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# Japanese Agriculture—Rice Policies—Background and Issues as Related to Feedstuffs

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Invited paper presented at the Second Workshop on the Livestock and Grains Study Programme, Pacific Economic Cooperation Conference, Napier, New Zealand, October 19-22, 1987. This paper, being a country paper representing the Japan National Committee for Pacific Economic Cooperation, is a kind of product of compromise among Livestook and Feedgrains Subcommittee members. And thus, the author's own views are not openly stated in the paper, although the author is responsible for all the possible errors and biases in it.

## I. Introduction

Japan's economy made an extremely rapid growth for 20 years or so since 1955 when it had recovered to the pre-war level. Per capita GNP increased from U.S. $1,850 (in 1980 constant prices) in 1955 to $6,920 in 1970 and $9,890 in 1980, respectively. Agriculture accounted for 21 percent of GNP and 39 percent of the total labor force in 1955. In 1980, the agriculture's share in GNP was only 4 percent but 10 percent of labor force was engaged in agricultural production. Here may lie one of reasons for agricultural protection in Japan.

Japan was 91 percent self-sufficient in food-agricultural production in 1960 and 73 percent in 1985. However, livestock production, which accounted for 27 percent of the total agricultural output in 1985, depends very heavily upon feedgrains imported from abroad. Self-sufficiency ratio for grains dropped from 83 percent in 1960 to 48 percent in 1975 and 34 percent in 1985, respectively. As the economy grew, people came to consume more meat and fat and less starchy foods but still in 1985, people, on the average, took 28.2 percent of daily caloric intake from rice. Some fish and/or meat and vegetables with bowls of rice are typical dietary patterns of the ordinary Japanese consumers and are believed to be so in the foreseeable future. "Gohan", which literally means meal, also refers to cooked rice. In the minds of most Japanese people, rice occupies a very special position.

## II. Self-sufficiency and degree of protection for selected agricultural products

As is shown by Table 1, and as mentioned above, the over-all self-sufficiency ratio for food declined gradually from 91 percent in 1960 to 79 percent in 1970 and 73 percent in 1985. The ratios for wheat, barley and pulses declined very drastically while the ratio for rice has remained slightly above 100 percent level. The ratios for livestook products have been fairly high, although they somewhat declined in the case of meat. This has been made possible only by the ever increasing imports of feedgrains. Self-sufficiency of domestically produced feed drastically declined, i.e., net domestic feed self-sufficiency ratio declined from 63 percent in 1960 to 38 percent in 1970 and 28

percent in 1985, respectively. Japan is widely known for its very high rates of agricultural protection. Anderson and Hayami estimate that the nominal rate of protection for agriculture was 102 percent in 1984 and 210 percent in 1986 (the difference between 1984 and 1986 being mainly due to the rapid appreciation of yen in 1986). These figures compare to 22 percent and 63 percent, respectively, for European Community as a whole, which is also known for its heavy agricultural protection.

Table 2 shows nominal rates of agricultural protection for selected commodities, from

Table 1. Self-sufficiency ratios for selected agricultural products (1960 to 1985)

(Unit: %)

| | 1960 | 1970 | 1980 | 1985 (1) |
|---|---|---|---|---|
| Rice | 102 | 106 | 87 | 107 |
| Wheat | 39 | 9 | 10 | 14 |
| Barley | 107 | 34 | 15 | 15 |
| Pulses | 44 | 13 | 7 | 8 |
| Soybean | 28 | 4 | 4 | 5 |
| Vegetables | 100 | 99 | 97 | 95 |
| Fruits | 100 | 84 | 81 | 76 |
| Eggs | 101 | 97 | 98 | 98 |
| Milk & Dairy Products | 89 | 89 | 86 | 89 |
| Meat | 91 | 89 | 81 | 81 |
| Beef | 96 | 90 | 72 | 72 |
| Pork | 96 | 98 | 87 | 86 |
| Sugar | 18 | 23 | 29 | 34 |
| Fish | 110 | 108 | 104 | 94 |
| Aggregate Ag. Products | 91 | 79 | 70 | 73 |
| Grains | 83 | 48 | 29 | 34 |
| Net Domestically Produced Feed | 63 | 38 | 28 | 28 |

(1): Preliminary.

Source: MAFF, STATISTICAL TABLES ATTACHED TO WHITE PAPER ON AGRICULTURE, 1986, p. 99.

1960 to 1984. It is clearly demonstrated that the agricultural protection has become heavier in recent years, particularly for grains. Within the category of livestock products, it is noted that beef and milk have been heavily protected while rates of protection for pork, chicken and eggs have been quite moderate.

It may be worth noting that productions of wheat, barley and soybeans, and hence their self-sufficiency ratios, with the exception of rice, have drastically declined, as shown above, despite significantly increased rates of protection. This, however, should not be interpreted that the lower rates of protection might have led to the greater production of these products. Possibly, the opposite might have been the case, in the

Table 2. Nominal rates of agricultural protection for selected commodities in the European Community and Japan, 1960 to 1984

(Unit: %)

| Area | European Community | | | | Japan | | | |
|---|---|---|---|---|---|---|---|---|
| Year | 1960 | 1970 | 1980 | 1984 | 1960 | 1970 | 1980 | 1984 |
| Grains: | | | | | | | | |
| Rice | 39 | 40 | 44 | 10 | 47 | 135 | 192 | 235 |
| Wheat | 36 | 54 | 18 | −10 | 51 | 134 | 261 | 318 |
| Barley | 26 | 67 | 23 | −8 | 52 | 158 | 307 | 363 |
| (Average) | 29 | 47 | 23 | −9 | 48 | 135 | 196 | 239 |
| Livestock: | | | | | | | | |
| Beef | 61 | 75 | 93 | 111 | 84 | 108 | 100 | 103 |
| Pork | 31 | 21 | 13 | 7 | 97 | −9 | 17 | 21 |
| Chicken | 52 | 22 | 13 | 21 | 19 | 18 | 23 | 9 |
| Eggs | 26 | 15 | 5 | 3 | −7 | −9 | −1 | −7 |
| Milk | 29 | 86 | 53 | 39 | 5 | 212 | 186 | 185 |
| (Average) | 37 | 52 | 42 | 38 | 22 | 24 | 40 | 41 |
| All Commodities | 37 | 52 | 38 | 22 | 41 | 74 | 85 | 102 |

Source: Yujiro Hayami, "Agricultural Protection in the Industrialized World: The Case of Japan," paper presented at the Conference organized by Resources for the Future, Inc., February 17-21, 1986, Table 2 attached to the paper.

author's opinion. Most of Japanese agricultural land base may not be suited for growing these products without very high intensity of labor input which can not be hoped for with internationally the highest wage levels in the present-day Japanese economy.

## III. Government policies for rice, wheat and barley and feed-grains

Production and distribution of rice have long been under the government's control according to Staple Food Control Law of 1942. Direct control on wheat and barley was abolished in 1952 but these two products for direct human consumption have been state-trading commodities. Corn and soybean, for human consumption as well as for feed, and sorghum and other feed grains have long been freely traded, although some sorts of generous deficiency payment to domestic producers have been applied to these products.

The Food Agency, the Ministry of Agriculture, Forestry and Fisheries (MAFF), purchases all rice (in unpolished form) except for producers' own home consumption from farmers at prices set according to "cost of production and income compensation formula." The Agency is responsible for inspection, grading, storage and transportation and resells (unpolished) rice in its hands to its designated wholesalers at fixed prices which are designed not to hurt consumers'household's budget. These prices of rice are commonly called "consumer prices" in the press but are by no means prices consumers to pay. The government's control on "true consumer prices" was removed in 1972 and prices of (polished) rice consumers to pay at the retail outlets have been feely determined since then.

There has been a widely held misconception about the price structure of rice in Japan, i.e., "Japanese consumer prices (of rice) were above world prices but below producer prices, requiring large budgetary outlays for producers in 1982-84." (U.S.D.A, "Government Intervention," p. 36) It is quite true that the Japanese consumers have been paying considrably higher prices than in most other parts of the world (see Table 3). But retail prices of polished rice have never been below producer prices of unpolished rice even before or after the direct control of consumer prices of rice was abolished. Negative differences between government's purchase prices (producer prices) and

Table 3. Rice prices, Thailand, the United States and Japan, 1984

(Unit: Japanese yen per 1 metric ton of polished rice)

| | Producer Prices | Consumer Prices | FOB Export Prices |
|---|---|---|---|
| Thailand | 25,746 | 43,696 | 40,610 |
| U.S. | 40,664 | 133,270 | 52,813 |
| Japan | 343,414 | 471,000 | — |

Source: Hiroshi Tsujii, "Kome Seisampi to Beika no Kokusai Hikaku (International Comparisons of Costs of Production of Rice and Rice Prices), NOGYO TO KEIZAI, April 1987, Fumin Kyokai, p. 21.

its resale prices were fairly large, amounting to 20 to 25 percent of producer prices, 10 some years ago but have been narrowed to almost nil in the past few years, as demonstrated by Table 4.

In case of wheat and barley for human consumption, farmers are free to sell their products to whoever and at whatever prices they wish. However, as producer prices

Table 4. Government purchase prices (producer prices) and government resale prices (to wholesales) of unpolished rice, 1960 to 1985

(Unit: yen per 60kg of unpolished rice)

| Year | Producer Prices | Government Resale Prices |
|---|---|---|
| 1960 | 4,162 | 4,351 |
| 1965 | 6,538 | 5,570 |
| 1970 | 8,272 | 7,442 |
| 1975 | 15,570 | 12,205 |
| 1980 | 17,674 | 15,891 |
| 1985 | 18,668 | 18,598 |

Source: Yoshikazu Kano, KOME O DOSURU (WHAT TO DO WITH RICE?), Nihon Keizai-Shimbunsha, June 4, 1987, p. 218.

set by the government, according to a prity price formula, have been far above government's resale prices to millers, as shown by Table 5, farmers sell virtually all their products to the Food Agency. At the same time, the Food Agency purchases all of imported wheat and barley for human consumption and resells them to millers at prices considerably higher than purchase (import) prices (Table 5).

One of the most distinctive features of Japanes policies for rice (and other grains for human consumption) has been setting prices for producers to receive high enough to compensate cost of production and income of average size operations, with very little concerns with the demand and supply situation. As urban workers' income went up rapidly in the 1960s and 1970s, producer prices of rice were raised constantly, e.g., producer prices more than quadrupled between 1960 and 1978 while wholesale price index (for all goods) rose only 86 percent during the same period.

As the economy grew and people's real income rose, per capita consumption of rice began to decrease steadily from 118.3kg in the peak year 1962 to 95.1kg in 1970, and 79.8kg in 1980 and slowly further down since then. It can not be denied that high prices of rice set by the government to guarantee income (per day) comparable to that of urban workers might have stimulated its supply, if not helped to decrease its demand significantly.

At any rate, the Food Agency held more than 7 million metric tons (mt) of carry-over

Table 5. Government purchase prices and resale prices (to millers) of domestic wheat and government import prices of foreign wheat, 1980 to 1985

| | Government Purchase Prices (¥/60kg) | Government Resale Prices (¥/60kg) | Government Import Prices (¥/1 m.t.) | | |
|---|---|---|---|---|---|
| | | | U.S.W W | Canada ICW | Australia ASW |
| 1980 | 10,704 | 3,812 | 47,012 | 59,235 | 51,086 |
| 1983 | 11,092 | 4,135 | 44,426 | 54,083 | 45,018 |
| 1985 | 11,092 | 4,135 | 36,585 | 47,205 | 36,825 |

Source: MAFF, Statistics Department: POCKET NORIN SUISAN TOKEI－1987 (POCKET STATISTICS ON AGRICULTURE, FORESTRY AND FISHRIES－1987), p. 190.

rice (equivalent to one year volume of sales) at the end of 1969 rice year.

The government had to start nationwide set-aside program in 1970. The national government imposed an uniform rate of reduction in the area planted to rice, with the cooperation of local governments, by paying handsome amounts of "rice acreage reduction encouragement subsidies." The government switched from mere acreage reduction to "conversion (into other crops) encourgement" programs in 1976. But the government kept raising producer prices steadily even after 1970 until 1977 when producer prices were more than 100 percent higher than in 1970. Producer prices were raised slightly each year even after 1977 till 1985. Producer prices of rice were lowered for the very first time in the past 31 years merely by 6 percent in 1987.

Due to the declining trend in rice consumption and probably slight improvements in yields per ha (2.45 acres), the government found it imperative to expand set-aside area greatly from 340,000ha in 1979-80 to 770,000ha in 1987. Direct costs in the form of "encouragement subsidy" alone amounted to somewhere around 350 billion yen (U.S. $1.5 billion) each year in 1981 to 1983 which accounted for roughly 10 percent of the national government's budgetary outlays for agriculture. It is reported that the tacit agreement (or understanding) has been reached between farmers' organizations, represented by ZENCHU (National Central Union of Agricultural Cooperatives), and the government that acreage reduction subsidy would be reduced to zero in the future while producer prices would not be drastically lowered, i.e., the general framework of rice control by the government should be maintained. This also implies that farmers' organizations would more actively get involved in the rice acreage reduction programs on their own account.

## IV. Rice policies, pros and cons

Most people might agree that the today's rice situation in Japan is by no means a healthy one. Internationally compared, prices are so high, mainly because of low productivity in rice cultivation. Large areas of rice paddies, amounting to almost one third of the total paddies available, are being set-aside for producing other crops which are not in great demand. Not small areas are believed to be left virtually idle. Japan is a

land shortage country. Somethings must be done to alleviate these problems.

Policy satnces can be classified into four broard categories: (1) status quo, (2) do everything possible to lower prices or to reduce production costs with the present basic framework of Staple Food Control System (SHOKUKAN) retained, (3) abolish the present Staple Food Control System to leave the price determination to the market principle, (4) liberalize rice trade, if not immediately, so that low-cost rice can be imported freely from whatever countries consumers wish.

Categories (1) and (4) are the opposing two extreme views which are not accepted by great majority of people. A few people, especially among producers, claim that rice prices should be raised in accordance with hikes in urban wages and conversion encouragement subsidies should not be cut. But such a demand as this seems to be losing strong supports even from the ruling Liberal Democratic Party (LDP) which heavily depends on rural constituency which is given disproportionate favor in both Lower House and Upper House elections. As already shown by Table 3, prices of rice, especially producer prices, are extremely high as compared with other countries. And it is beginning to be understood that paying handsome emounts of subsidies from government treasury, which has been tight due to much slower economic growth in recent years, for producing virtually nothing is a mere waste, not productive at all.

As regards to the view, category (4), the complete trade liberalization, no one believes that Japanese rice production could survive the international free trade, given small plots of rice paddies scattered here and there, mainly due to sloped landscape (it is not uncommon that a 2.0ha of rice farm has more than 30 plots of paddies), and very high wages. As mentioned earlier, rice is still an essential part of diet for most Japanese consumers. They are afraid that they would be subject to unstable international market conditions. Some political scientists as well as agricultural ecoonomists express their concerns that Japan, as an independent nation, would become the more vulnerable to the political maneuvers of suppling nations, if Japan were depending upon a few countries for the most part of their rice supply. They point out that only a fraction of rice produced world-wide has been internationally traded, unlike the case of wheat, corn, or soybean, etc.

The crucial difference between views, category (2) and (3), is whether the basic structure of SHOKUKAN (the Staple Food Control System) should be maintained or abolish-

ed within a few years of time. As is shown by Table 6, rice farms, 3.0ha or more in size, can proudce 60kg of rice for the cost (excluding rent) of 10,731 yen as compared to 20,788 yen for farms, 0.3 to 0.5ha, and 17,860 yen for farms, 0.5 to 1.0ha, in 1985. There can be seen a decisive economy of scale, which was not existent to an appreciable degree in 1965. Due to the fuller utilization of the larger sized farm machineries, there are a few actual examples and it is estimated by rice scientists that the cost of production can be reduced by some 60 percent or more from the present national averages for farms, 1.0 to 1.5ha in size, by expanding operations to 10ha or above.

Table 6. Cost of production of rice, by size of culivation, 1965, 1975 and 1985

| | | Average | 0.3-0.5ha | 0.5-1.0ha | 1.0-1.5ha | --- | 3.0ha- |
|---|---|---|---|---|---|---|---|
| 1965 | Cost of Production* | 3,522 | 3,931 | 3,740 | 3,399 | --- | 3,632 |
| | Labor Expenses | 2,105 | 2,363 | 2,247 | 2,043 | --- | 2,122 |
| | Machinary Expenses | 534 | 548 | 582 | 539 | --- | 488 |
| 1975 | Cost of Production* | 8,932 | 11,139 | 10,009 | 8,920 | --- | 6,051 |
| | Labor Expenses | 4,163 | 5,527 | 4,893 | 4,248 | --- | 2,329 |
| | Machinary Expenses | 2,083- | 2,299 | 2,318 | 2,045 | --- | 1,563 |
| 1985 | Cost of Production* | 15,899 | 20,788 | 17,860 | 15,323 | --- | 10,731 |
| | Labor Expenses | 6,330 | 8,739 | 7,299 | 5,950 | --- | 4,023 |
| | Machinary Expenses | 4,923 | 6,199 | 5,659 | 4,807 | --- | 3,121 |

*: Rent and interest on producer's own capital not included.

Source: MAFF, STATISTICAL TABLES, cp. cit., pp. 64-65.

As Tables 7 and 8 clearly show, Japanese rice farming has remained small in size of operation in terms of area cultivated, although there have been slight but slow upword movements. In 1965, farms with area planted to rice, 1.0ha or below, accounted for 83 percent of all rice farms and farms, 2.0ha or above, 2.6 percent. In 1986, these farms, 1.0ha or below in rice cultivation, still accounted for 83 percent and farms, 2.0ha or above, 4.6 percent. In 1985, farms, 2.0ha or above, accounted for 31 percent of all rice marketed by farms, as compared to 20 percent in 1965. These figures may not

Table 7. Number of farms, by size of rice cultivation, 1965, 1970, 1975 and 1986, Honshu and Hokkaido

(Unit: 1,000 farms)

| Year | All Japan | Honshu | | | | | | Hokkaido | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Sub-Total | -0.5ha | 0.5-1.0ha | 1.0-1.5ha | 1.5-2.0ha | 2.0ha- | Sub-Total | 3.0-5.0ha | 5.0ha- |
| 1965 | 4,886 | 4,779 | 2,654 | 1,402 | 461 | 165 | 98 | 107 | — | — |
| 1970 | 4,505 | 4,417 | 2,491 | 1,247 | 413 | 156 | 109 | 88 | 16 | — |
| 1975 | 4,157 | 4,093 | 2,296 | 1,104 | 389 | 160 | 144 | 64 | 16 | 10 |
| 1986 | 3,560 | 3,513 | 2,062 | 879 | 306 | 134 | 133 | 47 | 13 | 12 |

Sources: POCKET NORIN SUISAN TOKEI, op. cit., various issues.

Table 8. Percentage distribution of rice sold by farms, by size of rice cultivation, 1965, 1970, 1975 and 1985

(Unit: %)

| Year | Total | -0.5ha | 0.5-1.0ha | 1.0-1.5ha | 1.5-2.0ha | 2.0-5.0ha | 5.0ha- |
|---|---|---|---|---|---|---|---|
| 1965 | 100.0 | 9.5 | 31.8 | 24.0 | 14.7 | 18.3 | 1.7 |
| 1970 | 100.0 | 10.9 | 29.4 | 21.8 | 13.7 | 21.0 | 3.2 |
| 1975 | 100.0 | 10.8 | 27.0 | 20.5 | 13.7 | 23.2 | 4.7 |
| 1985 | 100.0 | 11.6 | 25.5 | 19.0 | 13.0 | 24.6 | 6.4 |

Source: STATISTICAL TABLES, op. cit., p. 61.

be understood easily by foreign people who know that Japan is a great exporter of steel, automobiles, electiric machineries, etc. produced by means of efficient mass production.

Many of those who fall into the category (3) in their views, abolishment of SHOKUKAN, contend that many small-scale, inefficient farmers have remained in rice production, largely because they have been paid by the government good prices determined according to the formula to "compensate cost of production and income" to majority of producers. Besides, (producer) prices have been so lucrative that the supply has tended to exceed the damand. Therefore, the national government has had to pay

a huge amount of set-aside subsidies for the past 18 years which amounted to 4,360 billion yen (approximately U.S. $20 billion) in total. They maintain that SHOKUKAN should be abolished within a few year period, say 5 years in case of KEIDANREN, the Federation of Economic Organizations, one of powerful machines representing industries, to the effect that prices be determined in free market by the demand-supply principle. Then there would be no need for set-aside subsidies. In addition, costs of production would be substantially reduced, becuase, hopefully and likely, many of small-scale, inefficient farms would cease producing rice and the more efficient farms could enlarge their operations further to reduce their costs of production.

Those who claim that the basic structure of SHOKUKAN should be maintained, if modified in modus operandi, fear that prices might fluctuate drastically from time to time as they repeatedly did so for a long history before SHOKUKAN was established, if price determination were left to free market forces.

They do not doubt that the producer prices of rice would drop to one half or two-thirds of the present level, at least, if prices were determined by the matket principle. They suspect that rice farms located in hilly regions, whcih are not suited for the more efficient cultivation by means of large-sized machineries, will be forced out of production of rice, very likely farming at all. Most of these rigions are such areas where no other jobs are readily available. Furthermore, it is maintained that rice paddies in these regions have been functioning as important (water) reservoirs in Japan, a highly slant, mountainous country in a typical monsoon area. So they claim that rice paddies in these regions must be kept, even if not efficient in productivity.

Secondly and more importantly, it is suspected that those rice farms which are the more efficient in operation, cultivating 2 to 5ha of paddies, whould be hit the most if prices were to drop by 30 to 50 percent. Unlike the smaller scale rice farms, 0.5 to 1.0ha in area, most of which are so called "week-end farms" or heads of which have secure non-farm employments, most of the larger scale farms may be full-time farmers or depend on revenues from rice for a large portion of their family income.

Rice farms, which cultivate 10ha of their own paddies (very small in number at present, though), are estimated to be making at least 10.0 million yen (U.S. $67,000) of net income (per farm) from rice farming. If they produce other crops and are engaged in non-farm jobs during off-season, their household income may exceed 15.0 million

yen. This is roughly twice as much as middle aged professors at national universities make a year. It is, however, very important to notice that say 30 percent fall in price may not be equal to 30 percent drop in net income. Given paid direct costs such as fertilizers, insecticides, machinery expenses, etc. not greatly saved, a 30 percent decrease in price may correspond to at least 50 percent reduction in net income and a 50 percent decrease in price to approximately 70 percent drop in net income.

Newly graduates from universities make 2.5 million yen per year in industries and their salaries will be almost automatically increased to 5.0 million yen within 10 to 15 year periods under the seniority system. Whether an able, inteligent young farmer, probably a college graduate, with 2 to 3ha of his (or his farther's) own paddies, would choose to remain in rice farming by trying to expand his operation only gradually to 10 to 15ha, mainly on lease, foreseeing that rice prices would fall 30 to 50 percent in the near future, is a serious question to be addressed. If he is an able young man, he will have no problem in finding a good job in non-farm sectors. And if he is not smart, he will not be able to manage such a big farm operation as 10 to 15ha in area efficiently. It is quite rare to find rice paddies as large as 1.0ha per plot. In case of Mr. Masatoshi Kunisada, who operates 30ha of land (28.5ha for rice), one of the very few largest in the country, cultivates 99 plots of paddies scattered in 20 sub-divisions. Still he is reported to think that he is fortunate, because 40 percent of his paddies are located within 10 to 30 kilometer radius from his house and range from 0.5ha to 1.4ha in area per plot.

## V. Problems of ever increasing surplus rice paddies

Per capita consumption of rice will continue to gradually decline. With technological improvements by means of "bio-technology," and continued agricultural land base improvements, yields of rice will continue to rise appreciably, if not dramatically. Set-aside area was increased from 600,000ha in 1982-86 to 770,000 ha in 1987. Toward the turn of the century, about 1.0 million ha of rice paddies will have to be set-aside. It will be more than one third of the total area of paddies available.

How will these surplus rice paddies be utilized? There will be no problems with pad-

dies in areas surrounding the expanding bigger cities. These paddies will have to be converted sooner or later into sites for housings, factories, or recreational facilities. For this purpose, differential taxations being applied to agricultural lands in suburban areas of the bigger cities should be eliminated soon, although it may not be politically very easy to implement. At any rate, rice paddies nearby big cities do not account for a good portion of the total paddies.

Table 9 shows how (into what crops and uses) some 600,000ha of rice paddies were converted during 1981-1986 under the government-sponsored (or the government-enforced) rice conversion programs. Unit prices of subsidies were lowered approximately 25 percent from 1983 to 1984 and again more than 30 percent from 1986 to 1987. In 1986, for example, those farmers who converted their paddies into perenial crops such as fruit trees were paid approximately 60,000 to 70,000 yen per 0.1ha ($3,500 to $4,000 per 1.0ha), and 50,000 to 60,000 yen in case of soybean, forage crops, wheat, etc. and 35,000 to 42,000 yen in case of other general crops such as vegetables. Assuming the

Table 9. Area of rice paddies converted into other crops and uses, 1981 to 1986

(Unit: ha)

| | 1981 | 1982 | 1983 | 1984 | 1985 | 1986* |
|---|---|---|---|---|---|---|
| Soybean | 97,345 | 96,053 | 86,880 | 77,349 | 73,136 | 79,262 |
| Forage Crops | 172,251 | 173;038 | 158,231 | 129,422 | 117,025 | 119,613 |
| Wheat & Barley | 110,549 | 113,435 | 111,754 | 99,268 | 92,155 | 97,904 |
| Perenial Crops | 12,387 | 12,851 | 11,586 | 11,179 | 9,915 | 8,906 |
| Vegetables | 108,262 | 109,697 | 108,690 | 113,993 | 112,042 | 116,490 |
| Other Crops | 87,311 | 89,895 | 87,029 | 86,409 | 75,754 | 80,162 |
| Sub-Total | 588,105 | 594,969 | 564,170 | 517,620 | 480,027 | 502,337 |
| Rice for Non Direct-Human Consumption | — | — | — | 52,729 | 63,861 | 56,576 |
| Other Uses | 80,097 | 77,305 | 74,348 | 49,748 | 50,176 | 58,670 |
| Total | 668,202 | 672,274 | 638,518 | 620,097 | 594,064 | 617,583 |

*: Preliminary.

Source: STATISTICAL TABLES, op. cit., p. 67.

average yields of wheat in somewhere between 3.0 to 3.5 mt per 1.0ha, rice farmers are paid approximately $900 of encouragement subsidies per 1 metric ton of wheat by the government, in addition to the regular prices set by the governemnt at approximately $1,000 per mt, when they convert part of their paddies into wheat production. In case of pasture grass, farmers are paid approximately $80 of encourgement subsidies per mt of raw grass.

People tend to think, and some of those who are believed to be knowledgeable about Japanese agriculture, such as Professors Y.Hayami and Y.Yuize in Japan and Dr.F.Sanderson in the United States, are reported to say that surplus rice paddies can be, should be and will be used for producing forage crops, especially fodder. Reasons behind this claim is simple, i.e., the demand for beef is predicted to grow substantially and Japanese beef cattle, in general, are not fed enough roughages, especially high quality roughages.

But the situation is not that simple. Japan has been importing more than 7.0 million mt of wheat and barley annually. With such high conversion encouragement subsidies as mentioned above, only 110,000ha of rice paddies were converted to the production of wheat and barley in 1981-83 and the area converted into wheat and barley fell to 92,000ha in 1985. Rice paddies converted into forage crops decreased from 172,000ha in 1981-82 to 117,000ha in 1985. The rice coversion programs have been so far carried out successfully, not only with generous amounts of encouragement subsidies from the national government but with "administrative guidance" of local governments and unaccountable enforcement efforts of local cooperatives.

So, even if the need for conversion increases and the demand for beef increases, there is no guaranttee at all that surplus rice paddies will be aoutomatically converted into forage production. Besides, in a country like Japan, where the weather is rainy and very humid even when it does not rain, it is not easy to make high quality hay which is transferable and so tradable.

An opinion appears here that rice paddies should be used for producing rice, because they are, in general, better suited for growing rice other than any other crops. Inefficient, small-scale rice farms or smalll plots of paddies should be consolidated into the larger farms or plots to reduce costs of production as much as possible. Even so, some rice farms or plots would remain low in productivity. There would be no other ways

but leave these paddies idle, or used for other purposes, if economically possible. Still there would be surplus of rice, probably two to three million mt or so. This much rice should be used mainly for feed.

As mentioned earlier, feedgrains have long been freely traded even without any dutytariff. Surplus rice, domestically produced, will have to be supplied to livestock producers at world prices, around 30,000 to 35,000 yen ($150 to $200) per mt. Producer prices of rice are presently approximately 300,000 yen per mt. How can this puzzle be solved? By a sort of price discrimination. Suppose, for the sake of simplicity, 12.0 million mt of rice would be produced in total and 9.0 million mt would be used for direct human consumption. Then 9.0 million mt of rice for human consumption would be sold at the present level, 300,000 yen per mt and the rest, 3.0 million mt of rice, would be sold for 30,000 yen per mt, world prices. The pooled average price would be (300,000 yen × 9.0 million mt + 30,000 yen × 3.0 million mt) ÷ 12.0 million mt = 232,500 yen/mt. Producer prices for human consumption could be slightly lowered to reach 200,000 yen/mt of pooled average price. This may not be a totally absurd idea.

If so, there would be a need for a machine by which the price discrimination above mentioned can be securely implemented. It might have a resemblance to Federal Marketing Order for milk and some kinds of produce in the U.S. Or the second SHOKUKAN (Staple Food Control System) could be expected to carry out the function. At any rate, a strong government regulation would be a must, even if the present SHOKUKAN should be strongly criticized in many respects.

Lastly, growing forage crops, mainly grass, for cattle, in rice paddies, without subsidies, would not be absolutely impossible. But with present levels of pasture management technology in Japan and with the recognition that vast majority of paddies to be shifted from rice production are poor in drainage and generally small in plots, producing grass economically should be almost impossible. Furthermore, our cattle production has been geared to feeding as much inexpensive imported feedgrains as possible and as little roughages as animal-physiologically allowed. However, there still remains a strong opinion held by some people that most surplus rice paddies should be used for producing forage crops mainly for cattle.

Thus, how to utilize ever increasing surplus rice paddies would become a bigger problem for Japanese agriculture or a country as a whole to conforont. The author does

not think it is a very easy task to tackle with.

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**編集後記**

1987年もあと10日あまりとなりました。国際的には，ＩＮＦ全廃条約の締結という世界史の新しい胎動を予感させる年となりましたが，国内的には閉塞的状況の強まるなかで，「地価」だけはいたずらに上げられ，ストックとフロウの際立った歪みが目につきました。「月報」のほうも「その月暮らし」の状況ながら，何とか年を越すことができました。御投稿下さった方々に御礼申しあげます。来年の抱負など述べる余裕はないのですが，「月報」が所員のポレミック・スペースに少しでもなればと願っております。降り積もった雪の下，春を待つ草芽を想いながら，御投稿を待っております。現在，１月号は予定稿が入っております。　（Ｔ．Ｍ）

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