

PRODUCTIVITY OF PURE IMPORTED DROUGHTMASTER AND F1 DROUGHTMASTER AND LAI SIND CATTLE IN SOUTH-EASTERN REGION OF VIETNAM

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INTRODUCTION

In recent years, market demand on beef has increased following the economic growth and consumers' preference. However, domestic beef products are low in quality and quantity compared to market demand. Each year, the country has to import a large amount of high quality beef.

Droughtmaster was developed in Australia. It is a mixed tropical cattle breed with 50% Shorthorn and 50% Brahman. It has high tolerance to hot and humid conditions, resist to tick and good reproduction. They have been mainly kept at Queensland State, the tropics of Northern Australia.

Droughtmaster were imported to Vietnam from 2002 - 2003. Performance studies pure Droughtmaster and their cross-bred calves in Vietnam had been conducted.

MATERIALS AND METHODS

Content 1: Studying appearance characteristics, growth and reproductivity of Droughtmaster: Experiment was conducted at Ruminant Research and Training Center (RRTC), Lai Hung, Ben Cat, Binh Duong province from March 2003 to August 2007 on 30 Droughtmaster female heifers, 14 – 18 months old, imported from Australia.

Content 2: Studying appearance characteristics, growth of F1 Droughtmaster x Lai Sind: Experiment was conducted at RRTC from October, 2002 to August, 2007. 155 Lai Sind female cattle, 18 – 36 months old, 220 kg of body weight were used to inseminate Droughtmaster, Brahman, Charolais semen to produce F1.

Content 3: Studying efficiency of fattening on Droughtmaster male and F1 Droughtmaster x Lai Sind male: Experiment was conducted at RRTC from August to December 2005, using 15 beef male cattle, 15 – 18 months old, 220 - 350 kg of body weight from 5 breeding groups: Droughtmaster, F1 Droughtmaster, F1 Brahman, F1 Charolais and Lai Sind, 3head/group.

Data were bio-statistic treated by Minitab 10.2 for Windows software. Means were accounted by Descriptive Statistics method for content 1 and ANOVA method, T-Test for content 2 and 3.

RESULTS AND DISCUSSION

Appearance characteristics, growth and reproductivity of Droughtmaster

Appearance characteristics: The hair of Droughtmaster was red or dark yellow, some were dark red; short and thin hair, small protuberances, there are bigger in male than female. Big dewlap, full body, deep chest, low legs, deep eyes, naked muscles. Eye edge and nose were brown. Udder and teat of female cattle were rather big. Vulva has a lot of wrinkle.

The average body weight of Droughtmaster at 24 months of age was 338.64 kg. 330 – 340 kg at the first copulation were 22- 23 months old and 380 - 420kg at the first calving were 32 months old. The average body weight of mature female at original generation was 453 kg (46 months old, second calving). The newborn body weight was 23.75 kg. 236.14 kg at 12 months

and 376.28 kg at 24 months, the weight gain of Droughtmaster are fast from newly born to 6 months of age. The average weight gain of male and female from newborn to 24 months of age was 489.65gr/head/day.

Reproductivity of impoted pure Droughtmaster: First copulation age were 22.17 months. Coefficient of conception was 1.59. Conception rate was 62.3% at first insemination and 96.10% after 3 inseminations with 238.77 days of prenacy. Time in heat after calving was 118.50 days with calving interval of 421.24 days.

Viability rate of Droughtmaster calves was 84.09% from newly born to 3 months and 100% from 4 to 24 months of age.

Table 1. Body weight of Droughtmaster calves (kg)

Age (month)	Male		Female		The everage (male + female)	
	n	X ± SE	n	X ± SE	n	X ± SE
0	43	24.71 ± 0.69	29	22.28 ± 0.90	72	23.73 ± 0.56
12	25	243.13 ± 8.21	15	224.51 ± 6.40	40	236.14 ± 6.51
24	5	437.02 ± 18.30	6	325.67 ± 14.50	11	376.28 ± 16.20

Appearance characteristics, growth of F1 Droughtmaster x Lai Sind

Appearance characteristics: F1 Droughtmaster x Lai Sind had small protuberances, long neck, medium ears, big dewlap and belly button. Their hair was reddish yellow or red brown. Eye edge and nose were pink. Someones were black in eye edge and nose.

The average body weight of cross-bred cattle: At 24 months of age, the body weight of F1 Charolais was highest (394.95kg) followed by F1 Droughtmaster (355.81kg) and F1 Brahman (318.09kg). Lai Sind was lowest (276.50kg). There are significant difference statistic between these groups ($p < 0.05$). Average weight gain of F1 crossbred male and female were 364.82 to 516.96 grams/head/day during period of 0 – 24 months of age.

Table2. Everage body weight of F1 cross-bred cattle at RRTC (Kg)

Age (Month)	F1 Droughtmaster		F1 Brahman		F1 Charolais		Lai Sind		P
	n	X ± SE	n	X ± SE	n	X ± SE	n	X ± SE	
NB	22	19.95 ^b ± 0,64	73	17.05 ^c ± 0,40	16	23.03 ^a ± 0,78	20	13.82 ^d ± 0,51	0.001
12	5	248.00 ^a ± 8,00	36	196.20 ^b ± 5,20	8	258.20 ^a ± 9,50	17	166.90 ^c ± 4,80	0.001
24	5	355.81 ^b ± 11,80	13	318.09 ^c ± 11,29	8	394.95 ^a ± 13,07	12	276.50 ^d ± 11,65	0.001

Different superscripts in the same row are significantly different ($p < 0.05$)

Viability rate of F1 cross-bred calves was from 92.86% to 100,00% during the period of 0 – 3 months of age and 100% during the period of 4 – 24 months of age.

Efficiency of fattening on Droughtmaster and F1 Droughtmaster x Lai Sind males

Nutrient value of the fattening ration: Metabolizable Energy (ME) was 2470 - 2494Kcal. Crude protein was 130.2 - 236.7gr/kg DM. Concentrate percentage was 67- 71%. The everage weight gain of fatening cross-bred male cattle in 3 months were 833.3 gr/head/day in Lai Sind cattle, 911.13 gr/head/day in F1 Droughtmaster, 1.037 gr/head/day in Droughtmaster, 1.104gr/head/day in F1 Brahman, and 1148 gr/head/day in F1 Charolais. DMI consumption for 1kg weight gain was 6.2kg in F1 Charolais, 6.5kg in F1 Brahman, 7.03kg in Droughtmaster, 7.8 kg in Lai Sind, and 8.0 kg in F1 Droughtmaster. ME consumption for 1 kg weight gain was highest in F1 Droughtmaster (19.8 Mcal ME) and lowest in F1 Charolais (15.6 Mcal ME). Feed cost for 1kg weight gain in fattening period was 11,387 VND/kg in

Charolais, 11,900 VND/kg in F1 Brahman, 12,598 VND/kg in Droughtmaster, 14,249 VND/kg in Lai Sind, and 14,620 VND/kg in F1 Droughtmaster.

Carcass percentages was highest in F1 Charolais (53.13%), following by Droughtmaster (53.06%), F1 Droughtmaster (50.76%), F1 Brahman (49.06%) and lowest in Lai Sind (37.44%). Lean meat percentage of F1 Charolais (43.61%) was the same of Droughtmaster (42.71%) and higher than F1 Droughtmaster (40.96%), F1 Brahman (39.95%) and Lai Sind (37.44%). Chemical compositions of fillet through some parameters were not significant difference among 5 groups. Water was 71.55%-72.50%. Protein was 20.20% - 22.45% on natural meat samples. Lipid of Lai Sind meet (6.22%) was higher than the other groups: Droughtmaster (4.26%); F1 Droughtmaster (4.11%); F1 Brahman (4.98%); and F1 Charolais (6.22%).

CONCLUSIONS

Droughtmaster exhibited well adaptation to condition in South-eastern region of Vietnam. Droughtmaster calves gained 236.14kg at 12 months and 376.28 kg at 24 months of age. The average weight gain from newborn to 24 months of age was 489.65gr/head/day. The weight gain of fattening male cattle was 1.037gr/head/day. Carcass percentage was 53.06%.

F1 Droughtmaster x Lai Sind calves grew well and got 248.14 kgs at 12 months and 355.81kg at 24 months of age. The average weight gain from newborn to 24 months of age was 466.47gr/head/day. The weight gain of fattening male cattle 911.10gr/head/day with carcass percentage of 50.76%.

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