



Food security & fertilizer

BY CHRISTIAN WITT

Food security is back on the global agenda. With the recent food crisis, public attention has returned to issues of availability and affordability, particularly for the urban and rural poor. Responses to the accelerating changes in food stocks and prices in recent months ranged from interventions at the policy level to calls for longer term strategies, including greater investment in agricultural research to safeguard food security in the future.

Although consumer rice prices have dropped somewhat since the peaks of mid-2008, they remain higher than those of 2 years ago and the crisis is by no means over. Yield forecasts for the immediate future are promising, but rice supply remains tight and is likely to remain so in the coming years.

Meanwhile, at the farm level, growers find themselves facing higher production costs (especially for fertilizer and fuel) and higher but more volatile farm-gate prices for their produce. This poses problems to rice farmers with typically low cash flows. As fertilizer prices increase, cutting costs by reducing the use of one or more fertilizer nutrients might appeal to farmers and policy-makers—but it's a risky strategy.

Crop yield is directly related to the amount of nutrients taken up by a crop, and fertilizers supply a significant portion of the nutrients required to achieve high and profitable yield. Food security cannot be achieved without the effective use of fertilizer nutrients in combination with other nutrient sources such as residues and manures available on-farm. At some point, less fertilizer means lower yield unless the innovative, yield-building nutrient management strategies developed over the past 10 years become common practice. The time is now for the public and

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private sector to step up and make this knowledge available to farmers.

But won't fertilizer prices plummet soon to previous levels? Current fertilizer prices are the result of an until-recently very tight global fertilizer market that follows the basic principles of supply and demand. The demand for agricultural products—and thus fertilizer—has been increasing for years, driven by population growth and increasingly diversified diets as income in developing countries has grown. This development has been further accelerated by the recent investment boost in the biofuel sector.

The International Rice Research Institute forecast a significant increase in future rice demand back in the early 1990s, at a time when food stocks were high and rice prices low. As food stocks melted away with accelerating demand, investment in agricultural research slowly dwindled. And, just as one cannot switch research on and off within a year, it takes massive capital and several years to increase fertilizer production capacity. As a result, fertilizer capacity growth has not kept pace with demand.


With production capacity currently at or near record levels, the International Fertilizer Industry Association warned in mid 2008 that fertilizer markets will remain tight for at least 3 years. Fertilizer supply has eased in recent months as many farmers are reluctant to invest in their crops given the global economic recession and volatile prices for commodities and fertilizer. As economies recover, however, significant investment in infrastructure and opening of new plants and mines will be required

to meet future fertilizer demand.

It currently appears that the cost for fertilizer and other inputs will remain relatively high in most farming environments. Farmers will thus have to optimize their production systems considering the global market prices of inputs and particularly fertilizer.

What gives me hope for the near future is that there is still room for yield improvement at the farm level in Asia's key rice-producing areas. What gives me even more hope is that, in the last 10 years, we have transformed complex science into robust scientific principles. These have formed the basis for a new generation of user-friendly tools and associated communication strategies in nutrient management. Examples include the leaf color chart, which helps farmers optimize their nitrogen application, and the new country-specific Nutrient Manager Software recently developed by IRRI and its partners in Asia.

The process of developing locally adapted fertilizer strategies combined with locally available nutrient sources has been demystified. One does not need a laboratory to do this. One does not even need an expert. Today, anyone with access to the new tools can develop individual, site-specific strategies for yield improvement and effective input use, in real time and on the spot.

This information is increasingly being made available to farmers with promising examples of uptake by the public sector, industry, and nongovernmental organizations. More and more, these groups must share their experiences and intensify their learning alliances if farmers are to reap the full benefits of the knowledge we now have. 

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