

# Rice Production and Related Problems in Japan - Rice Production and the Significance of Tohoku and Hokuriku

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## Rice Production and Related Problems in Japan

### —Rice Production and the Significance of Tohoku and Hokuriku—

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Despite decreasing per capita annual consumption of rice, problems of heavy subsidies and storage, and the government's 'reduction policy' Japan's agriculture is still centered on the production of rice. Of all rice farmers nearly 80% depend on the sale of rice for their income. Viewing Japanese farm households as a whole, about 70% have some surplus rice to sell as against a mere 13% who have to buy rice due to either to insufficient home supply or to the production of other items *e.g.* vegetables or milk.

Travelling through Japan's countryside by train or by bus one is struck by omnipresence of paddy fields, especially in spring when these are flooded and planted with young, green seedlings. This superficial impression, however, tends to conceal the fact that the centre of rice production has shifted from West Japan to East Japan, particularly to Tohoku and Hokuriku.

In 1975 the total areas planted in rice were 2.7 million ha of which Tohoku and Hokuriku had a combined acreage of 950,000 ha or 35% of the total (Table 1).

From 1960 to 1975 there has been a gradual decrease in rice acreage. By 1975 it was 400,000 ha or 13% less than the 1960 figure. The trend for all other regions

Table 1 Changes in paddy rice acreage

Unit: 1,000 ha

	1960	%	1970	%	1975	%
All Japan	3124	100	2,836	100	2,719	100
Hokkaido	197	6	206	7	185	7
Tohoku	588	19	603	21	627	23
Hokuriku	366	12	332	12	323	12
Kanto-Tosan	524	17	494	17	477	18
Tokai	279	9	226	8	204	8
Kinki	289	9	230	8	208	8
Chugoku	301	10	251	9	230	8
Shikoku	149	5	119	4	105	4
Kyushu	431	14	375	13	358	13
Okinawa	—	0	—	0	2	*

\* Less than 0.01%

Source: Compiled from Statistical Tables, Agriculture White Paper, 1975 p. 63

\* Western Australian Institute of Technology, Western Australia

was in line with this general pattern, except Tohoku which showed an increase of 39,000 ha (Table 1).

In a recent field excursion in Fukushima Prefecture (July 1976) considerable extents of newly converted and constructed paddy fields were observed on both sides of the railway from Okinashima to Aizu-Wakamatsu. In fact new paddy fields could be found within walking distance from Tohoku University Field Station for Geography in Inawashiro. Similar new paddy fields were also evident in Akita Prefecture, while en route to Lake Towada.

It is the opening of new fields that accounts for the increase in planted areas in Tohoku in these years.

Table 2 Paddy rice production 1960-1975

Unit: 1,000 tons

	1960	%	1970	%	1975	%
All Japan	12,539	100	12,528	100	13,085	100
Hokkaido	790	7	914	7	827	6
Tohoku	2,697	22	3,225	26	3,466	26
Hokuriku	1,560	12	1,558	12	1,658	13
Kanto-Tosan	2,151	17	2,106	17	2,201	17
Tokai	1,022	8	853	7	864	7
Kinki	1,102	9	919	7	885	7
Chugoku	1,074	9	1,000	8	1,077	8
Shikoku	535	4	434	3	432	3
Kyushu	1,608	13	1,519	12	1,670	13
Okinawa	—	—	—	—	5	*

\* Less than 0.01%

Source: Compiled from Statistical Tables, Agriculture White Paper, 1975 p. 63

What is surprising, perhaps is this general decrease in acreage has not resulted in a similar decrease in total production from 1960-1975. On the contrary, production increased yearly reaching a peak of 14.4 million tons in 1967. Indeed, had not been for the government's 'rice reduction policy' which became an obvious necessity due to huge government deficits, the possibility of further increase in total production was high. Hence production fell off (but only slightly) after 1970. This, however, picked up again towards 1975. If 1960 is taken as the base year, then from 1960-1975 the total overall production of rice has increased by 4% despite a decrease in planted acreage of 13%. In fact with the exception of three regions (Tokai, Kinki and Shikoku) all other regions have shown increases (Table 2). This is a feat not achieved anywhere in Asia.

It can be seen that Tohoku and Hokuriku together accounted for 39% of the total production in 1975. If the national average yield of 4,550 kg per ha is used as an indicator then it could be seen at once why these two regions have become important rice producing centres. The average yield per ha for Tohoku was 5,050

kg, the highest in Japan and that for Hokuriku was 4,920 kg, the third highest (1974).<sup>1)</sup>

The unchallenged position of Tohoku and Hokuriku is clear. These regions have 35% of Japan's rice acreage, produce 34%-39% of its rice, but only 14% of its population. Hence they are known to the Japanese as the 'granary of Japan' where rice is shipped to the teeming millions inhabiting the industrial regions stretching from Keihin to Hanshin via Tohoku, Joban, Uetsu and Hokuriku Lines.

### **Circulation of rice: regional and local**

As expected rice is transported from regions of surplus to regions of deficiency. In other words from Tohoku, Hokkaido, Hokuriku and Kyushu to the highly industrial and urbanized zones along the Pacific coast. Unless drastic measures such as the abolition of rice subsidies and large-scale importation of rice from overseas (the chance of this is extremely remote) are to be taken by the government in future to alter the existing production status quo, this inter-regional flow of rice will continue to exist for a long time to come.

The local circulation of rice is the flow of rice from the farmer to the housewives at village and *machi* level. This sounds simple and in a free economy, this is what it should have been. In reality, however, politics is involved at all stages.

In Japan the circulation of rice, both regional and local, is regulated by the government. This is the legacy of Food Control Legislation (*Shokukan Seido*) of 1942. The post-war food shortage and accompanied inflation made the continuation of this legislation necessary. The main purpose was to guarantee an even distribution of rice and to stamp out black markets. All farmers were required to deliver their crops at a price higher than the retailed price in a government controlled market. Private importation of rice is banned and except in the immediate post-war years when a large quantity of rice was imported from the U.S.A. to ease the food situation, foreign rice is virtually prohibited for its competitiveness.

Under the protective wings of the government rice production increases remarkably after 1952 and the government has been shouldering the financial burdens of heavy subsidies since.

From 1969 a parallel measure known as 'free circulation rice' system has been in operation. Under this system the farmer sells his crops to a registered distributor normally the local agricultural co-operative at a price determined by the law of supply and demand. But even in this 'free situation' the invisible guiding hand of

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1) The yield per ha fluctuates from year to year. In 1970 the national average was 4,420 kg. The yield per ha for Tohoku was 5,360 kg and for Hokuriku 4,650 kg. In 1972, the national average was 4,560, but Tohoku and Hokuriku reported 5,130 kg and 4,640 kg respectively.

the government is evident.

Firstly all transactions must be handled through registered wholesalers and retailers. Secondly prior approval of the entire production plan down to the finer details of trade marks must be obtained from the Minister of Agriculture and Forestry.<sup>2)</sup> Thirdly the government offers promotion prize and target prize in cash to the value of ¥3000 per ton if a production target of 1.2-1.5 million tons is achieved, and ¥6000 per ton, if the 1.5 million target is passed.<sup>3)</sup>

As a result production of free-circulation rice increased from 859,000 tons in 1969 to 2,714,000 tons in 1974 (Table 3).

Table 3 Production of free-circulation rice (unpolished)  
Unit: 1,000 tons

Year	Nonglutinous Rice	Sake Rice	Mochi Rice	Total
1969	267	469	123	859
1970	953	540	200	1,692
1971	1,254	532	176	1,962
1972	1,419	426	115	1,959
1973	1,749	630	184	2,561
1974	1,804	560	350	2,714

Source: Japanese Agriculture Yearbook, 1976 p. 202

### Decrease in rice consumption and the burden of surplus

After 1960 Japan's economy surges forward with unprecedented impetus. Per capital national income rose from US \$ 421 in 1960 to US \$ 3,497 in 1974 or 8.3 times. Though the consumer price index rose three times in the same period the rise in the standard of living is quite substantial. This is reflected in the increase in the daily intake of calories from 2,290 in 1960 to 2,502 in 1974. What is perhaps, of greater significance is the drop in the intake of starches particularly rice, and an increase in other sources such as meat, eggs, dairy products, sugar and oil. The percentage of starches decreased from 69% in 1960 to 52% in 1974; and for rice from 48% to 35%. On the other hand non-starch components increased from 15% to 32% in the same period. (Table 4)

This change in dietary pattern has an important bearing on the supply and demand situation of rice. As previously mentioned rice production increased by 4% from 1960 to 1975, whereas the consumption of rice decreased by 22% in the same period. Each year over 3 million tons of surplus rice are stored in government warehouses (Table 5) costing the government a storage fee of 10,000 yen per ton. It can be seen a huge sum of money, in the order of 30,000 million yen, had to be

2) Ouchi, T. et al. ed. (1975): *Japanese Agriculture*, p 66

3) *Japanese Agriculture Yearbook* (1976), p. 202

spent in this respect. In the case of 1970, a staggering sum of 104,700 million yen was involved. No one can deny the necessity of having a sufficient quantity of rice in store so as to cope with any future emergencies. On the other hand it is just as bad on the public coffers if an excessive quantity due to over-supply is to be stored each year.

### **The bone of contention: the price of rice**

As rice cultivation is the mainstay of Japan's agriculture, the price of rice has become the bone of contention between the rice farmers and the government. The former naturally would like to see a higher rice price whereas the latter because of a huge rice subsidies deficit is not willing to go along all the way with the farmers who asked for an average increase of 50.7% (1972-75). Moreover, as rice is the main staple in Japan, any substantial rise in price would have far-reaching effects on the economy. Once the price of a major food item is increased, it is difficult to curb other price increases and thus another spiral of inflation is set in motion.

Each year before the government hands down its decision on its purchase price, rice farmers hold meetings in agricultural co-operatives and demonstrate in the streets demanding for higher prices on the ground of increasing production costs. At the same time housewives also hold public meetings protesting against any further increase, because it is already too high. And they are fully justified in their protest. Japanese rice due to tariff protection and strict government control retail outlets enjoy a full monopoly of the home market even its price is twice that of any foreign rice. The government *i.e.* the ruling Liberal-Democratic Party with an eye on the political consequences do not wish to antagonize the farmers by entirely ignoring their demands. At the same time it has no intention to displease the urban voters. Hence, the price issue becomes a yearly political tug-of-war among the three parties: the farmers, the government and the consumers with a result no party is happy about (Table 6).

To gain some insight into the rice question it is essential to understand the three basic components of the issue:

- (a) the income of farmers
- (b) the way the price of rice is determined
- (c) heavy government subsidies and subsequent huge deficits.

The income of farmers is only one third of that of industrial workers. Though it is the aim of the Basic Agriculture Law of 1961 to achieve parity between the income of farmers and that of urban workers, this goal so far has been an ideal rather than reality, except for a minority (less than 10%) of farmers.

In the case of rice production the daily income is 5,675 yen.<sup>4)</sup> Since it requires

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<sup>4)</sup> *Japanese Agriculture Yearbook* (1976), p. 202

Table 4 Per capita daily intake

Year	(a) Rice	(b) All Starches	(c) Meat	(d) Eggs	(e) Dairy Products
1960	1106	1580	28	27	36
1965	1076	1528	50	49	61
1970	914	1351	77	64	81
1974	867	1301	102	60	84

N.B. The calorie value of all starches also includes that of  
Source: compiled from Statistical Tables,

Table 5 Supply and demand of Government rice (unpolished)

Unit: 1,000 tons

Grain Year*	Supply			Demand Total	Balance in storage
	Carried Forward	Purchased	Total		
1960	3,685	6,308	9,993	5,778	4,215
1965	2,808	8,284	11,092	7,644	3,448
1966	3,448	8,005	11,453	7,728	3,725
1967	3,725	10,689	14,414	7,972	6,442
1968	6,442	9,014	15,456	7,721	7,735
1969	7,735	9,271	17,006	7,651	9,355
1970	9,355	8,305	17,660	7,190	10,470
1971	10,470	5,378	15,863	8,116	7,747
1972	7,747	5,571	13,330	7,580	5,750
1973	5,750	5,338	11,098	7,010	4,088
1974	4,088	5,548	9,639	6,235	3,404

\* Grain year extends from November in the previous year to October of the current year.  
Source: Japanese Agriculture Yearbook, 1976 p. 200

Table 6 Changes in rice prices 1966-1975

	Demanded Price	Decided Price*	Demanded % Rise	Decided % Rise
1966	¥ 8,425	¥ 7,026	33.3	9.2
1967	8,903	7,668	26.7	9.2
1968	9,244	8,126	20.6	5.7
1969	9,653	8,114	18.8	0
1970	9,926	8,128	22.1	0.2
1971	10,778	8,374	32.6	3.0
1972	11,863	8,805	41.7	5.1
1973	13,110	10,141	48.9	15.0
1974	16,704	13,412	64.7	32.3
1975	19,794	15,365	47.6	14.4

Source: Fukushima Minyu, 6th July, 1976

N.B. The decided standard price is the cost of production for 3rd grade rice plus transportation cost.

of calories (by components)

(f) Sugar	(g) Oil	(1) Sub-Total	(2) Total	(a)/(2)%	(b)/(2)%	(1)/(2)%
157	105	353	2290	48	69	15
196	161	517	2408	45	63	21
283	229	734	2472	37	55	30
285	280	811	2502	35	52	32

rice. Item (2) is the total calorie value for all food taken.

Agriculture White Paper, 1975 p. 51

871 hours to manage 1 ha, then on an 8 hour day basis a farmer has only 110 days work to keep him busy. In other words he is unemployed 255 days in a year. The correct income is therefore 624,250 yen per year or 52,000 yen per month, whereas an average industrial worker can easily earn ¥70,000 to ¥80,000 per month plus 3 to 5 months bonus distributed twice yearly. This income disparity obviously becomes the foundation of farmer's discontent and their agitation for higher rice price.

The Ministry of Agriculture and Forestry collects data on the cost of production from rice farmers whose annual sale exceeds 300 kg. A sample of the cost of production is given in Table 7.

Rice farmers are required to sell his crops to agricultural co-operatives at a price stipulated by the government who acts on the advice of the Rice-Price Committee. The price of rice is calculated using the following terms of reference:

- the average production cost of the past three years *e.g.* 1972-74;
- transportation cost;
- grade adjustment, yield rate (*budomari*) and packing charge.

Table 7 Production cost of rice per 0.1 ha

	Yen			%		
	1960	1965	1974	1960	1965	1974
Seeds	251	380	1,206	1.4	1.3	1.7
Fertilizers	3,247	3,744	6,104	18.6	13.2	8.7
Insecticides	474	653	3,089	2.7	2.3	4.4
Power & Lights	570	1,153	3,379	3.3	4.1	4.8
Irrigation	527	763	2,484	3.0	2.7	3.5
Interest on loans	447	887	3,656	2.6	3.1	5.2
Land improvements	549	7,779	2,369	4.1	2.8	3.4
Farm machines	1,599	3,963	15,476	9.2	14.0	22.0
Draft animal	1,075	346	9	6.1	1.2	0.0
Labour	8,735	15,626	32,520	50.0	55.2	46.3
Total	17,474	28,294	70,292	100.0	100.0	100.0

Source: Statistical Tables, Agriculture White Paper, 1975 p. 64



Thus the 1975 price was determined in the following manner:

The average cost of production (1972-74) per 10 a is ¥ 128,221

The average yield per 10 a is 504 kg

Therefore price per 60 kg is ¥ 128,221/504 kg × 60 = ¥ 15,264.

Transportation cost is ¥ 101 and other charges outlined in (c) amount to ¥ 205.

Hence after taking these into account, the final purchase price is ¥ 15,264 + 101 + 205 = ¥ 15,570.

Table 8 Cost and consumer price of rice (unpolished) 1960-1969

	(a) Govt. Purchase	(b) Govt. Cost Price	(c) Consumer Price	(d) Govt. Sale Price	Balance (b-d)	Deficit as % of (b)
1960	69,367	76,855	77,807	72,513	4,342	5.6
1961	73,683	80,237	77,800	72,100	8,137	10.0
1962	81,100	87,522	77,807	71,900	15,622	17.8
1963	87,807	94,944	87,180	80,307	14,637	15.4
1964	99,747	107,934	87,180	93,867	14,067	13.0
1965	108,967	118,948	101,333	92,827	26,081	21.8
1966	119,000	130,602	110,320	101,053	28,375	21.7
1967	129,953	143,928	110,320	100,153	42,775	29.7
1968	137,600	154,980	126,620	115,620	39,360	25.4
1969	137,600	162,038	136,940	124,947	37,091	22.8

Source: Oshima, K. (1975): *The Economy of Rice and Milk*, p. 144

One of the major agricultural problems confronting the Japanese government today is perhaps, the heavy financial deficit resulting from the Food Control Legislation. In fact since 1945, with the exception of four years (1947, 1949, 1950, 1951) the government has to pump huge sums of money, hundreds of million yen annually before 1960<sup>5)</sup> and thousands of million yen thereafter to finance this programme.

The aims of the Food Control Legislation are:

- (a) the production of a sufficient quantity of rice to meet home demand
- (b) the prevention of a steep increase in price in the retail market.

To achieve the first goal, an attractive price must be offered to the rice-farmers. To achieve the second goal, the government has to sell rice to the wholesaler at more than 20% below cost from 1965-1969 (Table 8). It should be noted that the consumer price is very close to the government purchase price. Obviously there is not great advantage so far as the consumers are concerned. The real gains are the farmers and the wholesalers or agricultural co-operatives. The real losers are the government and the consumers. The former has to cope with a huge deficit, while the latter still has to buy rice which is hardly cheap by international

5) Otani, S. (1963): *Modern Japanese Agricultural Economy*, p. 183

standard.

A great part of the government's deficit is the consequence of high management fees. This rose from 25,098 yen per ton in 1969 to 40,233 yen per ton in 1974.<sup>6)</sup> It looks, therefore, that funds which should go direct to assist the consumer are being used to finance the operation of a bureaucracy.

Under these circumstances the Japanese government has really few options. It can take one of the following measures which, however, are all equally unpalatable:

1. Relax government control and allow the producer and the consumer to work out a solution between them. This measure can reduce government expenses on management. But since the rice market is not guaranteed the farmer will hesitate to produce more (the existing situation is that government will buy all the farmer can produce). Furthermore if the farmer over-produces he will be heading for another trouble: the problem of storage and a glutted market. Thus he tends to produce less in order to keep the price high and also avoid the problem of storage. All these could only lead to shortage in supply and soaring prices later.

2. Abolish the Food Control Programme and rely on the importation of rice from overseas. Once rice is imported freely on a large scale, all rice farmers in Japan will go bankrupt because of non-competitiveness. Then the government not only has to face millions of unemployed farmers but also unemployment in related areas such as fertilizer, farm machine and insecticide industries, not to mention thousands of office-workers in agricultural co-operatives. Moreover, a nation that is not self-sufficient in its main staple food always find itself in a precarious situation in times of natural disaster or political embargo. This is a responsibility no political party is willing to take.

3. Maintain the existing system despite heavy deficits. From the consumer's point of view this is a bad measure. It means the deployment of public money to support a section of the community (in this case rice-farmers) whereas cheaper supplies could be obtained overseas.

A few years ago I pointed out that the unbalance production situation in Japanese agriculture was a result of the government's rice policy.<sup>7)</sup> No solution to this problem was in sight then. The situation is just as bad if not worse now.

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6) Suzuki, N. (1975): *The Production and Circulation of Rice in Japan: Its Present and Future*, p 81.

7) Sum, K.S. (1971): Rice Cultivation in Japan and Its Related Problems, *Sci. Repts. Tohoku Univ., 7th Ser. (Geogr.)*, 21, 19-28.