30	8	3	–	1	1178
	%	18.8	19.4	16.9	11.8	9.8	11.7	8.1	2.5	0.7	0.3	–	0.1	100.0
2003	N	324	198	189	157	116	83	96	53	11	3	1	–	1231
	%	26.3	16.1	15.4	12.8	9.4	6.7	7.8	4.3	0.9	0.2	0.1	–	100.0
2004	N	373	306	174	179	135	90	69	86	37	6	2	1	1458
	%	25.6	21.0	11.9	12.3	9.3	6.2	4.7	5.9	2.5	0.4	0.1	0.1	100.0
2005	N	388	315	240	159	127	109	76	45	72	24	4	2	1561
	%	24.9	20.2	15.4	10.2	8.1	7.0	4.9	2.9	4.6	1.5	0.3	0.2	100.0
2006	N	233	245	232	123	89	97	56	34	23	11	8	–	1151
	%	20.2	21.3	20.2	10.7	7.7	8.4	4.9	3.0	2.0	1.0	0.7	–	100.0
2010	N	153	136	163	97	100	75	50	38	20	18	5	3	858
	%	17.8	15.8	18.9	11.3	11.6	8.7	5.8	4.4	2.3	2.0	0.5	0.3	100.0
2011	N	132	129	119	113	71	58	37	20	20	6	6	4	715
	%	18.4	18.0	16.6	15.8	9.9	8.1	5.1	2.7	2.7	0.8	0.8	0.4	100.0
2012	N	124	122	111	99	85	49	39	37	15	10	5	4	700
	%	17.7	17.4	15.8	14.1	12.1	7.0	5.5	5.2	2.1	1.4	0.7	0.4	100.0
2013	N	141	105	91	89	74	55	30	29	28	10	6	5	663
	%	21.3	15.8	13.7	13.4	11.2	8.3	4.5	4.4	4.2	1.5	0.9	0.8	100.0

CONCLUSION

Analysis of selected results of the evaluation of British Herefords with respect to their compliance with the breeding goal and standards adopted by the PABPBC shows maintenance of high standards despite the systematic reduction of breeding domestic cattle population of the breed.

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Streszczenie: Analiza wyników oceny użyteczności brytyjskiej rasy hereford w Polsce. Celem pracy była analiza wybranych wyników oceny użyteczności angielskiej rasy hereford w odnie-

sieniu do ich zgodności z celem hodowlanym i standardami rasowymi przyjętymi przez Polski Związek Hodowców i Producentów Bydła Mięsnego (PZHiPBM). Przedmiotem analiz były wyniki oceny użyteczności francuskiej rasy bydła mięsnego hereford w Polsce. W opracowaniu wykorzystano dane Krajowego Centrum Hodowli Zwierząt (KCHZ) za lata 1996–2001 oraz PZHiPBM za lata 2002–2013. Zbiór danych obejmował: N – liczbę badanych zwierząt, min. – minimalne wartości w badanej cechy, max. – maksymalne wartości badanej cechy, średnia – uśrednione wartości badanej cechy, SD – odchylenie standardowe. Oceniane cechy to: średnie masy ciała krów (kg), średnie masy ciała cieląt po urodzeniu (kg), średnie przyrosty dobowe do wieku 210 dni (g), średnie masy ciała cieląt w wieku 210 dni (kg), średnia mleczność krów (kg), terminy oścień krów i jałowic, rozkład populacji krów według kolejności oścień. Od 2001 roku widać wyraźny systematyczny spadek udziału tej rasy w żeńskiej populacji bydła mięsnego. Spadek ten dotyczy zarówno populacji czystorasowej, jak i mieszańców. Analiza wyników oceny użyteczności przedstawia, iż średnie masy ciała krów nie odbiegają od mas założonych w celu hodowlanym. Średnie masy ciała cieląt czystorasowych po urodzeniu, które nie zmieniają się znacząco w ciągu 15 lat prowadzenia oceny. Większą masą urodzeniową wykazały się buhajki, osiągając wagę 35,4 kg. Różnicą między buhajkami a jałówkami wynosiła 3,4 kg. Cielęta charakteryzowały się dużymi średnimi przyrostami w okresie odchovu: 876–1039 g dla cieliczek i 851–1122 g dla buhajków w ciągu wszystkich lat prowadzenia oceny. W polskich stadach bydła hereford cielęło się w ostatnich latach we właściwym okresie od 30,9 do 46,9% krów. Wynika z tego, że ponad połowa cieląt urodzonych w innych okresach roku jedynie w nieznacznym stopniu może w pełni korzystać z pastwiska. Mimo systematycznego zmniejszania populacji krów rasy hereford pierwiastki i krowy cielące się po raz drugi stanowią około 40% populacji. W 2000 roku tylko dziewięć krów było po siódmym oścień, a w 2013 roku było ich już 78 (11,8%).

Słowa kluczowe: bydło mięsne, rasa hereford, ocena użyteczności bydła mięsnego

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