

# STRATEGIES FOR SUSTAINABLE RICE PRODUCTION IN NIGERIA: A CASE FOR INCREASE IN QUANTITY OF RICE OUTPUT

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## Abstract

The demand for rice as a staple food in Nigeria is ever increasing. The production capacity is far below the national requirement. This article discusses some strategies for achieving sustainable quantity of rice output. These include expanding the production area, use of improved rice variants, provision of sufficient incentives for rice farming and accelerated rural infrastructural development. Improved irrigation systems, greater investment in agricultural research and extension, in addition to improved farm power base are suggested policy initiatives that would enhance production capacity and help the nation attain targeted and realistic rice production output.

## Introduction

The demand for rice has been increasing since the mid 1970s and it has become a basic food commodity for all socio-economic classes in Nigeria. A combination of factors seems to have triggered the increase in rice consumption. The rising demand was partly a result of population growth, and also increased income levels (Akanji, 1995).

Though rice contributes about 12-14% of the food requirement of the entire population in the country, its production capacity is far below the national requirement (Agbamu and Fabusoro, 2001). Domestic production in the country is 3.2 million tonnes against annual demand of some 5.0 million tonnes, creating a deficit of 1.8 million tonnes. The federal Government has set up target of annual production 5.0 million tonnes for the nation to be achieved by the year 2005 (Bello, 2003).

It is estimated that 4.6 million hectares of land could be put into rice cultivation in the country, but only an estimated 1.9 million ha are currently utilized. The major reasons for insufficient domestic production of rice are inadequate and untimely availability of necessary inputs, cost of reducing rice production constraints and cost of adopting proven technologies. In order to achieve sustainable rice production in Nigeria, efforts at providing effective means to boost production and adequately increase the quality of rice produce have to be evolved and sustained.

## Strategies for Achieving Optimum Quality of Rice Output

### (a) Expanding the Production Area

Rice is the only crop which is grown nationwide in all agro-ecological zones from the sahel to the coastal swamps, however, the area under cultivation is small. For instance, in 2000, of the 25 million ha of land cultivated for various food crops, only 6.37 percent was devoted to rice.

In order to increase rice production, the Rice Farmers Association of Nigeria (RIFAN) launched "Operation Produce More and Eat Nigerian Rice". This project is based on *Target 2012 Grains Revolution* of RIFAN in which each farmer will adopt a graduated production plan where at least 25% of the farm holding will increase every year (Abdullahi, 2003).

There is the need to expand production area in all agro-ecologies, especially the deep water/floating areas, and mangrove swamps which are grossly underutilized. Population pressure, the need to protect fragile uplands and increasing demand for rice all make lowland cultivation more attractive. In a single decade, lowlands have the potential to produce ten crops of at least twice the yield comparable to the three crops (allowing for fallow) achievable on uplands (Anon, 1996).

### (b) Use of Improved Varieties

While possibilities of expanding the hectare of rice production commend themselves as a short-term solution for bridging the gap between demand and supply of food, it has been realized that long-term growth in rice production must be based on increasing the output per hectare (Herbert, 2000). Increased rice output per hectare is a function of yield which is based on the crop's adaptability to environmental stress and resistance to pest and diseases.

In the first place farmers need rice varieties that yield more or less. In other words, they must produce better yield than those achieved with present varieties under the same poor growing conditions. As the same time, any new varieties must have the capacity to reward farmers with the much higher yields in return for modest improvements to their farming system

Because Nigeria soils are poor in nitrogen generally, the early efforts in crop improvement by National Cereals Research Institute (NCRI) were devoted to finding varieties of rice that perform well on limited nitrogen supplies available in the soils and under the cultural practices common in the country. Prominent among the varieties were FARO I, FARO 15, FARO 16 and so on (Ayotade and Fagade, 1986).

The successful crossing of African rice (*Oryza Glaberrima*) and Asian rice species (*Oryza Saliva*) using conventional breeding techniques has been a scientific achievement that owes much to the persistence of WARDA's (West Africa Rice Development Association) team of breeders. They have achieved varieties which combine the best attributes of the types. Common among these breeds are the NERICAS (New Rice for Africa). They have been shown to be more adapted to the agro-ecological environment of West Africa (Anon, 1996).

The relevance of improved varieties is also very important in diseases and insect pest control of rice if the quantity of rice output would be optimally attained. Common diseases which threaten rice yield and in extreme cases result in 100% crop loss include blast caused by *Pyricularia oryzae*, rice yellow mottle virus (RYMV) disease, grain discoloration diseases caused by fungal complex dominated by species of the genera *Sarocladium* and *Curvularia* (John et al, 1986). Insect pest such as stem borers, leaf feeders, grain suckers have also being threat to rice yield. Efforts at IITA, Ibadan to control the damage by pests and diseases focus on identifying sources of resistance and incorporating them into high yielding species.

#### **(c) Provision of Adequate Incentives for Rice Farming**

The estimated target of rice output by the year 2005, proposed by the Federal Government, cannot be achieved without appropriate package of incentives to enhance rice cultivation. This includes farmer's access to land acquisition, credit facilities, farm input (fertilizers pesticides, herbicides, good seeds, etc.) and farm power including machinery (Mijindadi et al, 1995).

Rice farmers in most of major producing areas of the world enjoy a lot of loans and subsidies which encourage them to keep on with production even at occasional unfavourable conditions. This is because the governments of those countries derive economic gains in the exportation of rice. Today, in Nigeria however, the petroleum industries enjoy such benefit from the government. This can also be extended to the agricultural sector. Fertilizers should be available and cheap at the reach of even the peasant farmer. Lessons of the past years has shown that Nigerian farmers are more concerned with fertilizer availability at the time and place they need it.

Considering the fact that most of the rice farmers are at low income level, adequate financial incentives in terms of loan under moderate interest rates and other credit facilities must be provided if they are to be able to increase the hectareage of rice farms. This because increase of hectareage, will go with corresponding increase of all other farm inputs, including labour costs at almost every stage of the cultivation process, this is a major prerequisite to the needed increase rice output to meet up with the national demand.

#### **(d) Accelerated Rural Development**

As Nigeria goes through its rapid industrial expansion, rural labour forces migrate to the cities for better job opportunities. Compared to farming in rural areas, jobs in the cities promise a much higher pay and more chances for a life-long security, which rural farm works do not have. As a result of rapid urbanization creates labour shortages in the farming and other agricultural sectors.

Various studies in Nigeria have shown that high seasoned labour shortages occur at periods for land preparation, weeding and harvest for cereal crops. For example, the average labour input for land preparation for rice planted in inland valley swamps could be as high as 230 person-hours per hectare (Mijindadi et al, 1995). The farm labour shortage problems has resulted in high labour rates. In some cases, labour may be unavailable even if the farmer could afford it.

The objective of the rural development of the 2001 National Agricultural Policy, is articulating, and implementing rural development as a priority national programme to raise the quality

of life of the rural people. This it intends to achieve through accelerating the provision and maintenance of rural infrastructure such as water supply, markets, electricity, telephone and good transport network. This will help to mobilize and empower the rural population to create wealth through both improved agricultural production and skills acquisition (FWARD, 2001). It will also encourage citizens to be indifferent to enticement to move to urban centres. As employment opportunities keep decreasing in Nigeria, attention of youths should be directed to several opportunities in the rural areas through mass media and several campaigns.

### **Key Policy Initiatives**

For Nigeria to achieve the set target with respect to quantity of rice produced, a few policy initiatives that would enhance sustainable production are highlighted below:

#### **1. Improved Irrigation Systems**

There is need to focus attention on rice production through irrigation systems. Substantial investments have been made by the public sector in large-scale schemes, which were primarily intended to improve rice yield from the irrigated rice production. Given the encouraging yield from the irrigated rice production system, there is need to focus investments on the system in order to achieve the rice target for the country. This may also require the services of the River Basin Development Authorities.

#### **2. Investment in Agricultural Research and Extension**

Greater government and private sector investment in agricultural research and extension is needed given the high rates of return known to exist in rice production. In particular, research is needed in the development of acceptable rice varieties that are resistant to pest and diseases. Work on sustainable rice crop mixtures which will support greater soil productivity is needed. Similarly, the extension service in the country need to create awareness of those innovations and practices that will improve rice yield per hectare in every agro-ecological zone of the country.

#### **3. Improved Farm Power Base**

The labour shortage problem associated with rice production could be ameliorated through a farm mechanization programme with adequate public support and provision for private initiative. The policy should include programmes for training local blacksmiths and artisans to be able to manufacture intermediate level farm implements at the village level with emphasis on animal-drawn equipment in the first instance. This can be done with the assistance from research institutes, universities and extension services.

Introduction of simple machines such as seed drills can be a solution to the problem of planting large acres of land by peasant farmers. Since they do not require high expertise, they can be easily operated by the peasant farmer, with little training. The rolling injection planter designed by IITA Ibadan is suggested for quick dibbling of seeds and to promote effective crop establishment.

There may also be used to improve on the services of tractor hiring units of ADPs and promote initiative for private ownership of tractors. Where labour is scarce, mechanization appears to be the only choice.

### **Conclusion**

Rice farmers in Nigeria under the auspices of R1FAN have already demonstrated that they can respond to demand. What they need is continued support and creation of a sound-enabling environment by all levels of government to encourage rice farmers. This will include inputs like credit-cash and kind, technologies and good pricing system to boost farmers' income. The off-season cultivation of rice should be supported through appropriate irrigation schemes, so that rice will be available in the market throughout the year. It is hoped that with the recent realization of the need for appropriate action, a targeted and realistic sustainable rice development programme will evolve. This is all that is needed to get the country on the fast track of agricultural development.

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