TECHNICAL BULLETIN
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Adaptation of Newly Released HYV Oilseeds (Mustard, Groundnut, Soybean and Sesame) in *Char* Lands of the Padma

The *char* lands, formed by river systems, are an unfavorable ecosystems covering an area of 0.82 million ha in Bangladesh. Generally, the *char* lands are less productive and remain fallow in most parts of the year. However, even under adverse conditions, there are opportunities of growing some crops on *char* lands. Oilseeds could be a suitable crop for these lands. Water stress and nutrient deficiencies in soil are the major problems in the *char* areas.

Crops there depend mainly on rains and residual soil moisture. Crops and varieties tolerant of water stress should be suitable for the *char* lands.

The traditional farming practices in the *char* areas comprise local varieties and production practices. These are the main causes of low crop yields in the *char* areas. This project studied the possibilities of introducing HYV oil seeds with improved production technologies in some *char* areas of the river Padma.

Adaptive trials were conducted in farmers' fields at four locations in *char* areas of the river Padma (Lokhikunda and BBC Bazar, Golapnagar and Philipnagar of Pabna, Bheramara and Kushtia districts, respectively in the first two years of the project (2013-2014 and 2014-2015).

On the basis of the two years' results, suitable varieties were selected for field demonstrations followed by block demonstrations with best management practices (2015-2016). Oilseed varieties developed by BARI and BINA were chosen for project trials. These varieties were screened in farmers' fields for the selection of the better performing ones

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in the first and second years (2013-2014 and 2014-2015). The better performing varieties (BARI Sarisha-11, BINA Sarisha-8, BARI Badam-8 and BARI Til-4) were grown in large demonstration blocks in the third year (2015-2016).

A total of 80 farmers were involved in the block demonstrations of mustard, groundnut and sesame. Training, demonstrations, field days and workshops were used for technology dissemination for the adoption of newly released HYV mustard, groundnut, soybean and sesame in the char areas. Training was also arranged for capacity building of field assistants and selected farmers.

Results

The mustard varieties, BARI Sharisha-11 and BINA Sarisha-8, soybean varieties, BINA Soybean-1, and BARI Soybean-5, sesame varieties, BARI Til-4, groundnut variety, BARI Badam-8, were the best performers in terms of yield and economic returns at the four locations (Table 1).

Farmers showed interest in cultivating these HYV mustard, sesame and groundnut varieties but not in soybean due to lack of marketing opportunities.

Table 1. Yield and economic returns of the best performing oil seed varieties in *char* areas (average of 3 years across 4 locations)

Crop/variety	Yield range (kg/ha)	Average yield (kg/ha)	Gross return (Tk/ha)	Gross margin (Tk/ha)	BCR
BARI Sarisha-11	1267-1917	1602	80100	41289	2.06
BINA Sarisha-8	1235-1818	1522	76100	37289	1.96
BARI Badam-8	1938-2433	2298	183850	123622	3.05
BARI Til-4	1298-1407	1334	66681	34811	2.09
BARI Soybean-5	1093-2380	1708	68320	30590	1.81
BINA Soybean-1	1132-1807	1488	59520	21790	1.58

Table 2. Best management options for selected oilseed crop varieties for *char* lands

Crop	Optimum sowing time	Weeding time (DAS)	Irrigation time (DAS)	Harvesting time (DAS)
Mustard	15-30 Nov	15-20	20-25	95-110
Groundnut	15 Dec-5 Jan	20-30	50-55	138-145
Sesame	15 Mar-5 Apr	20-25	20-25	90-100
Soybean	1-30 Nov	15-20	25-30	110-110

Table 3. Fertilizer doses for selected oil seed crop varieties for in *char* lands

Crop	Urea (kg/ha)	TSP (kg/ha)	MoP (kg/ha)	Gypsum (kg/ha)	Zinc sulfate (kg/ha)	Boric acid (kg/ha)
Mustard	250-300	170-180	85-100	150-180	5-7	10-15
Groundnut	30-50	150-170	80-90	160-180	4-5	10
Sesame	100-125	130-150	40-50	100-110	4-5	8-10
Soybean	50-60	150-175	100-120	80-115	1-2	8-10

Recommendations

The oilseed varieties, BARI Sharisha-11, BINA Sarisha-8, BARI Til-4 and BARI Badam-8, were successfully grown on char lands of Pabna, Bheramara and Kushtia districts with the potential to increase their productivity and generate incomes for the local farmers.

Initiatives should be taken to extend the cultivation of these crops to similar char areas of other districts of Bangladesh.

Expected Impacts

New HYV oil seed crop varieties and improved management practices can substantially increase the productivity of the char lands and enhance incomes and improve livelihood of the impoverished local farmers. Increased oilseed output from the char lands can contribute to alleviating edible oil shortages in the country.

This bulletin has been prepared on the basis of technical information available from a completed CGP project of KGF, the details of which are given below:

Project Code and Title: TF 07: Adaptation of newly released HYV oilseeds (mustard, groundnut, soybean and sesame) in char lands of the Padma; Principal Investigator: Dr. Md. Abul Khayer Mian, BARI; Project duration: May 2013 to May 2016

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