

OPTIMIZING PADDY AND RICE PRODUCTION THROUGH MINIMISING POST-HARVEST LOSSES

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Rising demand for rice, pressured by high population growth, has led many South Asian Countries including Sri Lanka to focus national policies and programmes on increased production and self-sufficiency. The drive towards self-sufficiency has resulted in the improvement of paddy production technologies contributing to higher yields, specially in Sri Lanka. Improved varieties, fertilizers, plant protection and water management practices have accounted for the yield increases. Along with the high yields is an increase in the

Borrowing from Non-Bank sources Rs. 11,000 million. Total Rs.33,600 million. And then he concludes: "This will leave a net cash deficit of Rs.2,576 million and I propose to finance this gap by borrowing from the Banking System. This is just over 1 percent of the projected GDP for 1988 and is consistent with the Medium Term Policy Framework for 1988/1990." We have not yet been told what happened. We know however that he ended with a very, very much larger deficit.

The matter I want to conclude with is this. After allaying fears about the possible inflationary impact of his deficit financing the Hon. D.B. Wijetunge casually announces in the very next paragraph "I will be seeking the approval of the House to increase the limit on borrowing under the Local Treasury Bills' Ordinance by Rs.10,000 million."

There is an unused portion of what was allowed under a resolution of the previous year amounting to Rs.8,000 million. That eight together with the new ten make eighteen billion under Treasury Bills. If your unfinanced gap is only Rs.3,395 million why do you want this Rs.18,000 million under Treasury Bills? It is reasonable to believe that you want this because you fear that your estimates of income and expenditure are wrong.

But this kind of Treasury Bill financing is going to increase the rate of inflation to really intolerable heights. That is where the people will feel the impact. That is the result of these financial policies.

magnitude of losses throughout the post-harvest handling operations. The recent statistics indicate that Sri Lanka produces approximately 1.70 million metric tons of rice per year and that approximately 0.0265 million metric tons of rice are imported. Meanwhile, post-harvest losses of rice have been estimated to be in the region of 0.255 million metric tons per year. Thus the high losses resulting from traditional post-harvest operations nullify the full realization of the increased yields and reduce farmers' financial returns diminishing their ability to become a viable part of a developing country's economy. Enhancing quality of the paddy or rice produced also provides the added benefit of reducing losses.

The SLSI by introducing a code of practice for storage of Paddy and Rice SLS 686 : 1985 has enunciated scientifically designed practices and methods with a view to alerting, educating and motivating farmers as well as others involved in the endeavour to minimize losses, while optimizing quality improvement.

The metabolic activities of the paddy grain such as respiration and germination (sprouting) have been identified as the main agents of deterioration of the quality of grains. When grain respire faster not only would the stored grain be burnt quickly but also the heat generated in the process creates conditions leading to mould formation and insect infestation.

On the other hand germination (sprouting) of the seed taking place due to the presence of oxygen and optimum conditions of moisture and temperature makes such grains unfit for human consumption. The code of practice indicates that storage of cool dry grain is important in grain preservation from the points of view of maintaining seed viability and prevention of germination.

Maturity and Moisture content

The direct and indirect causes and effects of damage to grains by vertebrates, invertebrates and micro-organisms have been discussed in depth and the code has recommended suitable remedial measures that should be adopted to obviate damage or deterioration caused by such agents.

Untimeliness in harvesting has been identified as a major source of loss from the point of view of grain storage since

early harvesting of grain before maturity may result in a high percentage of immature grains which tend to deteriorate rapidly during storage. On the other hand late harvesting may result in a low field yield due to shattering and also causes the grain to crack resulting in poor storability and milling quality.

Hence the moisture content of the grain has been identified as the best index for determining the optimum time of harvest of paddy. The optimum moisture content for harvest is about 20 percent (wet basis). Damage caused to the grain during threshing makes the grain more susceptible to agents of deterioration such as grain respiration, insects and moulds.

Well cleaned grain keeps in storage much better than uncleaned grain. Hence, grain should be drained of all impurities and extraneous matter before storage.

The optimum grain moisture content for safe storage of paddy and rice is determined to be between 13 and 14 percent. The grain hardness increases as the moisture content of the grain is decreased.

The two basic methods of storage, namely, bag and bulk together with the characteristics peculiar to each such method have been discussed in detail in this code.

Special systems of storage that may have to be adopted to meet certain contingencies such as bumper yields have been discussed and problems encountered during transportation and handling have been carefully analysed and suitable solutions have been suggested.

The code outlines hygienic, mechanical physical, chemical and biological methods for prevention and control of post-harvest losses caused by invertebrate and vertebrate animals and use of suitable insecticides and fumigant gases etc have been prescribed depending on the nature and the magnitude of the losses caused.

On the whole this code of practice which could be adopted at household, farm and commercial levels represents an informative and valuable compendium on prevention of post-harvest losses in paddy and rice.