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THE EXPERIMENT ON KOBE BEEF FATTENING IN THAILAND

III. On Third Experiment with Black Wagyu Cattle

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Introduction

The experiments on fattening mongrel Thai and Thai native cattle were reported in the previous papers, and it was found that even in such a tropical country as Thailand fattening Thai cattle under the Kobe beef system was performed in good success from the point of the improvement not only in their dressing percentages at slaughter but also in their meat qualities.

Because of small and poor frame of Thai cattle as feeder cattle, monotonous kind of feed-stuffs of domestic production, and tropical intense climate in the country, these experiments were performed after encountering many disadvantages.

To know the character of Thai cattle in details as feeder cattle, Japanese black breed of cattle (so-called black Wagyu cattle) were fattened in the same way as the previous works with Thai cattle together. These black Wagyu cattle were presented to Thai Government from Hyogo Prefecture through Colombo plan on our request.

Table 1. Record on the animals

Number	No. 18	No. 19
Sex	steer	heifer
Age, in month	28	26
Body weight at start of fattening	470	430
Body weight		
Before shipping	480	458
At arrival	450	405
Loss in weight	30	53
Loss ratio, %	6.3	11.6
Place of origin	Hikami County Hyogo Prefec.	
Type	A	A
Quality	A	A

Table 2. Mixing ratio of the concentrated stuffs

Date	Broken rice	: Maize	: Rice bran	: Soy bean cake meal	Note
August 10	10	40	30	20	The experiment started.
September 4	10	45	25	20	The preliminary period finished (Sep. 9, '59).
October 24	10	50	20	20	The first stage of fattening finished (Nov. 8, '59).
November 21	15	50	20	15	
	24	20	50	15	
December 21	25	50	15	10	The second stage finished, and "Urasil" began to be dosed to No. 18 (Jan. 1, '60).
	24	30	50	10	
January 10	35	50	10	5	
	23	40	50	5	
					The experiment finished (Feb. 25, '60).

Table 3. Feeding rate to the body weight.

Date		Concentrates		Roughage	
		No. 18	No. 19	No. 18	No. 19
August	10	1.0	1.0	1.5	1.2
September	12	1.3	1.3	1.2	1.0
	15	1.5	1.5		
	29				.8
October	4	1.6			
	19				.6
November	3	1.7		1.0	
	8				.5
	18			.8	
	28			.6	.4
January	17			.5	
	27		1.4		

Time and Place

The experiment was projected as the third work in a series of four experiments on fattening cattle under the Kobe beef system, and made at the Forage Crops Station, Muag Lek, 143 km. distant from Bangkok, Saraburi Province. The work started with two heads of black Wagyu cattle, a heifer and a steer, on August 10, 1959, and finished on February 25, 1960 after 200-day fattening.

The work consists of the preliminary and fattening periods, the former is for 30 days and the latter for 170 days. The fattening period is divided into three stages, namely, the first for 60 days, the second for 50 days, and the third stage for 60 days.

Animals

Two heads of black Wagyu cattle, a heifer and a steer, presented from Hyogo Prefecture through Colombo plan to Thai Government, were used as the feeder cattle. They were shipped at Kobe on July 20, 1959, arrived at Bangkok on August 4, 1959 and transported by land to Muag Lek on August 6, 1959.

The animals are described on their body weight, loss in body weight by transportation, age, and place of origin, etc. (see Table 1).

Table 4. Amounts and cost* of the feed-stuffs

Feed-stuffs	No. 18	No. 19
Broken rice, kg.	345.65	292.91
Cost of	354.98	300.82
DCP of, kg.	29.38	24.90
TDN of, kg.	297.26	251.90
Maize, kg.	750.86	659.47
Cost of	710.31	623.86
DCP of, kg.	45.05	39.57
TDN of, kg.	600.69	527.58
Rice bran, kg.	239.11	227.16
Cost of	169.77	161.28
DCP of, kg.	23.91	22.72
TDN of, kg.	191.29	181.73
Soy bean cake meal, kg.	199.09	187.85
Cost of	361.35	340.95
DCP of, kg.	75.65	71.38
TDN of, kg.	161.26	152.16
Total concentrates, kg.	1,534.71	1,367.39
Cost of	1,596.41	1,426.91
DCP of, kg.	173.99	158.75
TDN of, kg.	1,250.50	1,113.37
Roughages, kg.	1,895.6	1,244.8
DCP of, kg.	47.39	31.12
TDN of, kg.	189.56	124.48
Total feed-stuffs		
DCP of, kg.	22.138	189.69
TDN of, kg.	1,440.06	1,237.85
Per 1 kg. of gain		
DCP of, kg.	1.29	1.94
TDN of, kg.	8.42	12.63
Cost of	9.34	14.56
Per 1 kg. of carcass		
DCP of, kg.	0.46	0.51
TDN of, kg.	3.30	3.61
Cost of	4.21	4.63

* The cost are shown in Thai currency, Baht.

Table 5. Measurement of animal body (cm.).

Date	Aug. 13, '59		Sep. 12		Nov. 8		Jan. 8, '60	
	No. 18	No. 19	No. 18	No. 19	No. 18	No. 19	No. 18	No. 19
Height at withers	135.7	121.5	133.7	122.6	135.0	122.9	137.5	126.1
Height at hips	133.5	127.1	133.5	127.8	136.2	127.0	136.8	128.9
Body length	156.1	143.1	152.5	147.0	161.6	148.6	164.7	153.6
Heart Girth	193.0	179.0	188.0	178.0	188.0	184.0	202.0	195.0
Chest depth	70.8	66.2	70.0	66.0	73.8	66.0	74.7	68.5
Chest width	41.8	41.0	44.9	45.1	47.0	42.5	43.2	48.2
Rumps length	52.3	46.5	53.3	47.0	51.6	46.2	54.4	50.1
Hip width	46.9	45.5	47.5	46.1	48.2	47.0	50.9	50.9
Thurl width	46.0	44.9	45.1	45.0	45.9	44.9	48.9	45.4
Pinbone width	19.8	21.0	20.5	25.0	22.2	24.1	26.0	24.9
Canon circumference	178.0	163.0	182.0	166.0	184.0	166.0	186.0	168.0

Table 6. Body weight in the Wagyu cattle (Nos. 18 and 19)

Date		No. 18				No. 19			
		Weight	Weight Rate*	Monthly Gain	Monthly Gain Rate	Weight	Weight Rate*	Monthly Gain	Monthly Gain Rate
August	9	470 ^{kg.}	100.0%	— ^{kg.}	—%	430 ^{kg.}	100.0%	— ^{kg.}	—%
	19	457	97.2			429	99.8		
	29	464	98.7			447	104.0		
September	8	475	101.1	5	1.1	447	104.0	17	4.0
	18	486	103.4			453	105.3		
	28	493	104.9			457	106.3		
October	8	485	103.2	10	2.1	439	102.1	-8	-1.8
	18	500	106.4			437	101.6		
	28	506	107.7			437	101.6		
November	7	512	108.9	27	5.6	455	105.8	16	3.6
	17	524	111.5			457	106.3		
	27	537	114.3			481	111.9		
December	7	336	114.0	24	4.7	481	111.9	26	5.7
	17	556	118.3			497	115.6		
	27	565	120.2			514	119.5		
January	6	575	122.3	39	7.3	527	122.6	46	9.6
	16	583	124.0			533	124.0		
	26	607	129.1			534	124.2		
February	5	627	133.4	52	9.0	519	120.7	-8	-1.5
	15	628	133.6			533	124.0		
	25	641	136.4	14	2.2	528	122.8	9	1.7

The experiment started on Aug. 10, 1959 and finished on Feb. 25, 1960.

* The rate shows the percentage to the initial weight.

Table 7. Record on the carcasses

Number	No. 18	No. 19
Body weight, kg.		
Final weight	641	528
Initial weight	470	430
Gain	171	98
At slaughter	622	501
Carcass weight, kg.	378.9	308.0
Dressing percentage, %	60.92	61.48
Weight of parts, kg.		
Hide	38.9	35.0
Head	16.8	12.8
Stomach	79.7	52.8
Bowels	18.8	10.9
Liver	6.2	4.5
Spleen	1.0	.5
Pancreas	.5	.3
Heart	2.6	2.6
Lungs	3.0	2.6
Gall bladder	.2	.1
Fat { omentum	25.6	17.8
mesocolon	16.3	11.1
Circumference of canon bone, cm.	11.8	10.4
Marbling	###	###
Fat color	Creamy white	Creamy white
Grade	A	A

Management

Feeds: Broken rice, maize meal, rice bran, and soy bean cake meal were employed as the concentrated stuffs. The mixing ratio of the concentrated stuffs which was performed in the experiment is shown in Table 2. The feeding rate to the body weight of concentrated stuffs and roughages is shown in Table 3. The amounts of TDN (total digestible nutrients) and DCP (digestible crude protein) of the feed-stuffs are shown in Table 4. As roughages rice straw and Guatemala grass were chiefly used in the work and a little of Mauritius and Napier grass were used, too. On feeding concentrated stuffs they were treated almost the same

way in the previous experiments. On their exercise, brushing and massaging, supplying water and litters, they were treated almost the same way in the previous works.

Measurement of animal body: Animal bodies were measured every 60 days on the following eleven parts:

1. Height at withers,
2. Height at hips,
3. Body length,
4. Heart girth,
5. Chest depth,
6. Chest width,
7. Rumps length,
8. Hip width,
9. Thurl width,
10. Pinbone width, and
11. Canon circumference (Table 5).

Measurement of body weight: The body weight of the animals was taken every 10 days (Table 6) and the amounts of the feed-stuffs, given to the animals during the next 10 days, were calculated according to the body weight under the feeding program.

Medical descriptions: On dosing a swertia powder, bitter tincture, and an artificial carlsbad salt to keep their digestive organs against disorders, the animals were treated in the same way in the previous works.

The steer was daily dosed with 20 g. of "Urasil", that contains 3.40 g. of methylthiouracil and 27 mg. of diethylstilbestrol, during the third stage of the fattening period (60 days). The drug "Urasil" was administrated after mixing with feed twice daily.

Slaughter and Dissection

The animals were slaughtered at the Vaccine and Serum Experiment Station, Packchong, 27 km. distant from Muag Lek Forage Crops Station, Nakornrajasima Province.

The animals were dealt a heavy blow at the center of their foreheads and stupified, incised their dewlaps and hearts, blooded as much as possible, and then, dissected in due form. The chief organs were weighed (see Table 7). The carcasses after dressed were cut off to shoulders and hinders between the 10th- and 11th-rib, and they were kept in a refrigerator at 2°-5°C.

Inspection of Meat and Fat

Inspection of meat: The section of the meat of the animals was generally glossy, compact, and of good color. It is found that black Wagyu cattle can be fattened in good success even under such a tropical intense climate as in Thailand.

Inspection of fat: The fat of meat of the animals was generally superior, white colored, properly sticky, and moderately hard.

Discussions

Increment in body weight: Because of the tropical climate the animals could not increase in their body weight so much. Suppose the steer was fattened in Japan, his increment in body weight would come up not to 171 kg. but to 200 kg. more. The increment of the heifer was unsatisfied. But, generally, heifers, in our series of these experiments, had a tendency to increase less in their body weight as compared with the steers.

Summary

A series of fattening cattle experiment was performed to make a meat of superior qualities in Thailand employing feed-stuffs of domestic production. The work was made under Colombo plan, with the help of Thai Government, and the aid of USOM.

This paper deals with the third experiment of the series. Two heads of black Wagyu cattle, a heifer and a steer, were employed as the feeder cattle. They were shipped from Japan by courtesy of the Governor of Hyogo Prefecture, Japan.

The experiment with the Wagyu cattle was finished in good success after 200-day fattening, and the carcasses did not fall behind a Japanese Kobe beef fattened in Japan.

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** The ex-Veterinarian of the Farmers' Cooperation, Kyoto City, sent to Thailand as the expert on Kobe beef fattening, died in Thailand on February, 1960 at his post of duty. (Received Aug. 31, 1965)

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