Acta fytotechnica et zootechnica, Vol. 4, 2001, Special Number
Proceedings of the International Scientific Conference on the Occasion of the 55th Anniversary of the Slovak Agricultural University in Nitra

BREEDING AND EFFICIENCY LEVEL OF THE BEEF CATTLE IN CZECH REPUBLIC

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Summary

Dams fertility and beef calves growth were observed in different production regions. Dams in beet-growing region (250-350 m over the sea) had the lowest 1st calving age (875.2 days). The worst results of growth were confirmed in calves in forage crops-growing region (over 600 m over the sea). The live weight at 120 days of age (154 kg) and at 210 days of age (237 kg) were significantly the lowest, so average daily gain. Bulls of beef Simmental had the best growth ability in the fattening (live weight at fattening finish was 728 kg), bulls of Limousine and Angus had the worse growth ability in the fattening (558.8 kg, resp. 569.7 kg).

Key words: cattle, beef breeds, calves growth, production region, fertility, fattening

Introduction

Beef cattle breeding like new line of the cow breeding without milk production have in Czech republic 10 - year's tradition. For this season happened to significant prevalence of registered cows count and extension beef cattle breeds. In the year 2000 was farmed 12 breeds of the beef cattle and total count cows without milk production is estimated 95 – 100 000 (Šeba, 2000). High part of count cows increasing without milk production represented milk cows herds, which in relation to unfavourable milk market development, was redrafted to system without milk production. Beef cattle bulls were interbred with these cows and so was production offspring with beef production initiated.
Breeding of these cows proceeds in different productive conditions and with different breeding results. Cows breeding effectiveness is however influenced by breeding management than breeds (Dufka, 1995). Economic effective is cows breeding without milk production by Poděbradský et al. (1996) and Kvapilíka et al. (1995) only in case of state subsidy, which obtains especially for foothills and mountain regions, where cows is not possible to breed without adequate state support.

Material and methods

Parameters of dams fertility (age of the 1st calving, meantime), of calves growth live weight and daily gains) of beef breeds in individual production region (forage crops-growing region, potatoes-growing region, grain-growing region, beet-growing region) were observed on the Agricultural Faculty of University of South Bohemia.
Parameters of fattening and carcass value were observed in bulls selected pure-bred beef breeds Angus (AA), Limousine (Li), Charolaise (CH) and beef Simmental (MS).

Results and discussion

Expressive reducing of 1st calving age and meantime is evident in parameters of fertility and early maturing of beef cattle dams bred in production regions with better conditions (table 1). The dams in forage crops-growing region and potatoes-growing region had significantly higher 1st calving age (+67.9 days, resp. 45.9 days) in comparison with average age of dams in beet-growing region (875.2 days). Non significant differences were at length of meantime of dams among the production regions. This fact shows more expressive influence of herd's management on this parameter in comparison with production regions influence. Dufka (1996) recommend the same fact.
Statistically significant differences among production regions were founded in live weight and average daily gains of calves. Calves reared in forage crops-growing region had the lowest average live weight (154 kg at 120 days of age and 237 kg at 210 days of age). Influence of natural conditions is expressive during comparison of average daily gains, too. Average daily gains to 120 days of age was in forage crops-growing region 1008 g, it is about 61 – 69 g less in comparison with other production regions. Average daily gains to 210 days of age was in forage crops-growing region only 971 g, it is value about 113 – 126 g lower than values in other regions (table 2).
Growth ability of bulls of Aberdeen Angus (AA), Limousine (Li), Charolaise (CH) and beef Simmental was evaluated in working experiment (table 3). Simmental bulls had the highest live weight ($P \leq 0.05$ to $P \leq 0.01$) in all fattening phases (342.6 kg at 210 days of age, 598.9 kg at 500 days of age, 728.0 kg at the fattening finish). Voříšková et al. (1998) present, Simmental is on the same level in meat performance as beef breeds. Li and AA bulls had significantly the lowest live weight (558.8 kg, resp. 569.7 kg) in comparison with other groups. Average daily gain during the fattening was from 0.82 kg (Li) to 0.97 kg in CH group ($P \leq 0.05$). Expressive decrease of growth intensity was founded in phase after weaning (in Si group 47.2%). Teslík et al. (2000) recommend, correct management of herd is very important in this phase.

Research was supported by grant CEZ:J06/98:122200002.

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Table 1 Results of the early maturing and fertility of beef herds bred in individual production regions

Parameter	*Region*				*F - test*
	Forage crops-growing	Potatoes-growing	Grain-growing	Beet-growing	
	over 600 m	400-650 m	300-600 m	250-350 m	
1st calving age (days)	943,1	921,1	869,9	875,2	10,36++
Meantime (days)	412,7	419,9	403,3	436,9	2,14

Table 2 Average live weight and average daily gain of calves in individual production regions

Parameter	*Region*				*F - test*
	Forage crops-growing over 600 m	Potatoes-growing 400-650 m	Grain-growing 300-600 m	Beet-growing 250-350 m	
Live weight at 120 days (kg)	154	165	167	173	25,40++
Live weight at 210 days (kg)	237	265	270	270	55,96++
Gain to 120 days (g)	1008	1077	1069	1071	11,35++
Gain to 210 days (g)	971	1092	1097	1084	44,77++

Table 3 Growth parameters in individual groups of bulls

Parameter		Breed					F - test
		AA	Li	CH	CxCH	Si	
Birth live weight (kg)	x	35,0	35,6	40,3	35,9	-	4,23+
	s_x	1,79	3,05	3,86	3,00	-	
	v%	5,11	8,57	9,58	8,35	-	
Live weight of calves at 120 days of age (kg)	x	169,3	177,4	168,3	180,5	182,8	1,26
	s_x	10,65	23,01	17,68	11,21	5,07	
	v%	6,29	12,97	10,51	6,21	2,77	
Live weight of calves at 210 days of age (kg)	x	274,3	294,0	280,7	281,1	342,6	8,64++
	s_x	25,15	30,21	25,55	15,38	3,21	
	v%	9,17	10,27	9,10	5,47	0,94	
Average daily gain from 120 to 210 days of age (kg)	x	1,17	1,30	1,25	1,12	1,78	11,26++
	s_x	0,23	0,28	0,15	0,15	0,08	
	v%	19,56	21,68	11,65	13,05	4,43	
Age of fattening start (days)	x	220,8	257,8	234,8	-	236,4	1,66
	s_x	37,67	10,47	36,50	-	9,94	
	v%	12,53	4,06	15,54	-	4,20	
Weight of fattening start (kg)	x	281,4	308,2	295,0	-	381,0	12,22++
	s_x	20,56	31,52	34,83	-	17,64	
	v%	7,31	10,23	11,81	-	4,63	
Slaughtering age (days)	x	580,8	561,8	582,7	588,5	607,4	2,49
	s	27,67	10,47	25,99	26,88	9,94	
	v%	4,76	1,86	4,46	4,57	1,64	
Slaughterig weight	x	569,7	558,8	633,5	642,6	728,0	4,50++
	s_x	58,89	33,42	109,02	34,26	54,04	
	v%	10,34	5,98	17,21	5,33	7,42	
Average daily gain of fattening Period (kg)	x	0,86	0,82	0,97	-	0,94	2,25
	s_x	0,10	0,04	0,28	-	0,11	
	v%	12,05	4,79	28,98	-	11,51	
Average weight at 500 days (kg)	x	491,9	497,6	563,3	546,8	598,9	3,12+
	s_x	63,09	33,33	87,14	34,15	36,51	
	v%	12,83	6,70	15,47	6,25	6,10	
Average daily gain from 210 days to slaughtering (kg)	x	0,80	0,75	0,87	0,96	0,97	3,73+
	s	0,18	0,05	0,12	0,09	0,11	
	v%	22,47	7,29	13,67	9,07	11,39	
Average daily gain from birth to slaughtering (kg)	x	0,91	0,92	0,96	1,02	-	1,91
	s_x	0,12	0,06	0,11	0,07	-	
	v%	13,51	6,62	11,24	6,51	-	
Net weight gain (g)	x	564,9	582,3	617,6	568,9	663,0	2,40
	s_x	83,38	37,92	84,74	39,35	28,00	
	v%	14,76	6,51	13,72	6,92	4,22	