

## Digital Bangladesh Smart agriculture with Smart Technology

Agriculturalists **Mr. Roy**

Outstanding career in Agricultural Development

Soil fertility dynamics with improved production system Development

A plant needs organic fertilizer for it to grow in a balanced way

<http://www.northernfertilizer.org/rnd.php>

In Bangladesh, where agriculture is still a major source of income for 14 million farming households. The last ten years have been a decade of tremendous growth in information communication technology (ICT) in Bangladesh. Currently, the telecom network covers all 64 districts of Bangladesh and almost 84 percent of rural households carry mobile phones. This can be partially attributed to the availability of cheap mobile handsets and the oligopolistic nature telecommunication industry that allows mobile phone users to enjoy affordable call tariffs and internet packages. Other than the telecommunications sector, growth is significantly realised through the availability of private sector owned ICT based services, union digital centres and internet cafés at the country's union level. In the context of service availability, what started with agriculture helplines by telecom operators, have expanded to SMS based services and government developed software that provides accurate agriculture information. Private sector agriculture input companies have also established ICT based services aimed at providing product specific and general agriculture information to farmers. The agriculture input sector has effective networks of farmers across Bangladesh and the ICT can enable these companies to reach out to them faster and more economically. This scenario is already evident as leading seed, aqua-chemicals and fish feed companies are adopting various ICT based mechanisms to reach out to farmers in order to ensure proper usage of their products. This has a two-fold benefit; firstly, this allows companies to present themselves in an empathetic light to their farmers and secondly, accurate and timely information enables farmers to enjoy higher yields and enables companies to retain their customers. These services are concerned with providing customer care solutions for farmers and is considered part of marketing initiatives in order to reach out to a wider scale of farmers.

Northern Agro Services Ltd (NASL) is now manufacturing 18 (eighteen) types of crop based mixed Balanced Fertilizers (**Northern BF**) and **Northern Shakti** fertilizer and **Northern organic fertilizers** which are fully nutrient fortified organic and environment friendly. Northern fertilizers are a balanced nutrition for the crops formulated based on more than ten years of research done.

**Bangladesh's Experiences on the Production and Use of Balanced Fertilizers:** Fertilizers are the important guaranteed inputs for high yield and stable yield of various crops. At present, main soil fertilizer used in Bangladesh is still chemical fertilizer, long term and large quantity fertilizer application can ensure stable yield and harvest increase of Bangladesh crop in a period of time and at certain extent, however, chemical fertilizer has the disadvantages of causing soil to be hardened, land fertility to drop and plant diseases and insect pests. Short term effect is relatively good, but it will arouse a series of serious ecological environment problems and impact human health, not well for agriculture's sustainable development. Bangladesh has been applying chemical fertilizers for a long time. Balanced Fertilizer is insufficient, nutrient proportion get unbalanced, causing farmland's ecological environment, soil's physical and chemical characters and soil micro-organisms are to be damaged at different levels, impacting the safety of agricultural products to some extent.

**Recently, Bangladesh Agricultural Research Council (BARC) has published National Fertilizer Recommendation Guide (Fertilizer Guide-2012)** for different crops/cropping patterns based on research findings of NARS Institutes and field trial/demonstrations conducted in different AEZs of Bangladesh. **The main features of the Guide are:**

i) Fertilizer recommendation for different crops based on the soil test values, crop varieties and high yield goal (HYG) following IPNS approach and best management practices (BMPs)

ii) Fertilizer recommendation for major cropping patterns in different AEZs based on HYG

III) Fertilizer recommendation for multiple cropping systems

iv) Clay minerals status of different AEZs

v) Rationale of fertilizer use

vi) Soil fertility evaluation and assessment of nutrient used

vii) Soil organic matter management

viii) Land degradation (soil erosion, salinization, acidification, soil fertility depletion, water-logging and heavy metal contamination)

ix) Quality control of fertilizers

**Northern Agro-Services Limited (NASL)** is producing different Organic Fertilizers, Northern BFs and Shakti fertilizer has its special soil improvement structure and enormous advantage of environmental protection, it is being identified and accepted by more and more farmers to:

- Promote Northern Fertilizers or life agriculture through IPNS Technologies as tool for increased productions and to end poverty and for attending basic food sovereignty, security and safety.
- Improve the soil structure and making the land fertile for a long period of time maintaining good soil health & environment friendly.

At present 70 percent of farmland has less than 1 percent organic matter, But it should be 3.5 percent to ensure good soil fertility and productivity. To meet the growing demand to produce crop based Balanced Fertilizer /fortified organic fertilizer is our main target. NASL produce required kinds of specific crop based Balanced Fertilizer & fortified organic fertilizer for the specific crops/cropping patterns in Bangladesh.

Internet of Things (IoT), the hottest topic of today's research era is also contributing in smart agriculture.

For the first time in Bangladesh agriculturalists have started using agricultural drones to monitor farmlands in the southern districts of Bangladesh. IoT-based productions and services for producers, distributors, retailers and consumers already started some private company in Bangladesh. Smart agriculture helping to structure a new industry for china and the world. To feed a growing world , agriculture needs to double production in the next generation.

The United Nations Food and Agriculture Organization cites that to feed 2.3 Billion people by 2050, we need to produce approximately 70% more food. With the challenge of dwindling resources, climate change and costs of electricity , this is a lofty goal. Applying IoT to farming can a positive impact.

IoT is a technology that enhances farming practices and supply . The hope is that it will eradicate human starvation by enabling – Food for All.

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