

# Evaluation of ecoAgra efficacy on growth and yield of some horticultural crops

## Experiment 1: Influence of Eco-agra on growth, yield and quality of strawberry production

**Site/Place:** Horticulture Innovation Lab, Sher-e- Bangla Agricultural University, Dhaka, Bangladesh

**Duration:** 17<sup>th</sup> November, 2019 – March 10<sup>th</sup>, 2020

**Plant materials:** American Festival (Strawberry), 40 days old seedling

### Survey or parameters

**Growth:** Plant height, Number of leaves, SPAD value

**Yield:** Number of fruit, yield per plant and yield increase percentages (calculation)

**Fruit condition:** Fruit length, Fruit breadth, single fruit weight, Brix percentages

### Methodologies:

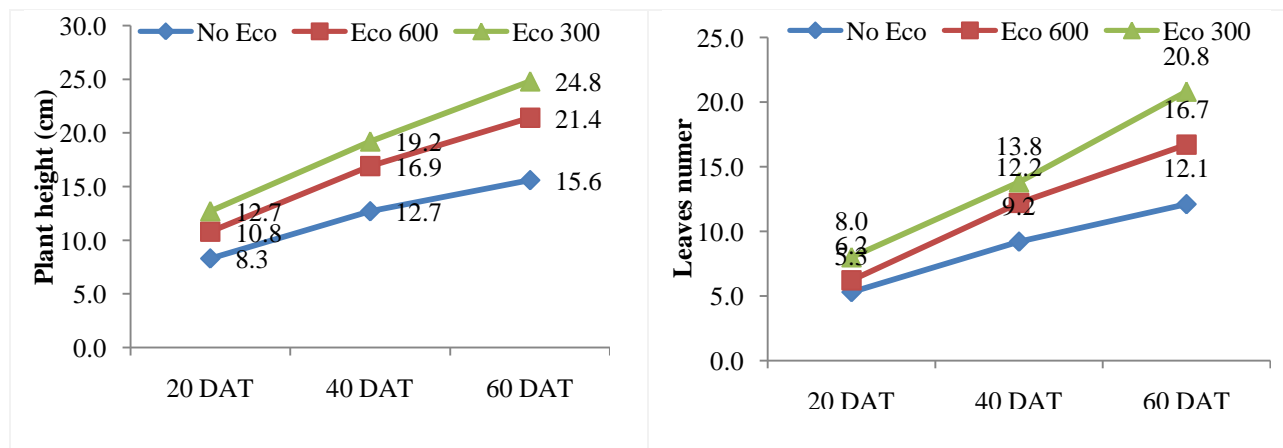
The experiment was conducted in the net house following Randomized block design with 3 replications to evaluate the efficacy of Eco-agra. Total 60 strawberry plants were used and 20 plant for for each treatment. 3 treatments viz, No Eco-agra, Eco- 600 fold and Eco-3 fold. Four times Eco-agra applied in the field and application was done through the plant and soil. During per application, 3 liter water required for 20 plants.

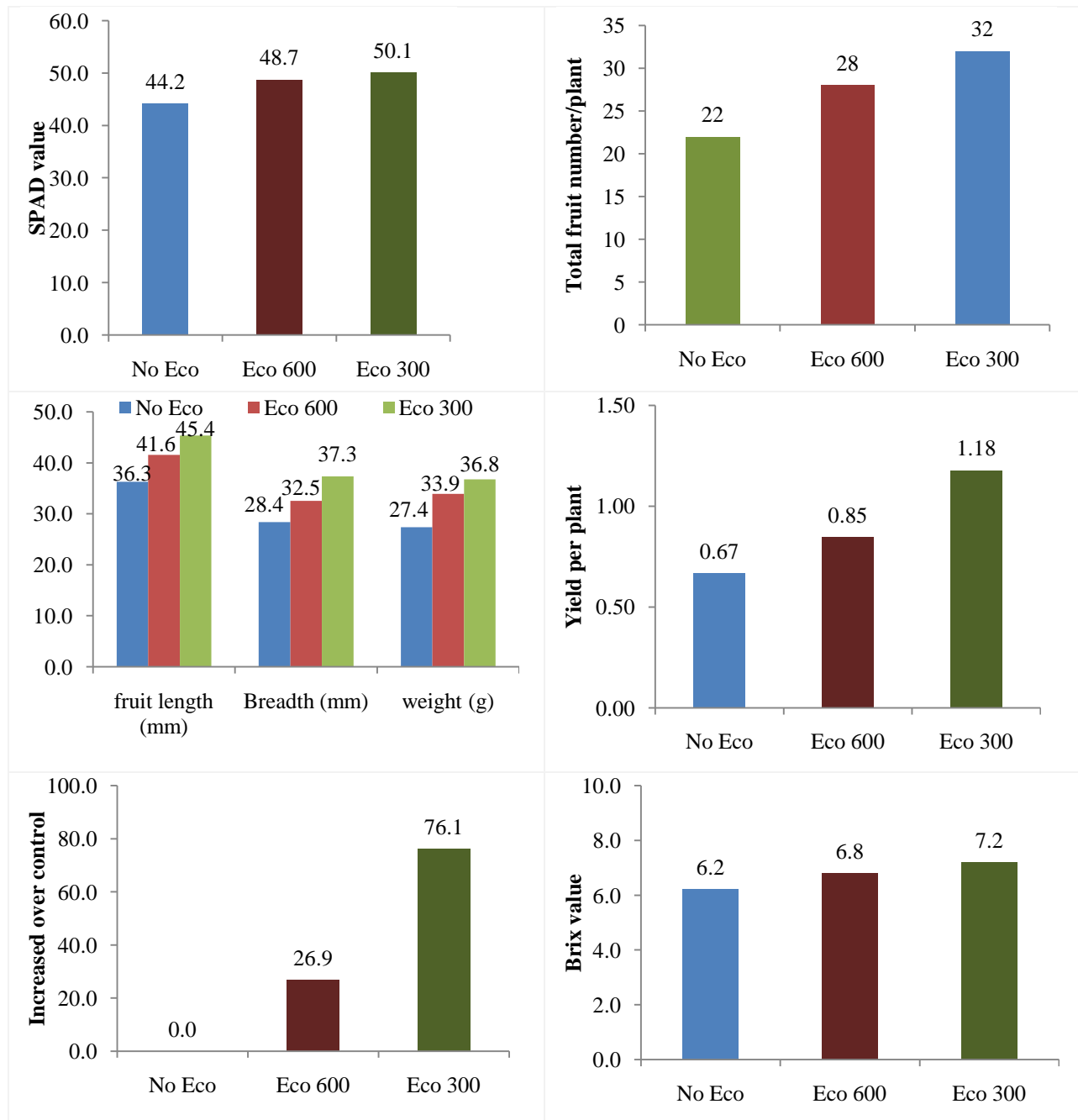
## Result

### Growth and Yield

The maximum plant height (24.8 cm) at 60 DAT, leaf number (20) at 60 DAT, SPAD value (50.1), total fruit number (32), fruit length (45.4 mm), fruit breadth (37.3 mm), fruit weight (36.8 g), yield per plant (1.18 kg) which was about 75% higher than control treatment and brix percentage (7.2) recorded in Eco300.

Furthermore, The maximum plant height (21.4 cm) at 60 DAT, leaf number (16) at 60 DAT, SPAD value (48.7), total fruit number (28), fruit length (41.6 mm), fruit breadth (32.5 mm), fruit weight (33.9 g), yield per plant (0.85 kg) which was 26% higher over control and brix percentage (6.8) recorded in Eco600.

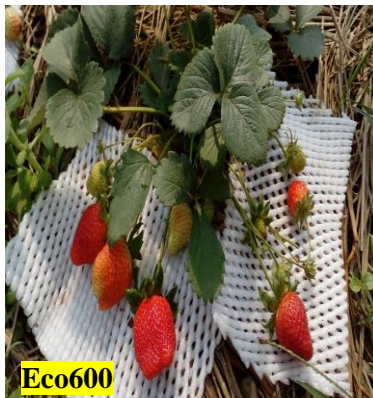




**Figure: Effect of Eco-agra concentration on Strawberry production**

**Discussion:**

The standard fruit weight of the test varieties is 25-30 g, it basically depends on soil health conditions with 30-35 mm length. Eco-agra, not only increased the fruit size and weight also increased sugar percentages.



### **Conclusion**

Eco-agra 300 applications with more than 4 times is the best application to increase strawberry production

### **Recommendation**

During fruit stage Eco-agra should apply 2 times, for increase fruit size and brix value.

## **Experiment 2. Efficacy of Eco-agra on Cherry Tomato (Golden purna variety)**

**Site/Place:** Horticulture Innovation Lab., Horticulture farm, Sher-e- Bangla Agricultural University, Dhaka, Bangladesh

**Duration:** Mid November 2019– February 20th, 2020

**Plant materials:** Golden Purna (SAU yellow cherry), 25 days old seedling

**Survey:**

**Growth:** Plant height, Number of leaves, SPAD value (chlorophyll content)

**Yield:** Flower count, Fruit count, Fruit length, fruit diameter, fruit weight, yield/plant and yield/hectare

**Quality:** Brix percentages, % of increase fruit weight over control

**Methodologies**

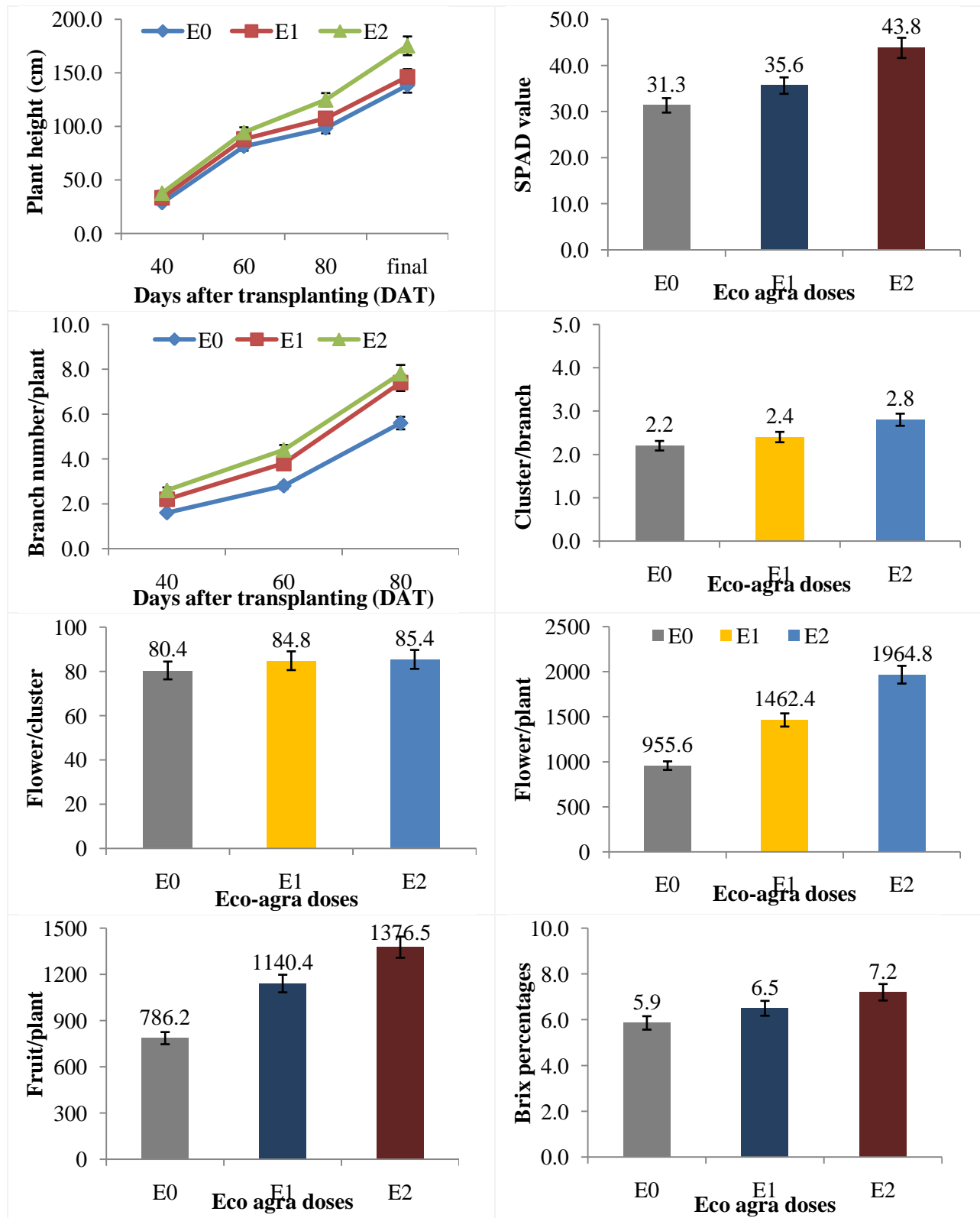
The experiment was conducted following Completely Randomized design with 3 replications to evaluate the efficacy of Eco-agra. Total 60 seedlings were used and 20 plant for each treatment. 3 Eco-agra treatments viz, No Eco-agra ( $E_0$ ), Eco-agra 600 ( $E_1$ ) fold and Eco-agra 300 ( $E_2$ ). 4 times Eco-agra applied in the field and application was done through the plant and soil.

Fertilizers were applied following as Bangladesh agricultural research council (BARI).

### **Results**

The maximum plant height, SPAD value, Cluster/branch, flower/cluster, flower/plant, fruit/plant, Fruit length, fruit diameter, fruit weight, Brix value observed in Eco-agra 300 fold. In addition, Eco-agra 600 fold revealed the results which also higher than control treatment.

A percentage of net increased yields were 45% higher than control was recorded in Eco-agra 600 and about 90 % was found in Eco-agra 300.



**Figure. Effect of Eco-agra concentration on Cherry tomato**

**Table. Effect of Eco-agra concentration on Cherry tomato**

Treatment	Fruit length (mm)	Fruit breadth (mm)	Fruit weight (g)	yield/plant (kg)	% increased yield over control
E <sub>0</sub>	21.53	19.18	4.86	3.82	
E <sub>1</sub>	23.78	19.33	4.92	5.57	45.8
E <sub>2</sub>	24.29	20.42	5.28	7.22	89.0

### Discussions

Eco-agra boosts up plant growth (Plant height). It promotes fruit quality like weight. It, not only increase yield also acts as stimulator to increase sugar content Eco-agra 300 showed average brix value 7.2 and 6.5 in Eco-agra 600.



**Conclusion:** Effects of Eco-agra improve productivity, increase yield and sugar content was confirmed.

### **Experiment 3: Efficacy of Eco-agra as growth promoter on Potato production**

#### **Experiment site and Duration**

An experiment was conducted in Horticulture farm, Sher-e-Bangla Agricultural University Dhaka, during 26<sup>th</sup> November, 2019 to 28<sup>th</sup> February, 2020.

**Plant sample:** Lalpakri potato tuber collected from ACI

#### **Objectives**

- To evaluate the efficacy of Eco-agra application on growth and yield of potato

## Methodologies

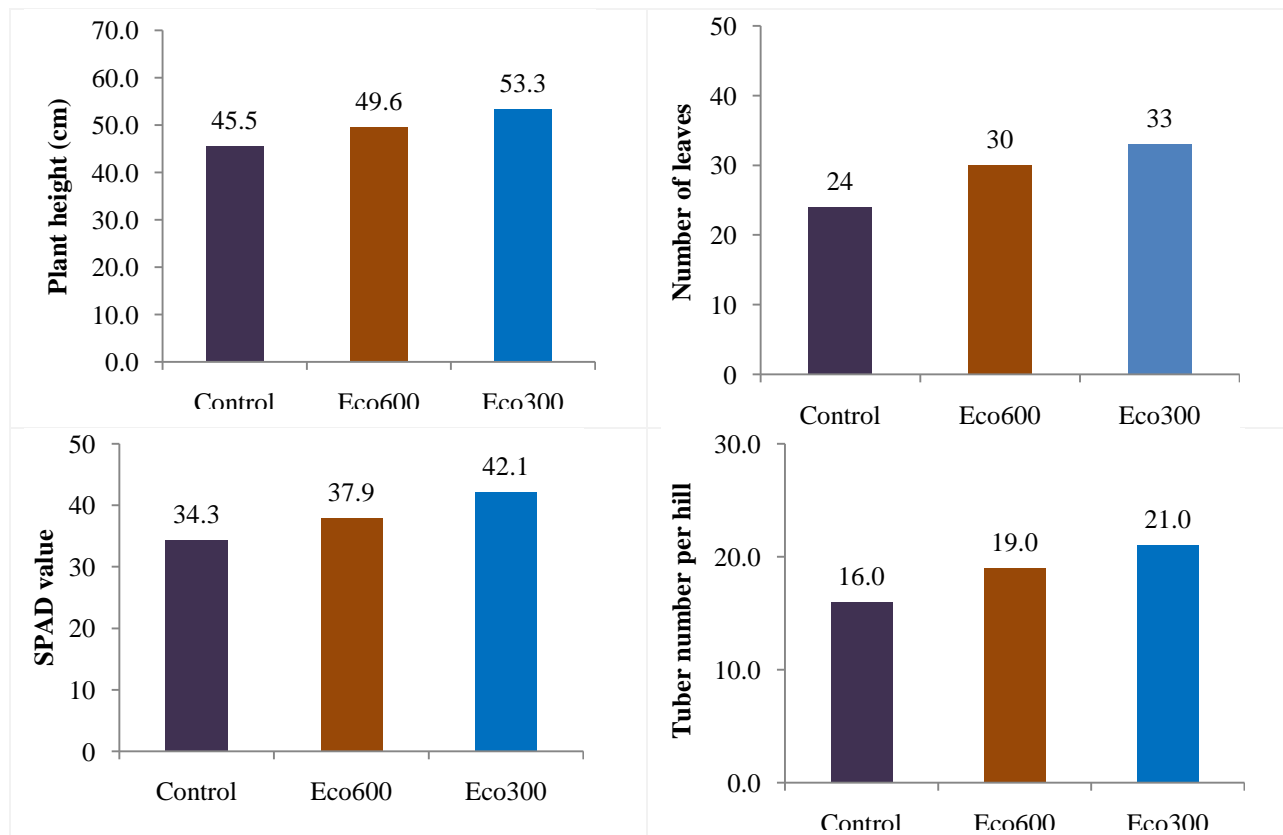
Three concentrations viz. No Eco-agra, Ecoagra600 and Ecoagra300 were used to promote the growth, yield in Randomized Complete Block Design (RCBD) with 3 replications at 15 days interval. Eco-agra application was done 5 times applied from soil surface and all plants following treatment.

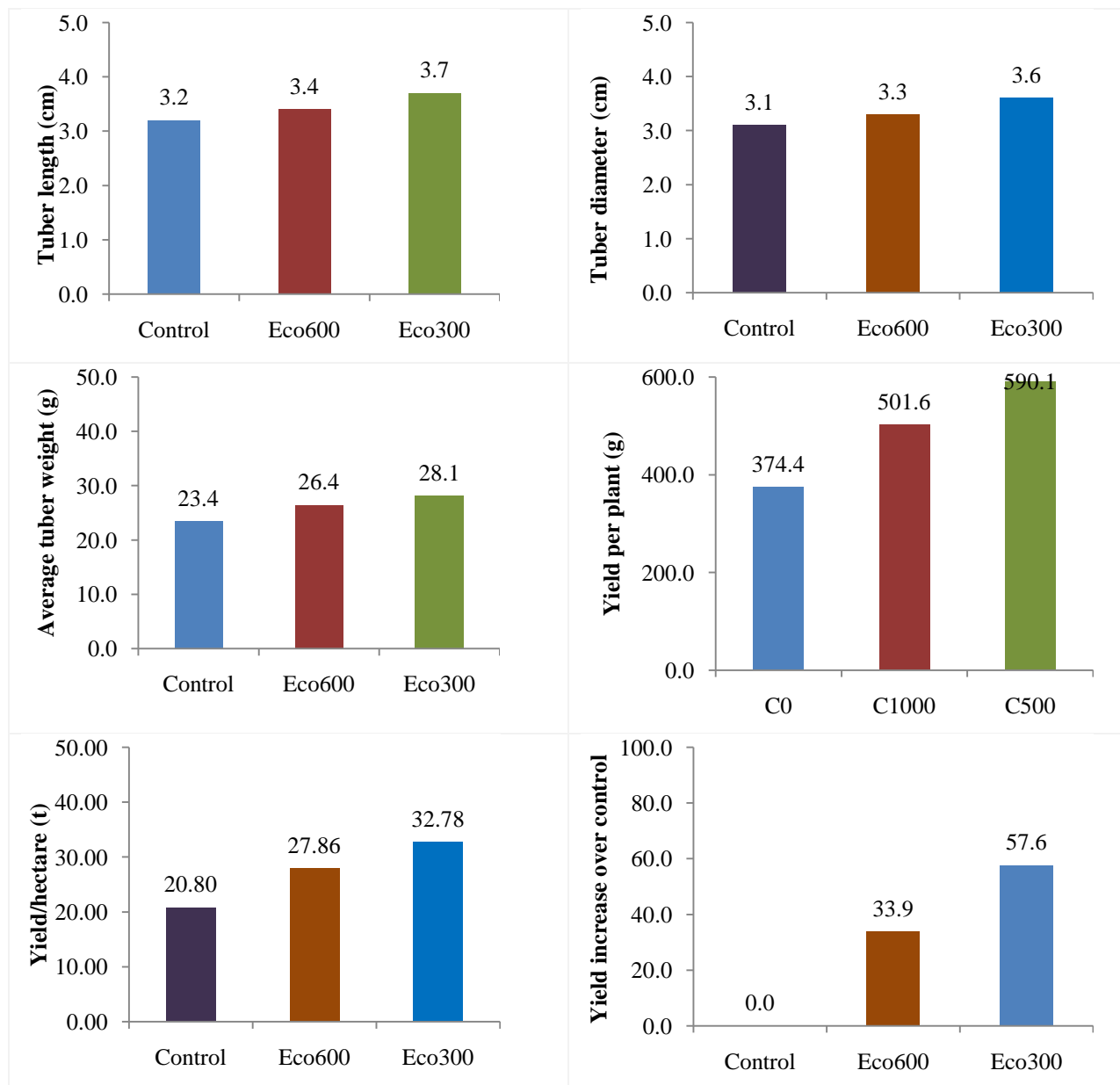
## Results

The maximum plant height (53.3 cm), leaf number (33), SPAD value (42.1), average tuber number (21), tuber length (3.7 cm), tuber breadth (3.6 cm), tuber weight (28.1 g), yield per plant (590.1 g), yield per hectare (32.78 t), increased yield over control 57% recorded in Eco-300.

Furthermore, The maximum plant height (49.6 cm), leaf number (30), SPAD value (37.9), average tuber number (19), tuber length (3.4 cm), tuber breadth (3.3 cm), tuber weight (26.4 g), yield per plant (501.6 g), yield per hectare (27.86 t), increased yield over control (about 30%) recorded in Eco600.

On the other plant height (45.5 cm), leaf number (24), SPAD value (34.3), average tuber number (16), tuber length (3.2 cm), tuber breadth (3.1 cm), tuber weight (23.4 g), yield per plant (374.4 g), yield per hectare (20.8 t) found in control (No Eco-agra application).



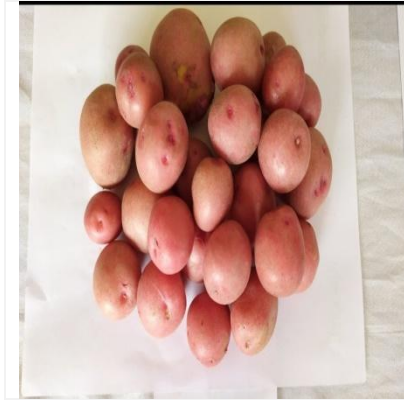


**Figure: Eco-agra concentration on growth and yield attributes of Potato**

**Discussion**

Lalpakri is local variety Avg. weight around 25-30 g.

Significant results observed among different Eco-agra concentrations and Eco300 as superior to control treatment. It was observed that, Eco-agra increased tuber number with slightly insist to increase tuber size. So, Eco-agra had impact on production and it up to 55%.



**Remarks: Due to irrigation management problem during tuber formation stage and rainfall occur so had impact on plant growth, however reverse on tuber size ultimately tuber weight. Though, Eco-agra effects were superior to control.**

### **Conclusion**

Efficacy of ecoAgra, (boldly Eco-agra 300) had potential for potato production.

*###End of The Report###*