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## RESEARCH REPORTS

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**Title:** On-Station Trials of Different Fertilization Regimes Used in Bangladesh

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**Date:** 22 August 2017

Publication Number: AquaFish Research Report **06-A09**

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**Abstract:** An on-station trial was conducted in fourteen 100-m<sup>2</sup> earthen ponds at the Bangladesh Agricultural University (BAU), Mymensingh, Bangladesh during July-December 2001. This trial was designed to evaluate different fertilization regimes currently used for aquaculture in Bangladesh, and to compare effects of different fertilization regimes on fish production, water quality, and economic returns. There were five fertilization regimes for culture period as treatments: (A) PROSHIKA fertilization regime - weekly application of 1,000 kg cow dung per hectare; (B) BRAC fertilization regime - weekly application of 156 kg cow dung, 28.125 kg urea and 13.1 kg TSP per hectare; (C) CARITAS fertilization regime - fortnight application of 1,500 kg cow dung per hectare; (D) BAU fertilization regime - fortnight application of 1.250 kg cow dung, 31.25 kg urea and 15.625 kg TSP per hectare; (E) A/CRSP fertilization regime developed from Nile tilapia (*Oreochromis niloticus*) ponds - weekly application of 250 kg cow dung (dry matter) per hectare supplemented with urea and TSP to give 28 kg N and 7 kg P/ha/wk. Six carps

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**CRSP RESEARCH REPORTS** are published as occasional papers by the Program Management Office, Aquaculture Collaborative Research Support Program, Oregon State University, 418 Snell Hall, Corvallis, Oregon 97331-1643 USA. The Aquaculture CRSP is supported by the US Agency for International Development under CRSP Grant No.: LAG-G-00-96-90015-00. See the website at < <http://pdacrsp.oregonstate.edu/> >.

species used in this on-station trial were silver carp (*Hypophthalmichthys molitrix*), mrigal (*Cirrhinus mrigala*), rohu (*Labeo rohita*), catla (*Catla catla*), grass carp (*Ctenopharyngodon idella*) and common carp (*Cyprinus carpio*) stocked at a ratio of 9:8:6:6:3:2 at a stocking density of 1.02 fish/m<sup>2</sup>, giving 27, 24, 18, 9, 6, fish per 100-m<sup>2</sup> pond, respectively. Mean stocking sizes of carps ranged from 6.3 to 10.1 g. Among all tested fertilization regimes, A/CRSP fertilization regime resulted in the highest fish production, followed by BAU, BRAC, CARITAS and PROSHIKA fertilization regimes ( $P < 0.05$ ). The two fertilization regimes (PROSHIKA and CARITAS) using cow dung as the sole nutrient input during the culture period gave very poor fish growth performance and low production, mainly due to the low soluble nutrients derived from cow dung. The other three fertilization regimes (A/CRSP, BAU and BRAC) using the combination of organic and inorganic fertilizers resulted in much higher carp production. Analysis of water quality showed that the nutrients in A/CRSP fertilization regime were oversupplied, as this regime was developed in Nile tilapia monoculture system with higher intensification compared to the carp polyculture in the present trial. BAU fertilization regime gave the highest profitability among all fertilization regimes, followed by BRAC and A/CRAP. Therefore, it is concluded from the present study that BAU fertilization regime is the most appropriate for carp polyculture ponds in Bangladesh while A/CRSP fertilization regime is suitable to carp polyculture ponds with higher intensification.

This abstract was excerpted from the original paper, which was in the Journal of Aquaculture in the Tropics (2006), 21(1-2): page 37-49.