



**American International University-Bangladesh (AIUB)**

**SDG Activity Report on**

## **SDG 2: Zero Hunger**



**End hunger, achieve  
food security and  
improved nutrition  
and promote  
sustainable agriculture**

## SDG Activity Report on

### SDG 2: Zero Hunger

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## Faculty Research and Publication

### Precision Agriculture in Bangladesh: Need and Opportunities

Author: Md. Asiful Islam et al.

#### Brief Description:

Agriculture being the socio-economic backbone of many developing countries (e.g., Bangladesh), still heavily depend on the farmer's experience, intuition, physical labour, mercy of nature for production. However, smart integration of technologies with the agricultural processes underpinned by Internet of Things (IoT) principles, can resolve these issues and maximize productivity. This approach (often termed as Precision Agriculture) can bring together agronomists, farmers and crops regardless of their geographical difference, and make agricultural information acquisition, evaluation and decision making autonomous and instantaneous.

This paper therefore contributes the followings, first, empirically investigate the status quo of agricultural practices and need in Bangladesh, second, glean the needs and requirements for shifting the status quo towards a knowledge driven smart automation system, and third, develops a platform for Precision Agriculture by leveraging the best practiced IoT design principles and contemporary technologies. Alongside, the transcript of validation highlighting the design and technical soundness of the system is presented.

Source: <http://sersc.org/journals/index.php/IJAST/article/view/28079>

### Effect of Biochar and Fertilizer Application on the Growth and Nutrient Accumulation of Rice and Vegetable in Two Contrast Soils

Author: Md. Faruque Hossain et al.

#### Brief Description:

This study investigated the impact of Biochar and fertilizer, applied independently and simultaneously, on plant growth response and nutrient uptake from two contrasting tropical soils. One commonly cultivated winter vegetable (*Amaranthus lividus*) and a high yielding rice variety (BR-48) was grown on both the soils. Eight different treatments namely control, only fertilizer, three different biochars (farmyard manure, water hyacinth and domestic organic waste) with and without recommended fertilizer doses were used in the experiment. Soils with biochar treatments received 10 tons ha<sup>-1</sup> of biochar. Results revealed that, Biochar treatments alone could enhance the yield of Data Shak 17-64% for Sara soil and 17-42% for Kalma compared to only fertilizer application. Farmyard manure biochar (FM) was most effective in case of Sara and Domestic organic waste biochar for Kalma. Synergistic effect of biochar and fertilizer was most prominent in terms of vegetable yield. Biochar and fertilizer applications had positive

effects on N, P, K and S uptake however that varied with soil type. Farmyard manure Biochar significantly increased P uptake in vegetable and fertilizer application facilitated K intake at 1% significant level. Rice straw yield were significantly affected by fertilizer application. Synergistic effect of Biochar and fertilizer treatments increase the yield by 16-23% in Sara and 12-49% in Kalma compared to that of only fertilizer application. Only Biochar application sometimes caused reduction in yield, even from the control treatment. Effect of biochar and fertilizer treatments on macronutrient (N, P, S and K) uptake of rice plant was significant at 0.1% level at both the soils. Fertilized domestic organic waste biochar application facilitated highest N uptake in rice plants both in straw and grain. This highly significant uptake of nutrients could be due to the increased crop yield by biochar and fertilizer application together, which might be the best practice for tropical soils.

Source:

[https://www.researchgate.net/publication/331175781\\_Effect\\_of\\_Biochar\\_and\\_Fertilizer\\_Application\\_on\\_the\\_Growth\\_and\\_Nutrient\\_Accumulation\\_of\\_Rice\\_and\\_Vegetable\\_in\\_Two\\_Contrast\\_Soils](https://www.researchgate.net/publication/331175781_Effect_of_Biochar_and_Fertilizer_Application_on_the_Growth_and_Nutrient_Accumulation_of_Rice_and_Vegetable_in_Two_Contrast_Soils)

### Precision Agriculture in Bangladesh: Need and Opportunities

Author: Kaniz Fatema et al.

Brief Description:

Agriculture being the socioeconomic backbone of many developing countries (e.g., Bangladesh), still heavily depend on the farmer's experience, intuition, physical labour, mercy of nature for production. However, smart integration of technologies with the agricultural processes underpinned by Internet of Things (IoT) principles, can resolve these issues and maximize productivity. This approach (often termed as Precision Agriculture) can bring together agronomists, farmers and crops regardless of their geographical difference, and make agricultural information acquisition, evaluation and decision making autonomous and instantaneous. This paper therefore contributes the followings, first, empirically investigate the status quo of agricultural practices and need in Bangladesh, second, glean the needs and requirements for shifting the status quo towards a knowledge driven smart automation system, and third, develops a platform for Precision Agriculture by leveraging the best practiced IoT design principles and contemporary technologies. Alongside, the transcript of validation highlighting the design and technical soundness of the system is presented.

Source:

[https://www.researchgate.net/publication/342851355\\_Precision\\_Agriculture\\_in\\_Bangladesh\\_Need\\_and\\_Opportunities](https://www.researchgate.net/publication/342851355_Precision_Agriculture_in_Bangladesh_Need_and_Opportunities)