TECHNICAL BULLETIN

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Validation and Up-Scaling HYVs of Brinjal, Tomato, Bottle Gourd, Ash Gourd and Pointed Gourd in Hilly Areas of Moulvibazar

The Moulvibazar district is situated in a high-rainfall region in northeastern Bangladesh with a prolonged cool winter. The Monu river irrigation channel and some natural *chharas* (mountain streams) are good sources of surface water for irrigating crops. The presence of these agro-ecological conditions offers good opportunities of growing vegetables in this district.

The supply of vegetables in the markets of Moulvibazar is very limited compared with that in other parts of the country. In limited areas, farmers grow rainfed rice along with the vegetable, *mukhi kochu* and some yard long beans.

The remaining land remains fallow. However, there is a good scope of growing HYV and hybrid varieties of tomato, brinjal, radish, bean, bitter gourd, cauliflower, broccoli, cucumber, potato, etc. on plain lands and hill slopes. Some HYV and hybrid vegetables developed by

BARI, such as, tomato (BARI Hybrid Tomato-4 and BARI Hybrid Tomato-8 for summer, BARI Hybrid Tomato-5, BARI Hybrid Tomato-6 and BARI Tomato-14 for winter), brinjal ((BARI Begun-8 and BARI Begun-10) and cucurbits such as bottle gourd (BARI Lau-3 and BARI Lau-4), ash gourd ((BARI Chalkumra-1) and pointed gourd ((BARI Potol-1) are suitable for cultivation in different areas of Moulvibazar, but little effort has been made so far to popularize these vegetable crops, varieties and production technologies among the local farmers.

In this context, it was felt necessary that the production packages for these vegetable species and varieties be validated and up-scaled and popularized among the farmers in a bid to increase

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the production of diversified vegetable crops in hillocks/hilly areas of the Moulvibazar. The project was implemented by the Regional Agricultural Research Station (RARS), BARI, Akbarpur, Moulvibazar in collaboration with the Srimangal Foundation (SF), a local NGO. BARI provided the necessary management support and technical assistance and SF provided office facilities for project staff and engaged farmers from their beneficiary groups for participatory activities.

On-farm validation trials included both summer and winter vegetables. Local DAE officials were involved in farmers' training programs. Validation trials in three upazilas of Moulvibazar with different vegetable crops were conducted using recommended production practices of BARI. Seven BARI developed vegetable varieties were demonstrated in farmers' fields belonging to 140 farmers in 6 unions of 3 upazilas of Moulvibazar.


Results

Among the tested vegetables, BARI Tomato-4 and BARI Tomato-14; BARI Begun-8 and BARI Lau-4 performed better (Tables 1 and 2). The yield of winter tomato ranged from 40 to 46 t/ha and the BCR ranged from 1.32 to 2.50. BARI Begun-8 yielded about 21 to 26.82 t/ha with a BCR of 2.05 to 2.50. The average yield of summer tomato was 31 t/ha with an average BCR of 1.78. BARI Lau-4 gave the highest return with a BCR of 2.56. Three hundred and fifty participatory and collaborative farmers were trained on modern techniques of vegetable production during the project period.

Table 1. Performance of summer vegetables in farmers' fields in Moulvibazar

Crops	Total production (kg/ha)	Market price (Tk/kg)	Total income (Tk/ha)	Total cost (Tk/ha)	BCR
BARI Potol-1	9645.35	31.18	300742.01	169281.50	1.78
BARI Tomato-8	30605.77	98.75	3022319.79	1520655.50	1.99
BARI Chalkumra-1	29829.94	27.25	812865.87	282074.00	2.88

Table 2. Performance of winter vegetables in farmers' fields in Moulvibazar

Crops	Total production (kg/ha)	Market price (Tk/kg)	Total income (Tk/ha)	Total cost (Tk/ha)	BCR
BARI Begun-8	25090.14	18.54	465249.20	190733.40	2.43
BARI Tomato-14	45035.26	15.00	661767.30	282419.80	2.34
BARI Lau-4	32722.56	24.50	799247.50	369358.90	2.16

Benefits/Outcomes

Most of the HYV vegetable production practices demonstrated in the project were environment friendly. BARI Begun-8 is a bacterial wilt tolerant and perennial fruiting type vegetable. This vegetable can be cultivated with limited pesticide use.

The grafting technique for the cultivation of BARI summer tomato controls bacterial wilt without pesticide application. Minimum pesticide use can reduce production costs and enhance net profits. Also, the market price of summer tomato was higher than that of other tomato varieties, and, thus, its cultivation can be financially rewarding.

Recommendations

- Species, varieties and production practices for vegetable production on otherwise fallow lands of the Molvibazar district of the northeastern hilly region of Bangladesh were successfully demonstrated and are recommended for the farmers and growers of the district.
- Work for further technology dissemination and popularization needs to continue.

Expected Impacts

Vegetable production has a bright prospect of substantially increasing land productivity and farmers' incomes in Moulvibazar and neighboring districts with similar agro-ecological conditions. The HYV vegetable production practices demonstrated in the project are environment friendly. BARI Begun-8 is a bacterial wilt tolerant and perennial fruiting type vegetable. This vegetable can be cultivated with limited pesticide use.

The grafting technique for the cultivation of BARI summer tomato controls bacterial wilt without pesticide application. Minimum pesticide use can reduce production costs and enhance net profits. Also, summer tomato be financially rewarding given its higher market prices compared with other varieties.

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 06-C: Validation and up-scaling of HYVs of brinjal, tomato, bottle gourd, ash gourd and pointed gourd in hilly areas of Moulvibazar; Principal Investigator: Dr. M. Zashim Uddin, Chief Scientific Officer, BARI; Project duration: May 2013 to May 2016

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