



A Case Study

## Irrigation water conservation in *Teesta* flood plain of North Bengal, India: A holistic approach

■ SURAJIT SARKAR, NIRMAL SARKAR AND SUJAN BISWAS

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Water conservation,  
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*Teesta* flood plains of West Bengal located at *Sub-Himalayan* part of *Terai* agro-climatic zone of West Bengal experiences typical pre-humid climate with high annual rainfall (more than 3000 mm), high relative humidity (average maximum and minimum of 95 and 65 %, respectively) and moderate temperature (average maximum and minimum of 31°C and 11°C, respectively). Critical observation on distribution pattern of rainfall revealed that the pattern is erratic as evidenced by the fact that out of total annual rainfall more than 75 per cent (2200 - 2500 mm) is received during June to September and out of rest amount 75 - 80 per cent is received as pre-monsoon rainfall during April and May, keeping the entire *Rabi* season almost dry. Such an unequal distribution of rainfall leaves no other option for vegetable growers of this region but to depend on ground water lifted by diesel operated pump using bore well as source. Reliance on irrigation water is further increased due to low water holding capacity of soils. Keeping all these in mind demonstration programmes on water saving irrigation method *viz.*, broad bed and furrow (BBF) method of irrigation and *in-situ* moisture conservation technology *viz.*, organic mulching were carried out at farmers' field to minimise use of irrigation water for vegetable cultivation, to reduce the irrigation cost, environmental pollution and to save the ground water.

**Initiatives of Cooch Behar KVK :**

Demonstrations were carried out by Cooch Behar KVK at village Khagribari of Cooch Behar district, West Bengal (latitude 26°26.4' N, longitude 89°21.5' E) under the project National Initiatives on Climate Resilient Agriculture (NICRA) during the year 2011-12 and 2012-13.

**Technology 1 : BBF method of irrigation in brinjal and cucumber :**

Broad bed of 95 cm wide and 12-15 cm height were made with 30 cm wide irrigation channel in between two bed and seedlings of brinjal were planted during September in two rows with 90 cm spacing in between rows; where as in case of cucumber 150 cm wide and 12 - 15 cm height bed were made with 30 cm wide irrigation channel in between two beds and seeds of cucumber were directly planted in the bed during October having two rows in each bed at 115 cm apart. All other management practices remained same in both BBF and farmers' practice of ridge and furrow (RF) method for both brinjal and cucumber (Fig. 1).

**Benefits of BBF method of irrigation in brinjal and cucumber :**

*Savings of irrigation water :*

Data presented in Table 1 showed that though the total number of irrigation during crop life as recorded were 12 in case of brinjal for

**Author for correspondence :**

**SURAJIT SARKAR**  
Cooch Behar Krishi Vigyan  
Kendra, UBKV, Pundibari,  
COOCH BEHAR (W.B.)  
INDIA  
Email: [drsurajitskr@gmail.com](mailto:drsurajitskr@gmail.com)

See end of the article for  
authors' affiliations