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PERFORMANCE OF BARI RELEASED POINTED GOURD VARIETIES (*Trichosanthes dioica* Roxb) IN BARIND TRACT OF BANGLADESH

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ABSTRACT

A field trial was conducted at the Multi location Testing (MLT) site, Joypurhat during Rabi, 2015-16 to evaluate the performance of pointed gourd varieties under farmer's field condition in Barind tract of Bangladesh. Three pointed gourd varieties viz. BARI Potol-1, BARI Potol-2 and Local (check) variety were evaluated in the study. The highest pointed gourd fruit yield (27.5 tha^{-1}), gross returns (TK. 551600 ha^{-1}) were found from BARI Potol-1 which was statistically differed to other varieties. The lowest pointed gourd fruit yield (21.59 tha^{-1}), gross return (TK. 431800 ha^{-1})) were obtained from local/cultivated variety. Result revealed that, the shape of fruit BARI Potol-1 was also differed from the other varieties. So, the cultivation of BARI Potol-1 can be expanded to meet the vegetables demand in barind tract of Bangladesh.
Key words: BARI released variety, pointed gourd, fruit yield

Introduction

Vegetables compared to other foods offer a cheap food source. It can even be produced a small amount of land and also in a residential area. It can be grown within a short period and more than one crop can be grown within a harvest season. There are a large number of vegetables with different varieties that can be grown throughout the year. However, the largest number of vegetables is grown in the winter season. Vegetables are generally labor-intensive crops and therefore offer a significant promise to generate more employment in rural areas. Bangladesh's climate and soil is very suitable for growing vegetables all year round (Akter *et al*., 2011). Nearly 100 different types of vegetables, including both local and foreign origins, are grown in Bangladesh. Vegetables are important for nutrition, economy and food security. Vegetables can be considered an important for this economy because of the remarkable contribution to increasing the income from foreign currencies and occupies an important position among the products exported from Bangladesh. Vegetables contribute 3.2% of the gross domestic product of agriculture (BBS, 2009). Bangladesh earned US $ 41.11 from agricultural exports, which contributed 0.54% to total export earnings (BER, 2008). But still we are in shortage to cultivate vegetables in summer period of Bangladesh. Pointed gourd (*Trichosanthes dioica* Roxb) under the family of Cucurbitaceae is being cultivated in summer season as one of the most nutritive vegetables in Bangladesh. It is grown around 10006.5 ha with total production of 84096 metric tons and national average yield is 8.40 t/ha during 2014-15 (Anon., 2016). It is morphologically exception from the other cucurbitaceous species due to its well established dioeciously vegetative means of propagation (Awal *et al.*, 2005). It is a good source of vitamins and minerals. It contains 92.4% water, 0.5% minerals, 3.0% frbre, 2.4% protein, 0.6% fat and 4.1% carbohydrate per 100g edible portion. It has also high industrial value as different types of jam, jelly and pickles can be made from this vegetable. It has also a good medicinal value. It is easily digestible, diuretic and laxative invigorates the heart and brain and is useful in disorder of the circulatory system (Malek, 2009). It was reported that pointed gourd possesses the medicinal property of lowering the total cholesterol and blood sugar (Sharma *et al*., 1988). However, in Bangladesh the average yield of pointed gourd in Bangladesh is low compared to other countries of the world. This low yield may be due to the cultivation of the low yielding local varieties, incidence of diseases and insects, lack of technical knowledge etc. Recently, BARI has developed two high yielding varieties, BARI Potol-1, BARI Potol-2 and one hybrid

variety BARI Hybrid Potol-1 which possesses higher yield. The present study was undertaken to performance of BARI Potol-1, BARI Potol-2 and Local variety to meet up the requirement of vegetables for the farmers in lean period.

Materials and Methods

A field trial was conducted at the Multi location Testing (MLT) site, Joypurhat during Rabi, 2015-16 to evaluate the performance of pointed gourd varieties under farmer's field condition in Barind tract of Bangladesh. The trial was laid out in RCB design with six dispersed replications. Vines were planted on 7-9 November 2015. The unit plot size was 15m × 10m and plant spacing was 1m × 1.25m. The fertilizers were used @ 277, 96, 300, 5, 1.5 $kgha^{-1}$ NPKSZnB and Cowdung 15 tha^{-1}. N was applied in three equal splits at 20, 60, 90 days after vine planting (DAP). The quantity of P, K, S, Zn and Cowdung were applied during pit preparation i.e. 4 to 5 days prior to planting. The pointed gourd plants were trailed over one meter high bamboo pandal. Weeding, irrigation and crop protection measure were taken as and when necessary. Fruits of pointed gourd were harvested from May 25 and continued up to 28 September, 2016. At harvest, 10 randomly selected plants from each plot were carefully uprooted to record number of leaves per plant, length & diameter curd and yield. The yield of potato per plot was recorded and converted into yield per hectare according to treatment. At maturity, different data were collected in different parameter wise. The data obtained for yield contributing character and yield were statistically analyzed to find out the significance of differences among the treatments. The mean values of all the characters were evaluated and analysis of variance was performed by MSTAT-C software package and the mean differences were adjudged by Duncans Multiple Range Test (Gomez and Gomez, 1984). The gross economic return was calculated on the basis of prevailing market price of the commodities. Economic analysis was done on the basis of existing market prices of input and output (Reddy and Reddy, 1992).

Results and Discussion

The yield and yield attributes of pointed gourd varieties are presented in Table 1. Significant variations were found for all the studied characters. Maximum number of fruit per plant (313.42) was found in the BARI released variety BARI potol-1 and lowest from local variety (201.95). Similarly, the highest fruits weight per plant was obtained from BARI Potol-1 (11.17 Kg) which was differed from the other varieties. The highest fruit length (11.69 cm) was obtained from BARI potol-2 which was also statistically similar to local variety (11.50 cm). But, the highest fruit breadth was found from BARI potol-1 (4.12 cm), lowest from local variety and which was statistically similar to BARI Potol-2 (3.45cm). Finally the highest fruit yield was found from BARI $Potol^{-1}$(27.58 tha^{-1}) which was followed by BARI Potol-2. The lowest fruit yield was obtained from local variety (21.59 tha^{-1}). These results are almost similar with the findings of Singh *et al*. (2007) and Awal *et al*. (2005).

Table 1. Yield contributing characters of of pointed gourd at the MLT site Joypurhat during 2015-16

Treatment	Fruits/plant (No)	Fruits/plant (Wt) (Kg)	Fruit length (cm)	Fruit breadth (cm)	Yield (tha^{-1})
BARI Potol-1	313.42a	11.17a	9.84b	4.12a	27.58a
BARI Potol-2	208.92b	7.99b	11.69a	3.45b	23.05b
Local variety	201.95b	7.61b	11.50a	3.15b	21.59b
LSD	21.86	0.82	1.09	0.35	2.76
CV (%)	7.04	7.13	7.71	7.58	8.90

Economic performance of pointed gourd: The results of economic performance of pointed gourd were presented in (Table 2). The present investigation significantly ensured hectare wise higher gross returns

and gross margin (Tk. 551600 and 399820, respectively) from BARI Potol-1 followed by BARI Potol-2. Whereas, the minimum gross return (431800 Tk.ha^{-1}), gross margins (280020 Tk.ha^{-1}) were obtained from local variety. The similar type of findings was reported by kumar *et al.*, (2019).

Table 2. Cost and Return of different varieties of pointed gourd at MLT site Joypurhat during 2015-16

Treatment	Gross return (Tk.ha^{-1})	Total cost (Tk.ha^{-1})	Gross margin (Tk.ha^{-1})
BARI Potol-1	551600	151780	399820
BARI Potol-2	461000	151780	309220
Local	431800	151780	280020

Market price of pointed gourd @ Tk. 20/kg

Pest incidence: Leaf blight was observed was found in some plots. The disease was controlled by spraying of Tilt @ 0.5ml/L.

Farmers' opinion: Farmers were showing great interest to grow BARI Potol-1 due to its higher yield as well as economic return in Barind tract of Bangladesh.

Conclusion

Based on the above result, it can be concluded that BARI Potol-1 gave the attractive yield and economic return in Joypurhat district under farmer's field condition. So, this variety may be recommended for adoption under farmers' field in Barind tract of Bangladesh.

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