

## EVALUATION - CABBAGE VARIETIES FOR THE HIGH RANGE ZONE OF KERALA

**T. R. Gopalakrishnan, C. A. Varghese, M. P. Giridharan and V. S. Devadas**

Regional Agricultural Research Station, Ambalavayal, Kerala, India

**Abstract :** Evaluation of cabbage varieties for five years at the Regional Agricultural Research Station, Ambalavayal resulted in the identification of a variety "September" adaptable to high altitude zones of Kerala. September is characterised by flat head with medium lightness having an average weight of 1.12 kg and diameter of 17 cm. Under the mild subtropical climate during winter, the establishment of plants and heading ability of the variety are excellent.

**Key words :** Cabbage variety, Kerala high ranges, productivity.

### INTRODUCTION

Wayanad and Idukki districts and Nelliampathi and Attappadi areas of Palghat district enjoy a mild subtropical climate with low temperature which is highly conducive for cultivation of cool season vegetables particularly cabbage. In spite of suitable climatic conditions, the cultivation of cabbage is not taken up by the farmers mainly due to unavailability of seeds. Since cabbage requires a chilling temperature of 3-6°C for flower induction, seed production is not possible in high ranges of Kerala and every time the farmers have to depend on North Indian seed companies. Moreover, it is essential to select the apt variety to each locality. With the objective of identifying cabbage variety suited for high altitude zones of Kerala, several varieties were evaluated since 1989 at the Regional Agricultural Research Station, Ambalavayal, which resulted in the identification of an adaptable variety viz., September. This paper covers the details of evaluation and adaptability of the variety.

### MATERIALS AND METHODS

Evaluation of cabbage varieties was conducted during September-January months from 1989 to 1994 at the Regional Agricultural Research Station, Ambalavayal, Wayanad district which represents the mild subtropical climate of Kerala hills. The station is located at an altitude of 974 m above msl. The minimum temperature during winter may go as low as 10°C with a mean minimum of 14°C and mean maximum of 31°C. A total of 25

varieties viz., September, Golden Acre, Pusa Drumhead, ARU Glory, Kaveri, Ganga, Sri Ganesh, H 8, August, Pride of India, Latin American Monarch, Eclipse Drumhead, IAHS 2, HOE 786, H 10, H 143, Harirani, Pusa Muktha, H 54, H 44, BRG 5, Pusa Synthetic, Autumn Giant, Vishesh and Uttam were evaluated in randomized block design fixing the plot size as 11.25 m<sup>2</sup> with 50 plants per variety per replication each during 1989-90, 1991-92 and 1992-93; 12 during 1990-91 and 15 during 1993-94. Due to difficulty in getting the seeds, some varieties could not be repeated in all the five years.

### RESULTS AND DISCUSSION

Productivity of cabbage varieties differed significantly in all the five years. During 1989-90, out of the eight varieties compared, maximum yield was recorded by September (28.54 t ha<sup>-1</sup>) which was on par with Golden



Fig 1. The cabbage variety, September

Table 1. Productivity of cabbage varieties for five years from 1989 to 1994 at Ambalavayal, t ha<sup>-1</sup>

Varieties	1989-90	1990-91	1991-92	1992-93	1993-94	Mean
September	28.54	25.91	31.29	30.28	43.07	31.82
Golden Acre	27.03	24.58	27.51	7.58	5.92	18.52
Pusa Drumhead	20.63	23.60	29.03	-	-	24.42
ARU Glory	11.93	17.40	-	-	-	14.67
Kaveri	11.80	16.53	25.81	-	-	18.05
Ganga	19.85	22.58	29.56	-	-	24.00
Sri Ganesh	14.51	21.07	27.83	27.90	-	22.83
H 8	24.12	16.44	-	-	-	20.28
August	-	17.02	21.81	-	-	19.42
Pride of India	-	20.28	27.42	-	7.0	18.23
Latin American Monarch	-	15.96	-	-	-	15.96
Eclipse Drumhead	-	14.89	-	-	-	14.89
IAHS 2	-	-	-	25.17	14.42	19.80
HOE 786	-	-	-	6.34	18.34	12.34
H 10	-	-	-	11.59	11.84	11.72
H 143	-	-	-	26.65	37.35	32.00
Harirani	-	-	-	27.27	-	27.27
Pusa Muktha	-	-	-	-	8.73	8.73
H 54	-	-	-	-	12.12	12.12
H 44	-	-	-	-	10.66	10.66
BRG 5	-	-	-	-	19.43	19.43
Pusa Synthetic	-	-	-	-	4.22	4.22
Autumn Giant	-	-	-	-	13.69	13.69
Vishesh	-	-	-	-	24.72	24.72
Uttam	-	-	-	-	25.54	25.54
CD (0.05)	5.13	7.48	3.66	6.50	6.88	-

Acre, a variety recommended for high ranges of Kerala (KAU, 1993) (Table 1). During

1990-91 also, September ranked first in yield (25.91 t ha<sup>-1</sup>) which was closely followed by

Table 2. Mean weight of head (kg) in different cabbage varieties for five years at Ambalavayal

Varieties	1989-90	1990-91	1991-92	1992-93	1993-94	Mean
September	1.20	0.96	1.23	1.01	1.19	1.12
Golden Acre	1.20	0.90	1.08	0.49	1.18	0.97
Pusa Drumhead	0.92	0.89	1.14	-	-	0.98
ARU Glory	0.41	0.59	-	-	-	0.50
Kaveri	0.45	0.62	1.03	-	-	0.70
Ganga	0.74	0.85	1.17	-	-	0.92
Sri Ganesh	0.61	0.79	1.08	0.90	-	0.89
H 8	0.93	0.65	-	-	-	0.79
August	-	0.79	0.97	-	-	0.88
Pride of India	-	0.79	1.08	-	0.39	0.75
Latin American Monarch	-	0.61	-	-	-	0.61
Eclipse Drumhead	-	0.54	-	-	-	0.54
IAHS 2	-	-	-	0.94	0.97	0.96
HOE 786	-	-	-	0.49	0.81	0.65
H 10	-	-	-	0.79	0.99	0.89
H 143	-	-	-	1.94	1.40	1.67
Harirani	-	-	-	1.36	-	1.36
Piisa Muktha	-	-	-	-	0.47	0.47
H 54	-	-	-	-	0.65	0.65
H 44	-	-	-	-	0.59	0.59
BRG 5	-	-	-	-	0.59	0.59
Pusa Synthetic	-	-	-	-	0.49	0.49
Autumn Giant	-	-	-	-	0.54	0.54
Vishesh	-	-	-	-	0.79	0.79
Uttam	-	-	-	-	0.62	0.62
CD (0.05)	0.15	0.19	NS	0.10	0.03	--

Golden Acre (24.58 t ha<sup>-1</sup>). The performance of September was on par with Sri Ganesh

during 1991-92 and 1992-93; and with H 143 during 1992-93 and 1993-94. The other

varieties having comparable yield with that of September were Pusa Drumhead and Ganga during 1991-92 and Harirani during 1992-93. Performance of the popular variety Golden Acre was not encouraging during the last two years because of poor establishment of plants.

Average weight of head was maximum for September during the first three years and it ranged from 0.96 kg in 1990-91 to 1.23 kg in 1991-92 and had average weight of 1.12 kg over the five years (Table 2). During 1992-93 and 1993-94 evaluations, F1 hybrid H 143 had heads of maximum weight (1.94 kg and 1.40 kg respectively). During the evaluations conducted for 5 years, maximum weight of head was recorded in H 143 (1.67 kg) followed by Harirani (1.36 kg), BRG 5 (1.16 kg) and September (1.12 kg). Varieties like Golden Acre, Pusa Drumhead, Ganga and IAHS 2 also had large sized heads.

September is a medium tight, flat headed German variety with a head diameter of 17 cm (Plate 1). The spread of plant is 42 cm. Since seed production of September is taken up in the Nilgiri Hills by the Horticultural Research Station, Vijayanagaram, Ootakamand supply of seeds to the farmers can be ensured for popularisation of this variety as well as promoting cabbage cultivation in high altitude zones of Kerala.

September was tested in the farmers fields also and the Zonal Research and Extension Advisory Committee recommended the variety for the high range zones of Kerala. The Mini-workshop on Package of Practices requiring a wider spacing of 60 x 45 cm. Though ranked fourth in average weight of heads, the best performance of September was due to better establishment of seedlings and head forming

ability under the mild subtropical climate. Normally cabbage requires a very low temperature of 3-6°C for flower production. During 1992-93, one plant of September flowered and set seeds which revealed the possibility of further improvement programmes even under Ambalavayal condition. Since seed production of September is taken up in the Nilgiri Hills by the Horticultural Research Station, Vijayanagaram, Ootakamand supply of seeds to the farmers can be ensured for popularisation of this variety as well as promoting cabbage cultivation in high altitude zones of Kerala.

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