



Evaluation of Cabbage (*Brassica oleracea*) Varieties suited for Off Season Cultivation in Rain Shelters of Kerala

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ABSTRACT

Cabbage is one of the most important of the green leafy vegetables grown under temperate to tropical climate conditions. It is a cool season crop which grows best under cool, moist weather conditions. There is much variation exists among different cabbage types. In this experiment the cabbage is tried to cultivate before their normal season *i.e.* off-season cultivation is aimed so that, the supply of produce is less and prices are high. For this the performance of five improved cabbage varieties during off season was assessed in rain shelters. The selected cabbage varieties were NS183, NS43, Kalyani, Green Challenger and Green Voyager. Number of replications was ten. Various biometric, yield characters, pest incidence, BC ratio were noted during the study. The trial revealed that cabbage variety Green Voyager performs better under rain shelters and is the best variety for off season cultivation in Kerala. The variety Green Voyager recorded highest plant height and leaf number at all stages of growth. The highest leaf length and leaf girth was reported by variety Green Voyager. Highest B:C ratio was obtained from Green Voyager and lowest from NS-43. Highest pest incidence was reported from NS43 and lowest from Green Voyager. Head length and width was highest in Green Voyager followed by variety Kalyani. Crop duration was lowest in Green Challenger and highest in Kalyani. Days to heading were lowest in Green Voyager and highest in Green Challenger. Highest yield per plant was noticed in Green Voyager and lowest from variety NS43.

Key Words : Cabbage, Off season, Rain shelter, Performance.

INTRODUCTION

Cabbages are one of the preferred vegetables of the Keralites. The crop requires cool moist weather for the production of best quality heads and therefore its cultivation in Kerala is limited by climate. Here its cultivation is restricted in the months starting from November to January. During this season the crop fetches only less price in the market. Usually in Kerala farmers get high price for their produce during “Onam” festival season which is in the first week of September. In this experiment the cabbage is tried to cultivate before their normal season *i.e.* off season cultivation is aimed so that, the supply of produce is less and prices are high. For this the performance of improved cabbage

varieties during off season need to be assessed. This is one of the practice which can give farmer higher profit and satisfy the requirement of consumers at anytime anywhere with more choices by availing and using different agro climatic conditions. This is a bit new to the growers and they don't have complete knowledge regarding it. They need to be trained about this.

Adjustment of planting time is also required in this case. For off season cultivation, planting of cabbage seedlings should be done in the first week of June, so that cabbage heads can be harvested during the end of August or in the first week of September. Usually there is heavy rain in Kerala during this time. So it is better to cultivate cabbage in rain

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shelters during this time than in open conditions, so that unfavorable environmental conditions can be avoided. Keeping this in mind, the experiment was conducted to assess the performance of five improved cabbage varieties in rain shelters during off season i.e. in the month of June in Kerala with a view of fetching maximum price to the farmers for their produce during Onam festival season, which is the peak marketing period for vegetables in Kerala.

MATERIALS AND METHODS

The experiment was conducted during 2017-18, in Kollam district of Kerala. The maximum temperature during the crop period was 34.7°C and minimum 23.0 °C with average relative humidity of 76.2 per cent. The total rainfall received was 40.13 cm .

The trial was proposed with the objective of assessing the performance of five improved cabbage varieties in rain shelters during off season i.e. month of June in Kerala with a view of fetching maximum price to the farmers for their produce during Onam festival season. The experiment also aimed to popularize the best performing cabbage variety for large scale cultivation in Kollam district .The experiment was conducted during May-September, 2017. Five different cabbage varieties NS183, NS43, Kalyani, Green Challenger and Green Voyager were used for the experimental purpose. Seeds were sown in the first week of May. One month old seedlings were planted in the rain shelters during first week of June. The experiment was laid out in Completely Randomized Design with 6 replications. Various biometric observations,

Table 1. Growth attributes of different cabbage varieties suited for off season cultivation in rain shelters of Kerala.

Treatment	Plant height (cm)			Leaf number		
	20DAP	40DAP	60DAP	20DAP	40DAP	60DAP
NS183	12.8	18.0	19.8	12.4	15.6	17.8
Green Voyager	17.5	21.2	24.8	18.8	23.8	27.4
Green Challenger	8.8	15.0	17.2	15.4	18.0	20.2
Kalyani	13.2	17.0	21.0	13.2	21.2	24.6
NS43	15.4	19.5	21.5	15.6	18.4	22.7
CD (0.05)	7.64	8.99	10.46	7.31	9.97	11.85

DAP- Days after planting

Table 2. Leaf characters of different cabbage varieties suited for off season cultivation in rain shelters of Kerala.

Treatment	Leaf length (cm)			Leaf width (cm)		
	20DAP	40DAP	60DAP	20DAP	40DAP	60DAP
NS183	18.7	22.6	24.6	12.2	14.3	17.2
Green Voyager	21.4	26.1	28.4	15.5	21.0	24.8
Green Challenger	15.2	17.5	20.9	16.2	18.4	20.7
Kalyani	13.5	20.2	22.4	12.6	17.6	19.5
NS-43	18.5	20.6	23.2	14.8	19.3	21.3
CD (0.05)	0.184	5.20	11.4	6.72	9.118	10.096

Evaluation of Cabbage Varieties

Table3. Head characters, crop duration and days to heading of different cabbage varieties.

Treatment	Head length (cm)	Head width (cm)	Days to heading	Crop duration (days)
NS-183	5.6	8.6	50	110
Green Voyager	11.5	12.5	45	93
Green Challenger	6.6	7.9	62	90
Kalyani	7.5	10.2	60	128
NS-43	6.0	9.4	40	115
CD (0.05)	4.126	5.036	25.85	57.98

Table4. Yield attributes and pest incidence of different cabbage.

Treatment	Pest incidence (%)	BC ratio	Yield/plant (g)	Yield (t/ha)
NS183	6.5	1.44	605.4	22.7
Green Voyager	4.2	1.86	795.2	29.3
Green Challenger	7.6	1.73	700.6	27.2
Kalyani	11.4	1.52	650.8	25.6
NS43	15.3	1.22	545.2	20.4
CD (0.05)	6.620	0.678	294.45	11.345

yield parameters, BC ratio, crop duration pest and disease incidence were noted during the study period.

RESULTS AND DISCUSSION

The data of the trial of off season cultivation of cabbage varieties suited to rain shelters in Kerala are presented in Tables 1 to 4. The results revealed that cabbage variety Green Voyager recorded highest plant height and leaf number at all stages of growth followed by variety Kalyani. The highest leaf length and leaf girth was reported by variety Green Voyager, followed by NS43 at all stages of growth. Highest B:C ratio (1.86) was obtained from Green Voyager followed by Green Challenger (1.73) and Kalyani (1.52) and lowest (1.22) from NS43. Highest pest incidence (15.3 %) was reported from NS43 followed by Kalyani (11.4 %) and lowest from Green Voyager (4.2%). Head length and width was highest in Green Voyager

followed by variety Kalyani. Crop duration was lowest in Green Challenger (90 days) and highest in Kalyani (128d). Days to heading was lowest (45 d) in Green Voyager and highest in Green Challenger (62d). Highest yield per plant (795.2g) was noticed in Green Voyager and lowest from variety NS43 (545.2 g).

CONCLUSION

It was concluded from the study that cabbage variety Green Voyager performs better under rain shelters and is the best variety for off season cultivation in Kerala. The variety Green Voyager recorded highest plant height and leaf number at all stages of growth. The highest leaf length and leaf girth was reported by variety Green Voyager. Highest B:C ratio was obtained from Green Voyager and lowest from NS43. Highest pest incidence was reported from NS43 and lowest from Green Voyager. Head length and width was highest in Green Voyager

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followed by variety Kalyani. Crop duration was lowest in Green Challenger and highest in Kalyani. Days to heading was lowest in Green Voyager and highest in Green Challenger. Highest yield per plant was noticed in Green Voyager and lowest from variety NS43.

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Received on 25/09/2019 Accepted on 10/11/2019