A COMPENDIUM OF COVER PAGE ARTICLES

OF

THE WEEKLY FOOD COMMODITIES BULLETIN

SERIES ONE

RICE

* Production
* Prices
* Quality
* Processing
* Post-harvest Losses
* Marketing

Occasional Publication 36

April 1987

AGRARIAN RESEARCH AND TRAINING INSTITUTE,
114, Wijerama Mawatha, Colombo 7.

SRI LANKA

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FOREWORD

Since 1980, the Marketing & Food Policy Division of Agrarian Research and Training Institute has been publishing a periodical called the Food Commodities Bulletin. It started as a monthly publication but gradually became a fortnightly and finally a weekly from 1983. Similarly, food commodities covered by the bulletin were also expanded gradually from rice, subsidiary food crops and vegetables to eggs, fish, dried fish and fruits. Initially the data for the bulletin were collected in Colombo markets but this coverage too expanded to the suburbs as well as to some outstation districts over time.

As far as possible the bulletin attempts to provide the total picture of supplies and prices of food commodities during the week. It has been found that this information is used extensively not only by the producers, traders and the consumers but also by the research community for further analysis and study. The newspapers are reserving space weekly for the publication of the cover page articles and other information from the bulletin.

In addition to the price data provided in the body of the report a cover page article highlighting a current problem in the agricultural marketing sector is published in the bulletin. These articles are given wide publicity by the daily press and we are aware that some important policy decisions have been taken by the government on the basis of issues raised in these articles.

As these articles are published in the weekly bulletin there is a likelihood that the issues raised in them would be forgotten in due course. Therefore, it was decided to collect these articles into one volume and make it available as an occasional publication of the ARTI for the benefit of the general public. For easy reference, the topics have been grouped into five major areas, viz: rice, subsidiary food crops, vegetables and fruits, poultry, fish and livestock and others.

This volume presents the articles covering various aspects of rice. These articles appeared in the bulletin issued from 1984-86. They are the result of collective effort of the Research and Training Officers in the Marketing and Food Policy Division and the Information and Publication Officer attached to that division. Mr. Athula Chandrasiri - Head of the Marketing & Food Policy Division was responsible for coordinating the work and getting these articles written and published in time. I thank them all for their valuable contributions which made this publication possible. I hope the publication of these articles in this form will help all those who are working in the paddy sector to formulate their future policies for the development of the sector.

T.B. Subasinghe
DIRECTOR

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In the twelve articles that follows, various aspects of rice production and marketing have been investigated. For easy reference these are considered under the following broad titles.

Production	-	Article Nos. 1, 6, 12
Prices	-	Article Nos. 4, 5, 7
Processing	-	Article Nos. 3, 10
Quality and grading	-	Article Nos. 2, 9
Trading practices	-	Article No. 8
Post-harvest losses	-	Article No. 11

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INTRODUCTION

Global outlook

Monsoonal Asia is considered to be the ancient home of rice. Over a third of the world's population predominantly in Asia depend on rice as a primary dietary staple. It is also the major source of livelihood of the majority living rural areas. It is estimated that 40% of the world's population use rice as a major source of calories (De Datta, 1981). The annual per capita rice consumption of most Asian countries exceeds 100 Kg.

Rice ranks second only to wheat in terms of the area harvested, but in terms of the area under cultivation and the number of people depend on the crop, it is undoubtedly the most important food crop of the world.

There are 111 rice producing countries. Rice occupies around 150 million hectares of the world's land area of which over 90% is in Asia. India has the largest paddy growing extent in the world (about 28%) followed by the People's Republic of China (about 26%). Next come countries like Bangladesh (7%), Thailand (6.5%), Indonesia (6%), Latin American countries (5.2%), Brazil (3.8%), Burma (3.8%) and Vietnam (3.6%).

The total annual world rice production averages around 450 million tons. China (36%) and India (21%) account for more than 50% of the world production. Of all the cereal crops, rice is placed second to maize, both in the national and the world averages of yields per hectare. Almost the entire rice crop is used for human food whereas a substantial portion of the maize crop is converted to livestock and poultry feed.

Annual sales in the world rice market account for only about 12 million tons i.e. around 3% of the total production. This shows that the bulk of the production is used for consumption in the producing countries themselves and that the export market is a restricted and highly volatile.

Thailand, United States of America, Pakistan, the Republic of China and Burma are the leading exporters of rice. Nearly 46% of the exports are shared by two countries, namely Thailand (27%) and the US (19%). Another 25% is shared by Pakistan, China and Burma. Other producing countries export the balance 29%. These percentages show that about 75% of the world rice trade is handled by five countries.

The major rice importing countries are Indonesia, European Economic Community, USSR, Iran, Nigeria, Saudi Arabia, Iraq and Senegal. Indonesia and the EEC countries account for around 25% of the imports. About 36% of the imports are shared by the Middle East and the African countries almost equally.

As the International Rice Commission has pointed out there seems to be three clear recent trends in the world rice economy, namely (a) continued rise in production, (b) parallel increase in consumption, and (c) almost unchanging proportion of rice traded in the world market.

Though the world rice production grew at a rate of 2.5% annually from 1970-1985, the consumption also has increased at the same pace or perhaps at a higher pace. This resulted in a supply of more or less an unchanged volume of rice to the world market. However, overall export supplies are more than adequate to meet import requirements.

Local Background

Sri Lanka's proud cultural heritage, customs and traditions, largely based on activities related to rice farming, have an unbroken history of more than 2500 years. As much as in other Asian societies rice in Sri Lanka is treated with reverence and respect and its culture has developed into an elaborate ritual. The economic, social and cultural life of village societies revolves round its cultivation. Various anecdotes and stories on rice and rice farming have found their way into the historical legends of many Asian countries.

Rice is the staple food of nation. It has traditionally been a smallholders crop and is cultivate in relatively small units of production

under a diverse rqnge of agronomic and institutional conditions. Paddy occupies far more land annually than the combine acreage of all other smallholder crops. Its cultivation is the major source of employment to a majority of Sri Lanka population who lived in rural areas. It is also a main source of lively of about 600,000 people.

In rural Sri Lanka the term 'farming' is synonymous with paddy cultivation and the word 'food' with rice. It is customary Sri Lankans consume rice at least once a day. Owning paddy land and producing own requirements of rice is considered as a social status and prestige. In short, just as agriculture is the base of the Sri Lankan economy, rice is undoubtedly the base of agriculture. These are important social and economic aspects relating to rice cultivation upon which one has to focus attention in tackling problems relating to the rice economy of the country.

Production Trends

Both the production and the yields have increased over the years, particularly from the year 1976/77 as can be very clearly seen from the following table :

	Area harvested (ha)	Paddy Production ('000 tons)	Rice equivalent ('000 tons)	Yield (Paddy) t/h	Yield (Rice) t/h
1975/76	635,484	1,232.6	825.8	2.35	1.57
1976/77	782,301	1,651.6	1,106.6	2.55	1.71
1977/78	839,453	1,861.6	1,247.3	2.65	1.78
1978/79	782,431	1,886.9	1,264.2	2.92	1.96
1979/80	815,640	2,136.7	1,431.6	2.93	1.96
1980/81	836.653	2,233.0	1,496.1	2.98	2.00
1981/82	745,110	2,159.2	1,446.6	3.22	2.16
1982/83	776,658	2,487.6	1,666.7	3.63	2.43
1983/84	885,797	2,423.1	1,623.5	3.08	2.06
1984/85	864,677	2,659.3	1,781.7	3.47	2.32
1985/86	824.274	2,556.0	1,712.5	3.50	2.35
1986/87	Estimated paddy production 2,905.1 ('000 Mt.) and rice equivalent 1946.4 ('000 Mt.)				

Source : Department of Census and Statistics

Sri Lanka's contribution to world rice production is only a meagre 0.4 percent, but the national average yield per hectare is reasonably higher compared with some of the Asian countries.

The increase in total paddy production was 55% during the period 1960-1970, whereas the increase from 1970 to 1980 has been only 16.6 percent. An increase of 14.4 percent is recorded for the period from 1980 to 1986. On the other hand the yield per hectare has shown a constant progress from 1.89 to 2.68 6/ha (42%) for the period 1960-1970, while the increase since 1970-1980 is only 10.5 percent. Again the increase from 1980 to 1986 is 17.4 percent.

Though periodic fluctuations are indicated, an increase in the overall trend is clearly visible.

Consumption and local requirement

Based on the per capita consumption of rice as indicated in the Consumer Finance Survey Report of 1981/82 (Central Bank of Sri Lanka), the country needs about 1.7 million Mt. of rice annually only for consumption purposes. Though the foregoing table shows the rice equivalent of paddy production, in real terms an allowance of about 9% has to be set apart for seed requirements and wastage. Consequently the actual availability of rice for consumption would be less.

The highest annual production recorded so far was 1781.7 ('000) Mt. of rice (121.97 million bushels of paddy) in 1984/85. Taking into account the present selfsufficiency ratio, imports, wastage, population growth and seed requirements, the country has to produce around 150 million bushels (2.19 million Mt. of rice) in the next ten years. i.e. an increase of about 25%.

From 1955 to 1970 the average yearly rice consumption was recorded at 97 Kg. per capita. In 1982 it reached around 100 Kg. The present annual per capita consumption of rice has been estimated around 107 Kg. The Food Controller's Department generally keeps a buffer stock for about 2-3 months requirement of the country.

Self sufficiency

Self-sufficiency is a position which signifies that a country's total requirements are met by the domestic supplies. What is meant by total requirements is a relative statement. Therefore all estimates to be correctly calculated because food availability and accessibility to food have two different meanings. If food is freely available, one may assume that the country has achieved self-sufficiency in food, but in reality it is not the case. If people do not have access to food or in other words if the majority does not have the purchasing power, availability of food alone has no meaning in assessing the required degree of self-sufficiency. Since requirements can exist without fulfilment, self-sufficiency may mean different things to different people.

In measuring the degree of self-sufficiency, a several factors such as accuracy of data, prices of food and substitutes, income levels, imports, consumer preferences etc have to be taken into consideration.

However, rice production has kept rapid strides towards self-sufficiency in the recent years. If not for natural disasters such as prolonged droughts, floods, pest attacks etc as well as man-made disasters like ethnic disturbances and social calamities achieving the goal of self-sufficiency may have been a reality by now. Figures relating to the trend in paddy production prove this statement. Man-made disasters are avoidable while the undesirable effects of natural disasters can be lessened by proper planning and correct/timely decisions.

Issues

* A rapid curtailment of imports during the past few years shows that the country has achieved a higher degree of self-sufficiency in rice. An accurate and a proper assessment has to be made on the country's requirements and the most suitable and profitable agro-climatic areas for production have to be clearly identified and concentrate production only on those areas. Marginal paddy lands may be utilized for other crops suitable.

* Increasing production alone by increasing the extent under cultivation may not be a wise move. Proper land use methods, planned production, crop diversification, higher productivity from limited use of land and enforcing targets are some of the important policy decisions that can be adopted efficiently in varying degrees.

* Over the years the emphasis given on production oriented policies, should now be given to other avenues too, especially marketing.

* Despite the long history of rice farming and the efforts taken to enhance output, Sri Lanka does not produce quality rice comparable with international standards. It has been said that our rice may be graded as the lowest in Asia. This is an area which needs attention.

*The country's rice production increased partly due to adoption HYVs with the advent of the green revolution. But, along with yields costs have increased tremendously. As a result, even if we produce for the export market we cannot compete with countries like Burma or Pakistan where the farmers produce rice at a third of the cost of Sri Lankans. In the present context, an export market for Sri Lanka rice is absolutely out of the question as Sri Lanka does not have the requisite quality or the quantities at the correct prices to match the foreign demand.

* The cost of production of rice has increased dramatically since the introduction of HYVs. It has to be noted that in most cases farmers are not greatly influenced by the cost of production, because paddy is being produced primarily for consumption purposes.

* It has been shown that the wet zone farmer is producing without a profit whereas the dry zone farmer enjoys profit because of high yields and comparatively larger extents. To increase production or at least to sustain the present production levels one has to think about the pricing and high cost factors. This points to the need to search for ways and means to cut down the costs. The Ministry of Agricultural Development and Research has already focussed serious attention on this problem.

* Group farming and group marketing systems may be suggested as a viable solution. Traditional Aththama and Kaiya concepts may be reintroduced in a modified way as measures to curtail the costs. Two of the items which have been identified as causes for the dramatic increase in costs are land preparation and harvesting. Both these items can be tackled effectively through group farming and collective action which is known to have been practiced in the past.

Athula Chandrasiri
Head
Marketing & Food Policy Division

Vol. 5 *10th - 16th February 1984* *No. 7*

Article One

EFFECTS OF FLOODS ON RICE MARKET

Once again floods have adversely affected our agricultural production, and expected yield targets.

During last two weeks heavy and continuous rains were reported especially from Nothern, North Central and Eastern provinces. Sri Lanka has never experienced such heavy rains during the month of February for a long time. Normally February is comparatively a dry month for the whole country.

Since, the major rice producing districts fall within the floods affected area: namely Ampara, Polonnaruwa, Batticaloa and Trincomalee heaviest damages occured to rice production. Further, as reported most of the washed out paddy fields in Batticaloa, Ampara and Mannar districts were not ready for the harvest of the Maha crop.

According to the tentative figures received by the Ministry of Agricultural Development and Research more than 100,000 acres (about 40,500 ha) of paddy have been ruined by floods. This is about 7.4% of the expected target of total harvested area for Maha. Heaviest damages have been reported from Ampara, Batticaloa and Mannar districts i.e., 40%, 30% and 15% respectively. Incidentally Ampara is the highest paddy producing district in the country.

On the basis of the above acreage damaged, the loss may be estimated to be around 9 million bushels of paddy or about 126,000 metric tons of rice. It comes to about 9.3% of the expected production for Maha and about 2,800 metric tons more than the total imports (figures of the Food Commissioner's Department) of rice for the year 1983.

This unexpected natural catastrophe has not only perturbed the country's paddy production target, but also thwarted at least temporarily the long awaited ambition of realizing the self sufficiency level.

Above situation inevitably and directly affects the market conditions. Instant reflections have been already visible both in the wholesale and retail markets. Inclement weather conditions have interrupted normal channels of distribution. During the last two weeks trucks with rice loads have not reached the wholesale market from Ampara and Batticaloa. As a result retail prices of rice may not go down as happened during the months of February, March and April in the last two years.

Vol. 5 *23rd - 29th March and 30th March-5th April 1984* *No. 13 & 14*

Article Two

SIGNIFICANCE OF GRADING AND STANDARDIZATION

Grading and standardization play an important role in the process of agricultural marketing. When a country enters the export market invariably it has to face the exigencies of a highly competitive international trade. Since customers pay a price, they have a right to expect a certain standard of quality in the goods they purchase.

Standardization has been defined as -

> "the determination of basic limits or grades in the form of specifications to which manufactured goods must conform and classes into which the products of agriculture and the extractive industries may be sorted"[1].

The grades of agricultural products have to be obtained by sorting since in most instances the grades are determined to a great extent beyond the producers' control.

However, standardization is a prevalent practice in modern agricultural marketing. Standardizing is essential because agricultural commodities such as grains, spices, fruits, vegetables, etc., enter the market in bulk form. They can be sold with the help of uniform grading and accepted standards of quality without the need to inspect every lot. Many developing countries like Sri Lanka urgently need more effective action programmes to improve uniform standards of weight and measures, economic grades, and especially food sanitation regarding purity and health.

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1 Report of the definitions committee - The journal of Marketing, October 1948, USA.

Though laws exist, they are hardly adhered to and often they are not implemented and it looks as if they are non-existent. Especially in countries like Sri Lanka, awareness of the people or educating the public in this connection is very important. When people know that they have a right to question about the grade, weight, etc., and that a particular commodity should be up to a required standard, it helps to improve confidence and efficiency in the buying and selling trade and marketing activities in general. Further, this will encourage to discipline traders and also producers to supply better quality goods at a fairer price.

At present the vagaries of supply caused by weather and other production conditions dominating the agricultural sector seriously affect consumers and the food marketing system. Improvements in marketing-storage, transportation, grades and standards, pricing information, weights and measures, etc., must be adopted if efficiency is to be enhanced for the benefit of the consumer.

Grades and standards help consumers to place their preferences more accurately and specifically and in turn they encourage producers to produce and supply according to consumer's demand. Standardization of quality grades can thus improve pricing efficiency. In the process of developing standardization activities, consumer demand will be stepped up for product information which will more accurately equate quality with prices. Grade-price differentials pay dividends both to the producer (farmer) and the consumer.

Grading contributes to make a distinction between poor quality products and high quality products. It brings into existence a product homogeneity. This facilitates the consumer to select his needs without any difficulty, and saves him from the unscrupulous traders.

The Bureau of Ceylon Standards was set up in 1965 by the Act No. 38 of 1964 to determine standards of commodities. This has been replaced by the Sri Lanka Standards Institution (SLSI) Act No. 6 of 1984, which became effective from 27.01.1984.

SLSI has formulated standard specifications for a number of agricultural commodities, but a lack of awareness among the consumers as well as traders seems to have made them virtually ineffective. It is very important, that they know the standards specified.

Standard specification for Rice

Very recently (12.01.'84) SLSI (then the Bureau of Ceylon Standards) determined and authorized for adoption the standard specification for rice. Despite the fact that rice is the staple food in Sri Lanka, amazingly but truly, up to now there has been no properly drawn grading system for rice in the domestic market.

Rice is classified into 6 types on the basis of the length of the kernel and colour of the pericarp.

1. Long red (LR) - red pericarped rice having a grain length above 6.0 mm.
2. Long white (LW) - white pericarped rice having a grain length above 6.0 mm.
3. Medium red (MR) - red pericarped rice having a grain length above 4.5 mm.
4. Medium white (MW) - white pericarped rice having a grain length between 4.5 mm and 6.0 mm.
5. Short white (SW) - or Samba - white pericarped rice having a grain length less than 4.5 mm.
6. Mixed type - mixed rice which contains less than 9.0 by mass of any one of the above types.

Raw milled rice should conform to the requirements specified in table 1 and parboiled milled rice shall conform to the requirements specified in table 2.

Table 1

Requirements for raw milled rice

Sl. No.	Characteristics	Requirements for grades			
		Premium	1	2	3
(1)	(2)	(3)	(4)	(5)	(6)
1	Moisture per cent by mass, max.	14.0	14.0	14.0	14.0
2	Foreign matter, per cent by mass, max.	10.2	0.5	1.0	1.0
3	Type admixture, per cent by mass, max.	Nil	2.0	6.0	10.0
4	Damaged grain per cent by mass, max.	Nil	1.0	2.0	4.0
5	Broken grain, per cent by mass, max.	10.0	20.0	35.0	45.0
6	Paddy seeds (grains per kilogram)	Nil	10	30	50

Table 2

Requirements for parboiled milled rice

Sl. No.	Characteristics				
		Premium	1	2	3
(1)	(2)	(3)	(4)	(5)	(6)
1	Moisture, per cent by mass, max.	14.0	14.0	15.0	15.0
2	Foreign matter, per cent by mass, max.	0.2	0.5	1.0	1.5
3	Type admixture, per cent by mass, max.	0.2	2.0	6.0	10.0
4	Damaged grain per cent by mass, max.	0.5	2.0	4.0	5.0
5	Broken grain, per cent by mass, max.	1.0	5.0	15.0	20.0
6	Paddy seeds (grain per kilogram)	Nil	10	25	50

The main issue involved here is to what extent these grades and standards are being maintained at the domestic market and what measures have been taken by the authorities concerned to implement these specifications. Another important implication is the extent of awareness so far as the traders are concerned.

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Article Three

SMALL SCALE RICE PROCESSING AT MARANDAGAHAMULA

Sri Lanka's rice production has been increasing consistantly over the years, and, is now on the verge of self sufficiency. Further, feasibility studies are now being made on the export of rice. However, quality of rice continued to remain at a very low level. According to a recent assessment the local rice is considered as the lowest in quality in Asia. Since 1977 private sector plays a dominant role in the rice market. Since Colombo city and its suburbs are the major consuming areas, it is natural for a rice processing industry to be born on the periphery. Out of these, the Marandagahamula rice milling complex, which is only 28 miles away from Colombo, stands above others. At present there are around 150 small scale mills in this area.

The small scale rice milling industry continues to thrive in Sri Lanka compared to large scale mills. These mills have become more economical and appropriate when catering to markets in Colombo and suburbs, where a substantial segment of the population consists of low income classes and fishing communities.

This industry appeared to have a well developed market structure at Marandagahamula. Three main paddy producing districts i.e. Polonnaruwa, Kurunegala and Anuradhapura supply paddy to this milling complex. In addition, some paddy is also supplied by Minuwangoda and Narammala areas. Generally the paddy suppliers fall into three categories. They are the wholesale distributors, trucker buyers/suppliers and field level collectors.

Majority of the millers do not have proper storage facilities for storing paddy. About 40-50 lorry loads arrive every day during the peak seasons. A lorry load contains about 300 to 450 bushels of paddy. During the off season the number of lorry loads may decrease.

Paddy processors i.e. Parboiled - cum-drier cum millers, mostly employ family labour and to a lesser extent hired labour. Most of the paddy purchases are made on credit basis and the loans are settled after selling the rice. They have acquired sufficient knowledge on rice processing without any formal training. The paddy stocks are processed two or three times a week. The fixed capital investment is around Rs 40,000. The main components constitute of boiling tank, concrete yard 72' x 72', Metal tank 5' x 6' and concrete tank 10' x 3'.

There has been a considerable increase in the number of rice mills during the last three to four years. Much of this increase was in the huller type mills. The capacities vary between 15 to 25 bushels per hour. Over 68 percent of the capacities are currently being utilized.

Most of the rice stocks processed were sold through Wholesale Commission Agents of Marandagahamula town. Over 40 such business establishments are now in operation. They transact around 50-60 tons of rice per day. The buyers consist of several categories such as the Pettah Wholesalers, wholesale transporters who distribute rice to retailers in Colombo and suburbs, retailers at periodical markets (pola), wholesalers coming from distant areas such as Puttalam, Chilaw etc.

Mostly medium and long grain rice is processed here. The grades are decided according to the amount of broken rice, moisture content, unhusked rice and alien grain etc. found in rice. The rice processed here generally falls in to lower grade.

The prices are quite often affected by the quantum of paddy supplied, weather, and the number of buyers. Further the Pettah Market price movements are constantly watched by these Commission Agents before deciding on the price. The costs and margins appear to be around 9% which could be considered as reasonably low.

The low capital operations do not permit holding of large buffer stocks. Further storage facilities also do not permit it.

However, due to low overhead expenditure small scale processing mills can compete with large scale millers, because they could always supply rice at a lower price to the consumer.

Their operations could be fruitfully improved by infusing better technical knowledge to produce good quality rice. This small scale rice processing industry needs further impetus to expand its activities by way of bank loans.

Vol. 5 *14th - 20th December 1984* *No. 50*

Article Four

SOME FACTORS WHICH INFLUENCED THE RICE PRICES IN 1984

In Sri Lanka the rice prices are highest towards the end of the year, as the stocks are low all over the country. However, the sharp increase in rice prices to an unprecedented level during the first week of December this year caused a mild shock among all concerned. By delving deep to understand this 'flash point' what one sees is that this is only a temporary situation caused by a host of factors.

Rice Requirements and Production

Currently average per capita consumption of rice per day is about 0.24 kg. Based on this, usually the country needs around 3,720 mt. per day or 111,600 mt. per month or 1,339,200 mt. per year.

According to an estimate we have to produce 140 million bushels of paddy annually if the country is to satisfy its requirements of consumption need, buffer stocks, etc. Though we have been able to produce to meet our needs of consumption, the balance requirements are yet to be met through increasing production.

Vagaries of weather could often upset the best aspiration for a good paddy crop in any year. The Maha in 1983/84 yielded 65 million bushels (provisional) compared to 86 million in 1982/83. Last Yala yielded 50 million bushels (provisonal) compared to 33 million bushels in Yala 1983. Therefore, the total paddy production in 1983/84 dropped nearly by 4 million bushels compared to 1982/83 as the Maha crop was badly damaged by floods in major producing areas.

The major "surplus areas" of the country are situated in the dry zone. Over 50 percent of the paddy production in the Ampara, Batticaloa, Polonnaruwa, Anuradhapura and Hambantota belong to marketable surplus.

There are several other districts which produce surpluses less than that. The surpluses produced in these areas feed the more populous areas in the western part of the country together with the Tea and Rubber plantation communities.

Out of nearly 106 to 119 million bushels produced in the country in the recent years, almost 27 percent is said to have been kept in farms for consumption purposes. Of the balance, the marketable surplus alone accounts for nearly 40 million bushels of paddy. This marketable surplus is highest immediately after the Maha crop. Hence rice prices are lowest in March/April.

Rice varieties

Though long grain paddy is generally confined to one area of the country, the other varieties quite differently show a mixed pattern. Of the rice varieties that come to the market, parboiled medium rice grains called 'Nadu' in the trade is said to be accounted for nearly 60 percent of the rice traded. The buyers are usually the traders who cater to lower income categories. The prices of Nadu are the lowest compared to that of other varieties.

This year due to floods, Maha yielded a fairly damaged crop. Most of this paddy crop was to be disposed of immediately after the harvest in March, April and May. The rice produced of such paddy was of low quality and therefore, sold at a price as low as Rs 3.75-4.00/kg in Colombo and suburbs.

The long grain Kora rice is becoming increasingly popular among all categories of consumers. This type of rice is produced mainly in the Batticaloa and Ampara districts. Whenever the Samba prices are high, the middle income categories, who generally favour Samba tend to move for Kora. However, Batticaloa was one of the districts worst affected by floods during the Maha harvest and hence the Kora output also suffered.

This year the worst affected rice was the Samba variety. During the first week of December Samba wholesale prices rose to a new height at

Pettah, selling over Rs 1100/65 kg At the retail markets in Colombo and suburbs price of this variety rose to Rs 19/

According to rough estimates every year around 18 million bushels of Samba paddy (257,000 mt. of Samba rice) are produced in the country. Samba being a long term 4-4½ month variety is cultivated in Maha. It is the choice of more commercially oriented paddy farmers of Anuradhapura, Polonnaruwa, Kalawewa, Jaffna, Mannar and Kurunegala districts although agronomists do not encourage the growing of Samba.

Last Yala crop was one of the best with over 50 million bushels. Soon after the Yala harvest, the rice prices were dropped for about six weeks and thereafter it began to rise again. Further the disease affected Hambantota paddy crop lowered the rice production in this major raw rice producing area

Household stocking of Rice

Towards the latter part of November the tension created by terrorists in the country led the average Sri Lanka household to store at least 5-10 kg of rice for exigencies such as curfew. This action brought about a depletion of the immediately available stock at the market, and consequently a sharp upsurge of rice prices was seen during the first week of December.

The general belief that the traders have hoarded rice during this period cannot be accepted, as this is the best period for them to dispose of their stocks, before replenishing with incoming Maha crop.

In the meantime the farmgate prices of rice went up to a higher level. Though this is an usual occurance in the months of November and December, this time the rate of increase was sharp. As the paddy stocks in the country are lower, the prices have gone up to Rs 80-95/bu for ordinary paddy and Rs 120-125/bu for Samba paddy. Hence, the prices of rice produced of these stocks too went up in price.

Added to this was the on set of North-East monsoon which hampered parboiling and drying activities in the major producing areas. The curfew in the Nothern districts did not affect the rice market, as only a small surplus is produced here. The quantity of paddy produced in Jaffna, Kilinochchi, Mulativu, Mannar and Vavunia accounts for about 9 percent of the total paddy production in the country. However, Vavunia is an important milling district. Though millers experienced some transport difficulties due to curfew, rice stocks produced in Batticaloa and Trincomalee districts, were supplied to the Pettah Market with only minor interruptions.

State of buffer stocks

Usually the PMB holds a buffer stock of locally purchased paddy. The Food Commissioner's Department's stock consists of both rice stocks obtained from the PMB, as well as of its imports. Though there were imported rice stocks carried over from last year, no imports were made during this year. In addition PMBs paddy purchases suffered a set back this year due to the lowered crop and high open market prices, nearly 45-50 percent compared to that of the last year. Last year PMB purchased 16 million bushels, whereas only 8 million bushels were purchased this year.

The current rice stock with PMB is about 65,000 mt* and 59,000 mt. with the Food Commissioner's Department. This quantity is quite sufficient to tide over the requirements of the country until the Maha crop arrives at the market. With the help of this stock, the rice prices are expected to be kept under control at the market by the authorities. In fact the Pettah Market wholesale prices as well as the retail prices of the Colombo suburbs are now showing promising signs as a marginal decline due to these efforts compared to that of the last fortnight.

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* Rice equivalent of 3.8 million bushels of paddy plus 6,300 mt. of rice.

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Article Five

RICE IN THE HOUSEHOLD BUDGET

Rice is cherisged in the Sri Lankan national diet. However, the current price levels of rice in the retail markets are raising eyebrows of housewives doing marketing. The causes for the price hike could be traced back to the drought and flood affected Yala 1983 and that of Maha 83/84, which depleted rice stocks all over the country.

The food budget in households ranged between 33 percent for higher income groups to 64 percent among lower income groups in the recent past. Invariably the lower income groups are more sensitive to any short term price increases of food, particularly those of rice. According to the data computed on low income group budget on food in Colombo for the month of January 1985 by the Census and Statistics Department, it has been revealed that a household has spent Rs 789.98 on food alone of which Rs 236.48 consisted of expenditure on rice and wheat flour. This accounted for nearly 29.9 percent of the food budget.

The per-capita consumption of rice per month has increased by nearly 0.8 Kg. to 8.4 Kg. in 1981/82 compared to the conditions that prevailed three years before, according to the Consumer Finance Surveys. However, the main contributory factors for this situation appear to be the price increase of wheat flour and that of bread, per capita consumption of which has indicated a drop from 1389 Gms. and from 1997 Gms. to 1519 Gms. respectively.

Though the rice price usually takes a downward trend by mid-February with the incoming Maha crop, this year it appeared to have stayed longer at a higher level. In addition to the depleated stocks mentioned above, the prevailing scarcity of rice at Cooperative outlets, which cater to a vast number of low income households, too has contributed to swell the rice price at the open market. Generally over the years rice prices have moved upwards.

The choice of rice by customers at the retail market depends on several factors such as the appearance, taste, nutrition values, the way it lends itself to cooking, durability after cooking, cleanliness, absence of odour, grain enlargement, and purchasing power. It has been pointed out that more than 60 percent of the buyers in Colombo go for good quality medium grain nadu as it is the lower priced rice variety well within the budget. The red nadu is generally more popular, though the price is slightly higher.

Rice constitutes nearly 41 percent of the calorie intake of an average Sri Lankan. The medically recommended quantity is 2200 calories. However, it has been pointed out that during the last decade the cost of 100 calories for the lowest income groups has risen by over 500 percent. Around 55 percent of the household in the country appear to be taking inadequate quantities of calories. Hence, a higher consumption rate of rice particularly among lower income groups is necessary. This calls for self sufficiency in rice at a higher level of consumption than at present.

Source : Ministry of Finance and Planning, Central Bank, Department of Census and Statistics, MARGA and ARTI.

Vol. 6 *19th - 25th April 1985* *No. 15*

Article Six

A GLIMPSE ON THE COST FACTORS OF PADDY/RICE

Despite the noticeable increases in rice production during the past few years consumers are worried because the prices continue to move upward.

At present almost 61 percent of the price paid by a consumer to purchase a kilo of 'Nadu' (parboiled) rice (at Rs 6.45/kg) forms the cost of production of paddy. The balance goes for profit margins, milling, handling charges transport etc. However, when the cost of production of paddy is considered in general terms, one must bear in mind the numerous variations of production conditions in the country.

In order to get an overview of the operating costs of paddy, it may be pertinent to know the conditions of the dry and the wet zones. According to the operational cost per acre for 83-84 Maha in Polonnaruwa it was Rs 4021, in Hambantota Rs 4198, in Kandy Rs 3616 and in Colombo Rs 3408.

One glaring aspect in operational costs is the large labour component, that accounts for nearly 50 percent of the total cost in all these areas. Around 40-70 man days are required per season. The current wage rate is about Rs 30-40/day with meals.

The hiring charges of tractor/buffalo too are on the increase. At present an expenditure of around Rs 1000 is incurred on tractors. In the wet zone, particularly in the Colombo district where buffaloes are used extensively for land preparation and threshing the cost goes down to about Rs 200 to Rs 400/Acre.

With regard to expenses on fertilizer, only slight variation was shown in both dry zone and wet zone which indicates more evenly distributed fertilizer use. The cost of fertilizer used per acre ranged between Rs 500 and Rs 650.

However, the expenditure on agro-chemicals in the dry zone is higher by nearly 300 percent compared to that of the wet zone. In the Polonnaruwa and Hambantota districts over Rs 400 have been spent on agro chemicals per acre, while in the Colombo and Kegalle districts it is around Rs 100.

Although high operating costs were incurred for the use of improved technology in Polonnaruwa and Hambantota districts, farmers were amply compensated by higher yields. In both these districts the average yield has been among the best around 80 bushels/acre whereas in Colombo it is only 50 bushels/acre. Although the marketable surplus is meagre in Colombo farmers receive a very high average price of Rs 80/bu. due to the closeness to the main market.

The average cost per bushel, average open market price received and the profit margins are given in the following table.

District	Farm Production Costs (Irrigated paddy) Rs	Average Price/ Bushel Rs	Profit margin/ Bushel Rs	%
Polonnaruwa	51.29	62.50	11.21	17.94
Hambantota	50.08	65.81	15.73	23.90
Colombo	68.45	80.97	15.52	19.17
Kandy	46.24	61.40	15.16	24.69

Additional expenses have to be borne by the farmer if paddy is to be delivered to a sales point. Hence it appears that unless the farmer receives at least the current open market price they may find it difficult to stay in the production 'business' of paddy, particularly in the dry zone where the largest quantity of marketable surplus is produced.

Source : Agricultural Economic Study No. 37, Cost of Cultivation of Agricultural Crops - Maha 83/84, Department of Agriculture.

Occasional Publication No. 24, Farm Labour Input in the dry zone, ARTI.

Marketing Margins in Paddy, ARTI

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Article Seven

SOME FACTORS AFFECTING CURRENT RICE PRICES

Being a developing country, our food prices too are quite often subjected to high fluctuations. This is particularly evident in regard to rice prices, which account for 29.9 percent[1] (for both rice and wheat) of the household expenditure of the low income groups. The rice prices fluctuate by a range of Rs 2-5/kg for various rice varieties from a low price to a high price from April (the peak harvesting time of Maha) to December respectively.

Requirements

Based on the per capita consumption of rice, as indicated in Consumer Finance Survey of 1981/82, the country needs around 130,000 mt of rice monthly, or about 1.6 million mt of rice annually. The demand for rice is constant throughout the year without any seasonal variation.

Availability

In 1984/1985 Maha and 1985 Yala we have produced 2.6 million mt of paddy which brought 1.62 million mt of rice, after leaving for wastage, seeds etc. We are yet to develop a system to track down the quantum of rice stocks held by the private sector traders and farms. However, at the beginning of the year it was quite evident that the rice stocks held by this sector was very low.

In order to get a rough picture, one could assume that the private sector held about two month's requirements at the beginning of the year, which is equivalent to about 260,000 mt Further, the state sector organizations had an opening stock of 55,400 · of rice equivalent, and further stock of 149,000 mt of rice was imported upto the end of October. Thus, by the end of October the total supply of rice in the country stood approximately at 2.08 million mt.

Position in the near future

How much rice did we consume during this period? Based on the calculations shown above, the consumption requirements in the country upto the end of October was 1.33 million mt., which leaves a balance of 750,000 Mt. Usually a buffer stock of 290,000 mt of rice or rice equivalent in paddy is kept by the public sector. The rice requirements during the next three months are around 390,000 mt. This leaves the country a net balance of 70,000 mt. The state buffer stock is to be supplemented with 200,000 mt. of imported rice which is expected towards the end of December. Hence, this position reveals that the country's rice supplies are well within its requirements during this period.

However, there are other factors which could affect rice prices. One is the seasonal production pattern. Rice stocks held in the country are not evenly distributed throughout the year. Maha provides about 2/3 of the local production and the balance 1/3 by Yala. Hence, the rice stocks are low towards the end of the year in farms, trading establishments, and other places. It is during this period that the imports have to cushion the price fluctuations.

The seasonal pattern too affects the rice varieties available at the market. Samba is a 4½ Maha variety and hence, it is produced in Maha (short term Sambas are yet to gain popularity). This variety is usually consumed by the higher income categories, and therefore the demand is rather constant despite the price increases. Hence compared to the other rice varieties, Samba prices fluctuate by a higher margin, sometimes as much as Rs 5.00/kg

This year there are two other factors that could push the price of rice to a higher level. The price increase of imported rice by 95 cents/kg and the proposed increase of GPS paddy price by Rs 7.50/bu which could increase local rice price by cents 53/kg on the average.

Another aspect that continues to affect rice price is the higher percentage of wastage from harvesting to consumption which is estimated at 11-12 percent of the local production (about 12-13 million bushels of

paddy). Further a large quantity of low quality rice coming to the market during March/April is sold at give away prices during this period. This is an area where specialized agency like the Paddy Marketing Board could play a positive role. In fact PMB could take over the extension work on paddy from the Department of Agriculture at the harvesting time, and through an affective marketing extension programme it can help the country by reducing post harvest losses, improving the quality of rice and establishing uniform marketing grades and standards etc. to give the consumer a better deal. Such a step would pave way for an overall improvement of the rice marketing system of the country.

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1 Department of Census and Statistics - January 1985

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Article Eight

TRADING PRACTICES AT PETTAH IN RICE & SUBSIDIARY FOOD CROPS

Pettah, which bustles with business activities from Monday to Saturday, is the most important terminal market in food commodities. Its 'pulses' on price trends, is a clean indicator of the marketing performance of agricultural commodities that affect every nook and corner of the country, where over a million of farmers sweat and toil, and also the general public in regard to their cost of living.

The commission agents/wholesalers at Old Moor Street, 4th Cross Street, 5th Cross Street and Dam Street have specialised on rice and subsidiary food crops, such as green gram, cowpea, potato etc. They, who number about 200, perform the stupendous task of maintaining their complex supply and distribution channels. Over the years they have developed some unique trading practices, most of which are performed on mutual trust, that help to keep the 'wheels' of marketing rolling in an underdeveloped country such as ours.

Distribution of Rice and Subsidiary Food Crops

	Wholesalers/Commission Agents			
Street	Only Rice	Rice & Subsidiary Food Crops	Only Subsidiary Food Crops	Total
Old Moor Street	30	26	10	66
4th Cross Street	21	52	24	97
5th Cross Street	04	10	02	16
Dam Street	04	06	01	11
	59	94	37	190

Source : MFPD, ARTI

There appear to be a stiff competition among these traders, each of whom trying to keep a hold on their suppliers and distributors. On any given day, the 'price leader' could be any one of them, depending on the orders in hand. They perform a number of services such as : obtaining and selling of agricultural commodities on commission basis; making advance payments to suppliers; bulk-breaking to match the demand; keeping the suppliers and distributors informed about price data and other market intelligence; provision of trading finances etc. This kind of multifarious activities could be an onerous task for any public institution.

The commissions, brokerage and loading charges at Pettah are as follows :

(a) Commission for rice - 2 to 5% of the selling price or Rs 8.00 to Rs 10.00 per bag.
(b) Commission for dried chillies, potatoes, red onions, cowpea, ground nuts, green gram - 2 to 5% of the selling price.
(c) Brokerage - Rs 1.50/bag of any commodity.
(d) Loading charge - Rs 2.00/bag, and unloading charge Rs 1.50/bag.

However, this doesn't mean that all is well at Pettah. As a leading marketing economist has pointed out, the Pettah Market served a social system of a different size and nature that was there about 100 years ago. The population in Colombo in 1871 was only 96,000. By 1977 this has increased to 607,000 (or by about 600 percent). However, the Pettah market area remains almost the same. This has created a lot of congestion with regard to transport, storage and other factors which is detrimental to improve marketing efficiency. It has been suggested that a better move would be to shift Pettah market to Orugodawatta.

Several other steps need to be taken in regard to maintaining of a proper grading, quality control, standard, weight of packages etc. (at present rice bags of varying sizes, from 50 kg to 70 kg are being sold at the market). Further market transparency (information on supply, demand and prices) has to be increased for the benefit of all concerned.

Vol. 7 *14th - 20th February 1986* *No. 8*

Article Nine

THE YEARNING FOR QUALITY RICE

The aroma of *Hathial* or *Hathili*, the looks of '*Muthu Samba*' and the taste of *Kalu Heenati* rice now remain only in the nostalgia of older generation.

With the advent of green revolution, the step up in breeding and use of high yielders, the above varieties bred by farmers over centuries by observing natural process of mutation and seed selections which withstood mpnsoonal floods, pests, diseases, salinity etc. were slowly disappeared from the fields. But the farmer had no choice but to use new technologies to produce more food in mass quantities for the fast increasing population, even at the loss of quality for which the consumers were yearning. Perhaps the present generation must not have ever seen these 'quality' species of rice.

Under the present context the production of quality rice has to begin at the farm itself. Experts have pointed out that the farmers must use certified seed, which has to be grown and harvested with due attention to recommended practices, harvest has to be mechanically threshed on clean yards then winnowed and dried upto 14% of moisture content before storing, if they are to produce quality rice.

Usually the farmers keep about 40-50% of the harvested paddy for home consumption. They keep the best stock that could be stored for a longtime and sell the balance. Naturally what comes to the market is what they want to dispose.

Better milling depends on improved flow of better quality paddy. This may require rejecting upto 20% of the paddy which is now being received for milling. Millers obviously need an adequate profit margin to invest on equipment and technology to process and produce high

quality rice. Since consumer cannot bear any additional cost on rice, research must be made to find ways and means to cut down the cost of production of paddy. At present Sri Lanka's cost of production of paddy is ranked very high.

The standard of rice sold in our markets is said to be the lowest in Asia. In the world market, length of the grain (long, medium and short) and the percentage of broken kernel are important criteria when decisions are made on quality. In addition the shape of the kernel (length/breadth, slender, medium and short) is also considered. The absence of chalkiness and high translucency in endoplasm are other considerations which are taken into account in this regard.

It is said that in Asian countries where rice is the staple food, per capita consumption ranges between 179 kg in Thailand, 155-165 kg in Bangladesh, 134 kg in Malaysia, and 100-107 kg in China, Philippines and Sri Lanka. Sri Lanka's per capita consumption is held by physical restrictions in supply, poor quality and Effective Demand. For example, a housewife may have to pick foreign matter in rice such as stones, black grain, husk etc. thus loosing about 5 - 7 percent of the purchased rice. This could be a good reason for high consumption of imported wheat flour, which is in the region of 43 kg per capita per annum.

At present the only rice variety that shows some signs of quality improvement is the '*Kekulu*' produced in the south due to comparatively lower quantities of foreign matters such as sand found in it. Perhaps this could be due to the reason that threshing of paddy in these areas is mostly done on threshing floors covered with gunny sacks. These were even packeted and marketed under a popular brand name. This method could be a pointer to a better system in providing customers with clean and wholesome rice as in many other countries.

Hence, if Sri Lanka ever produces a substantial surplus, after fulfilling the consumption needs at current levels, buffer and emergency stocks, the best market for it exists not in exports but in expanding the local market of rice, for which an improvement of the quality is a must.

Vol. 7 *21st - 27th March 1986* *No. 13*

Article Ten

OVER-HAULING OF THE PADDY MILLS

The poor quality of rice being made available to the consumers has focussed the attention of authorities to consider a package of incentives for the paddy milling industry which needs over-hauling.

Around 40 percent of the paddy produced in the country comes to the market as a surplus. The processing of paddy includes cleaning, parboiling, drying, milling, pearling, whitening, polishing and grading. The new package now under consideration has to take into account of all these propositions to effect an improvement in the final product.

Most of the rice that arrive at the market consist of parboiled rice. Parboiling is one of the most ancient methods of rice processing, which is said to have originated some 2,000 years ago. This process helps in increasing the rice recoveries, less breakage in milling, to use lower grade paddy, to obtain rice with superior keeping quality and to retain nutritive value during milling, washing and cooking.

According to the traditional method of parboiling commonly used in Sri Lanka, paddy is teeped in large thick brick tanks for a period of one to three days and boiled thereafter. The flavours associated with parboiled rice are caused by yeast and bacteria which can multiply on the grain during this long soaking period. Colour, odour and flavour of parboiled rice mainly depend on the techniques of parboiling. Hence, paddy processors have to be pursuaded to use the modern methods of parboiling, in which paddy is soaked in clean hot waster for only 2 - 4 hours to avoid unsanitory conditions and then steamed. In most cases the same water is used for a number of times to boil the paddy. This seems to be a principal cause for both unpleasant colour and smell in parboiled rice.

The oldest mechanical rice mill available here is the huller. There are thousands of small scale hullers all over the country. A census of which is yet to be taken by a responsible agency in an island wide basis. The modern rice mill has replaced the disk sheller with rubber roll shellers, and made improvements on the operation of cleaner and seperator. This can give several types of polished and graded rice. The usual recovery rate for parboiled rice is 70 percent, compared to 66 percent for raw rice. A modern rice mill has a varying capacity of 1/2 to 15 tons per hour depending on the size and power. The quantity of broken rice depends on the grain characteristics, conditions of paddy, type of mill and period of storage etc.

The government mills in Sri Lanka have all kinds of installations items from modern Japanese and European types to huller types. Most of the quota millers use two stage machines with rubber roll huskers and whitening of the vertical and huller types. Pre-cleaners and stone seperators are seldomly used. More than 50 percent of rice converted in the private sector use single stage huller mechines.

The PMB is the state procuring agency under G.P.S. It is also involved in processing and thereafter hands over processed rice to the Food Commissioner's Department (FCD) for distribution through cooperative outlets. However, with the liberalised trade policy, PMB finds it hard to process and supply rice at Rs 6.53/kg to FCD as it has to compete with the private sector in procuring paddy, who pays a better price. FCD gives deadlines to the PMB to supply rice. FCD also puts conditions not only on the quantity but also on the quality. But the general complain is that the PMB is unable to fulfill its commitment to supply rice with the requested quality.

The PMB operated 27 large mills in the past with a capacity of 11,000 mt. of rice per month. Due to low procurements and terrorist disruption milling activities in the north and east have brought down the processing capacities by a considerable extent. Another constraint is the rundown capacity of quota milling. A few years back in an effort to uplift the paddy milling industry 957 persons have been given permission to open new rice mills. Loans upto Rs 300,000 were granted to prospective millers

though the Industrial Development Board and Development Finance Corporation. Also loans upto Rs 100,000 were provided to rehabilitate the existing mills. But the results have not been very impressive. Thus a new approach is to be taken up by the state.

It may be pertinent in considering to establish a new section in the PMB itself to compete with the private sector in procuring, processing, milling and marketing of rice as a profit making entity while continuing to act as the agency for the FPS[1]. If the country is making reasonable strides in rice production, authorities need not fear about a price hike as a result. Perhaps they could set the pace and provide the technical knowhow to the private millers.

In this respect there are several steps that could be taken immediately to improve milling quality of rice, i.e.

* The factors influencing to produce the low quality rice have to be studied carefully and remedial actions should be taken on each factor. One important aspect will be to clean paddy before milling.

* Accepted standards and practices may be decided published, and forced to follow for parboiled rice in order to improve the quality.

* Some kind of specific quality control system has to be introduced in rice marketing to start with and it may be strengthened once the market accepts it. At the same time a good publicity has to be given for the standards on rice set by the Sri Lanka Standards Institution.

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1 Floor Price Scheme

Vol. 7 *26th - 31st July 1985* *No. 31*

Article Eleven

HARVEST TO CONSUMPTION - AVOIDABLE LOSSES IN RICE PRODUCTION

In the recent past Sri Lanka imported about 5 to 15 percent of her total annual requirement of rice which was around 1.7 million tons. This could be substantially cut down if the current wastage in the post-harvest operations which is in the region of 10-15 percent, is reduced. At what stage and how could this be done?

Premature harvesting or post-mature/late harvesting of the crop doesn't keep grain in prime condition. Researchers have pointed out that the ideal moisture content of the grain should be in the range of 20% snf 22% at harvesting time. This stage can be correctly identified through the colour of the plant and farmer's experience. The current losses at this stage are around 2 to 3 percent.

In the North Central Province and in the Eastern Province, which are the main paddy producing areas, mostly tractors are used for threshing of paddy. Farmers in the Western and Central regions mostly use buffaloes for this purpose. The most recent innovation in this sector is the paddy threshing machine. The Rice Processing and Development Centre (RPDC) has pointed out that by using paddy threshing machines, the shattering of rice grain could be reduced by as much as 20 and 40 percent in respect of using buffaloes and tractors respectively.

The rice sold in Sri Lanka markets contain about 5 to 7 percent extraneous matter which gets added during threshing. Hence, cleaning of the paddy after threshing is important to reduce such impurities. If paddy is cleaned before milling, quality rice can be produced and waste can be minimised. Though they are expensive, new paddy milling machines with cleaners, have been manufactured and are in operation in some areas. Our farmers generally sell above 40 percent of their paddy crop and store the rest for future use. Farmers sun dry their paddy before storing in

gunny bags. The ideal moisture content of less than 14% at storing time, may not be attained by the farmers and this can lead to rodent and pest attacks and infection by other pathogens which can cause a loss of up to about 5%. However, under improved methods of storage, the quantum of paddy loss can be reduced between 2 to 3 percent.

Around 70 percent of Lankans consume parboiled rice. The practice prevailing among our millers is to soak paddy in water for 12 to 48 hours and then to steam it for about 45 minutes. But if this water is not changed every 10 hours or so, bacteria tends to multiply and this affects the quality of rice. Further, paddy is also steamed in bulk. This prevents even steaming of the paddy. A better way is to steam smaller quantities at a time. Due to the absence of uniformity in the rice boiling process, wastage has been constant or has increased.

The drying of steamed paddy is usually done on cemented floors. But during rainy seasons this creates problems. The RPDC has recently "perfected a technique called fluidised bed drying to dry par boiled paddy"[1] This has helped to produce better quality rice and also to reduce losses.

The paddy husk constitutes about 22 to 24 percent of the grain. A minimum of about 3 percent is removed as bran during milling. But in Sri Lanka about 7 percent goes out as bran. Finally only about 65 to 70% of the weight of the grains comes as the final output. Nevertheless under better conditions it should be between 70 and 75 percent. This shows that a considerable portion of the grain goes out with the bran as waste. The moisture content of the grain and present milling conditions, create this situation. Currently most of the mills have steel hullers. If rubber hullers are used, the quantity of broken rice could be reduced at least by 10 percent.

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1 ASIAN AGRIBUSINESS - Volume 2, No. 5 - July 1985, p. 28.

(1) (2) (3) (4)

Rice production, imports, estimated losses and availability for seeds and consumption

Year	(1) Millions (mt.)	(2) (mt.)	(3) (mt.)	(4) Millions (mt.)
1980	1.50	189450	225000	1.27
1981	1.57	157032	235000	1.33
1982	1.52	160931	228000	1.29
1983	1.75	119491	262000	1.48
1984	1.70	26494	255000	1.44
1985	1.88	N.A	282000	1.49

Source : Department of Census and Statistics
Paddy Marketing Board.

The above table shows that, annual estimated losses are larger than imports. If these losses can be minimised the country can completely stop imports unless an emergency situation occurs.

As explained in the process about 10-15% of the total annual production goes as post-harvest losses. If we can concentrate on losses in each stage especially the damage can be minimised and the attainment of self-sufficiency may be achieved early.

This helps not only to increase the availability (production) but also to improve the quality of rice for the consumer and thereby fetch a better price (income) and a more favourable standard of living for the farmer.

Vol. 7 *14th - 21st August 1986* *No. 34*

Article Twelve

THE IMPACT OF THE RECENT DROUGHT ON THE LARGEST PADDY PRODUCING DISTRICTS

When compared with the 'Maha' season, the risks and uncertainities pertaining to the 'Yala' are very high. During the past few years there were many instances where the crops suffered severe set backs due to prolonged droughts, particularly during Yala. The current Yala in the Kurunegala district is no exception.

Kurunegala, the largest paddy producing district accounts for nearly 13percent of the total paddy production in the island. During the current Yala, nearly 43,500 ha of paddy, 21 982 ha of subsidiary crops and 1,175 ha of vegetables were cultivated here. If we look at the production aspect, 58 percent of the people are engaged in agriculture. They consist of 191,000 farmers, 13,000 agricultural labourers etc. Income from agriculture constitutes 61 percent of the total revenue of households (1981 Census).

The recent severe drought, the worst since 1953, was experienced in the Kurunegala District during the early period of the current Yala. The severity of the drought is explained by the following table.

Rainfall in the Kurunegala District (mm)

Year	April	May	June	July	August
1980	148.0	119.5	139.0	74.6	85.4
1981	277.1	110.1	140.8	167.8	74.2
1982	292.2	336.8	270.3	122.1	128.2
1983	72.0	218.7	116.3	70.8	120.7
1984	272.7	187.8	70.2	167.3	2.4
1985	99.0	108.4	144.2	141.0	41.0
1986	150.0	58.4	0	0	-

Source : Department of Meteorology.

Though the actual cultivated paddy extent more or less reached the targetted hectarage, almost 60 percent of it was subsequently subjected to crop damage resulting in an estimated loss of 68,800 mt. of paddy. However, the subsidiary crops farmers were more cautious and reduced the acreages under these crops considerqbly. Cultivated hectarages of Cowpea, Green Gram, Black Gram, Soya bean, Ground nut and Gingelly were only 20, 28, 25, 15, 4 and 25 percent respectively, of the targetted extent.

Targetted and cultivated hectarages in Kurunegala District in relation to country's targets for Yala 86*

Crops	Targets Hec.	Achievements (Cultivated)	Achievements %	Island Hec.	Kurunegala District hectarage as a % of all island hectarage
Paddy	43,500	42,218	99.0	333,450	13
Chillies	1,200	844	70.0	21,796	5.5
Cowpea	6,500	1,292	19.9	13,282	48.9
Green Gram	6,500	1,849	28.4	12,235	53
Black Gram	400	60	15.0	2,090	19
Soya bean	80	3	3.8	3,580	2.2
Ground nuts	400	155	38.8	3,200	12.5
Gingelly	6,500	1,632	25.1	22,775	28.5

In Kurunegala District paddy cultivation in Yala is mainly done under minor irrigation and rainfed conditions. Of the cultivated hectarage, 8,000 ha. (18.7%)were under major tanks, 17,000 ha. (38.9%)were under minor irrigation schemes, and 18,200 (42.8%) were rainfed. The Yala crop is to a great extent rainfed.

Being a district that is close to Colombo, Kurunegala has a very extensive paddy milling industry. Large quantities of paddy are brought here from Anuradhapura and Polonnaruwa for milling, and processed rice is sent to Colombo and up country areas. As the Yala production this year is substantially low, millers will have to depend on increased quantities of paddy from these areas to sustain the industry. This needs special attention.

* Ministry of Agricultural Development and Research

The current Yala is particularly bad for cowpea and green gram production in the country. Of the targetted hectarage of cowpea and green gram, only about 39 and 55 percent respectively, have been achieved. However Yala accounts only for about 1/3 of the total production of these items in an average year. Since Kurunegala District usually produces about 50 percent of the total Yala production of cowpea and green gram, the current shortfall (cowpea by 80 percent and green gram by 72 percent) may reflect on unusually high prices in the short run.

The situation also point out the need to diversify cropping patterns in high risk areas during Yala, particularly under minor irrigation schemes. Many farmers could have obtained a better return had they cultivated subsidiary food crops under irrigation. Further with the expansion of the crop insurance programme farmers could take such risks with confidence.