

SOIL RESOURCE DEVELOPMENT INSTITUTE

MINISTRY OF AGRICULTURE

Inauguration of the online fertilizer recommendation system

SPECIAL SUPPLEMENT



Minister
Ministry of Agriculture
People's Republic of Bangladesh

MESSAGE

Our agriculture has been in a constant struggle with poverty, hunger and adverse climate. It has always been a challenge to balance the food security of ever-increasing population against the ever-decreasing arable land. The Soil Resource Development Institute (SRDI) scientists have made a remarkable contribution to meet this challenge. It has developed a colossal information bank, analyzing in laboratories soil samples collected from more than one lakh and a half places in different unions including areas susceptible to climatic hazard such as coastal saline zone, waterlogged and drought prone areas. Based on this data and analysis, the institute in association with Catalyst, a non-government organization, designed a software named 'Online Fertilizer Recommendation System'. The application of Information Communication Technology in introducing 'Online Fertilizer Recommendation System' in all upazilas will lead to a 20-25% rise in the harvest with a 15-20% reduction in the use of fertilizer. Consequently, it will have a positive impact on the GDP growth.

The utilization of this software will help ensure food security in addition to offering recommendation about the fertilizer that suits a certain crop cultivated in the lands of any particular area of the country. It will also enable the empowerment of farmers and poverty elimination. The agricultural ministry always considers with the utmost importance effective steps and initiatives taken with a goal to increase the innovations of scientists. Our collective efforts will gear up the implementation process of Bangabandhu Sheikh Mujibur Rahman's dream for the 'Sonar Bangla' where hunger and poverty have no existence.

It is a matter of bliss for me to get acquainted with the fact that SRDI has developed the software 'Online Fertilizer Recommendation System' as part of our collective efforts to implement the Vision 2021 of the government of Honorable Prime Minister Sheikh Hasina and build Digital Bangladesh.

Joy Bangla, Joy Bangabandhu
Long live Bangladesh

Matia Chowdhury
(Matia Chowdhury)



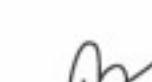
Director
Soil Resource Development Institute
Ministry of Agriculture
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MESSAGE

The country's economy heavily depends on agriculture. In the light of this reality, the research and expansion of services based on agriculture, science and technology hold an undeniable importance. The Soil Resource Development Institute officials and scientists, in association with Catalyst, a non-government organization, has been providing assistance to the farmers by developing the software "Online Fertilizer Recommendation System". This can be regarded as the outcome of the combined application of science and technology in agriculture. The fertilizer application, if done in line with 'Online Fertilizer Recommendation System' will develop and preserve the quality of soil, improve the standard of harvest and keep the agrochemical pollution in soil and water to its lowest. Moreover it will curb fertilizer wastage, lower the use of fertilizers -- specially Urea -- by 15 - 20 percent, reduce the unit production cost and increase the crop production by up to 25%. which will strengthen economic base of the farmers. There by, it will help in achieving the Vision - 2021, envisioned by the government.

In the past, the fertilizer recommendation process was done manually. But now it is with the software that the Soil Resource Development Institute officials and scientists have been recommending farmers about the appropriate fertilizers to be used in a particular land. And all these are happening in the blink of an eye due to the digitized system. The change-makers believe by heart in the slogan "save soil to save farmers, save farmers to save the country and the nation". The farmer has to undergo a very simple process. He has to visit SRDI website and type names of union, upazila and zila, and the level of water submerging his land during monsoon. Then he will get recommendations about the name of an appropriate fertilizer for getting the best yield out of the existing fertility.

In addition, a farmer from anywhere in the country can learn the name of an appropriate fertilizer by making a phone call from a Union Information Center, CIC of Grameen Phone, AICC of Agriculture Information Service or Banglalink operator (dialing 7676). I sincerely thank the ministry of agriculture for giving directions to gear up the agricultural service across the country. I also acknowledge and thank Catalyst and everyone involved in the designing and development of the software Online Fertilizer Recommendation System.



(Syed Ali Nasim Khaliluzzaman)



Online Fertilizer Recommendation System (OFRS)

Dr. Md. Moqbul Hossain
Principal Scientific Officer
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The Soil Resource Development Institute (SRDI), since its inception, has been working on its goal to ensure the most efficient utilization of the country's limited land and soil resources in a scientific and profitable way. To this goal, it had, between 1965 and 1975, accomplished reconnaissance level survey on the soil and land resources of the country. The survey outcomes were compiled in 33 volumes including maps depicting soil and land capability. The findings played a vital role in formulating national-level multi-faceted land use planning. Later was felt the importance of introducing plans on the use of land at the regional and local levels. So was realized the need for a report featuring more detailed and easy-to-figure-out data and information. These outlined the land utilization at local level and its use in a scientific way for agricultural purposes.

On this ground, the Institute in 1985 undertook an initiative of preparing 'Soil and Land Resources Utilization Guide' commonly known as Upazila Nirdeshika. This is a complete guideline on the harnessing of soil and land resources. This will enable having knowledge of the physical and chemical properties of soil at union level. During preparation of this Nirdeshika, the organization determined the nutritive value of soil by testing in soil labs the samples collected during soil survey. All these information pertaining to the nutritive values were incorporated in this Nirdeshika including maps. It has enabled easy identification and estimation of the kind and amount of fertilizer required for a particular crop for a particular place following the guideline of 'Fertilizer Recommendation Guide' prepared by Bangladesh Agricultural Research Council.

The Agriculture Expansion Department has been contributing significantly to take the information and technology of Nirdeshika to the doorsteps of field-level farmers. For ensuring its effective implementation, SRDI has been training the field-level officers of Agriculture Expansion Department from the very beginning of the program. Following the formation of GIS unit of the institute, all the information of the Upazila Nirdeshika including maps were transformed into the digital format. All the sample collection points across the country were digitized using GIS technology (Figure 1 and 2). Figure 1: Soil sampling point map Figure 2: Soil & Land form map

It incorporated the information on the nutritive values of soil. Consequently, one can know the nutrient status of the soils at Union level of any Upazila.

Considering the government's promise to build 'Digital Bangladesh', the institute with the blessings of ICT technology has taken the initiative to extend the service to all farmers. At this stage, Catalyst, a non-government organization, showed its interest to support the online based automation of the soil-test-based fertilizer recommendation service. Later, with the help of Catalyst, the institute developed the software named 'Online Fertilizer Recommendation System' (OFRS).

Online Fertilizer Recommendation System (OFRS):

The 'Online Fertilizer Recommendation System' software database contains a huge information-bank of the nutrient status of soils, based on the soil test results in the institute's lab, across the country. This software was designed to disseminate the soil test based fertilizer recommendation to the farmers quickly and easily with the help of the information technology. This information bank includes analytical data of soil samples like pH, salinity, organic matter, nitrogen, phosphorus, potassium, sulfur, zinc, boron, calcium, magnesium, copper, iron and manganese along with land type and location information such as District, Upazila and Union. Soil sample collection and analysis of the collected samples are a routine job of the institute. Every year the institute updates 30-40 Upazila Nirdeshika through soil survey and analyzing collected soil samples. Thus the software is updated time to time by adding the results of the soil sample analysis.

Based on the long term research outcomes of the National Agricultural Research organization, Bangladesh Agriculture Research Council has published 'Fertilizer Recommendation Guide (FRG)'. Nutrient requirement against the production target of each of the crops incorporated in the guide has also been determined. As a result, one who knows the nutrient status of the land can calculate the amount of the fertilizer required for the desired crop. The OFRS software recommends the fertilizer by analyzing the information on nutrient status of the soils as found by SRDI, nutrient demand of the desired crop and percent of nutrient in the fertilizer to be applied.

This software of online fertilizer recommendation is very user-friendly. If the input on the location of the land (district, upazila and union), land type and crop is selected, the recommendation of the fertilizer is shown. This software recommends instantly about the appropriate fertilizer by analyzing the analytical data of an area selected from the soil data bank reserved in the server of OFRS following the guideline of Fertilizer Recommendation Guide of BARC.

The journey of soil recommendation service in Digital System:

The institute initiated the service in 30 upazilas as pilot basis in September 2009 to extend the recommendation service to farmers in digital system with the help of this software. That time the service was sent to the doorsteps of farmers through Mobile Phone and CEC in association with Grameen Phone and Banglalink. The Agriculture Expansion Department and Department of Agriculture Information Service installed the service in their own service system with the help of this software. Later, the A2I of the Prime Minister's office involved with the work, and eventually Union Information Service Centre (UISC) also connected with it. In response to huge demand, special contribution and potentiality in contributing in agricultural development SRDI has completed processing of nutrient analytical data of the whole country and incorporated into the OFRS data base and made it ready for the whole country.

Benefits of soil-test-based online fertilizer recommendation service:

- 20 to 30% increase in the production for varying crops
- Good health of plants with lower chances of diseases and pest attacks
- Low production cost
- Good soil health
- Improved quality of crops

How to get online fertilizer recommendation service:

- Visit www.frs-bd.com or www.srdi.gov.bd, and click OFRS, select location and crop (Figure 3 and 4)
- Service from Union Information Service Center (UISC)
- Dial 7676 of Banglalink operator
- Service from Grameen Phone CIC

Honorable Agriculture Minister of the People's Republic of Bangladesh Begum Matia Chowdhury is going to unveil this service system for the entire nation developed by the long-time and collective efforts of all employees of Soil Resource Development Institute in association with Catalyst. I strongly believe this service would play a significant role in making the present government's dream for Digital Bangladesh into a reality. It would be regarded as a remarkable event in the country's agricultural history and have a huge contribution to its economy.



Secretary
Ministry of Agriculture
People's Republic of Bangladesh

MESSAGE



The human civilization is making its way through numerous challenges including climate change. Facing such challenge nationally requires collective efforts. The country's economy is mainly agro-based, and the overall development here is inseparably involved with agricultural development. It is a matter of bliss for me to know that the Soil Resource Development Institute realized this reality, and designed the software 'Online Fertilizer Recommendation System' in association with Catalyst, a non-government organization. I believe that this software will expedite the approaches to building Digital Bangladesh with no existence of hunger and poverty by ensuring the combined application of science and technology in agriculture. In no way can we forget the slogan 'save agriculture - save Bangladesh'. This is the way I think we would be able to strengthen our position in the world in addition to ensuring food security. I hope, this software will be a good source of motivation for the concerned officials and scientists, and the objective of designing the software would be achieved successfully. This Institute introduced the "Online Fertilizer Recommendation System" with the help of the information and communication technology. It also made union-based recommendation guides and festoons on land, soil and fertilizer with a view to inform farmers about selecting region-based crops in line with the agricultural climate, using standard fertilizer, soil management and preserving soil fertility. The development of the "Online Fertilizer Recommendation System" is a necessary step to raise production, stop wastage of fertilizer and preserve, secure and develop the soil. In addition, this is a landmark achievement in implementing the Vision 2021, envisioned by the government, and shaping Digital Bangladesh.

I wish the successful management of the software and thank everyone having contributed to the project.



(Dr. S M Nazmul Islam)



The Fertiliser Recommendation Software (FRS) will be launched today by the honourable Minister for Agriculture, Begum Matia Chowdhury. This is a great achievement for the agriculture sector of Bangladesh, and we are proud to have been involved in its development with the Soil Resource Development Institute (SRDI) for the last decade. On this auspicious occasion, I would like to thank all the officials from Ministry of Agriculture, SRDI, and Catalyst, and all the IT professionals who were involved with the development of this amazing feat of technology. A special thanks to Grameenphone, Banglalink, and Access to Information for creating platforms for farmers to access the FRS.

From Catalyst's work in the agricultural realm, we know that farmers usually practice imbalanced fertilization due to their lack of knowledge on what constitutes of balanced dosage and why it is so important. The soil of the country is thus deteriorating with the percentage of micro-organisms and organic matter reducing day by day. Should the unfortunate demise continue, Bangladesh may soon face production stagnation and resultant famine. Hence, Catalyst started working in creating a software that would give farmers specific information on fertilizer dosage for their field and crop.

With the inauguration of the honourable minister, we would hope that both private and public partners will come forward in disseminating information on the FRS and help make it popular amongst farmers. Here is to the start of a prosperous journey for the Fertiliser Recommendation Software.

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Figure 3: Home page of OFRS



Figure 4: Fertilizer recommendation card

