

CARCASS CHARACTERISTICS OF HANWOO

Jeon, Gi Jun*, Choy, Yun Ho, Chung, Hak Jae, Lee, Myeng Sik, Choi Sung, Bok, Hong Sung Ku

National Institute of Animal Science, RDA, 268 Chahang-Ri, Daegwallyeong-myeon, Pyeongchang, Gangwon, 232-950, South Korea

*Corresponding author (phone: +82-33-330-0654; fax: +82-33-330-0660; e-mail: jeon7257@korea.kr)

Abstract – Economically important traits of livestock species have genetic or environmental relationships between them. And these relationships must be considered when designing breeding goals for breeding strategy to go efficiently way. Therefore, the objective of this study was to estimate the general statistics of carcass traits in a Hanwoo herd. Carcass measures of a total of 474 Hanwoo herds slaughtered were summarized. The averages of fasted body weight before slaughter, cold carcass weight, longissimus dorsi area, back fat thickness and marbling score(1~27 scale) were 566.9kg, 316.5kg, 82.0 cm², 9.01mm and 8.81, respectively. The averages were mostly greater than the averages of progeny records from national bull test program. Carcass weight was somewhat lighter than that of Angus steers. But the longissimus dorsi area was much larger than that of Hereford steers. Back fat thickness was thinner than those of Hereford cows, Simmental, Angus, or Hereford crossbreds.

Index Terms—carcass, Hanwoo, sex, year of slaughter

I. INTRODUCTION

Hanwoo industry in Korea is in danger since UR in spite of consistent governmental assistance. To solve this, Korean government is advising Hanwoo farmers to have structural changes in the industry towards more extensive management size. This kind of endeavours are highly on demand following international relationship changes by FTA or DDA. Breeding goals of Hanwoo also has to make changes. But the relationship between economically important traits regarding growth, carcass, or reproductive performances affect the efficiency of breeding programs.

Therefore, the objective of this study was to examine the statistics of carcass measurements.

II. MATERIALS AND METHODS

Hanwoo herds raised at Hanwoo Experiment station are normally weaned at around four months of age. Cows and heifers are grazing from May to November. Bulls and steers are confined in houses and fed diets designed to get fat until they reach 24 months of age. Steer calves are castrated right after weaning. Old or cull cows upon finishing their reproduction life cycle are also put to slaughter without additional grain feeding program to get beef quality.

Carcass measures, physical properties and chemical composition of Hanwoo cattle slaughtered from 2006 to 2009 were analyzed. The variables considered in this study were body weight upon unloading from shipping truck at abattoirs, cold carcass weight, longissimus dorsi area, back fat thickness, MS point (marbling scores converted from 1-9scale to 1-27 scale), meat color, fat color and maturity.

III. RESULTS AND DISCUSSION

The averages of fasted body weight before slaughter, cold carcass weight, longissimus dorsi area, back fat thickness and marbling score(1~27 scale) were 566.9kg, 316.5kg, 82.0 cm², 9.01mm and 8.81, respectively. The average carcass weight reported by Shin (2008) who measured 1,312 Hanwoo progeny test animals slaughtered from 1997 to 2002 was 305.4kg, which was 3.6% lighter than the carcass weight of our study herd. Beever et al. (1990) reported heavier carcass weight (340.6kg) in a Angus herd. The average eye muscle area in our study was larger than the average reported by Shin (2008), who reported 75.29 cm² in Hanwoo progeny test herds. Herring et al. (1994) reported also even smaller eye muscle area (72.8 cm²) in an Hereford steers. Back fat thickness of our result was thicker than the report value of Shin

(2008), 7.1mm from Hanwoo progeny test herds. Adams (1973) reported that the average back fat thicknesses of Hereford cows, Simmental, Angus and Hereford crosses were 10.2mm, 14.0mm and 14.7mm, respectively, which were thicker than our measurement.

Table 1. Carcass characteristics by sex and the year of slaughter

Year	Sex	Weight(kg)			Carcass Measures*			Scores		
		Arrival	Fasted	Cold carcass	EMA	BF	MS point	Meat color	Fat color	Maturity
2006	All	547.88	530.72	309.52	82.29	5.00	3.85	4.99	3.86	3.82
	Female	493.16	480.18	269.73	74.41	6.49	5.46	5.00	4.97	6.11
	Bull	592.13	570.73	340.85	88.38	3.85	2.60	4.98	3.00	2.06
2007	All	545.56	528.48	294.68	81.93	7.89	9.00	5.24	4.26	6.01
	Female	479.80	462.58	244.02	71.04	7.54	5.36	5.61	5.48	7.92
	Bull	761.00	742.00	426.80	100.6	6.80	7.60	4.20	2.60	2.60
	Steer	714.87	698.93	391.32	91.55	8.59	13.95	5.00	2.91	2.36
2008	All	637.15	571.60	357.72	82.61	10.64	9.79	5.03	3.35	3.60
	Female		486.64	298.56	74.61	9.66	4.55	5.25	4.00	5.75
	Bull					9.40	1.00	5.40	3.20	4.80
	Steer	637.15	638.36	379.45	85.55	11.29	13.29	4.88	2.99	2.17
2009	All		684.65	262.43	73.86	10.68	11.46	5.22	3.62	5.01
	Female		636.00	230.60	68.80	11.26	10.44	5.25	4.02	6.70
	Bull		905.67			6.50	4.50	5.50	3.50	5.00
	Steer		716.32	342.00	86.50	10.32	14.02	5.14	3.02	2.19
Overall		564.50	566.94	316.53	82.02	9.01	8.81	5.11	3.68	4.51

*EMA : eye muscle area, BF : back fat thickness

Table 2. Number of animals involved in carcass measurements by sex and year of slaughter

Year	Sex	Weight(kg)			Carcass Measures*			Scores		
		Arrival	Fasted	Cold carcass	EMA	BF	MS point	Meat color	Fat color	Maturity
2006	All	85	86	84	85	85	85	85	85	85
	Female	38	38	37	37	37	37	37	37	37
	Bull	47	48	47	48	48	48	48	48	48
2007	All	75	75	82	55	55	55	55	58	78
	Female	55	55	55	28	28	28	28	31	51
	Bull	5	5	5	5	5	5	5	5	5
	Steer	15	15	22	22	22	22	22	22	22
2008	All	39	75	67	67	125	124	125	125	129
	Female		33	18	18	44	44	44	44	48
	Bull					5	4	5	5	5
	Steer	39	42	49	49	76	76	76	76	76
2009	All		48	7	7	120	109	112	112	118
	Female		26	5	5	70	62	64	64	70
	Bull		3			6	6	6	6	6
	Steer		19	2	2	44	41	42	42	42
Overall		199	284	240	214	385	373	377	380	410

*EMA : eye muscle area, BF : back fat thickness

IV. CONCLUSION

Carcass characteristics of Hanwoo cattle raised at Hanwoo Experiment station, RDA, Korea were analyzed. Most of the measures were sex specific and differences between breeds were observed by comparing literature values. Hanwoo cattle are found smaller in carcass weight compared to other European breeds. Therefore, we conclude that carcass weight would be a major concern in Hanwoo breeding program to make Hanwoo breed better economically.

V. REFERENCES

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