

SLARI and Stakeholders on the Way Forward to Reducing Rice Yield Gaps in Sierra Leone

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Rice is the leading and staple food in Sierra Leone. Although the country has a vast arable land area to cultivate this most important crop with almost every farmer actively involved in cultivating it, not everybody in the country is getting enough of it. The efforts of the government and its partners over the years in investing in the sub sector so as to make the country self sufficient are yet to bring home the expected results.



Dr. Sydney Johnson making his presentation

In order to meet the basic obligation of feeding its people or to even avoid political and social liability or unrests, the government has continued to spend huge foreign exchange that would have been otherwise used to meet other pressing development needs to buy and bring rice into the country. It was against this background that the Sierra Leone Agricultural Research Institute organized a seminar on the topic: "Reducing Yield Gaps in Rice Production in Sierra Leone-the Way Forward."

"We have deliberately involved you in this seminar because nobody or my institution is a monopoly of knowledge." The yield gaps in rice production in our country is not only huge but costly and therefore of serious national concern." The central purpose of this seminar is to present to you our own understanding as an institution about what is wrong with the rice sub sector, exchange ideas with you and come up with the way forward", SLARI Director General Dr. Alfred Dixon told stakeholders at the opening ceremony of the seminar.

Lead Presenter of the seminar Dr. Sydney Johnson outlined the rice yields obtained in farmers fields in the five rice ecologies in the country and compared them to the region and other rice producing areas in the world. "The average

yield generally obtained in Sierra Leone is 1.43 metric ton/hectare and is woefully very low, and is even worse in the upland ecology where most of our farmers cultivate rice”, he explained. Dr.Johnson highlighted the constraints facing our farmers including the use of low yielding traditional varieties, low quality seeds, nutrient imbalances, pest and disease factors, poor water management, high post harvest losses and lack of credit facilities.

”Too many times our farmers depend on rain to cultivate this vital crop.” In other areas where rice production is booming, rice farmers are not limited by the lack of , insufficient or too much rain but rather irrigation facilities are provided where the right quantity of water needed for the optimum growth and development of the crop is available at all times”,Dr.Johnson stated.



Seminar participants paying keen attention

He elaborated on other limiting factors, adding that it is a common misconception here that our soils in Sierra Leone are rich. With evidence based research, he argued that our soils are generally deficient of essential nutrients including nitrogen.” He also disclosed that Soil toxicity is a major problem in rice production in the country. Even worse, and in a situation where farmers crops regularly planted take away nutrients from the soil without commensurately replenishing them, new crops planted are bound to starve and more so when fertilizer application in Sierra Leone as opposed to other rice producing regions and even in so called Asian countries is extremely low, he maintained.

“If high yielding rice varieties are to thrive and achieve their potential, they are to be adequately nourished with plant food”, Dr.Johnson asserted. He explained the concept of yield gaps adding: “yield potential is contingent on solar radiation, temperature and water supply”. He emphasized timely planting of rice, nothing that the late planting of rice by most of our farmers also account for the yield

gaps the country is experiencing. He also among others spoke about the need to select a good site, good seeds, provide water, undertake pest and disease management as well as good harvesting and post harvest practices.

Speaking on efforts the Rokupr Agricultural Research Centre (RARC) has made over the years to close on the widening yield gaps in rice production in the country, he said: "We have over the years developed among others high yielding



Agriculture Minister Dr. Sesay making his closing

rice varieties for the specific rice ecologies in the country including the ROKS and NERICA rice varieties capable to substantially increase the productivity and production of our farmers as well as the related management practices". He explained the various rice research activities his centre and other scientists had conducted over the

years. These included effect of improved tillage method on farmers' rice production in the mangrove swamp using Honda power tiller and local hoe, effect of seed rate and variety on mean grain yield, effect of date of transplanting on mean grain yield and panicle production, yield reduction due to weeds on farmers rice in inland valley swamps; the effect of herbicide xrate interaction on grain yield of rice varieties. He also explained the marginal rate of returns from rice varieties and herbicides, the effect of herbicides on rice yields in farmers' fields. He also explained other studies undertaken in iron toxicity, integrated use of organic and inorganic fertilizers, and palm kernel cake among others.

The analyses and conclusion of these various studies, he said, were revealing. For instance, the use of power tillers in tillage increase yield and reduction in drudgery as opposed to the common use of hand hoes in the country. He told the audience that herbicides application in large scale production of rice especially butaforce or riceforce can have a significantly beneficial effect than the popular and so called stam. He also revealed that weeding rice six weeks after planting though once brings far more better result than not weeding at all or weeding

after this period ; improved rice technologies can combat iron toxicity in inland valley swamps as against farmers traditional practices, also adding that the Rokupr released rice varieties are tolerant to major biotic stresses in the Country. On the losses incurred during post harvest operations, he disclosed that studies have shown that our farmers forfeit a significant portion of their yield through lack of precaution and poor practices during harvest and storage of rice.

“Despite these achievements on the part of our research system together with our partners as well as the initiative of the government’s flagship programme (Small holder Commercialization Programme) and related others in the rice sub sector, the rice yield gap of our farmers is painstakingly paralyzing them to make gains from their hard labour, and by this, they are limited in making the sector meaningfully contribute to the socio-economic development of the country”,Dr.Johnson pointedly stated.

In looking at the way forward out of the quagmire, Dr.Johnson said that while it is undeniable that the Sierra Leone Agricultural Research Institute (SLARI) has to do more in generating new and relevant technologies to close the rice yield gap,he argued that the available technologies with their advantages have to be convincingly made known to our farmers for adoption, hence the vital need to significantly improve on the existing weak extension services. He said that the communication Departments of institutions in the sector need to be fully supported so as to effectively communicate to our farmers and other stake holders the needed agricultural information and knowledge to help them understand the need to adopt evidence based productive farming practices. In support of his position, Dr.Johnson pointed at the already available high yielding rice varieties, the need for timely planting, weeding and other related management practices, use of appropriate mechanized tillage, timely harvesting and post harvest loss reduction practices that are still very strange to our farmers.

Lead Presenter Johnson commended the efforts of the development efforts of the government and donors of the rice sub sector.However,in contrasting the investments of successful rice producing countries in the world to Sierra Leone, he said that the investment here in the sub sector is still a pittance.”It is a country

that is endowed with several rivers, yet our farmers heavily depend on the rainy season to cultivate this important crop; even so, the heavy and uncontrolled water system in the rains continue to wash away the needed plant foods, seeds and seedlings among others". This poor level of investment in the sub sector, he lamented, is also depriving too many of our farmers, as most continue to use primitive tools instead of tractors and power tillers, fertilizers, herbicides etc. their counterparts are using in other parts of the world and with greater reward. While private sector involvement and participation in rice production in other countries is high thus reducing the burden on government, he maintained, the private sector here is lukewarm in participating in the sector.

In conclusion, Dr.Johnson reiterated the importance of extension education and services in increasing the productivity and production of rice in Sierra Leone. He also emphasized the importance of generating appropriate and sufficient technologies on rice for dissemination and adoption." But research requires investment. And investment in helping build the capacity of the SLARI and in its investment Plan in combination with other solutions can help and on sustainable basis close the disturbing rice yield gap

Stakeholders of the seminar described the presentation as penetrating, instructive and realistically reflective of the situation of the rice sub sector in Sierra Leone. Contributions were made including the need to rethink the suggestion for our farmers to use organic fertilizer. While the practice obviously has its advantages, it was also recognized that it is bulky and time consuming to process and may not be so much relevant and practical for undertaking commercial or large scale rice production.

As a result of the several problems and suggested solutions, it was also suggested that the problems be ranked and progressively addressed in line with such priorities. While fertilizer was recognized as one vital solution to our deficient soils, it was noted that they are often not available and affordable and even the few available ones are frequently not of good quality. It was therefore suggested that a better system be put in place to ensure its consistent availability, good quality and affordable cost. The audience also noted that some so called studies

conducted have grossly exaggerated the level of food security attained in Sierra Leone. This misleading information, it was observed, will stop well wishers to genuinely help the country. In order to be thorough in decisively dealing with the rice yield gaps, a committee was set to further examine the presentation and make recommendations.

Agriculture Minister Joseph Sam Sesay said he was impressed by the SLARI Seminar Series initiative and the manner the issues holding back rice productivity and production were articulated. "A country cannot totally claim to be independent if it cannot feed itself", he told the seminar audience. The role of research in such a national responsibility, he said, cannot be overemphasized. He said that he was aware of the huge investment needed to transform the sector from subsistence to productive and commercial farming. "This government has gone a long way to commit a reasonable portion of its budgetary resources to create the enabling environment for our farmers to meet their obligations to adequately feed the nation and meaningfully contribute to improving the face of our economy," he said. He added that the government in hands with its partners is committed to ensuring that rice as our staple food is not only sufficiently produced to meet domestic consumption but exported as well.