

## OVERVIEW OF BEEF PRODUCTION IN VIETNAM

### OVERVIEW OF BEEF CATTLE PRODUCTION AND COMSUMPTION IN VIETNAM

#### Number of beef cattle per capita

The cattle population in Vietnam was 3,117 thousand heads in 1990 and 4,128 thousand in 2000 (increasing 3.5% yearly). In 2006, this figure was 6,510 thousand heads (increasing 9.6% as compared to that of the year

2000). The buffaloes population seems to be stable at 3,000 thousand heads. In 2006, total population of buffalo was 2,920,000 heads and beef cattle reached up to 5,510,000 individuals. Vietnam had less than 0.1 cattle and buffalo per capita meanwhile this figure of the world and Asia was 0.24 and 0.16, respectively.

**Table 1. Average beef cattle per capita of some Asian countries**

Country	Population (2005, .000 )	Buffalo (2004, .000)	Cattle (2004, .000)	Cattle & buffalo (2004, .000)	Per capita (2004)
Laos	5,918	1,125	1,281	2,406	0.41
The Philippines	82,809	3,270	2,593	5,863	0.07
Cambodia	14,825	650	3,040	3,690	0.25
<b>Vietnam</b>	<b>83,585</b>	<b>2,869</b>	<b>4,907</b>	<b>7,777</b>	<b>0.09</b>
Thailand	64,081	1,737	5,296	7,034	0.11
Indonesia	225,313	2,403	11,108	13,511	0.06
Myanmar	50,696	2,650	11,939	14,589	0.29
Pakistan	161,151	25,500	23,800	49,300	0.30
Bangladesh	152,593	850	24,500	25,350	0.17
China	1329,927	22,287	112,536	134,823	0.10
India	1096,917	96,900	185,500	283,200	0.26

Source: (FAO, 2007)



**Lai Sind (crossed Sindhi)**

#### Beef productivity

Beef productivity of native cattle is low because of slow growth rate, small size, and low carcass percentage. Live weight at 24 months is only 150 kg (female) and 175 (male). The average pure meat is also low (32-33%) or only 50-60 kg/head (Table 2). In 2006, beef cattle population of the world was 1,537 thousand heads which produced 62,806 million kg of live weight (40.8 kg per animal). Meanwhile, Vietnam had 8.4 million animals, which produced 223 million kg live weight. This means that average live weight per head was 27.5 kg (equal to 67% of the world average).



**Sindhi Bull**

**Table 2. Parameters of meat production of local cattle**

Item	Unit	Female	Male
Birth weight	kg	12	14
Weight at 6 month	kg	65	85
Weight at 12 month	kg	80	100
Weight at 24 month	kg	150	175
Weight at adult	kg	180	250
Shoulder height	cm	103	112
Body length	cm	113	120
Carcass percentage	%	43	44
% of pure meat	%	32	33
Carcass weight	kg/head	64.5	77
Pure meat weight	kg/head	48	58

In 2006, the average cattle and buffalo live weight per capita of Vietnam was 3.5 kg, less than 1/2 of Laos, equal to 1/6 of Mongolia and 1/30 of Australia. The average of the world in 2006 was 9.7 kg per capita (Table 3). The

biggest beef production in the world is Australia (106.4 kg/cap), Argentina (76.9 kg/cap), Canada (46.7 kg/cap) and Brazil (42 kg/cap).

**Table 3. Live weight of cattle and buffalo per capita in some Asian countries**

Country	1999	2000	2004
Bangladesh	1.3	1.3	1.2
Indonesia	1.8	2.0	1.9
Vietnam	2.3	2.4	2.6
Laos	7.3	6.3	7.5
Mongolia	36.7	32.8	19.6

(Source: FAO, 2007)

Slow development of beef production in Vietnam is not due to the religious reason as some other countries. It is because of the husbandry tradition over thousand years with the main purpose of keeping cattle and buffaloes for draft power in agricultural production. When animal force has been replaced by machineries in recent years, cattle has just been kept for meat and milk production so far. It takes time to change long-term traditional practice. Vietnam imported 4,500 tons of beef in 1995 and 17,200

tons in 2005. The price of high quality beef imported from Argentina selling in super market was up to VND 250,000-300,000/kg. Beef has become super stuff. In 2006, there was 36.5 kg meat/cap on average, of which, 81.52% was pork, 10.8% was poultry and only 7.25% was beef (Table 4).

**Table 4. Quantity and percentage of beef, pork and poultry meat**

	Unit	1995	2000	2004	2006*
Meat (in total)	1000 tones	1332	1836	2506	3066
Beef	1000 tones	118	140	173	222.2
Beef/total meat	%	8.9	7.7	7.1	7.25
Pork	1000 tones	1007	1409	2012	2499
Pork/total meat	%	76.1	76.7	80.3	81.52
Poultry	1000 tones	197	286	316	331
Poultry/total	%	15.0	15.6	12.3	10.8

*Source: Department of Agriculture (DOA) 2005, 2007*



### **Droughtmaster development**

#### **Beef production**

Table 4 showed that from 1994-2004, growth rate of total meats increased 10.2% per year, highest in pork (11.46%) and lowest in beef (5.58%). What are the factors affected to the increase of beef? This is a big question. The answer is not only technology and science aspects but also the management and social aspects.

In order to increase beef production in Vietnam, both cattle population and productivity have to increase with the emphasis on productivity. During 30 years, we have been carrying out some important researches to support beef development. However, it is only the initial results and is not systematically.

#### **STUDIES ON BEEF IN VIETNAM**

##### **Local cattle size improvement – Sindilaization program**

The history of improving native cattle by Sindh one (which called Sindhilization program) started in 1920 by French. During 1960-1976, the Institute of Animal Husbandry carried out the survey on the crossbreds (which called Lai Sindh cattle) and restarted the Sindhilization program. In 1980, Vietnam imported Zebu cattle (Red Sindh and Sahiwal) from Pakistan to improve native population. The research on crossing native cows and Zebu bulls showed good results. The productivity of cattle with high Zebu proportion was higher than

native one. From 1995-1998, a project on Sindhilization was carried out in the whole country, with the budget of US\$10 million.



**Tropical genetic resource for stock improvement**

The result of 40 years of Sindhilization program showed that the Lai Sind cattle yielded 90-100 kg/head of pure meat, 2 times higher than natives (Table 5). There was not trouble on adaptation and reproduction of the crossbreds under hot and humid climate in Vietnam. In 2003, the Lai Sind herd occupied 30% in the total cattle population. The Lai Sind cows exhibited as a good genetic material for dairy development program (started since 1985) and beef production (in recent years). Sindhilization program is easy and effective and it should be continued.

**Table 5. Reproduction of crossed Sind**

Parameters	Unit	Female	Male
Birth weight	kg	14	16
Weight at 6 months	kg	90	95
Weight at 12 months	kg	150	160
Weight at 24 months	kg	230	280
Weight at mature	kg	250	320
Carcass percentage	%	46	48
Pure meat percentage	%	36	37
Carcass weight	Kg/head	105	134
Pure meat weight	Kg/head	87	106

*Source: Cai 2000 (n.a)*

**Economic crossbreeding of beef cattle**

The economic crossbreeding program started from 1975-1978. During this program, the semen of outstanding beef breeds was artificially inseminated to Lai Sind cows. The experiments were carried out by the Institute of Animal Husbandry at Dong Giao farm, Ninh Binh province. From 1982-1985, the experiment was carried out at Ha Tam farm, Gia Lai Province. Then, an UNDP fended project VIE 86/008 was implemented in Lam Dong, Binh Dinh, Phu Yen, Gia Lai, Vinh Phuc provinces and Southeast part of the country from 1997-2000. A national beef project has been conducted from 2002 at Ruminant Research and

Training Center (Ben Cat, Binh Duong province) and other locations.

The experiment results showed that, the Lai Sind cows get pregnancy and calving normally. The F1 beef crossbreds adapt well to the local climate and nutrition conditions. With an adequate feeding and nutrition, F1 calves had a daily gain 16-45% higher than that of local one. F1 Charolais grow better and more consistent than F1 of other crossbreds (Table 6).

F1 Charolais calf obtains 320-330 kg at 18 months, 1.42 times higher than that of Lai Sind and it is suitable for

intensive beef production. F1 Droughtmaster and Brahman are suitable for semi-intensive system.



**Crossed Charolais**

**Table 6. Live weight of some F1 crossbreds in different rearing conditions**

Breed	At birth (kg)	12 months (kg)	18 months (kg)	Daily gain (g/day)
<b>1/ Low nutrition level (a)</b>				
F1 Charolais	23.12	173.0	232.0	380
F1 Limousin	20.50	139.0	170.0	272
F1 Hereford	22.60	145.8	178.9	284
F1 Simental	21.15	168.0	250.5	417
F1 S. Gertrudis	18.70	163.0	183.3	299
Lai Sind	18.50	122.6	156.1	251
F1 Charolais			148.0	233
F1 S. Gertrudis			153.0	242
F1 Hereford			144.0	225
<b>2/ Medium nutrition level (b)</b>				
F1 Charolais	21.30	159.1	308.8	523
F1 Hereford	21.10	149.6	291.6	493
F1 Simental	20.20	145.7	220.2	364
hybrid Sind	19.30	120.1	205.5	339
<b>3/ High nutrition level (c)</b>				
F1 Charolais	22.7	244.7	320.7	543
F1 Droughtmaster	18.5	214.7	289.8	494
F1 Brahman	16.9	193.0	269.2	459
Lai Sind	13.8	167.0	233.4	400

Note: a/ L.V. Ly et al., 1995; b/ P.V. Quyen et al., 2001; c/ Đ.V. Cai et al., 2006

After 3 months of fattening, the carcass and pure meat of crossed and single male calves were 50-51% and 41-43%,

respectively. The pure meat of F1 crossbreds was 3-4 times higher as compared to the local calves. Pure meat

of F1 Brahman and Lai Sind also was 2-3 times higher as compare to native one (Table 7).

Even though it has undergone 30 years of researching on beef crossbreeding with many research results concluding

the advantage characteristics of F1 Charolais, but there has not been currently many F1 Charolais in the intensive production system.

**Table 7. Meat quality of some crossbreds after fattening by high concentrate ration**

		<b>Lai Sind</b>	<b>F1 Brahman</b>	<b>F1 Charolais</b>	<b>F1 Drought Master</b>
Weight before fattening	kg	216.30	307.70	349.00	297.60
Weight after fattening	kg	284.60	407.00	452.30	379.60
Carcass weight	Kg	136.27	199.63	240.17	192.67
Carcass percentage	%	47.92	49.06	53.93	50.76
Weight of pure meat	kg	109.40	162.47	194.33	155.33
Pure meat percentage	%	38.35	39.95	43.61	40.96

*Source: Dinh Van Cai et al., 2006*

### Research on pure breeding of tropical beef

The pure breeding of tropical beef cattle initiated in 1997 with 200 imported White Brahman from Cuba, which were initially kept in Phung Thuong farm. These cattle was moved to Binh Dinh (105 heads) and Ho Chi Minh City (50 heads) in December 2000. In May 2003, 105 White Brahman were imported from Australia to Phu Lam farm, Tuyen Quang province. In April 2004, 758 Red Brahman were imported from Australia to Yen Son farm, Tuyen Quang province. From 2002-2003, 500 Droughtmaster were imported from Australia to Ruminant Research and Training Center, An Phu farm, Ho Chi Minh City; Binh Thanh farm, Song Hau farm, Hue, Can Tho, Ba Ria Vung Tau and Binh Phuoc provinces.

Research results from pure breeding showed that the live weight of White Brahman and Droughtmaster cow was 425-450 kg/head. The age of first calving was 34-36

months. Calving interval was 15-16 months. Calves were weaned at 5-6 months. Average weight gain in sucking period was 600-800 g/day depending on the nutrition level. Weight gain from birth to 18 months of White Brahman and Droughtmaster were 470-480 and 560-580 g/day, respectively (Table 8). After fattening, male calves gave 53% carcass and 44% pure meat. Pure meat was 140 kg/head, 3 times higher than that of native one. Cows and calves adapted well to local condition. Brahman and Drouhgmaster are materials for pure breeding and kept in semi-grazing system.

**Table 8. Weight of pure White Brahman & Droughtmaster calves in Vietnam**

Indicators	Unit	<b>White Brahman</b>		<b>Droughtmaster</b>	
		Female calve at An Nhon (n=15)	Female calve at An Phu (n=19)	Male calve at Ben Cat (n=23)	Female calves at Ben Cat (n=15)
Weight at Birth	kg	23.6	22.9	23.5	20.6
Weight at 6 months	kg	137.9	128.8	152.0	140.8
Weight at 12 months	kg	207.7	223.0	244.9	239.4
Weight at 18 months	kg	286.0	280.2	343.7	329.3
Gain (birth to 12 months)	g/day	504	548	614.9	607.8

Gain (birth to 18 months)	g/day	480	470	583	562
Age of first service	month	25.17			24.1
Age of first calving	month	36.29			34.8
Calving interval	day	482			474.4

*Cai et al., 2006*

## **FUTURE RESEARCH ORIENTATION ON BEEF PRODUCTION**

After 30 years of beef development, we now have no real beef herd. There was no crossbred, which was regarded as key animal in beef production. Beef breeding is slower as compared to dairy cattle with the same time of breeding period (30 years). The difference between beef and dairy breeding has been resulted from beef market. The dealers decided the price of beef cattle. The price of beef crossbreds is as low as native cattle. The price of beef breeding stock and the consumption of beef stock are lower than that of dairy. Low and fluctuated price is the main constraint in beef development. After the encourage policy released by the Government on bee production and consumption, the target of beef study in this period is to improve beef productivity and quality with the emphasis to reduce production cost. The future studies should focused on 4 main topics below.

### **a. Improving the native cattle**

Improving native cattle is the shortest way to increase body weight and productivity. Researches have been proved that the pure meat per head of native cattle is 50 kg, Lai Sind is 100 kg (2 times), Droughtmaster 150 kg (3 times) and Charolais 200 kg (4 times). However, researches should be done carefully to show which is the best combination or pure cattle for a specific climate and investment conditions. Study on the growth, reproduction and efficiency of crossbreds and pure cattle in different investment levels. Research on the reproduction of crossbreds aims at finding out the way to reduce the first calving age, calving interval and increase weaning rate.

### **b. Study on feeding and nutrition**

Crossbreds only give high production with an adequate feeding condition. Breeding program will be failed if it is not based on an adequate nutrition and management condition. Research on the suitable forage for each ecological area is the first priority. Developing grazing pasture and finding out available feedstuff in dry season have been set up. Research on feed conservation and agro-byproducts treatment would be carried out to ensure feed

sufficiency all year round for animal with the low feed cost. Research on the resonable rations for animal at different ages and biophysical stage based on local feed resourses would be done.

### **c. Study on farming system**

Production models with proper breeds and technologies have been studied with the economic evaluation for each model. Development of big beef farms, which is the shortest way to enlarge beef population, is well encouraged to improve breed quality, to prevent from epidemic diseases and to apply high technologies.

### **d. Study on completion of legal framework for beef cattle production and development**

The effectiveness of concerned legal framework on beef cattle production and development was reviewed and evaluated to propose an appropriate policy and management modality in beef production. Improvement of beef sector has been mentioned in terms of (i) connecting farmers/producers with slaughters, (ii) establishing market information system, (iii) improvement of slaughter system, (iv) modern disease management.