

Mitigating Poverty and Environmental Degradation through Nutrient Management in South and Southeast Asia

Region: [Asia](#)

In Bangladesh, Cambodia, and Vietnam, the Adapting Nutrient Management Technologies (ANMAT) project is promoting the adoption of balanced fertilizer use and improved efficiency of fertilization. Dr. Walter T. Bowen, IFDC Resident Project Coordinator—ANMAT II, works with NGOs and extension services to demonstrate the benefits of deep-placed USG for rice production. In addition to increasing the incomes of poor farmers, the improved practices are more protective of the environment. A national



survey in Bangladesh during 2004 showed that more than 1,800 briquette-making machines have been manufactured and sold and that more than 550,000 rice farmers were using UDP technology in their fields. The latest evaluation of 530 on-farm trials comparing this technology and the farmers' practice of broadcasting urea clearly demonstrates how UDP technology can help farmers produce more rice, decrease the amount of urea fertilizer that they are applying, and improve their standard of living.

During 2000-2004 the UDP technology increased paddy yields by 900-1,100 kg/ha (depending on the cropping season), decreased urea use by 78-150 kg urea/ha, and subsequently increased profits by US \$116-\$137/ha. Affordable briquette-making machines are continually being manufactured and sold in Bangladesh, which is helping to meet new demand as more farmers adopt the technology.

Various activities such as workshops and study tours aid in the dissemination of UDP technology. Examples of these activities that were conducted in Bangladesh, Cambodia, and Vietnam are as follows:

- ANMAT and the Bangladesh Department of Agricultural Extension conducted a one-day national seminar on UDP that attracted over 200 farmers, NGO staff, urea-briquette producers, researchers, and extension leaders from all over Bangladesh. The title of the workshop was "Urea Deep Placement Technology: Prospects for Poverty Alleviation and Food Security in Bangladesh". The Minister of Agriculture, Mr. M. K. Anwar, was Chief Guest and speaker.
- Study tours were arranged for visitors from Nigeria, Pakistan and Sri Lanka who are interested in adapting UDP technology in their respective countries. One briquette-making machine was exported to Pakistan.
- Farmers in Vietnam and Cambodia are experimenting with deep placement of multi-nutrient briquettes (NPK) and obtaining yield benefits with reduced levels of fertilization. In many cases these are farmers who have traditionally applied little or no fertilizer, and their yields have at least doubled with fertilizer deep placement. When compared with broadcast fertilizer applications, the deep placement of multinutrient briquettes increased yields by 25%. In Vietnam, about 4,000 farmers have used fertilizer briquettes, and at least three manufacturers have begun producing briquette-making machines.

IFDC Report

Publisher:

IFDC—An International Center for Soil Fertility and Agricultural Development

Editor:

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Layout/Design:

Donna W. Venable

IFDC Report is a biannual publication of IFDC, Muscle Shoals, Alabama, U.S.A. Telephone: 256-381-6600, Telefax: 256-381-7408, E-Mail: general@ifdc.org, Web Site: <http://www.ifdc.org>. Unless otherwise noted, printed material published in the *IFDC Report* is in the public domain and may be freely reproduced. Source acknowledgment and a copy of any reproduction are requested. Subscriptions are free. French- and Spanish-language editions of the *IFDC Report* are available from IFDC.

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Urea deep placement (UDP) is a more efficient way to manage urea fertilizer by placing large urea briquettes into the soil after transplanting rice. IFAD is disseminating the UDP technology to farmers through partners in Bangladesh, Cambodia, and Vietnam.

The UDP technology depends on production of urea briquettes in villages using locally manufactured briquette-making machines. Soon after transplanting, the briquettes are inserted 7 to 10 cm deep in the middle of every other four hills of

rice. UDP increases nitrogen use efficiency by keeping most of the urea nitrogen in the soil, close to plant roots and out of the floodwater.

In Bangladesh more than 550,000 farmers are using urea deep placement, Bowen says. In hundreds of on-farm trials, UDP technology has increased rice yields by an average of 22% when compared with broadcasting, and decreased urea use by 47%. Profits have increased by 24%. Ten Bangladeshi manufacturers have produced and sold more than 2,000 briquette-making machines.

The positive results have led the Department of Agricultural Extension to propose using Government of Bangladesh funds to support a special project to make UDP technology more widely available to farmers.

More than 6,700 farmers now use UDP in Vietnam. The country now has 4 machine manufacturers, 12 pellet producers, and 4 retailers.

UDP was only recently introduced to Cambodia, but more than 200 farmers are using it.

A vendor selling urea briquettes in Bangladesh.



Farmers applying urea briquettes in Bangladesh. Using the urea deep placement (UDP) system, a farmer inserts the briquettes 7 to 10 cm deep in the middle of every other four hills of rice. UDP increases nitrogen use efficiency by keeping most of the urea in the soil, close to plant roots and out of the floodwater.



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