ISSN0286-312X
専修大学社会科学研究所月報
No. 277
1986.8.20

——Some Notes on the Japanese Livestock Economy——

Hiroshi Mori

Preface :

The first paper, JAPAN : A COUNTRY WHERE BEEF IS NOT BEEF, is the draft paper prepared for the seminar presented at New Mexico State University, the United States, where the author spent five week visiting professorship from the end of February to the beginning of April, 1986. The second paper, LIVESTOCK INDUSTRY IN JAPAN, was read at the workshop on Livestock and Feedgrains Study Programmes,

CONTENTS

Pacific Economic Cooperation Conference, held at Waitomo, New Zealand, from June 30 to July 2, 1986. The author wishes to express his sincere hope that those who are concerned with international livestock and feedgrains trade would come to better grip the true Japananese livestock economy even a little.

I JAPAN: A COUNTRY WHERE BEEF IS NOT BEEF

Introduction - The Concept of Two Japans

I spent a very pleasant one year sabbatical here at New Mexico State University from May 1983 to April 1984. During my stay here, my wife and I would drive down to Juarez, Mexico, on weekends for shopping, eating and drinking with Greg Baker and his wife, Bea. Greg and I worked on Japanese imports of U.S. oranges. As I recall it, it was our first visit to Juarez. When we went into a supermarket in the shopping mall, I saw a small washing board. I used to use one similar to it when I was a university student thirty some years ago. As I felt so dear to it, I said so to them. Then Bea, then standing beside Yoko, my wife, asked her, "you have no washing machine in Japan? " Yoko was so appalled by the question, she could not say anything. So I answered to Bea, by asking back , "do you think a country which produces Toyotas or Sonys cannot make washing machines? " At that time, she was driving a Toyota Tercel and watching Sony TV at her home. Their audio set was Pioneer's. Her mother had a very sophisticated Cannon camera, all products manufactured in Japan. She was not very happy with my answer or question.

When we got home, I told that story to one of my sons who was going to NMSU, majoring in Economics. Then he remarked, "Dad, there are two Japans in the minds of most American people." The one is typically represented by an old image of Fujiyama geisha. This is exactly what they see in us, small, undernourished homely looking people, at least possibly the men. The other is typically represented by Datsun, Hitachi or Nikon. "In their minds," he continued, "this second Japan seems to be located halfway between California and Hawaii or Alaska and the first one very further to the West,

maybe between Viet Nam and Indonesia or India." I thought he was right and I still think he was so now.

The point of this story is that most Americans don't know much about Japan even if they think they do.

One of Many Images of Japan - The Third Image

About Beef

Today, I am going to speak about the third Japan, to which you may want to sell more beef and oranges, not only in terms of volume but in values.

By the way, when you are asked how much is beef in the United States or in Las Cruces, you may not find it very difficult to answer the question. You might say, "Sirloin steak costs $2.50 to $2.70 per pound and T-bone steak around $3.00. Lean ground beef sells for $1.10 to $1.20 per pound and ordinary ground beef, 30% or less fat, around 90 cents. You might want to add that expensive cuts such as New York steak or Tenderloin costs $4 to $4.50 per pound.

But when I am asked how much is beef in Japan or in Tokyo, I feel very much puzzled. As some of you may know, most of beef is sold thinly, paper thin, sliced at retail stores in Japan instead of blocks like Chuck roast, Round steak, etc., in this country. At the ordinary supermarkets catering to middle class housewives like my wife, you'll find prices of beef, thinly sliced, ranging from $6.00 to $20 per pound. But if you go to the food department of department stores or specialty butcher shops, you'll easily find beef selling for $38 or even more per pound. It should be so-called "Kobe" beef. At such expensive or deluxe stores, they also handle small amounts of Sirloin or T-bone steaks which sell for $30 to $35 per pound. These cuts mostly come from top grade Wagyu beef.

Some USDA economists, either from FAS or ERS, have come to conclude that beef prices in Japan were 7 to 8 times higher than in the United States, by comparing prices of T-bone steak at one of very expensive department stores in Tokyo with those at ordinary supermarkets here. It is not a fair comparison at all. If you are very alert, you' ll be able to find U.S. beef, portion-controlled Sirloin steaks in some corner of the store, selling for $10 to $12 per pound. And you'll also find that they are not moving very fast.

As is shown by table 1, there exist unbelievably large price differentials among types of animals, especially between Wagyu and dairy cattle, and between grades with respect to wholesale carcass prices. Wagyu is an indigenous beef breed and accounts for about 30 percent of domestic beef production. This implies that the remaining 70 percent comes from dairy herds. At any rate, Supreme Grade Wagyu females are 2.7 times higher than 2nd Grade dairy steer and three times higher than 3rd Grade dairy steer in prices. You might find it rather disgusting to be told that U.S. grain-fed high

Table 1. Wholesale carcass prices of domestically produced cattle, by type of animals and grade, Tokyo, Japan, 1984.

Grade	Supreme	Superior	1st	2nd	3rd	Utility	Average
	(U. S. $[1] 1/1b.)						
Wagyu female	6. 26	4. 82	4. 00	3. 13	2. 41	1. 64	3. 11
Wagyu steers	5. 40	4. 64	3. 94	3. 22	2. 54	1. 73	3. 46
Dairy female	—	—	2. 94	2. 40	1. 91	1. 44	1. 89
Dairy steers	—	—	2. 89	2. 36	2. 08	1. 47	2. 18

Source : "Monthly Report of Meat Marketing Statistics for December 1985," Ministry of Agriculture, Forestry and Fisheries (MAFF), February, 1986.

Note
(1) U. S. $1. 00 = 245 yen.

quality beef imported into Japan, Low to Medium Choice, U.S. grade, is being priced halfway between 2nd and 3rd Grade dairy steers in the Japanese wholesale market. Even those American people who have been to Japan tend to equate U.S. Choice beef to the 1st or 2nd Grade Wagyu beef. But they are not right. In order to convince many of you, it may suffice to tell you the fact that dairy steers are fed high concentrate diets for 13 months on the national average as compared to 4 to 5 months being commonly practiced in the United States. Wagyu steers are usually fed for 20 months and Kobe beef comes from cattle fed as long as 30 months.

Table 2 shows changes in price differentials between Wagyu and dairy beef and between different grades for the past 15 years. In 1970 to 1975, 1st Grade Wagyu steers

were approximately 35 percent higher than 2nd Grade dairy steers and top Grade, Supreme or Superior, Wagyu steers were 50 to 70 percent higher than them. In 1984, 1st Grade Wagyu steers were 64 percent higher than 2nd Grade dairy steers which are sill regarded a little bit superior to U.S. Choice steers and Supreme Grade was more than 120 percent higher. During this time, the typical feeding period for Wagyu steers was

Table 2 Wholesale price differentials between Wagyu and dairy cattle beef and grades, 1970 to 1984, with 2nd grde dairy steer carcass price = 100 for each year, Tokyo, Japan.

	Grade / Year	Supreme	Superior	1st	2nd	3rd	Utility	Average
Wagyu Steers	1984	226	193	164	134	106	72	144
	1980	210	185	163	139	111	82	153
	1975	170	148	133	116	100	81	127
	1970		160	137	123	101	77	129
Dairy Steers	1984	—	—	122	100	80	60	79
	1980	—	—	121	100	91	67	96
	1975	—	—	112	100	90	69	94
	1970	—	—	112	100	90	66	95

Sources : Meat Marketing Statistics (various issues), MAFF.

extended by approximately 5 months from 14 to 19 some months and that for dairy steers by 2 months from 11 to 13 months on the national average. Japanese cattle growers in general seem to have tried hard to target for higher grades. Dr. Iichiro Takahashi, an agricultural economist, writes in one of his journal articles that it signifies the fact that the demand for the higher quality beef has increased more rapidly than the supply has been able to catch up for the past decade or so. I think so too.

Imports of beef have gradually increased for the past 15 year or so not only in absolute volume but also percentagewise. At the present time, they account for roughly 30 percent of the total Japanese beef supply. The U.S. share in the beef imports has also

steadily increased from about 10 percent in 1977 to nearly 30 percent in 1985. Japanese cattle growers have been firmly opposed to any large increase in import quotas of beef and, not to speak of, import liberalization. They have been worried that any large increase in beef imports, especially from the U.S., might have a devastating impacts upon prices of domestically produced beef and thus upon the domestic production of beef. However, according to the studies I have been doing for the past few months with Professor Toshio Inaba, Waseda University, Japan and Dr. Wm. D. Gorman and Mr. Cary Culbertson, NMSU, wholesale prices of domestically produced beef, even dairy beef, have moved quite differently or independently from wholesale prices of imported U.S. grain-fed high quality beef. We are now almost to conclude that Japanese domestically produced beef and imported beef, either from the U.S. or Australia, are two different commodities so as pork and lamb.

About Orange

Table 3 shows the wholesale prices of early maturing variety Mandarin oranges by brands, grades and sizes in Kanda Market, Tokyo, the largest produce wholesale market in Japan. On the same day, November 11, 1985, at the same auction by the same receiving company, there existed over 10 times price differentials between brands and grades. The highest price was $68.20 per box for size L, grade Fancy, shipped by Cooperative A, Ehime Prefecture, while the lowest was $5.90 per box size 2L, grade No. 2, shipped by Cooperative G, Saga Prefecture, where my father comes from. Even among cooperatives in the same prefecture, there exist two to five times price differentials for the same size within same grades.

In order to show that November 11 was not an exceptional, extra-ordinary day, table 4 has been appended which shows another example of enormous price differentials by brands, grades and sizes for ordinary variety Mandarin oranges on December 26, 1985, at Kanda Market. As in the case of beef, we are also puzzled to answer the question, "How much are Mandarin oranges in Japan? " If you buy Mandarin oranges shipped by Coop G, Saga Prefecture, they may cost you around 40 cents per pound. But if you want to buy size L, A brand from Ehime Prefecture, you must pay almost $3 per pound on the same day. And there surely exist some people, although not very many I presume, who

Table 3 Wholesale prices of early maturing Mandarin oranges, by brand, grade and size, Kanda Produce Wholesale Market, November 11, 1985, Tokyo, Japan.

Pref.	Coop.	Grade											
		Fancy				No. 1				No. 2			
	Size	2L	L	M	S	2L	L	M	S	2L	L	M	S
		(U.S. $[1]1/15kg)											
Ehime	A		68.2	45.5		22.7	27.3	25.0	19.5	15.9	18.2	17.3	16.8
"	B	36.4	27.3	22.7	18.2	15.0	18.2	16.8	14.5	12.7	15.9	15.0	13.6
"	C	11.4	15.9			7.3	11.8	11.8	9.1	6.8	10.5	10.5	8.2
Kumamoto	D	22.7	22.7	18.2	17.3	15.9	15.9	14.5	13.6		14.5	13.6	12.7
Fukuoka	E				10.0		13.6	12.3	9.1	8.2	10.0	9.1	8.2
"	F						12.3	11.4	9.1	7.7	9.1	9.1	8.2
Saga	G					7.7	9.1	8.6	7.7	5.9	6.8	7.3	6.4
Nagasaki	H						12.7	12.3	10.5	8.2	9.1	9.1	7.7

Source : Courtesy of Tokyo Seika K. K., Planning and Information Division.

Note : (1) U. S. $1.00=220yen

Table 4 Wholesale prices of ordinary variety of Mandarin oranges, by brand, grade and size, Kanda Produce Wholesale Market, December 26, 1985, Tokyo, Japan.

Pref.	Coop.	Grade											
		Fancy				No. 1				No. 2			
	Size	2L	L	M	S	2L	L	M	S	2L	L	M	S
		(U. S. $[1]1/15kg)											
Ehime	A[2]	52.5	60.0	52.5	—	45.0	45.0	32.3	18.8	26.3	32.3	26.3	16.5
"	B	—	—	—	—	30.0	32.5	26.5	15.0	25.0	29.0	22.5	14.0
"	C	22.5	25.0	22.5	—	20.0	22.5	20.0	13.0	18.5	21.0	19.0	12.0
"	D	27.5	25.0	20.0	—	25.0	24.0	20.0	—	22.5	21.5	17.5	—
Ohita	E	15.0	17.5	15.0	10.0	13.5	15.0	14.0	9.0	12.5	14.0	12.5	8.5
Kumamoto	F	—	—	—	—	16.0	18.5	16.0	12.5	15.0	17.5	15.0	11.5
Nagasaki	G	20.0	22.5	20.0	14.0	17.5	20.0	18.5	12.5	15.0	17.5	16.0	11.5

Source : Courtesy of Tokyo Seika K. K., Panning and Information Division.

Note : (1) U. S. $1.00=200yen.

(2) Prices converted from their 10kg carton box into 15kg equivalents.

dare to pay that much price for fruits of similar appearance in Japan.

About Persimmons

Although you may be already tired of my story, let me show you another example of how peculiar Japanese consumers are or how different they are from you. Table 5 shows average wholesale prices of persimmons shipped by Nara-Prefectural Federation of Fruit Marketing Cooperative Associations, by time (10 day period) in 1984. You can see from the table that prices tend to be the higher, the earlier the shipping periods are. Despite the very fact that prices go down to one half or one third within a month period and there are plentiful other inexpensive fruits available in the market, there exist some people who dare to pay $2.50 per pound of persimmons.

Those who buy persimmons for such high prices in the end of August or in the early part of September may be "buying autumn" along with fruits. Many of them buy persimmons in the end of summer as a gift or special treat for company in their home. This is much more so with pine-tree mushrooms, strong flavor of which conveys a sense

Table 5 Average wholesale prices of different varieties of persimmons, by time of shipment, August to the middle of November, 1984, Nara Prefectural Federation of Fruits Marketing Cooperative Associations, Japan.

Variety	Time								
	August	September			October			November	
		lst 10 day average	middle 10 day average	last 10 day average	lst 10 day average	middle 10 day average	last 10 day average	lst 10 day average	middle 10 day average
	(U. S. $[1]1/1b)								
Nishimura	1. 89	2. 03	1. 33	0. 83	0. 60	0. 66	—	—	—
Izu	2. 21	2. 29	1. 94	1. 33	0. 80	0. 72	—	—	—
Tone	2. 09	2. 52	2. 28	1. 25	0. 89	0. 83	0. 57	—	—
Hiratane	—	—	—	—	1. 04	0. 51	0. 40	0. 38	0. 42

Source : "Data for Improving Nara Persimmon Marketing", Nara Prefectural Federation of Fruit Marketing Cooperative Associations, February 27, 1985.

Note : (1) U. S. $1. 00=240yen.

of arrival or nearness of the fall season. Many people pay $20 to $30 per a quarter pound of these mushrooms. Pine-tree mushrooms produced in South Korea which look the same but lack a fragrant smell are priced one-fifth or less of domestically produced mushrooms.

Conclusion

Japan is a strange, or peculiar country according to your values. Many Japanese consumers pay premiums for something new or special. They do not mind paying triple prices for highly marbled Wagyu beef which is so tender and more fragrant in flavor than imported beef from the United States. I am a very westernized person in many respects. However, I sometimes ask Yoko, my wife, "Isn't this mutton?" when she cooks imported beef. This may be more so with ordinary Japanese men of my age.

As long as my observations about apples, Mandarin oranges, beef, rice or audio systems, the readiness for Japanese consumers to pay high premiums for something special seems to have grown as they become economically better off. I feel that this tendency will continue to expand as the economy grows. Thirty some years ago when Japan was a poor country and most people did not have enough food, rice was rice and beef was beef. However, by now when per capita income of Japanese people has reached your level, oranges are not oranges and beef is not beef for many of the Japanese people. And it is this Japan to which you are now trying to sell your products.

II THE LIVESTOCK INDUSTRY IN JAPAN
——Current Situation and Government Policy——

1. Introduction

Contrary to a popular notion of the closed nature of the Japanese market, the Japanese livestock industry in general is fairly open to an objective standard. First of all, the trade of feedstuffs, incluing feedgrains, has long been completely free, i.e. without import quotas and with zero tariffs, regardless of country of origin. Pork is the most important

meat in Japan in terms of volume of consumption, followed by chicken. Imports of both pork and poultry meat have been done without government quotas and with modest tariffs, i.e. 5.0 percent for pork and 11.3 percent for bone-in poultry meat. Imports of lamb and mutton which may be of great concern to Oceanian countries have been completly free.

Imports of beef are still subject to government quotas and with relatively high tariffs, i.e. 25 percent ad valorem and plus not negligibly small surcharges taken by the Livestock Industry Promotion Corporation (LIPC). It should be noted, however, that domestic beef producers are not free from foreign competition through liberal imports of feedstuffs and other meats and fish and eggs.

2 . Food Consumption with Emphasis on Livestock Products

As is shown by figure 1, the average daily caloric intake of Japanese consumers, on supply basis, reached 2,500 kilo calory (K.C.) level in 1970 and has only gradually increased to almost nearly 2,600 K.C. in 1984. Per capita real GNP increased from ¥875 thousand (approximately U.S. $3,800) in 1965 to ¥2,240 thousand (approximately U. S. $ 10,000) in 1984 in 1980 constant yen. As the economy grew, Japanese people have come to consume markedly less rice and more livestock products and (vegetable) fats. Maybe due to supply constraints, fish consumption has not shown an appreciable increase. However, it, is not very likely to decrease even if the consumption of meat increases to some extent in the foreseeable future.

At any rate, Japanese people take far less caloric inktake and depend much more on starchy food as compared with developed western nations despite their high income levels. Many of nutritionists claim that the present day Japanese are, on the average, taking nutritionlly nearly the most desirable pattern of diets both in the total caloric intake and the combination of protein, fat and carbohydrates. It is projected, however, that Japanese people would consume more livestock products and fats and much less starchy food, rice, in particular, toward the end of 1980s and on, while their total caloric intake might remain almost the same as present.

Concerning consumption of livestock products, in particular, the consumption of pork

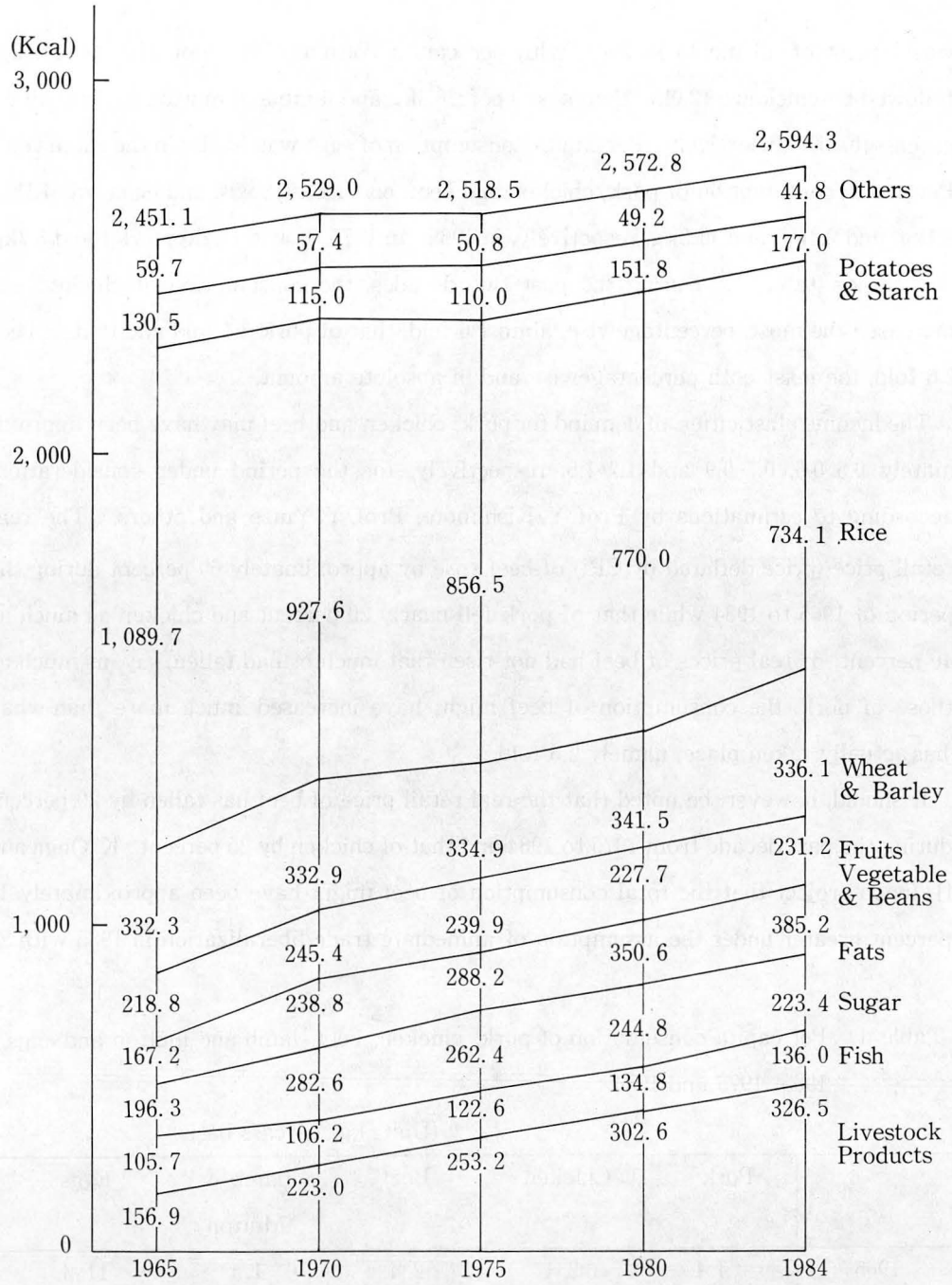

Figure 1 Charges in daily caloric intake, by major food components, 1965 to 1984

Source: Ministry of Agriculture, Forestry and Fisheries (MAFF), Livestock Bureau, CHIKUSAN KANKEI SHIRYO (Statistical Data on Livestock), March 1986, pp. 6–7.

was largest of all meats in 1984, with per capita consumption amounting to 14.1kg, followed by chicken : 12.0kg, then next beef : 6.3kg and lamb and mutton : 1.3kg, all on carcass basis, respectively. Per capita consumption of eggs was 14.8kg in the same year. Per capita consumption of pork, chicken and beef, on carcass basis, and eggs was 4.1kg, 2.1kg, and 2.4kg, and 11.3kg, respctively, in 1965. In 1975, it was 11.2kg, 6.7kg and 3.7kg and 13.7kg (table 1). During the past two decades, the consumption of chicken has increased the most, percentagewise, almost 6 fold, that of pork 3.4 fold and that of beef 2.6 fold, the least both percentagewise and in absolute amount.

The income elasticities of demand for pork, chicken and beef may have been approximately 0.5-0.6, 0.7-0.9 and 1.2-1.5, respectively, for the period under consideration, according to estimations by Prof. Y. Kishimote, Prof. Y. Yuize and others. The real retail price (price deflated by CPI) of beef rose by approximately 60 percent during the period of 1965 to 1984 while that of pork fell nearly 20 percent and chicken as much as 40 percent. If real prices of beef had not risen that much or had fallen, say, as much as those of pork, the consumption of beef might have increased much more than what has actually taken place, namely 2.6 fold.

It should, however, be noted that the real retail price of beef has fallen by 20 percent during the past decade from 1975 to 1984 and that of chicken by 25 perecnt. K. Ohga and H. Inaba project that the total consumption of beef might have been approximately 40 percent greater under the assumption of immediate trade liberalization in 1985 with 25

Table 1. Per capita consumption of pork, chicken, beef, lamb and mutton and eggs, 1965, 1975 and 1984

(Unit : kg, carcass basis)

	Pork	Chicken	Beef	Lamb & Mutton	Eggs
1965	4.1	2.1	2.4	1.1	11.3
1975	11.2	6.7	3.7	2.3	13.7
1984	14.1	12.0	6.3	1.3	14.8

Source : MAFF, SHOKUNIKU KANKEI SHIRYO (Statistical Data on Meat), various issues.

percent ad valorem tariff bounded than under the present quota system. In such a case as this which is, however, not conceivable from a realistic standpoint, as far as the author's observation goes, the consumption of both pork and chicken might be less, with the resulting decrease in feed grains imports for their domestic production. Naturally the expected increse in beef consumption would be mostly supplied by the increased imports from both Oceania and the United States. (In what proportions? Only God knows. The very challenging question.)

The consumption of milk and dairy products is very low in Japan as compared with developed western countries. For example, the annual per capita consumption of fluid milk was 37.1kg in 1984 (New Zealand: 113.9kg, U.S.A.: 57.2kg, West Germany: 53.5kg) and that of butter and cheese was only 0.7kg and 0.8kg, respectively, in the same year (New Zealand: 12.6kg and 7.9kg, U.S.A.: 2.3kg and 11.7kg, West Germany: 7.0kg and 15.1kg). Per captita consumption of fluid milk has increased nearly two fold during the past two decades from 1965 to 1984 but the increase from 1975 to 1984 was rather slow, only 27 percent while the real retail price of fluid milk fell as much as 35 percent during the same period. The consumption of milk and dairy products has been quite stagnant for the past few years, in particular.

3. Supply of Livestock and Feedstuffs

(1) General Picture

In 1984, 84 percent of pork, 93 percent of chicken, and 72 percent of beef were domestically produced. Nearly 100 percent of eggs and 86 percent of milk and dairy products were also domestically produced. Generally speaking, self-sufficiency ratios in livestock products have been quite high in Japan (see table 2). And that is what the government agricultural policies have aimed at. However, such a high self-sufficiency has only been enabled by ever increasing, huge amounts of feedstuffs, mostly feedgrains, imported from overseas.

Despite that the production of milk and dairy products and beef has expanded considerably, the domestic production of roughages has increased modestly, only 16 percent for the past two decades. In 1984, the domestic roughage supply accounted for less than 20

Table 2 Changes in self-sufficiency of selected livestock products in Japan, 1965 Japanese Fiscal Year (JFY) to 1984 JFY

(Unit : %)

	1965	1975	1980	1984	Production in 1984
					—1, 000 mt—
Eggs	100	97	98	99	2, 144
Milk & Dairy Products	86	82	86	86	7, 199[1]
Beef	95	81	72	72	539[2]
Pork	100	86	87	84	1, 433[2]
Chicken	97	97	94	93	1, 326[2]

Note : (1) Raw milk equivalents, (2) Carcass basis

Sources : MAFF, Livestock Bureau, CHIKUSAN KANKEI SHIRYO, March 1986, pp. 34–35, and pp. 54–59.

percent of the total supply of feedstuffs in terms of TDN (total digestabe nutrients). The domestic production of feedgrains, per se, has been minimal. Most of concentrates from domestic sources come from rice, wheat and barley originally produced for human consumption in the form of bran. As is shown by table 3, net self-sufficiency of feedstuffs has steadily declined from 54.6 percent in 1965 to 34.5 percent in 1975 and further down to 27.6 percent in 1984 in terms of TDN. According to the government official projections of 1982, it is predicted or wishfully planned that net self-sufficiency would increase to 34.7 percent toward the turn of 1980s.

Of feedgrains imported, corn is the most important in terms of tonnage, amounting to 10.0 million metric tons (mt) in 1984, followed by grain sorghum : 4.3 million mt, then barley : 1.6 million mt, wheat , 1.3 million mt, and so forth. Volumes of imports by type of grains and country of origin for 1970, 1975, 1980 and 1984 are shown in table 4. The United States accounted for 72.4 percent of all feedgrains imported into Japan in 1984, then followed by Australia which supplied 12.8 percent. Although it is not shown in the table, it is reported that China accounted for around 15 percent of corn imported into

Table 3 Changes in supply of feedstuffs in Japan, 1965 JFY to 1984 JFY and 1990 JFY (projected)

(Unit : 1, 000 mt[1])

	1965	1975	1980	1984	projected 1990
Total Supply	13, 359	19, 867	25, 107	26, 476	32, 730
Domestic Supply					
Roughages	4, 519	4, 973	5, 118	5, 130	9, 410
Concentrates	2, 771	2, 060	1, 965	2, 185	1, 960
Imports	6, 068	13, 014	18, 024	19, 161	21, 360
Total Feed					
Concentrates	8, 839	15, 074	19, 989	21, 346	23, 310
Net Self Sufficiency of Feedstuffs	54. 6	34. 5	— % — 28. 2	27. 6	34. 7

Note 1 : In terms of TDN

Sources : MAFF, Livestock Bureau, SHIRYO KANKEI SHIRYO (Statistical Data on Feedstuffs), March 1986, pp. 2–3 and previous issues.

Japan in the Japanese Fiscal Year (JFY) of 1985. During the 1970 to 1975 period, Thailand accounted for around 15 percent of corn imported to Japan but imports of corn from Thailand have been almost nil in recent years.

(2) Size of Farms

Japanese agriculture has been characterized by small scale of farm operation. In 1984, average size of agricultural land, including grazing land, per farm was 1.2 hectares. In spite of the fact that the general economy has grown tremendously and many industrial plants have greatly expanded in size and modernized in facilities, the average size of Japanese farms in terms of area cultivated has expanded by only 0.1 hectare from 1965 to 1984. This is the main reason why Japanese agriclture is so low in productivity and so high in cost that it needs heavy protective measures by the government.

Table 4 Imports of major feed grains, by country of origin, 1970 JFY to 1984 JFY

(Unit : 1, 000 mt)

		1970	1975	1980	1984
Corn	Total	4, 020	5, 813	10, 117	10, 043
	U. S. A.	2, 745	4, 766	10, 113	9, 505
	Thai	661	859	2	—
	China	—	61	—	410
Grain Sorghum	Total	4, 090	3, 409	3, 478	4, 289
	U. S. A.	2, 428	1, 950	3, 257	2, 274
	Argentina	1, 337	642	—	1, 057
	Australia	264	660	211	957
Barley	Total	866	1, 305	1, 418	1, 575
	U. S. A.	—	—	146	366
	Canada	609	1, 003	745	744
	Australia	168	301	526	465
Wheat	Total	1, 275	618	1, 281	1, 271
	U. S. A.	630	217	659	586
	Australia	645	401	621	684
Rye	Total	89	45	15	295
	Canada	87	45	15	295
Oats	Total	161	143	170	111
	U. S. A.	2	2	13	1
	Australia	158	141	148	92
Grand Total	Total	10, 501	11, 333	16, 479	17, 584
	U. S. A.	5, 805	6, 935	14, 178	12, 732

Source : MAFF, Livestock Bureau, SHIRYO KANKEI SHIRYO, March 1986, p. 19.

However, Japanese livestock production has, in most parts, rapidly expanded in size as measured by number of animals or birds and remarkably modernized in operation for the past 15 to 20 years or so. As is shown by table 5, the number of hog fattening farms has decreased to less than one tenths of 1965 level in 1984 and 14.0 percent of them had

Table 5 Number of hog farms and number of animals, by size of operations, 1965 to 1984

	Numbers of Farms (1,000 farms) Scale of Farms (head per farm)				Number of Hogs on Feed (1,000 head) Scale of Farms (head per farm)			
	Total	1-49	50-299	300-	Total	1-49	50-299	300-
1965	575	567	6		3,225	2,420	805	
1970	314	296	16	2	5,099	2,484	1,775	840
1975	123	99	20	3	6,239	1,232	2,521	2,486
1984	52	26	19	7	9,287	565	2,738	5,985

Source: MAFF, Livestock Bureau, CHIKUSAN KANKEI SHIRYO, March 1986, pp. 72-73.

300 or more head of hogs on feed and they accounted for 64.5 percent of hog inventory in the same year. With broilers, the number of farms which shipped birds decreased 56 percent from 1965 to 1984 while the total number of birds shipped increased more than 7 fold during the same period. In 1984, 26.5 percent of broiler farms shipped more than 100,000 or more birds and they accounted for 67.1 percent of all birds shipped in that year.

In 1984, the average size of dairy farms in terms of number of cows was 25.7 head, nearly EC levels. As is shown by table 6, 37.5 percent of dairy farms had more than 20 head of cows and they accounted for 72.4 percent of dairy cow inventory in 1984. The amount of milk production per milking cow averaged 4,424kg in 1970 (U.S.A.: 4,423kg, EC average: 3,410kg, New Zealand: 2,487 liter) and it increased to 5,442kg in 1984 (U.S.A.: 5,668kg, EC average : 4,375kg, New Zealand: 3,206 liter).

The virtually only exception has been the production of beef, especially Wagyu cattle, the indigeneous beef breed which accounts for approximately one third of the total domestic beef production. The average size of beef cattle farms was only 8.2 head of cattle in 1984. As dairy cattle fattening farms averaged 26.3 head per farm in 1984, the average size of Wagyu fattening farms which usually do not feed dairy cattle may have

Table 6 Number of dairy farms and number of animals, by size of operations, 1965 to 1984

	Numbers of Farms (1,000 farms)					Number of cows (1,000 head)				
	Scale of Farms (head per farm)					Scale of Farms (head per farm)				
	Total	1—4	5—19	20—29	30—	Total	1—4	5—19	20—29	30—
1965	299	253	44	1	1	1,180	695	428	26	32
1970	242	149	86	5	2	1,707	464	998	154	91
1975	139	57	65	12	6	1,743	179	853	371	340
1984	81	15	36	13	18	2,080	55	521	416	1,089

Source: MAFF, Livestock Bureau, CHIKUSAN KANKEI SHIRYO, March 1986, pp. 64–65.

been much smaller than 8.2 head above mentioned. It is estimated that the average size of Wagyu cow-calf operation was 3.1 head of cows in 1984, very slowly increased from 1.6 head of cows in 1971. Many people knowledgeable about the Japanese beef industry tend to attribute high cost of Japanese domestically produced beef to inefficient Wagyu cow-calf operations, in particular.

(3) Imports of Beef

As earlier mentioned, a little over 70 percent of beef is domestically produced and the remaining 30 percent supplied by imports mainly from Oceania and the United States. Imports of beef have been subject to government regulations, especially quotas and the involvement of LIPC, the quasi-government agency, the main purpose of which is to stabilize prices of various livestock products, including beef, mainly by buffer operation and thus to promote the domestic livestock industry. The total beef quota is decided annually in order to stabilize domestic beef prices, strictly expressing, to keep them within certain price bands, which are determined according to the Law Concerning Stabilzation of Prices of Livestock Products of 1961 and amended in 1975. Approximately 80 percent of quota is allotted to the LIPC and about 10 percent to organizatios of meat

retailers and meat processors as "private quotas" and the remaing 10 percent to international hotels, school lunch organizations and Okinawa as "special quotas."

At 1977/78 MTN (Multilateral Trade Negotiations), quota for "high quality beef" (H. Q.B.), defined as beef from cattle fed high concentrate diets for 100 days or longer, was newly set up, as separate from other beef. The Japanese government committed itself to increase imports of H.O.B. by certain amounts toward the end of 1983 JFY, i.e. from around 7,000 mt in 1977 to 16,800 mt in 1978 JFY and further up to 30,800 mt in 1983 JFY. The total beef imports increased from 93,000 mt in 1977 JFY to 141,000 mt in 1983 JFY, as is shown by table 7. And at the 1982/84 negotiations, the government agreed to increase beef import quotas by approximately 9,000 mt every year over the 4 year period from 141,000 mt in 1983 to 177,000 in 1987 while quota for H.Q.B. to be increased by 6, 900 mt annually, more than 76 percent of the increment in the total quota.

Theoretically, any country could produce H.Q.B. as defined above. Considering the fact, however, that U.S.D.A. Choice and above meet the standards of H.Q.B. without any troublesome procedures and both Australia and New Zealand are grass feeding most of their cattle, the committment of the Japanese government to increase import quota for H.Q.B. as mentioned above might have possibly helped the U.S. to expand its market share in the Japanese beef import market, in addition to the claimed increase in the demand for better marbled grain-fed beef, and would continue to do so, possibly to a

Table 7 Imports of beef, by country of origin, 1970 JFY to 1984 JFY

(Unit : metric tons)

JFY	Total	U. S. A.	Australia	New Zealand	Others
1970	26, 296	445	22, 982	2, 649	220
1975	63, 812	6, 943	51, 541	4, 402	926
1977	92, 550	8, 611	77, 835	4, 665	1, 439
1978	102, 423	17, 049	76, 375	6, 620	2, 379
1980	120, 215	24, 460	89, 780	4, 628	1, 347
1983	140, 806	38, 475	91, 746	8, 778	1, 807
1984	145, 187	42, 186	91, 718	7, 274	4, 009

Source : MAFF, Livestock Bureau, SHOKUNIKU KANKEI SHIRYO, March 1986, p. 100

much greater extent, in the near future, at least until the end of 1987 JFY. Details of beef imports, by country of origin, in recent years, are shown in table 7.

4. Government Policies in Relation to Livestock and Feedstuffs

In 1961, the Agricultural Basic Law Was enacted. The main themes of the Law were to fill the income disparity between agriculture and other industries by enhancing the agricultural productivity and to encourage "selective expansions." As most of livestock products, milk, meat and eggs were expected to greatly increase in demand, productions of these products were encouraged to expand. However, no great direct efforts were made by the government, at least judging from amounts of money spent on policy programmes for livestock, especially when compared with rice programmes.

When the Law Concerning Stabilization of Prices of Livestock Products was put into force in 1961, the LIPC was established to pursue the programmes set out in the Law. Prices of pork and dairy products were targeted to be stabilized, at first, then from 1976 on beef after the Law was amended to include beef as a "designated meat." Deficiency payment programmes were launched in 1966 JFY to subsidize prices of milk for dairy products such as powdered milk, cheese, butter, etc. A quite bit sum of government money, in the magnitude of 200 million U. S. dollars, has been spent annually for this purpose, to result in over-production of milk in recent years. No big amount of government money has been spent for stabilization of pork prices as it has been carried out mainly through buffer operations and with limited success to the author's judgement.

Imports of frozen poultry were liberalized as early as in 1959, those of fresh chicken in 1962, and those of pork in 1971 with modest tariffs. It seems quite ironical that the production of pork, chicken and eggs which have received little government subsidies, direct or indirect, has grown almost internationally competitive while the production of beef which has been very much subsidized, mostly in indirect ways through import regulations, has lagged in modernization processes.

As mentioned earlier, the production of rice has tended to exceed its consumption considerably for the past 15 years or so. The government has been spending ¥300 to 400 billion (in the neighbourhood of U.S.$2.0 billion) annually for set aside programmes. In place

of paying a handsome amount of money just for keeping rice paddy idle, the governmnet launched extensive conversion programmes from rice to other crops around 1975 and on. It is estimated that actual prices of wheat, barley, corn or soy beans farmers to receive may be almost 7 to 10 times higher than intrernational prices, when conversion encouragement subsidies are added. Markets for most fruits and vegetables have been already glutted. Toward the turn of the century, as much as 1.0 million hectares of rice paddies, out of 5.4 million hectares of arable land (including 3.0 million hectars of paddies) are likely to become redundant because the consumption of rice would further decline on the one hand and the yield of rice per hectare is likely to increase due to technological improvements on the other hand.

How should these "surplus" rice lands in the land-shortage country of Japan be utilized? What crops should be produced on these lands? Despite the high degree of industrialization, Japan can not afford to leave these lands simply idle. Every one may agree that our feed-grains won't be internationally competitive. Wheat may have no chance for the same reason, unless the government is determined to continue to pay very much higher prices than can be purchased from the world market. Some of very respectable scholars like Prof. Y. Hayami in Japan and Dr.F. Sanderson in the U.S. did suggest, "what about forage crops for cattle?" *1984 White Paper on Agriculture*, of the Ministry of Agriculture, Forestry and Fisheries (MAFF) endorses this suggestion by presenting statistics which show average production costs of high quality roughages such as corn-wholecrop silage and grass silage are 30 to 40 percent lower than prices of formula feed in terms of unit cost of TDN. Livestock Bureau, MAFF, has been targeting to drastically reduce heavy dependence on purchased concentrates in cattle production by feeding much more roughages than at present toward the end of 1980s, i.e. from 81.8 percent in 1980 to 59.7 percent in case of Wagyu steers and from 91.8 percent to 62.5 percent in case of dairy steers.

This idea of MAFF, however, is very questionable in many respects. Dr. S. Kai demonstrated that yield should be increased from 50 mt per hectare at present in Kyushu area to 70 mt and, at the same time, labor input should be reduced by 72 percent from 350 hours per hectare at present to 97 hours, for the unit TDN cost of Italian Rye grass to be lowered below that of formula feed, based on statistics in the cost of production

survey by MAFF. He further added that more drastic improvements in production would be necessary for either grass or dent-corn to be competivive with rice or wheat bran. In addition, with very wasteful treatments of roughages commonly observed in the Japanese cattle production and comparative analysis of roughage vs. concentrate in feed-lot performance, in stead of TDN analysis, done by New Mexico State University recently in mind, the author is inclined to support Dr. Kai who questioned the comparative profitability of roughages in Japan under the present circumstances.

Despite lots of talkings about recent technological innovations such as "bios", ET and so forth, no easy ways out do not seem to have been found for the Japanese agriculture, including the livestock industry, to get out of the present Tartarus. But with all the wisdoms and humble reexaminations of the past policies, the right directions should be sought for. In this regard, cooperation from countries with advanced technologies in animal husbandries, including grass production and utilization, in particular, is badly needed.

References

Papers by Yujiro Hayami, Fred Sanderson and Yutaka Yoshioka in Castle, Emery N. and Hemmi, Kenzo (edited), US-JAPANESE AGRICULTURAL TRADE RELATIONS, Resources for the Future, Inc., 1983.

Kai, Satoshi, "Wagyu no Hiiku Keiei no Jitsujo to Mondaiten" (Situation of Wagyu Fattening Operations and Problems), CHIKUSAN NO KENKYU (Journal of Livestock) Vol. 39, No.1, January 1985.

Ministry of Agriculture, Forestry and Fisheries (MAFF), WHITE PAPER OF AGRICULTURE For 1984, April 1985.

MAFF, Livestock Bureau, CHIKUSAN KANKEI SHIRYO (Statistical Data on Livestock), March 1986.

—, Livestock Bureau, SHOKUNIKU KANKEI SHIRO (Statistical Data on Meat), March 1986.

—, Livestock Bureau, RAKUNO KANKEI SHIRYO (Statistical Data on Dairy), March 1986.

—, Livestock Bureau, SHIRYO KANKEI SHIRO (Statistical Data on Feedstuffs), March 1986.

—, Livestock Bureau, NIKUYOGYU SEISAN O MEGURU JOUSEI TO RAKUNOHO NO KAISEI NI TSUITE (SITUATION AROUND BEEF PRODUCTION IN RELATION TO THE REVISION OF DAIRY PROMOTION LAW), June 1983.

—, Dept. of Statistics and Information, POCKET STATISTICAL HANDBOOK ON AGRICULTURE, FORESTRY AND FISHERIES For 1985, March 1985.

Mori, Hiroshi, "Kokusan Gyuniku no Cost Down no Kanosei"(Possibilities of Reducing Costs of Domestic Beef), CHIKUSAN NO KENKYU (Journal of Livestock), Vol. 40, No. 1, January, 1986.

Mori, Hiroshi and Gorman, Wm. D., "Issues, Facts and Opportunities of Exports of U.S. Beef to Japan," AGRIBUSINESS, Vol. 1, No. 2, August 1985.

New Mexico State University, "Feedlot Performanre, Carcass Characteristics, and Selected Economic Implications of Cattle Fed Low, Medium and High Concentrate Diets," Ag. Exp. Sta. Res. Report 477, September 1982.

Ohga, Keiji and Inaba, Hiromichi, "Gyuniku Jukyu no Keiryo Bunseki" (Econometric Analyses of Beef Demand and Supply), NOGYO SOGO KENKYU (Quarterly Journal of Agricultural Economy), Vol. 39, No. 2, April 1984.

編集後記

今年の夏は梅雨明けが遅れていましたが，８月に入ってから本格的な厳しい暑さが到来しています。皆様には暑中お見舞い申し上げます。

今月は森　所員による英文での論文をお届けします。この中で編集子が特に関心を持ったのは，米国産やオーストラリア産の輸入牛肉と国内産の牛肉は卸売価格の動きでも独立の動きを示しており，また日本の消費者には両者が別個の商品として受け取られているのではないかという問題提起である。これには日本の消費者の牛肉に対する好みや購買の仕方がかなり影響していることが指摘されている。牛肉だけに限らず，蜜柑，柿，松茸などを例に引き出しながら，日本の消費者の特異な行動様式を解明しており，これらのことは，米国の農業者に対しては，日本の消費者ニーズの研究調査や日本人向けの牛肉などの製品開発努力の重要性を示唆していると言えまいか。それと同時にわれわれ日本人にとっては，飽食の時代を迎え生鮮食料品の購入にあたってさえも，ブランド志向や高級品志向に傾斜しやすい日常の購買・消費の中味を今一度，再考してみる良いチャンスとも言えまいか。そして，日本からの工業製品の大量輸出が牛肉・オレンジなどの農業製品の輸入拡大にしわ寄せされるという農産物貿易摩擦の構図がこれまでしばしば指摘されてきたとは言っても，日本の政府にとっても，畜産農家にとっても大切なことは，保護一辺倒の農業政策やそれにもたれ掛かった経営方法が唯一の道ではないことを警告しており，改めてこの分野の問題の深さを興味深く考えさせられた。

ところで，英語や他の外国語で論文を執筆される所員の活躍も目立つようになっており，社研の国際交流活動の活発化と合わせて，研究活動の国際化にも一段と拍車がかかっている。しかしその反面，社研の月報や年報の送付先となると，ほとんど国内の大学や研究調査機関に限られており，せめて英語などによる月報や英文レジメなどが含まれている年報について，現代日本の研究に強い関心を持つ海外の大学や研究機関と定期的に（あるいは不定期的でも）交換にもっていけないものかと考えている。　　（F．T）

神奈川県川崎市多摩区東三田２丁目１番１号　電話(044)911-8480(内線33)
専修大学社会科学研究所
（発行者）　三　輪　芳　郎
製　作　佐藤印刷株式会社
東京都渋谷区神宮前２－10－２　電話(03)404-2561