

Events

July 2013

FAI-IPI-IPNI Roundtable Discussion on Balanced Fertilization in India, 22 July 2013, Delhi, India

Adapted from the report published in the *Indian Journal of Fertilisers*, September 2013; p. 100-102.



Photo by IPI.

The Fertiliser Association of India (FAI), the International Potash Institute (IPI) and the International Plant Nutrition Institute (IPNI) jointly organized a roundtable discussion on “Balanced Fertilization” on 22 July 2013, at FAI House, New Delhi. Mr. Satish Chander, the Director General of FAI, welcomed the chief guest and participants. Mr. Hillel Magen, Director of IPI, Switzerland and Dr. Kaushik Majumdar, Director of IPNI’s South Asia programme, introduced the discussion agenda. Dr. Gurbachan Singh, Chairman of the Agriculture Scientist Recruitment Board (ASRB), New Delhi delivered the opening address. Thirty-five delegates representing Indian Council of Agricultural Research (ICAR), Indian Agricultural Research Institute (IARI), Potash Research Institute of India (PRII), Ministry of Agriculture, FAI, IPI, IPNI and the fertilizer industry participated in the discussion. In his welcome address, Satish Chander emphasized that balanced fertilization is key to agricultural growth. He warned, however, that while scientists do considerable research on various aspects of balanced plant nutrition, and extension staff work hard to take research findings to farmers’ fields, government fertilizer pricing policy decisions sometimes negate efforts to promote balanced use of fertilizers. Chander went on to highlight the expertise of the discussion participants whose interaction would help in finding solutions to the problem of imbalanced fertilizer use.

In introducing the discussion, Hillel Magen suggested that while the topic of balanced fertilization is well known, it deserves re-appraisal in the present context. In terms of fertilizer consumption, nitrogen (N), he said, has outstripped other nutrients (phosphorus (P) and potassium (K), in part because of pricing policy. In providing information to achieve balanced fertilization, soil testing alone is not sufficient, Magen argued. While diagnostic tools for rice are, in general, much stronger than for other crops, advanced tools, such as IPNI’s Nutrient Expert (for maize), are urgently needed. Noting that fertilizer use efficiency in China is outpacing that of India, Magen emphasized the need to adopt improved farm technologies in order to bridge the gap between actual and attainable yields.

According to Kaushik Majumdar, the two challenges for balanced fertilization are (i) how to promote the concept to farmers, and (ii) how to have a very clear understanding of what balanced fertilization means. He pointed out that NPK Plus could support balanced fertilization, highlighting the need and potential of site-specific nutrient solutions. But for this message to reach farmers, scientific explanations need to be targeted at the grassroots level. In his opening address, Gurbachan Singh stressed the need to learn lessons from the past, by reviewing the research and development initiatives to improve nutrient use efficiency undertaken over the last 30 years. A scientific approach will be vital in promoting balanced fertilization. Dr. Singh pointed out that an increase in food grain production of 8-10 million tons per year is needed to keep pace with the growing population in India. This will demand a continuous increase in crop yields through the adoption of best management practices. Meanwhile, the cost of inputs, including fertilizer, is rising. The challenges to balanced fertilization are, he argued, both varied and complex, involving nutrients, water and tillage, and recycling of crop residues, in conjunction with fertilizer usage, needs to be encouraged to improve soil health. Incorporation of leaves of legume trees is also vital to build the organic content of the soil. Emphasizing multi-disciplinary approaches, Singh urged that integrated farming systems should be followed to improve crop yields, soil health and farm profitability. In planning research experiments, a cropping system-based approach should be followed, he said.

Six papers were presented at the meeting, namely:

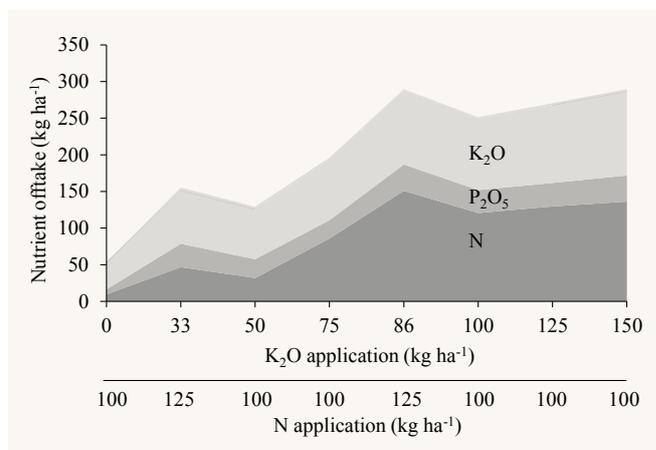
- “Long-term Sustainability under Balanced Fertilization” by Dr. Muneshwar Singh, Coordinator, LTFE, IISS, Bhopal.
- “Crop Response to Fertilizer under On-Farm Trials in India” by Dr. V.K. Singh, ICAR National Fellow, PDFSR, Modipuram.

- “Potassium Nutrient Balances and Sustainability of Crop Production in India” by Dr. S.K. Bansal, Director, PRII, Gurgaon.
- “Improving Nutrient Use Efficiency for Sustainable Productivity Increase and Farm Profits” by Dr. B.S. Dwivedi, Head, Division of Soil Science and Agricultural Chemistry, IARI, New Delhi.
- “Crop Response and Economics of P and K Application in India” by Dr. Kaushik Majumdar, Director, South Asia Programme, IPNI, Gurgaon.
- “Using NBS to Encourage Balanced Fertilization” by Mr. B.B. Singh, Assistant Vice President (Corporate Affairs), TCL, Noida.

In the concluding session following a lively debate, Hillel Magen, invited contributions from the participants, leading to the following observations:

- Per hectare nutrient use in India is low and imbalanced. The distortion in NPK prices created by excluding urea from the national nutrient-based subsidy policy has aggravated the problem of imbalanced fertilizer usage.
- Despite extensive research in balanced fertilization, significant research gaps remain. For example, the issue of K leaching has been neglected, particularly in coarse textured soils and under heavy irrigation conditions.
- Site-specific nutrient management is needed for balanced and efficient use of fertilizers. The approach used under balanced fertilization varies according to the level of crop productivity.
- A reliable database should be created to make soil test-based fertilizer recommendations more effective.
- A wide gap exists between actual and attainable yields. In order to convince farmers of the value of fertilization in narrowing these yield gaps, more emphasis needs to be given to crop demonstrations in farmers’ fields.
- The main target audience, namely farmers and farm advisors, should be the focus of efforts to transfer improved farm technology.
- Increased use of mass media is urgently needed to inform farmers of best management practices. A full-time agriculture channel produced by ICAR and/or the fertilizer industry could go a long way in rapidly transferring improved technology to the farming community.

The programme ended with a vote of thanks from Dr. R.K. Tewatia, Chief (Agricultural Sciences), FAI, both for the presentations and the discussions that followed them.



A figure, demonstrating “Balanced Fertilization” showing how K increases N use efficiency: N offtake increases with higher K application. *Source:* IPI data; onion field experiment.

The report on “FAI-IPI-IPNI Roundtable Discussion on Balanced Fertilization in India, 22 July 2013, Delhi, India” also appears on the IPI website at:

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