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# Evaluation of coriander germplasm for green leaf purpose and quality parameters in summer under shadenet and in *rabi* under open field conditions

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## Abstract
Coriander is considered both as herb and spice. The experiment was conducted at Horticultural College and Research Institute, Venkataramannagudem during summer 2015 under 50 percent green colour shadenet and in rabi under open field conditions with 66 coriander genotypes and four checks to select an ideal plant type for green leaf purpose with desirable growth, yield and quality parameters (Chlorophyll content and Vitamin C) which are significantly superior to checks sadhana, sudha, suguna, LCC-234. Compared to other entries evaluated the genotype LCC-176 recorded maximum yield (10.54t/ha) over the best check sadhana. In the present investigation, genotypes suitable for green foliage in coriander with desirable traits have been identified for off season cultivation in summer under 50 percent green colour shadenet and in *rabi* under open field conditions. However, it is better to grow in 50 percent green colour shadenet in summer for their better performance.

**Keywords:** coriander, checks, genotypes, LCC, CHL-chlorophyll content, FLW-Fresh leaf weight, LA-leaf area, NL-number of leaves, PH-plant height, VIT C- vitamin C, Y-yield

## Introduction
Coriander, *Coriandrum sativum* is a tropical and sub tropical crop. The word coriander derived from the Greek name for bug, 'Korion' (Diederichsen, 1996). Coriander is considered both as a herb and spice. When the aromatic plant is consumed fresh, it is considered as herb. When consumed fresh, itis called cilantro, green coriander, and Chinese parsley. Its grains are used as spice Leaves are particularly rich in vitamin A equivalent (42%) 337 µg, vitamin C (33%) 27 mg and vitamin K 310 µg. Germplasm collection with good variability for the desirable characters is the basic requirement of any crop improvement programme (Singahania *et al.*, 2006). Coriander has great demand in summer. Hence the present investigation was taken up to observe the performances of coriander genotypes and select the promising genotypes for foliage yield in summer under 50 percent shadenet conditions.

## Materials and Methods
The experiment was laid out in augumented block design with four checks repeated randomly in each block. The plot size was 1 m x 1 m. Fertilizers were applied @ 80 kg N, 35 kg P, 60 kg K and 20 kg S and 10 ton cowdung per hectare (Anon., 2001) [2]. The entire amount of cowdung, phosphorus and potassium, with one-half of nitrogen from urea were applied during final land preparation. The rest of the nitrogen was top dressed at 30 days after sowing. The seeds (fruits) were rubbed for separating the two mericarps (seeds) which were soaked in water for 24 hours to enhance germination. Seeds were also treated with Bavistin at 2 g per kg of seeds prior to sowing in raised seed bed at 10 cm apart rows continuously by hand @ 30 kg/ha. Seeds were mixed with some loose soil (about four to five times of weight of seeds) to allow uniform sowing in rows and were covered with good pulverized soil just after sowing with gently pressed by hands. The sowing was done on 18 May 2015. Light watering was done to supply sufficient moisture needed for quick germination. Weeding and thinning was not done. For good germination, water was given to the plots two times perday with rose can till germination, later on one irrigation was applied. Harvesting of green foliage was done before

bolting by cutting just beneath the soil with root intact after 40-45 days of sowing depending upon genotypes. Data was collected from the inner rows of each plot to avoid the border effect. In each unit plot, 5 plants were selected randomly for recording data on plant height. Number of leaves, leaf area, fresh leaf weight, foliage yield, chlorophyll content, vitamin C. the plot yield was converted to hectare yield. The collected data were properly analyzed statistically by Crop Stat Version 7.2. The mean comparision was done at 5% level of probability.

**Results and Discussion**

The results presented in the Table-1 and 2 revealed positive changes in crop growth and yield compared to the checks evaluated, at harvest maximum plant height was recorded in LCC-7 in both summer (22.51 cm) and in rabi (17.01 cm). The minimum plant height was observed in LCC-117 (8.16 cm) in summer and in the entry LCC-277 (10.88 cm) in *rabi* which was superior to all other entries under evaluation. A significant difference among coriander genotypes in plant height was reported by Giridhar and Sarada (2005) [4], Saxena *et al* (2005) [13] and Verma *et al.* (2014) [17].

During both seasons of investigation, higher number of leaves was observed during the *rabi* compared to summer investigation. In summer evaluation, at harvest, the entry LCC-9 (19.57) recorded significantly more number of leaves than any other entry evaluated. During rabi, AD-1 (19.11) recorded significantly more number of leaves over the best check and was found to be superior than other genotypes Similar studies were done and reported by Prabhu and Balakrishnamurthy (2006) [12] from India and Moniruzzaman *et al.* (2013) [9] from Bangladesh reported considerable variability among coriander genotypes for number of leaves per plant.

During both the seasons of evaluation, leaf area recorded was always lower in summer season study. During summer evaluation, higher leaf area was recorded in LCC-185 (33.75 $cm^2$) over the best check Sadhana (23.24 $cm^2$) which was significantly superior over all the genotypes evaluated and the minimum leaf area was observed in LCC-220 (6.99 $cm^2$). In *rabi* season LCC-24 (91.41 $cm^2$) recorded maximum leaf area over the best check Suguna (29.94 $cm^2$) whereas LCC-172 (16.5 $cm^2$) recorded minimum leaf area among the evaluated genotypes. Meena *et al.* (2014) [8] studied the performance of coriander genotypes and observed that leaf area among the genotypes varied significantly.

Significant differences were observed during both seasons of evaluation, among the genotypes for fresh leaf weight at harvest, in summer investigation, the entries LCC-171 (4.72 g $plant^{-1}$), LCC-176 (2.47 g $plant^{-1}$), LCC-175 (2.13 g $plant^{-1}$), LCC-69 (1.99 g $plant^{-1}$) and LCC-182 (1.89 g $plant^{-1}$) recorded significantly higher fresh leaf weight over the best check Sadhana (1.34 g $plant^{-1}$) (Table 4.7). In *rabi* crop, LCC-117 (2.09 g $plant^{-1}$), LCC-56 (1.99 g $plant^{-1}$), LCC-86 (1.99 g $plant^{-1}$), LCC-119 (1.99 g $plant^{-1}$) and LCC-1 (1.98 g $plant^{-1}$), recorded significantly higher fresh leaf weight at harvest over best check Sadhana (1.68 g $plant^{-1}$). Palanikumar *et al.* (2012) [11] studied the fresh matter accumulation in coriander genotypes and observed that fresh matter accumulation showed positive significant association with plant height, number of leaves, weight of leaves, weight of stem and weight of root during all the three seasons. Similar observations were reported by Six *et al.* (1998) in lettuce, Alian *et al.* (2000) in tomato and Rao *et al.* (2002) in vegetable Soybean.

The present investigation indicated that the *rabi* crop had highest yield compared to summer investigation. During summer evaluation, among all the genotypes evaluated LCC-176 (10.54 t $ha^{-1}$) recorded significantly higher yield over the best check Sadhana (5.218 t $ha^{-1}$) and minimum yield was observed in the genotype LCC-86 (1.543 t $ha^{-1}$). In *rabi* experimentation, LCC-175 (9.449 t $ha^{-1}$) recorded significantly higher yield over the best check Suguna (6.745 t $ha^{-1}$). The lowest yield was observed in the genotype LCC-91 (4.582 t $ha^{-1}$). The present findings are in accordance with the reports of Palani kumar *et al.* (2012) and Moniruzzaman *et al.* (2013). Telci *et al.* (2005) reported herbage yield and essential oil quality significantly differed in two varieties (var. *vulgare* Alef. and var. *microcarpum* DC.) populations of Turkey. The current investigation also presented a scenario where there was inconsistent performance of certain genotypes depending on the season of cultivation.

The present investigation indicated that the winter evaluation had higher chlorophyll content in coriander (6.07 mg $g^{-1}$) compared to summer investigation (3.19 mg $g^{-1}$). During summer investigation, LCC-30 (4.57mg $g^{-1}$) recorded higher chlorophyll content over the best check Sadhana (3.66 mg $g^{-1}$). The lowest chlorophyll content was observed in the entry LCC-1 (1.36 mg $g^{-1}$). In *rabi* investigation, LCC-237 (9.92 mg $g^{-1}$), recorded significantly higher chlorophyll content than the best check LCC-234 (6.68 mg $g^{-1}$). The minimum chlorophyll content was observed in LCC-1 (1.97 mg $g^{-1}$). Ben *et al.* (2014) reported that Tunisian coriander genotypes differed significantly in their leaf chlorophyll content. Similar observations were recorded by Kamineni *et al.* (2008) and Naidu (2011).

The present investigation indicated that vitamin C content at harvest was higher in summer study (170.92 mg 100 $g^{-1}$) compared to *rabi* evaluation (165.27 mg 100 $g^{-1}$). In summer investigation, LCC-188 (306.20mg 100 $g^{-1}$), recorded significantly higher vitamin C content than the best check Sadhana (180.20mg 100 $g^{-1}$). The lowest vitamin C content was observed in LCC-47 (100.60 mg 100 $g^{-1}$). During *rabi* evaluation of genotypes, LCC-188 (272.80mg 100 $g^{-1}$ recorded significantly higher vitamin C content than the best check Sudha (168.20 mg 100 $g^{-1}$). The minimum vitamin C content was observed in LCC-47 (80.23 mg 100 $g^{-1}$). Vallejo *et al.* (2003) reported that extreme agronomic and environmental conditions (late season and rich sulphur fertilisation which could induce different stress situations on the plant) enhance phenolic content and vitamin C in the lettuce. Lee and Kader (2000) [7] opined that the content of vitamin C in vegetables can be influenced by various factors such as genotypic differences, preharvest climatic conditions and cultural practices, maturity and harvesting methods, and postharvest handling procedures.

**Table 1:** Desirable characters of coriander germplasm in summer under shadenet conditions and in rabi under open field conditions.

| S. No. | Genotype | PH (cm) in summer | PH (cm) in rabi | NL in summer | NL in rabi | LA($cm^2$) in summer | LA($cm^2$) in rabi | FLW(g) in summer | FLW(g) in rabi |
|---|---|---|---|---|---|---|---|---|---|
| 1. | LCC – 1 | 18.91 | 14.71 | 14.57 | 13.11 | 28.48 | 33.41 | 1.71 | 1.98 |
| 2. | LCC – 3 | 18.41 | 16.51 | 14.57 | 14.11 | 24.71 | 29.85 | 1.55 | 1.86 |
| 3. | LCC – 6 | 17.21 | 15.31 | 10.57 | 16.11 | 23.98 | 34.61 | 1.44 | 1.76 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 4. | LCC – 7 | 22.51 | 17.01 | 7.57 | 14.11 | 27.67 | 17.41 | 1.84 | 1.88 |
| 5. | LCC – 9 | 17.41 | 15.51 | 19.57 | 13.11 | 26.28 | 81.08 | 1.61 | 1.84 |
| 6. | LCC – 11 | 15.01 | 12.01 | 15.57 | 11.11 | 25.88 | 69.25 | 1.46 | 1.81 |
| 7. | LCC – 13 | 11.96 | 12.23 | 8.32 | 8.86 | 20.97 | 45.15 | 0.85 | 1.16 |
| 8. | LCC – 17 | 11.06 | 13.63 | 6.32 | 10.86 | 23.07 | 80.78 | 0.95 | 1.22 |
| 9. | LCC – 19 | 13.66 | 12.43 | 9.32 | 7.86 | 19.43 | 76.01 | 0.87 | 1.19 |
| 10. | LCC – 24 | 12.86 | 13.63 | 10.32 | 10.86 | 20.67 | 91.41 | 1.04 | 1.25 |
| 11. | LCC – 30 | 11.66 | 12.93 | 4.32 | 9.86 | 22.37 | 52.21 | 1.07 | 1.24 |
| 12. | LCC – 31 | 12.56 | 13.93 | 9.32 | 7.86 | 21.63 | 49.51 | 0.83 | 1.22 |
| 13. | LCC – 32 | 14.31 | 14.08 | 9.32 | 11.86 | 23.05 | 51.11 | 1.34 | 1.61 |
| 14. | LCC – 36 | 16.31 | 14.48 | 7.32 | 8.86 | 21.35 | 36.41 | 1.19 | 1.60 |
| 15. | LCC – 37 | 11.41 | 13.28 | 7.32 | 10.86 | 22.18 | 68.97 | 1.23 | 1.57 |
| 16. | LCC – 38 | 12.71 | 15.08 | 6.32 | 9.86 | 16.32 | 23.24 | 1.08 | 1.44 |
| 17. | LCC – 43 | 12.31 | 15.38 | 7.32 | 11.86 | 20.55 | 48.77 | 1.31 | 1.37 |
| 18. | LCC - 44 | 11.01 | 15.38 | 7.32 | 13.86 | 16.82 | 37.84 | 1.14 | 1.41 |
| 19. | LCC – 47 | 16.81 | 14.01 | 6.57 | 12.11 | 33.62 | 87.22 | 1.55 | 1.91 |
| 20. | LCC – 49 | 15.51 | 12.31 | 8.57 | 16.11 | 25.75 | 56.66 | 1.22 | 1.70 |
| 21. | LCC – 50 | 16.81 | 12.71 | 8.57 | 17.11 | 31.02 | 71.66 | 1.43 | 1.96 |
| 22. | LCC – 53 | 12.41 | 13.51 | 7.57 | 10.11 | 27.25 | 35.46 | 1.16 | 1.53 |
| 23. | LCC – 56 | 16.31 | 11.71 | 7.57 | 12.11 | 29.72 | 64.56 | 1.33 | 1.99 |
| 24. | LCC – 59 | 15.01 | 12.51 | 7.57 | 11.11 | 27.68 | 45.96 | 1.18 | 1.74 |
| 25. | LCC – 60 | 16.94 | 13.41 | 8.82 | 13.61 | 26.40 | 44.32 | 1.76 | 1.85 |
| 26. | LCC – 67 | 13.64 | 11.91 | 6.82 | 11.61 | 21.90 | 67.22 | 1.39 | 1.72 |
| 27. | LCC – 69 | 16.84 | 16.01 | 9.82 | 13.61 | 29.17 | 89.56 | 1.99 | 1.68 |
| 28. | LCC – 70 | 11.84 | 14.61 | 5.82 | 7.61 | 17.03 | 59.89 | 1.05 | 1.63 |
| 29. | LCC – 79 | 10.54 | 14.01 | 5.82 | 6.61 | 16.23 | 81.22 | 0.71 | 1.53 |
| 30. | LCC – 80 | 10.04 | 12.61 | 4.82 | 7.61 | 17.30 | 52.22 | 0.91 | 1.33 |
| 31. | LCC – 81 | 14.26 | 13.88 | 7.57 | 9.11 | 15.72 | 69.03 | 1.00 | 1.87 |
| 32. | LCC – 86 | 12.06 | 13.98 | 9.57 | 13.11 | 15.46 | 49.93 | 0.44 | 1.99 |
| 33. | LCC – 90 | 12.96 | 12.98 | 7.57 | 10.11 | 11.66 | 36.56 | 0.47 | 1.80 |
| 34. | LCC – 91 | 8.76 | 14.08 | 7.57 | 12.11 | 16.42 | 69.90 | 0.94 | 1.52 |
| 35. | LCC – 112 | 9.16 | 14.98 | 6.57 | 15.11 | 16.59 | 39.86 | 1.16 | 1.57 |
| 36. | LCC – 117 | 8.16 | 14.98 | 7.57 | 17.11 | 12.66 | 61.03 | 1.07 | 2.09 |
| 37. | LCC – 119 | 15.16 | 14.63 | 10.57 | 11.86 | 33.22 | 39.91 | 1.80 | 1.99 |
| 38. | LCC – 134 | 10.96 | 13.63 | 2.57 | 9.86 | 21.42 | 44.75 | 1.07 | 1.71 |
| 39. | LCC – 137 | 12.86 | 14.03 | 7.57 | 8.86 | 16.15 | 39.41 | 1.05 | 1.42 |
| 40. | LCC - 154 | 14.96 | 14.93 | 15.57 | 11.86 | 29.45 | 21.45 | 1.69 | 1.53 |
| 41. | LCC – 156 | 14.36 | 15.93 | 9.57 | 10.86 | 26.68 | 30.98 | 1.19 | 1.46 |
| 42. | LCC – 169 | 10.96 | 13.43 | 10.57 | 8.86 | 19.22 | 18.08 | 1.13 | 1.41 |
| 43. | LCC – 171 | 10.56 | 11.43 | 11.07 | 10.11 | 30.97 | 23.97 | 4.72 | 1.90 |
| 44. | LCC – 172 | 11.56 | 14.13 | 9.07 | 9.11 | 32.27 | 16.51 | 1.76 | 1.53 |
| 45. | LCC – 175 | 10.46 | 15.53 | 4.07 | 16.11 | 25.80 | 29.97 | 2.13 | 1.92 |
| 46. | LCC – 176 | 11.96 | 10.93 | 10.07 | 17.11 | 26.63 | 31.47 | 2.47 | 1.81 |
| 47. | LCC – 182 | 11.76 | 14.73 | 8.07 | 9.11 | 24.70 | 34.04 | 1.89 | 1.31 |
| 48. | LCC – 183 | 10.56 | 14.13 | 12.07 | 8.11 | 23.97 | 42.84 | 1.74 | 1.23 |
| 49. | LCC – 185 | 11.69 | 12.93 | 10.07 | 7.61 | 33.75 | 46.16 | 1.31 | 1.60 |
| 50. | LCC – 188 | 14.79 | 12.63 | 7.07 | 8.61 | 32.65 | 47.79 | 1.69 | 1.71 |
| 51. | LCC – 189 | 13.09 | 12.03 | 8.07 | 6.61 | 26.75 | 30.36 | 1.56 | 1.68 |
| 52. | LCC – 190 | 12.99 | 15.93 | 6.07 | 10.61 | 30.28 | 34.49 | 1.54 | 1.74 |
| 53. | LCC -194 | 11.89 | 11.93 | 9.07 | 13.61 | 27.45 | 30.79 | 1.12 | 1.82 |
| 54. | LCC – 204 | 16.89 | 11.93 | 10.07 | 11.61 | 28.72 | 25.29 | 1.47 | 1.71 |
| 55. | LCC – 209 | 11.74 | 15.11 | 5.57 | 7.61 | 12.82 | 36.41 | 1.27 | 1.52 |
| 56. | LCC – 211 | 13.74 | 15.31 | 4.57 | 8.61 | 18.66 | 28.91 | 1.25 | 1.63 |
| 57. | LCC – 218 | 11.94 | 16.81 | 5.57 | 11.61 | 12.19 | 74.88 | 0.96 | 1.61 |
| 58. | LCC – 220 | 9.34 | 14.81 | 6.57 | 7.61 | 6.99 | 44.15 | 1.04 | 1.51 |
| 59. | LCC – 221 | 12.04 | 11.71 | 5.57 | 8.61 | 13.03 | 20.05 | 1.00 | 1.42 |
| 60. | LCC – 228 | 11.14 | 13.51 | 7.57 | 9.61 | 8.49 | 49.75 | 1.08 | 1.40 |
| 61. | LCC – 237 | 12.54 | 11.28 | 8.57 | 9.11 | 21.64 | 75.34 | 1.60 | 1.53 |
| 62. | LCC – 238 | 14.44 | 12.48 | 9.57 | 14.11 | 25.27 | 34.67 | 1.65 | 1.70 |
| 63. | LCC – 277 | 10.44 | 10.88 | 7.57 | 11.11 | 10.88 | 29.24 | 1.74 | 1.68 |
| 64. | LCC – 298 | 15.14 | 11.68 | 6.57 | 10.11 | 28.44 | 21.04 | 1.33 | 1.63 |
| 65. | AD – 1 | 15.44 | 14.68 | 7.57 | 19.11 | 30.21 | 47.24 | 1.29 | 1.40 |
| 66. | Swathi | 12.84 | 13.88 | 8.57 | 18.11 | 15.14 | 31.34 | 1.15 | 1.55 |
| 67. | Sadhana (C) | 14.11 | 14.80 | 8.64 | 11.45 | 23.24 | 28.45 | 1.34 | 1.68 |
| 68. | Sudha (C) | 13.06 | 15.23 | 8.55 | 11.64 | 20.71 | 29.01 | 1.12 | 1.54 |
| 69. | Suguna (C) | 13.26 | 14.33 | 8.55 | 11.73 | 22.39 | 29.94 | 1.24 | 1.61 |
| 70. | LCC -234 (C) | 12.72 | 14.87 | 8.55 | 10.64 | 19.40 | 27.52 | 1.15 | 1.60 |
| | Mean | 13.30 | 13.83 | 8.42 | 11.32 | 22.46 | 45.79 | 1.35 | 1.62 |
| | L.S.D. (5%) | 2.29 | 2.01 | 2.05 | 4.13 | 5.51 | 9.31 | 0.33 | 0.39 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | CV (%) | 11.95 | 9.42 | 16.61 | 25.19 | 17.81 | 22.44 | 18.67 | 16.72 |

**Table 2:** Desirable characters of coriander germplasm in summer under shadenet conditions and in rabi under open field conditions.

| S. No. | Genotype | Yield (tonnes) in summer | Yield (tonnes) in rabi | CHL (mg/g) in summer | CHL (mg/g) in rabi | VITC (mg/100g) in summer | VITC (mg/100g) in rabi |
|---|---|---|---|---|---|---|---|
| 1. | LCC – 1 | 7.16 | 8.34 | 1.36 | 1.97 | 176.10 | 140.20 |
| 2. | LCC – 3 | 6.36 | 7.73 | 2.31 | 2.90 | 196.10 | 160.20 |
| 3. | LCC – 6 | 5.66 | 7.27 | 2.19 | 4.19 | 176.10 | 170.20 |
| 4. | LCC – 7 | 7.06 | 7.80 | 2.91 | 4.96 | 146.10 | 150.20 |
| 5. | LCC – 9 | 6.26 | 7.17 | 3.19 | 4.84 | 156.10 | 140.20 |
| 6. | LCC – 11 | 5.76 | 6.77 | 2.51 | 3.17 | 226.10 | 130.20 |
| 7. | LCC – 13 | 3.51 | 5.01 | 3.61 | 7.28 | 136.10 | 175.20 |
| 8. | LCC – 17 | 3.91 | 5.40 | 2.88 | 6.37 | 176.10 | 155.20 |
| 9. | LCC – 19 | 3.21 | 4.72 | 3.58 | 5.14 | 166.10 | 135.20 |
| 10. | LCC – 24 | 3.81 | 5.25 | 3.69 | 5.36 | 156.10 | 195.20 |
| 11. | LCC – 30 | 3.91 | 5.20 | 4.57 | 8.29 | 146.10 | 215.20 |
| 12. | LCC – 31 | 3.21 | 5.20 | 3.27 | 4.47 | 136.10 | 155.20 |
| 13. | LCC – 32 | 5.64 | 6.86 | 1.76 | 4.46 | 126.10 | 215.20 |
| 14. | LCC – 36 | 4.74 | 6.66 | 2.15 | 3.69 | 116.10 | 135.20 |
| 15. | LCC – 37 | 4.94 | 6.78 | 3.26 | 3.43 | 156.10 | 135.20 |
| 16. | LCC – 38 | 4.04 | 5.59 | 2.25 | 4.96 | 196.10 | 155.20 |
| 17. | LCC – 43 | 5.04 | 6.48 | 3.39 | 4.79 | 146.10 | 135.20 |
| 18. | LCC - 44 | 4.24 | 6.22 | 2.92 | 6.19 | 146.10 | 155.20 |
| 19. | LCC – 47 | 6.76 | 8.19 | 2.47 | 8.10 | 106.10 | 80.23 |
| 20. | LCC – 49 | 4.96 | 6.24 | 2.49 | 8.41 | 156.10 | 160.20 |
| 21. | LCC – 50 | 5.76 | 8.08 | 3.62 | 5.03 | 206.10 | 120.20 |
| 22. | LCC – 53 | 4.96 | 7.22 | 3.93 | 7.00 | 156.10 | 130.20 |
| 23. | LCC – 56 | 5.36 | 8.01 | 3.47 | 5.64 | 206.10 | 150.20 |
| 24. | LCC – 59 | 4.66 | 7.32 | 3.77 | 7.18 | 206.10 | 130.20 |
| 25. | LCC – 60 | 6.76 | 8.29 | 3.91 | 6.36 | 178.60 | 147.70 |
| 26. | LCC – 67 | 6.16 | 7.13 | 2.43 | 3.34 | 218.60 | 187.70 |
| 27. | LCC – 69 | 7.46 | 8.15 | 3.65 | 9.14 | 218.60 | 167.70 |
| 28. | LCC – 70 | 4.66 | 6.32 | 2.98 | 4.47 | 198.60 | 147.70 |
| 29. | LCC – 79 | 3.96 | 6.28 | 3.75 | 6.93 | 188.60 | 157.70 |
| 30. | LCC – 80 | 4.56 | 6.12 | 3.59 | 9.84 | 188.60 | 187.70 |
| 31. | LCC – 81 | 4.04 | 5.51 | 3.60 | 6.63 | 193.60 | 180.20 |
| 32. | LCC – 86 | 1.54 | 6.04 | 3.17 | 8.48 | 193.60 | 170.20 |
| 33. | LCC – 90 | 2.64 | 5.11 | 4.05 | 7.03 | 143.60 | 130.20 |
| 34. | LCC – 91 | 2.64 | 4.58 | 3.28 | 8.99 | 193.60 | 180.20 |
| 35. | LCC – 112 | 4.34 | 5.03 | 2.60 | 7.79 | 143.60 | 130.20 |
| 36. | LCC – 117 | 3.74 | 5.90 | 2.62 | 6.65 | 193.60 | 160.20 |
| 37. | LCC – 119 | 8.61 | 8.89 | 2.50 | 4.20 | 168.60 | 167.70 |
| 38. | LCC – 134 | 5.41 | 7.55 | 3.93 | 4.91 | 168.60 | 177.70 |
| 39. | LCC – 137 | 5.51 | 6.80 | 2.98 | 4.54 | 218.60 | 217.70 |
| 40. | LCC – 154 | 8.21 | 6.90 | 4.38 | 3.38 | 168.60 | 167.70 |
| 41. | LCC – 156 | 5.71 | 6.54 | 3.17 | 4.36 | 168.60 | 207.70 |
| 42. | LCC – 169 | 4.81 | 5.90 | 3.11 | 6.31 | 218.60 | 217.70 |
| 43. | LCC – 171 | 9.74 | 8.45 | 3.69 | 4.68 | 131.10 | 160.20 |
| 44. | LCC – 172 | 8.74 | 8.63 | 3.05 | 5.41 | 181.10 | 150.20 |
| 45. | LCC – 175 | 9.44 | 9.44 | 3.90 | 7.04 | 131.10 | 160.20 |
| 46. | LCC – 176 | 10.54 | 7.18 | 2.38 | 5.24 | 231.10 | 220.20 |
| 47. | LCC – 182 | 7.44 | 6.34 | 2.76 | 5.54 | 181.10 | 210.20 |
| 48. | LCC – 183 | 6.74 | 5.87 | 3.73 | 7.05 | 231.10 | 240.20 |
| 49. | LCC – 185 | 7.11 | 5.65 | 3.64 | 9.65 | 106.10 | 112.70 |
| 50. | LCC – 188 | 9.01 | 6.83 | 2.19 | 8.95 | 306.10 | 272.70 |
| 51. | LCC – 189 | 8.11 | 6.75 | 3.30 | 7.72 | 256.10 | 262.70 |
| 52. | LCC – 190 | 8.61 | 6.69 | 3.18 | 5.13 | 206.10 | 242.70 |
| 53. | LCC -194 | 7.11 | 6.96 | 1.82 | 5.01 | 256.10 | 222.70 |
| 54. | LCC – 204 | 6.21 | 6.52 | 4.15 | 4.73 | 156.10 | 162.70 |
| 55. | LCC – 209 | 4.21 | 5.70 | 3.02 | 8.27 | 131.10 | 107.70 |
| 56. | LCC – 211 | 4.71 | 6.28 | 2.86 | 4.38 | 171.10 | 147.70 |
| 57. | LCC – 218 | 3.41 | 5.38 | 3.73 | 6.96 | 181.10 | 157.70 |
| 58. | LCC – 220 | 4.31 | 5.86 | 3.08 | 4.91 | 171.10 | 127.70 |
| 59. | LCC – 221 | 3.81 | 5.52 | 4.19 | 6.45 | 121.10 | 97.73 |
| 60. | LCC – 228 | 4.01 | 5.36 | 4.51 | 7.08 | 131.10 | 117.70 |
| 61. | LCC – 237 | 5.69 | 5.95 | 3.79 | 9.92 | 236.10 | 192.70 |
| 62. | LCC – 238 | 5.99 | 6.47 | 2.87 | 5.66 | 156.10 | 142.70 |
| 63. | LCC – 277 | 5.59 | 6.11 | 3.27 | 7.78 | 156.10 | 132.70 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 64. | LCC – 298 | 4.19 | 5.89 | 2.09 | 6.09 | 196.10 | 182.70 |
| 65. | AD – 1 | 4.19 | 5.42 | 3.83 | 8.48 | 216.10 | 202.70 |
| 66. | Swathi | 4.09 | 5.99 | 3.25 | 6.98 | 196.10 | 182.70 |
| 67. | Sadhana (C) | 5.21 | 6.66 | 3.66 | 6.37 | 188.20 | 157.30 |
| 68. | Sudha (C) | 4.44 | 6.17 | 3.32 | 5.52 | 179.10 | 168.20 |
| 69. | Suguna (C) | 5.10 | 6.74 | 3.45 | 6.03 | 178.20 | 153.60 |
| 70. | LCC -234 (C) | 4.70 | 6.38 | 3.17 | 6.68 | 179.10 | 151.80 |
| | Mean | 5.48 | 6.54 | 3.19 | 6.07 | 170.92 | 165.27 |
| | L.S.D. (5%) | 1.29 | 1.38 | 1.21 | 2.11 | 5.87 | 52.70 |
| | CV (%) | 18.3 | 14.67 | 24.6 | 23.73 | 22.45 | 23.15 |

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