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**Abstract**

Onion (*Allium cepa* L.) is a medicinal herb in many communities. Its cultivation is important to meet up the medicinal value and poverty of the poor people. Therefore an experiment was conducted with the aim to evaluate the performance of some summer onion varieties at Bangabandhu Poverty Alleviation Training Complex Agricultural farm, Kotalipara, Gopalganj. BARI piyaj-2, BARI piyaj-3 and BARI piyaj-5 were used in this experiment. Our result indicated that yield of BARI piyaj-2 was higher than the BARI piyaj-3 and BARI piyaj-5. Average yields of BARI piyaj-2, BARI piyaj-3 and BARI piyaj-5 was 12.72, 12.33 and 12.18 t/ha respectively. Average yields of all varieties are about two times higher than the present average yield of 8 t/ha in Bangladesh. So, dissemination of these summer onion varieties will help to increase the onion production by these times.

**Key word: Summer onion, yield, nutritional value****Introduction**

Onion is one of the most important spices crop in Bangladesh. It is used as spices, vegetable and salad. Onion bulbs and leaves are rich in minerals like calcium, phosphorus and sulphur. It is claimed that onions plays a vital role to minimize high blood pressure and other heart diseases due to its favorable action on the elasticity of blood vessels. In Bangladesh onion cultivation is mainly limited in winter season and it remain available in market upto may. Its cultivation in commercial scale is found to be concentrated in the greater districts of Faridpur, Dhaka, Rajshahi, Comilla, Mymensingh, Rangpur and Pabna. About 11.5 lac metric tons onion is produced from 135721 hectare land at 2011-2012 in Bangladesh (BBS, 2012). The average yield of onion is about 8.0 to 8.5 metric t/ha which is very low as compared to other developed countries in the world. The average world production is about 17.27 t/ha (FAO, 1998). In Bangladesh there is an acute shortage of onion with compared to its total annual requirement (Ullah et al., 2008; Alam et al., 2009). So a huge amount of onion is imported every year to meet up the demand of Bangladesh. (BBS, 2007). Bangladesh Agricultural Research Institute (BARI) already has developed some onion like BARI Pijaj-2, BARI Pijaj-3 and BARI Pijaj-5 which can be grown round the year. So, summer onion cultivation can be a new way to increase the onion production in Bangladesh and make it available throughout the year. As a result demand of onion will be met up and employment opportunity will be created. So this study is designed to evaluate three summer onions cultivation released by Bangladesh Agricultural Research Institute (BARI).

**Methodology**

The study was conducted at Bangabandhu Poverty Alleviation Training Complex Agricultural Farm,

Kotalipara, Gopalganj during 24 February to 28 June 2011. The land of the experiment site was medium high and the soil of the experiment plot was sandy loam. Seeds were collected from the spices research sub centre, Faridpur. Three summer onion Varieties viz. BARI piyaj-2, BARI Pijaj-3 and BARI piyaj-5 were used. Summer onion varieties were sown in seed bed on 24 February 2011. Seedlings of 40 days old were transplanted in the main field on 4 April 2011 by maintaining 20×10 cm spacing. The experiment plot size was 10m x 2m with 5 replication.

The chemical fertilizer doses were 260 kg Urea, 225 kg TSP, 200 kg MOP, 180 kg gypsum and 10 tons cowdung was used as organic fertilizer per hectare. The total amount of cowdung, TSP and gypsum were applied during final land preparation. Urea was applied in three equal splits at 15, 30 and 50 days after transplanting while MOP was applied in two equal splits at 15 and 50 days after transplanting. Irrigation, weeding, plant protection measures and other intercultural operation were done during onion cultivation as and when necessary. The crop was harvested on 28 June 2011 and different parameters were recorded as following the standard method. The average plant height (cm) was measured and recorded from the selected twenty plants in each plot after 30 and 65 days after transplanting (DAT). Number of bulbs per kg was recorded after 85 days of transplanting.

**Result and Discussion***Plant height*

At 30 days after transplanting BARI piyaj-5 showed average higher plant height following by BARI piyaj-2 and BARI piyaj-3 which was 26.23, 26.03 and 25.31cm respectively (Table 1). In Table 2 mentioned that, after 65 days of transplanting BARI piyaj-5 also showed average higher plant height following by BARI piyaj-2 and BARI piyaj-3 which was 46.40, 46.15 and 44.64cm

respectively. According to Nasrin et al., 2007 the average plant height was 49.3 cm by using 120 kg nitrogen which is very similar to our study.

Table 1. Effect of variety on plant height (cm) after 30 DAT of seedling attributes of summer onion.

Plot	Variety		
	BARI piyaj-2	BARI piyaj-3	BARI piyaj-5
Plot-1	25.55	24.92	25.66
Plot-2	25.00	24.43	25.53
Plot-3	26.32	25.45	26.61
Plot-4	26.20	25.35	26.02
Plot-5	27.10	26.38	27.31
Mean	26.03	25.31	26.23
LSD <sub>0.05</sub>	0.29	0.08	0.04

Note: Days after transplanting

Table 2. Effect of variety on plant height (cm) after 65 DAT of seedling attributes of summer onion.

Plot	Variety		
	BARI piyaj-2	BARI piyaj-3	BARI piyaj-5
Plot-1	45.63	44.00	45.73
Plot-2	45.70	44.30	46.20
Plot-3	46.00	44.80	46.33
Plot-4	46.20	44.92	46.42
Plot-5	47.20	45.20	47.30
Mean	46.15	44.64	46.40
LSD <sub>0.05</sub>	0.17	0.21	0.12

Note: Days after transplanting

#### Bulbs/kg

After 85 days after transplanting (DAT), average number of bulbs of BARI piyaj-5, BARI Pijaj-3, and BARI piyaj-2 were 32.61, 32.45 and 31.44 per kg respectively (Table 3).

Table 3. Effect of variety on number of bulbs/kg attributes of summer onion

Plot	Number of bulbs/kg		
	BARI piyaj-2	BARI piyaj-3	BARI piyaj-5
Plot-1	31.68	32.72	32.82
Plot-2	31.42	32.52	32.69
Plot-3	31.82	32.78	32.73
Plot-4	31.51	32.56	32.71
Plot-5	30.76	31.69	32.12
Mean	31.44	32.45	32.61
LSD <sub>0.05</sub>	0.07	0.06	0.16

#### Yield of different summer onion varieties

Our result indicated that average yield (kg/plot) of BARI piyaj-2 was higher than the BARI piyaj-3 and BARI piyaj-5 which was 31.82, 30.82 and 30.46 respectively (Table 4). Average yield of BARI piyaj-2 BARI piyaj-3 and BARI piyaj-5 was 12.72, 12.33 and 12.18 ton/ha (Table 5) respectively which is very similar to winter onion production in Bangladesh but it

was much lower than the potential yield of world average (Haque et al., 2011; FAO, 1998).

Table 4. Effect of variety on yield (kg/plot) of summer onion

Plot	Variety		
	BARI piyaj-2	BARI piyaj-3	BARI piyaj-5
Plot-1	31.57	30.56	30.47
Plot-2	31.83	30.75	30.59
Plot-3	31.43	30.51	30.55
Plot-4	31.74	30.71	30.57
Plot-5	32.51	31.56	31.13
Average	31.82	30.82	30.46
LSD <sub>0.05</sub>	0.19	0.16	0.04

Table 5. Effect of variety on yield of summer onion

Yield (ton/ha.)			
BARI piyaj-2	BARI piyaj-3	BARI piyaj-5	LSD <sub>0.05</sub>
12.72	12.33	12.18	0.29

#### Conclusion

Summer variety of onion BARI piyaj-2, BARI piyaj-3 and BARI piyaj-5 showed good performance as like as winter onion. It can be introduced all the districts of Bangladesh to increase the total production of onion.

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