

NEW DIMENSIONS IN RICE RESEARCH : INFRASTRUCTURE AND MAN POWER NEEDS

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Abstract

Under the impending socio-economic and market conditions resulting from various international trade agreements, the government will not be able to provide any meaningful protective measures to local paddy farmers as it was done in the past. However, it is essential to increase the local rice production to maintain food security and to meet the country's increasing demand for rice which will have to be met through improving the productivity and cropping intensity from existing rice lands. The major problems in rice production are high cost of cultivation and low productivity associated with a range of constraints. To solve some of the constraints impending the rice sector, a need has arisen to change policies with regard to rice imports, marketing and pricing. The new policies should consider the farmer, processor, dealer and consumer while giving due recognition to their roles and needs. The proposed changes will complement the effectiveness and adoption of research innovations. Up to now, rice research has been mainly limited to varietal improvement and conducting single factor based technological advances in fertilizer use, pest management etc. However, the complexity of these constraints cannot be meaningfully handled in this manner, and a significant change in the coverage and approach in the research agenda is needed. An effective research agenda requires two considerations. First one is the classification of the rice extents in the island into distinct rice growing environments, based on their potential yield, taking into consideration the physical environment and the second need is the development of a rice database using a Geographical Information System, covering all aspects of rice production including soil and climatic data, marketing, processing, input availability and farmer constraints, classified in terms of identified rice growing environments. The constraints that are commonly encountered across rice-growing environments should be addressed at the national level for research investigation. These specific constraints should be addressed at the regional level through strategic and adoptive research. The areas that need strong research focus are post harvest technology, market research, rice-based farming systems, natural resource use efficiency, farm mechanization, socio-economic and policy conditions. The annual value of local rice production is Rs. 50 billion. Rice covers 12% of the total land area in the country and employs 30% of the total population. The present annual allocation for rice research and development is Rs. 45 million of which a considerable portion is spent on overhead charges and maintenance. The remainder is far below the standards adopted by other countries for the similar purposes. There is a great dearth of infrastructure facilities, laboratories greenhouses and associated facilities. The need for greater training in research as well as extension is emphasised.

INTRODUCTION

Beginning independence in 1948, successive governments exerted a concerted effort through various development programs involving many different institutions to achieve self-sufficiency in rice for local needs. Fifty years later we can be proud that we are now on the verge

of self-sufficiency in local requirement. However, it is very unfortunate to learn that farmers still continue to face some of the old socio-economic and production constraints they faced decades back. In addition the farmers will be compelled to face entirely new and different constraints under the impending limited natural

resources for paddy farming and emerging new socio-economic and market conditions resulting from various international free trade agreements we have entered into. Under the impending scenario, the government will not be able to provide any meaningful protective measures to local paddy farmers as did in the past. On the other hand, Sri Lanka being an island and rice being the staple food of Sri Lanka we are compelled to increase the local rice production to assure national security through food security and to meet increasing demand with population increase. The increasing demand will have to be met through improving productivity of existing lands as well as the quality of the produce as increasing new lands under rice is not possible. Improving productivity and quality of the produce in existing lands will demand concerted and well defined research effort.

Rice occupies 34% (0.77 m ha) of the total cultivated area in Sri Lanka and about 1.8 m farm families directly engaged in rice production. Indirect means of employment in processing, marketing also plays a significant role in the socio-economic environment. Annually rice sector contribute 3.2% of GDP, the highest for any single food commodity or one fifth of the total contribution from agriculture sector. On account of these background situation, the importance of research and development need no further justifications.

RESEARCH POLICY

Solving some of the constraints faced by paddy farmers need certain policy changes while the rest will need research investigations. It is very important to make necessary policy changes taking into consideration the farmer, processor/dealer and consumer receiving their due recognition for their role in the production process. The effectiveness and adoption of new innovations will largely determined by the policy situation governing the production, processing and marketing of rice. Up to now rice research has been mainly limited to varietal improvement and single factor based, technological advances such as fertilizer requirements, pest and disease management etc. However, the impending constraints can not be meaningfully handled in this way and a significant change in the research approach is needed. Strategic and adaptive research projects have to be formulated and prioritized to cater to the individual rice growing environments identified in terms of their resources capacity to give high yields. The research investigations should be geared to provide a package of practices in place of an single factor based recommendations. The areas that need research investigation are market condition as affected by imports, seasonal production levels and other relevant changes in the economy. Socio-economic research to address what technologies are pertinent and why certain technologies are not adopted by farmers and to understand farmers perception on rice production process that affect the

productivity is important. Research on land preparation for varying rice environments utilizing minimum water and better weed control is needed. Research on water use efficiency are timely needs. In addition, research on how to utilize excess production through rice based products for industrial or consumer need is important. Utilization of rice by-products are another important area that need urgent attention.

Major problem of the rice farmer

Low productivity, high cost of production and relatively low paddy prices are major problem ... by the farmer. In spite of having many improved rice varieties with potential yield of 7.5-12 t/ha, the national average yield has been stagnated around 3.5 t/ha since mid 1980's to 1996 and then started to increase gradually to record an average yield of 3.8 t/ha in year 1999. However, the gap between potential and the on-farm yield is still high due to low productivity. The low productivity is attributed to many direct and indirect factors of production constraints, economic institutional and management constraints. Depleting soil fertility including toxification of paddy lands due to salinity, iron toxicity and acidity, competition from weeds, pests and diseases, lack of man power and inadequate mechanization for rice cultivation, increasing cost of irrigation and lack of assured supply of water in certain area are of key issues that need well planned research strategy.

Research Strategy

An effective research strategy need following approaches;

1. Classification of rice extent in the island into distinct rice growing environment, taking into consideration their yield potential, their physical environments etc.
2. Development of a rice database using a geographical information system (GIS) covering all aspects of rice production including soil and climate data, marketing, processing, input availability and farmer constraints classified in terms of identified ricegrowing environments.

Based on the above strategy their research trend area that can be handled at RRDI have been identification with focus on. They are;

1. Varietal improved for yield, grain quality, higher milling out-term, cooked rice quality.
2. Improvement of crop management and management of weeds, pests and diseases and efficient use of natural resources (land and water)
3. Soil fertility and productivity improvement

In addition other research trust area that have to be undertaken by different institutes are improvement of processing/milling industry, mechanization of rice farming, reduction of post

harvest losses rice development of rice based products and rice marketing.

Break the yield ceiling of present varieties, narrow the yield gaps between actual and the potential yield and efficient use of resource to keep the cost of production at low levels need urgent attention.

Present Policy Constraints and Research Policy Needs

In spite of the recognition of the need for self-sufficiency in rice production as a national priority, the tendency of not providing adequate funds for research and development work in the recent past have greatly affected the program of rice research in the country. Rupee value of the annual paddy production ranged around Rs. 30,000 million (@ Rs. 10/kg Paddy) and the equivalent amount can be considered as saving of foreign exchange. However, annual funding for rice research range around Rs. 50 million which amount to 0.17% which is far below the prescribed value of 2% for R&D activities. This was led to gradual determination of laboratory and field facilities availability for research work. In addition, library and communication facilities are inadequate by any acceptable standard. Proper consultation of researcher by policy makers at the level of decision making is becoming an increasing difficult and beaucrasy and improper monitoring of research program have severely affected the development of research out put. Therefore,

appropriate policies have to be formulated to assure uninterrupted and adequate funding for maintaining and upgrading of infrastructure facilities and human resource development program to facilitate R&D activities on par with internationally acclaimed level.

Especially the long term research agenda should be formulated accordance to national planning and then necessary facilities should be provided and effective monitoring of program should be done by an external review committee. Appointment of a board of management for efficient guidance to technical and administration activities are very useful.

Adoption of an effective and efficient staff recruitment procedure taking into consideration of the human resource need and research skill through qualifying test and proven capabilities on research skills on specific discipline is a very critical need that assures quality and quantity of research out put. In addition improvement of professionalism of the research staff to international standards through training program and providing sabbatical leave to undertake advance research out side or within the country is very important.

Acceptable remuneration and a award scheme for research staff based on qualification and research out put will definitely pay dividends in short time.

CHAPTER 7

GANNORUWA PROPOSALS