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# Evaluation of coriander (*Coriandrum sativum* L.) genotypes for drought tolerance under Northern transition zone of Karnataka

**Jyothi V Hosamath, RV Hegde, Yashaswini Sharma, Aravindkumar BN and Umesh V Mummigatti**

**Abstract**
The present investigation was carried out at University of Agricultural Sciences, Dharwad during *rabi* seasons of two consecutive years (2021-22 and 2022-23) to screen the available twenty genotypes for drought/ moisture stress tolerance in coriander seed production. The genotypes were evaluated in strip plot design under two soil moisture regimes (well irrigated and drought induced conditions). Results indicated that the growth parameters and yield attributing characters of coriander differed significantly with respect to moisture regimes, genotypes and interaction effects and therefore, the mean seed yield per ha was significantly the highest under irrigated (8.98 q) as compared to drought condition (5.36 q). Higher yield attributes *viz*., umbels per plant, seeds per plant, thousand seed weight and seed yield per plant were registered by the varieties RCr-41, RCr-446, RCr-728 and RCr-435 and as a result, RCr-41 produced significantly higher yield among genotypes as well as under drought (10.69 and 8.93 q $ha^{-1}$ respectively) followed by RCr-446, (10.68 and 8.78 q $ha^{-1}$ respectively), RCr-728 (10.39 and 8.53 q $ha^{-1}$ respectively) and RCr-435 (10.37 and 8.70 q $ha^{-1}$ respectively).

**Keywords:** Coriander, genotypes, irrigation, drought, tolerance and seed yield

## 1. Introduction
Coriander (*Coriandrum sativum* L.) called as 'Dhania' in Hindi is an important tall herbaceous crop grown around the world for its fruits as well as for tender green leaves used as 'spice' due to the presence of essential oil called "coriandrol" responcible for its aromatic and taste (Kumawat *et al*., 2017) [12]. The crop belongs to the family Apiaceae and is highly cross pollinated and believed to be native of Mediterranean region. Coriander is also used as a spice in culinary Diederichsen, 1996) [8] and medicine (Kubo *et al*., 2004) [10] and as folk medicine as appetizer, tonic, carminative and diuretic (Cornara *et al*., 2009) [4]. The dry seed of coriander contains 6.3% moisture, 1.3% protein, 0.3-0.4% volatile oil, 19.6% nonvolatile oil, 24.6% carbohydrates and 5.3% mineral matter that is considered to be carminative, diuretic, stomatic tonic, antibilious, refrigerant and aphrodisiac (Murty and Sridhar, 2001) [13]. Since, coriander is a *ruby* crop, most of its cultivation area is mainly restricted northern part of country *ie*., Rajastan, Gujarat and Madya Pradesh. However, the crop is cultivated throughout the country mainly for spice purpose. In spite of its importance, the crop is grown in Karnataka to the minimum extent of area (1600 ha) with lesser production (10,400 q) (Anonymous, 2022) [1] which could be mainly due to uncertainty in the climatic factors. Drought is the most prominent hurdle among them, where the water deficit, the consequence of imbalance between water supply and plant water needs affect coriander growth depending on the stage of crop growth and degree of intensity of the drought stress. Drought is a meteorological term and is commonly defined as a period without significant rainfall. Since, rainfed crop production is highly dependent on monsoons and hence, the occurrence of moisture stress at degrees and at different growth phases is a common hurdle in coriander production Bajya *et al*., 2017) [3]. The nature and intensity of stress is determined by rainfall distribution, which is generally uncertain and often results in poor production and productivity. Soil moisture profoundly influences the availability and uptake of mineral nutrients by the plant while, the water deficit in leaves is associated with reduced rate of organ development. It has many indirect effects on physiological processes, plant growth and productivity. Hence, the present investigation was carried out to screen the available genotypes for drought/ moisture stress tolerance in coriander seed production under northern part of Karnataka.

## 2. Materials and Methods

The present investigation was carried out at Spice unit, MARS, University of Agricultural Sciences, Dharwad during *rabi* seasons of two consecutive years (2021-22 and 2022-23) to screen the available twenty genotypes collected from various national research institutes and farmers field for drought/ moisture stress tolerance in coriander seed production under strip plot design. The experimental area was ploughed two times and harrowed to bring the soil to a fine tilth. Well decomposed farm yard manure @ 6 tonnes per hectare was applied and mixed well in the soil before final harrowing. The recommended dose of nutrients (60:20:30 kg NPK $ha^{-1}$) was applied. Full dose of phosphorous, potash and 50 percent of recommended nitrogen were applied as basal dose at the time of sowing and covered with soil. The remaining dose of nitrogen was top dressed at 30 days after sowing (DAS). At the time of sowing, the seeds of different genotypes were split into two halves by rubbing gently and were treated with cardendazim @ 2 g per kg of seeds. Rows of 30 cm were marked with the help of marker and seeds were dibbled to the depth of 1.5 cm in the rows at plant to plant distance of 10 cm on November, 2021 and September, 2022 for first and second year experimentation respectively and covered with soil. When seedlings fully emerged out the field (at 20 DAS), the excess seedlings in rows were thinned out by maintaining 10 cm distance between two plants in a row and gap filling was done to maintain the optimal plant population. The crop was maintained as per package of practices for coriander recommended by University of Agricultural Sciences, Dharwad (Anonymous, 2020) [2]. The plots were kept free from weeds by regular hand weeding. Irrigation was given as and when required as per the recommendation by the crop under irrigated condition while stress was maintained under drought condition by skipping rest of the irrigations from eight days prior to flower initiation onwards. Damping off disease was effectively controlled by drenching Ridomil Mz (Metalaxyl-M) @ 0.2 percent while, aphids were managed by foliar application of diafenthuron 50% WP @ 0.05%. Depending upon the maturity of the genotypes, coriander plants were harvested when 50 percent of seeds were fully ripe and starts changing from green to brown colour. The observations on growth parameters and yield attributing characters were taken at definite intervals and the analysis of data was done by using by studying ANNOVA in MS excel.

## 3. Results and Discussion

The data recorded on growth parameters and yield and yield attributes differed significantly with respect to moisture regimes, genotypes and their interactions during both the seasons (Table 1, 2 and 3), pooled and discussed here.

### 3.1 Growth parameters

The mean plant height at harvest was significantly the highest under non stress (44.60 cm) when compared to stress condition (37.72 cm). Further, genotype DCC-5 attained significantly higher plant height (46.28 cm) among the genotypes being on par with RCr-728 (46.26 cm), Varadevi-1 (45.75 cm) and RCr-446 (45.55 cm), and the minimum was attained under DCC-3 (30.86 cm). Among the interactions, the plant height was reduced to considerable extent under drought stress as compared to irrigated condition. RCr-728, DCC-5, RCr-446 and Varadevi-1 attained significantly to the maximum extent (43.46, 43.45, 43.18 and 42.83 cm respectively) under drought while DCC-4 attained the lowest (27.02 cm). Similarly, the mean number of primary branches per plant was significantly the highest under irrigated condition (5.16) while, lowest was under drought stress (4.16). Among the varieties, RCr-446 registered significantly higher number of primary branches per plant (5.52) being at par with RCr-41 (5.50), RCr-435 (5.30) and RCr-728 (5.29). The check varieties registered comparatively lesser value (4.60 in Varadevi-1 and 4.35 in DWD-3). However, branches per plant were the lowest in DCC-2 (3.90). Among interactions under drought, RCr-41 produced significantly higher branches per plant (5.09) and was on par with RCr-446 (5.01) and RCr-446 (4.91). The values were 4.43 and 3.74 in checks Varadevi-1 and DWD-3 respectively which were comparatively less but, the lowest was reported in DCC-2 (3.37). The reduction in the plant height and primary branches was due to water deficit stress which was probably related to decline in photosynthetic products as a result of soil moisture decrease which eventually made the plant not to reach its genetic potential. This variation in plant height and primary branches was due to the reduction in soil moisture which might have reduced the availability of nutrients to the plant and consequently might have reduced the plant height, growth and yield. When plants experienced drought stress, stem diameter might have been shrunken in response to changes in internal water status. Cell division and cell expansion are sensitive to water stress, which greatly might have suppressed the cell expansion and cell growth due to the low turgor pressure. Similar results were reported by Datta *et al*. (2001) [6] and Datta and Choudhuri (2006) [5].

### 3.2 Yield and yield attributes

Moisture stress/ drought directly or indirectly affects all the plants processes there by affecting growth, development and ultimately yield. The yield attributing characters like number of umbels per plant, number of seeds per plant and thousand seed weight were significantly the highest under non stress condition (15.28, 288 and 10.28 respectively) as compared to moisture stress condition (12.88, 187 and 9.83 respectively). Significantly the highest number of umbels per plant, number of seeds per plant and thousand seed weight (16.61, 343 and 10.58 g respectively) were recorded by RCr-446 among genotypes while among interaction under drought, these attributes were significantly the highest under RCr-41 (15.38, 295 and 10.36 g respectively). These genotypes were on par with each other as well as with RCr-435 and RCr-728 under both the conditions. The attributes were comparatively lesser in check varieties where, Varadevi-1 registered 14.04, 200 and 9.86 g of umbels per plant, seeds per plant and thousand seed weight respectively among genotypes followed by DWD-3 (13.69, 203 and 9.80 g respectively). These values were of 13.33, 158 and 9.66 g in Varadevi-1 among interactions under drought followed by 12.72, 146 and 9.62 g in DWD-3 respectively. While, the lowest number of umbels per plant (10.11 and 8.99), number of seeds per plant (134 and 94) and thousand seed weight (9.15 and 9.01 g) were reported by DCC-2 among genotypes as well as interaction under drought. The reduction in yield attributing characters was greater which might be due to the drought stress imposed during reproductive stage of the crop. However, reduction in seeds number and seeds per umbel in coriander due to water stress at the stage of flowering and early seed development has been successfully documented by Kumari *et al*. (2016) [11].

The increase in number of umbels and seeds per plant and thousand sees weight further enhanced the yield in coriander and as a result, significantly the highest mean seed yield per plant was obtained under non-stress condition (2.93 g) and it was the lowest under stress condition (1.79 g). Among the genotypes, RCr-446 reported the highest seed yield per plant (3.56 g) being at par with RCr-41 (3.52 g), RCr-728 (3.34 g) and RCr-435 (3.33 g). While, the seed yield per plant was significantly the lowest in DCC-2 (1.23 g) as compared to checks Varadevi-1 (2.03 g) and DWD-3 (1.90 g). Similarly under stress, RCr-41 was found as significantly the highest (3.03 g) being at par with RCr-446 (2.99 g) and RCr-435 (2.81 g) as compared to Varadevi-1 (1.49 g) and DWD-3 (1.37 g). The genotype DCC-2 grown under stress condition reported significantly the lowest seed yield per plant (0.78 g). The mean seed yield per ha was significantly highest in irrigated condition (9.01 q) as compared to stress condition (5.38 q). Significantly the highest mean seed yield was attained in RCr-41 among genotypes as well as interactions under drought respectively (10.69 and 8.93 q ha$^{-1}$). This was on par with RCr-446 (10.68 and 8.78 q ha$^{-1}$), RCr-728 (10.39 q ha$^{-1}$) and RCr-435 (10.37 and 8.70 q ha$^{-1}$) respectively and these were superior to rest of the genotypes. The check genotypes Varadevi-1 and DWD-3 registered comparatively lesser yield (5.84 and 4.44; 6.10 and 4.25 q ha$^{-1}$ respectively) while, the genotype DCC-2 produced significantly lowest yield (3.77 and 2.33 q ha$^{-1}$ respectively). The variation in the seed yield among the genotype could be attributed variation in the growth and yield attributes (Dharmatti *et al*., 2018) [7]. Increase in the yield in RCr-41 and related genotype might be attributed production of umbels per plant, seed set, test weight and boldness of seed contributed increase in yield components to other genotypes. Considerable variations in the seed yield among the varieties of coriander were also reported earlier by Giridhar and Sarada, 2005 [9] and Saxena *et al*., 2005 [14].

**Table 1:** Effect of moisture stress on growth parameters of coriander genotypes

| Genotypes | Plant height (cm) | | | | | | | | | Primary branches per plant | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2021-22 | | | 2022-23 | | | Pooled | | | 2021-22 | | | 2022-23 | | | Pooled | | |
| | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean |
| RCr-20 | 44.40 | 39.63 | 42.02 | 48.90 | 42.50 | 45.70 | 46.65 | 41.07 | 43.86 | 5.50 | 4.56 | 5.03 | 5.50 | 4.69 | 5.18 | 5.58 | 4.62 | 5.10 |
| RCr-41 | 42.28 | 36.20 | 39.24 | 45.77 | 39.46 | 42.61 | 44.03 | 37.83 | 40.93 | 5.87 | 4.97 | 5.42 | 5.87 | 5.20 | 5.58 | 5.91 | 5.09 | 5.50 |
| RCr-435 | 46.30 | 37.60 | 41.95 | 48.42 | 40.48 | 44.45 | 47.36 | 39.04 | 43.20 | 5.57 | 5.06 | 5.31 | 5.57 | 4.76 | 5.29 | 5.69 | 4.91 | 5.30 |
| RCr-436 | 44.10 | 36.63 | 40.37 | 44.13 | 38.09 | 41.11 | 44.12 | 37.36 | 40.74 | 5.43 | 4.54 | 4.99 | 5.43 | 4.67 | 5.08 | 5.46 | 4.61 | 5.03 |
| RCr-446 | 46.73 | 43.07 | 44.90 | 49.10 | 43.28 | 46.19 | 47.92 | 43.18 | 45.55 | 6.05 | 4.89 | 5.47 | 6.05 | 5.12 | 5.57 | 6.04 | 5.01 | 5.52 |
| RCr-480 | 41.67 | 33.20 | 37.43 | 42.08 | 35.27 | 38.68 | 41.88 | 34.23 | 38.05 | 5.33 | 3.84 | 4.59 | 5.33 | 3.97 | 4.64 | 5.32 | 3.91 | 4.61 |
| RCr-684 | 44.34 | 36.07 | 40.20 | 46.43 | 38.84 | 42.64 | 45.39 | 37.45 | 41.42 | 5.00 | 4.31 | 4.65 | 5.00 | 4.51 | 4.71 | 4.95 | 4.41 | 4.68 |
| RCr-728 | 46.40 | 41.23 | 43.82 | 51.71 | 45.68 | 48.70 | 49.06 | 43.46 | 46.26 | 5.85 | 4.67 | 5.26 | 5.85 | 4.69 | 5.32 | 5.90 | 4.68 | 5.29 |
| ACr-1 | 43.37 | 36.47 | 39.92 | 47.37 | 35.03 | 41.20 | 45.37 | 35.75 | 40.56 | 5.50 | 4.42 | 4.96 | 5.50 | 4.54 | 5.03 | 5.51 | 4.48 | 5.00 |
| ACr-2 | 43.77 | 36.73 | 40.25 | 44.69 | 36.44 | 40.57 | 44.23 | 36.59 | 40.41 | 5.40 | 4.24 | 4.82 | 5.40 | 4.41 | 4.91 | 5.40 | 4.32 | 4.86 |
| AGCr-1 | 37.85 | 30.50 | 34.18 | 40.46 | 35.18 | 37.82 | 39.16 | 32.84 | 36.00 | 5.17 | 3.68 | 4.43 | 5.17 | 3.86 | 4.49 | 5.14 | 3.77 | 4.46 |
| CO-3 | 49.20 | 39.00 | 44.10 | 47.90 | 40.62 | 44.26 | 48.55 | 39.81 | 44.18 | 4.89 | 3.74 | 4.31 | 4.89 | 3.87 | 4.39 | 4.9 | 3.81 | 4.35 |
| DCC-1 | 40.83 | 31.60 | 36.22 | 40.70 | 34.47 | 37.58 | 40.77 | 33.03 | 36.90 | 4.69 | 3.56 | 4.12 | 4.69 | 3.78 | 4.25 | 4.70 | 3.67 | 4.18 |
| DCC-2 | 35.93 | 31.43 | 33.68 | 37.00 | 30.78 | 33.89 | 36.47 | 31.11 | 33.79 | 4.40 | 3.27 | 3.84 | 4.40 | 3.47 | 3.96 | 4.43 | 3.37 | 3.90 |
| DCC-3 | 34.27 | 27.20 | 30.73 | 35.13 | 26.83 | 30.98 | 34.70 | 27.02 | 30.86 | 4.50 | 3.36 | 3.93 | 4.50 | 3.47 | 4.02 | 4.53 | 3.42 | 3.97 |
| DCC-4 | 44.67 | 37.17 | 40.92 | 44.50 | 39.77 | 42.13 | 44.58 | 38.47 | 41.53 | 4.50 | 3.46 | 3.98 | 4.50 | 3.51 | 4.07 | 4.57 | 3.49 | 4.03 |
| DCC-5 | 48.03 | 43.67 | 45.85 | 50.20 | 43.23 | 46.72 | 49.12 | 43.45 | 46.28 | 4.83 | 3.87 | 4.35 | 4.83 | 4.05 | 4.45 | 4.84 | 3.96 | 4.40 |
| DCC-6 | 46.25 | 41.57 | 43.91 | 48.25 | 42.03 | 45.14 | 47.25 | 41.80 | 44.53 | 4.68 | 3.47 | 4.08 | 4.68 | 3.69 | 4.17 | 4.67 | 3.58 | 4.13 |
| Varadevi-1 (check) | 48.10 | 43.10 | 45.60 | 49.25 | 42.57 | 45.91 | 48.68 | 42.83 | 45.75 | 4.80 | 4.32 | 4.56 | 4.80 | 4.54 | 4.64 | 4.77 | 4.43 | 4.60 |
| DWD-3 (check) | 46.75 | 37.07 | 41.91 | 46.60 | 39.27 | 42.93 | 46.68 | 38.17 | 42.42 | 5.00 | 3.67 | 4.34 | 5.00 | 3.80 | 4.37 | 4.97 | 3.74 | 4.35 |
| Mean | 43.76 | 36.96 | | 45.43 | 38.49 | | 44.60 | 37.72 | | 5.15 | 4.10 | | 5.18 | 4.23 | | 5.16 | 4.16 | |
| Comparison | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | |
| Moisture stress | 0.29 | 1.79 | | 0.02 | 0.15 | | 0.15 | 0.92 | | 0.04 | 0.24 | | 0.01 | 0.05 | | 0.02 | 0.11 | |
| Genotypes | 0.77 | 2.21 | | 0.37 | 1.07 | | 0.43 | 1.23 | | 0.08 | 0.24 | | 0.10 | 0.29 | | 0.08 | 0.23 | |
| Interaction | 0.95 | 2.71 | | 0.57 | 1.63 | | 0.50 | 1.44 | | 0.14 | 0.39 | | 0.14 | 0.40 | | 0.11 | 0.31 | |

$I_1$: Non-stress; $I_2$: Moisture stress

**Table 2:** Effect of moisture stress on yield attributes of coriander genotypes

| Genotypes | Number of umbels per plant | | | | | | | | | Number of seeds per plant | | | | | | | | | Thousand seed weight (g) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2021-22 | | | 2022-23 | | | Pooled | | | 2021-22 | | | 2022-23 | | | Pooled | | | 2021-22 | | | 2022-23 | | | Pooled | | |
| | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean |
| RCr-20 | 17.03 | 14.07 | 15.55 | 17.75 | 13.82 | 15.79 | 17.39 | 13.95 | 15.67 | 344 | 266 | 305 | 374 | 267 | 320 | 359 | 267 | 313 | 10.72 | 10.19 | 10.45 | 10.65 | 10.29 | 10.47 | 10.68 | 10.24 | 10.46 |
| RCr-41 | 17.48 | 15.10 | 16.29 | 17.90 | 15.67 | 16.78 | 17.69 | 15.38 | 16.54 | 380 | 283 | 331 | 393 | 308 | 350 | 386 | 295 | 341 | 10.78 | 10.30 | 10.54 | 10.78 | 10.43 | 10.60 | 10.78 | 10.36 | 10.57 |
| RCr-435 | 17.15 | 14.87 | 16.01 | 17.83 | 15.32 | 16.58 | 17.49 | 15.09 | 16.29 | 352 | 267 | 309 | 380 | 277 | 328 | 366 | 272 | 319 | 10.74 | 10.25 | 10.50 | 10.74 | 10.32 | 10.53 | 10.74 | 10.28 | 10.51 |
| RCr-436 | 16.40 | 14.00 | 15.20 | 16.53 | 14.10 | 15.32 | 16.47 | 14.05 | 15.26 | 321 | 215 | 268 | 338 | 267 | 302 | 329 | 241 | 285 | 10.58 | 10.16 | 10.37 | 10.56 | 10.28 | 10.42 | 10.57 | 10.22 | 10.40 |
| RCr-446 | 17.73 | 15.00 | 16.37 | 18.20 | 15.50 | 16.85 | 17.97 | 15.25 | 16.61 | 394 | 279 | 336 | 400 | 299 | 350 | 397 | 289 | 343 | 10.80 | 10.27 | 10.54 | 10.85 | 10.38 | 10.62 | 10.83 | 10.32 | 10.58 |
| RCr-480 | 14.88 | 12.83 | 13.86 | 15.23 | 13.35 | 14.29 | 15.06 | 13.09 | 14.08 | 272 | 168 | 220 | 282 | 154 | 218 | 277 | 161 | 219 | 10.48 | 9.99 | 10.24 | 10.32 | 10.01 | 10.17 | 10.40 | 10.00 | 10.20 |
| RCr-684 | 15.00 | 13.49 | 14.25 | 15.09 | 13.95 | 14.52 | 15.05 | 13.72 | 14.38 | 252 | 175 | 214 | 279 | 204 | 242 | 266 | 190 | 228 | 10.18 | 9.69 | 9.94 | 10.30 | 9.67 | 9.99 | 10.24 | 9.68 | 9.96 |
| RCr-728 | 17.25 | 14.64 | 15.95 | 17.87 | 15.00 | 16.44 | 17.56 | 14.82 | 16.19 | 356 | 270 | 313 | 381 | 276 | 328 | 368 | 273 | 321 | 10.75 | 10.24 | 10.50 | 10.75 | 10.24 | 10.50 | 10.75 | 10.24 | 10.50 |
| ACr-1 | 16.95 | 13.99 | 15.47 | 17.50 | 15.70 | 16.60 | 17.23 | 14.85 | 16.04 | 339 | 210 | 275 | 365 | 220 | 292 | 352 | 215 | 284 | 10.70 | 10.15 | 10.42 | 10.57 | 10.13 | 10.35 | 10.64 | 10.14 | 10.39 |
| ACr-2 | 16.06 | 13.87 | 14.96 | 16.20 | 13.84 | 15.02 | 16.13 | 13.86 | 14.99 | 303 | 172 | 238 | 330 | 185 | 257 | 316 | 179 | 247 | 10.42 | 10.16 | 10.29 | 10.51 | 10.18 | 10.34 | 10.46 | 10.17 | 10.32 |
| AGCr-1 | 14.93 | 11.92 | 13.43 | 15.90 | 11.80 | 13.85 | 15.42 | 11.86 | 13.64 | 263 | 163 | 213 | 314 | 147 | 231 | 289 | 155 | 222 | 10.28 | 9.72 | 10.00 | 10.33 | 9.77 | 10.05 | 10.31 | 9.74 | 10.02 |
| CO-3 | 14.42 | 12.80 | 13.61 | 14.55 | 14.30 | 14.43 | 14.48 | 13.55 | 14.02 | 234 | 184 | 209 | 280 | 178 | 229 | 257 | 181 | 219 | 9.98 | 9.45 | 9.72 | 10.10 | 9.73 | 9.91 | 10.04 | 9.59 | 9.81 |
| DCC-1 | 14.05 | 11.50 | 12.77 | 14.53 | 12.30 | 13.42 | 14.29 | 11.90 | 13.09 | 227 | 138 | 183 | 261 | 138 | 200 | 244 | 138 | 191 | 10.05 | 9.55 | 9.80 | 10.45 | 9.64 | 10.04 | 10.25 | 9.59 | 9.92 |
| DCC-2 | 11.30 | 9.57 | 10.43 | 11.13 | 8.42 | 9.78 | 11.22 | 8.99 | 10.11 | 165 | 94 | 130 | 184 | 94 | 139 | 175 | 94 | 134 | 9.30 | 8.95 | 9.13 | 9.28 | 9.08 | 9.18 | 9.29 | 9.01 | 9.15 |
| DCC-3 | 11.50 | 8.72 | 10.11 | 11.83 | 9.05 | 10.44 | 11.67 | 8.89 | 10.28 | 170 | 93 | 132 | 188 | 105 | 146 | 179 | 99 | 139 | 9.59 | 9.09 | 9.34 | 9.68 | 9.08 | 9.38 | 9.63 | 9.08 | 9.36 |
| DCC-4 | 11.70 | 9.26 | 10.48 | 12.63 | 9.52 | 11.08 | 12.17 | 9.39 | 10.78 | 191 | 99 | 145 | 224 | 121 | 172 | 207 | 110 | 158 | 9.74 | 9.24 | 9.49 | 9.85 | 9.58 | 9.71 | 9.79 | 9.41 | 9.60 |
| DCC-5 | 14.77 | 12.94 | 13.85 | 15.02 | 12.23 | 13.63 | 14.89 | 12.59 | 13.74 | 253 | 157 | 205 | 280 | 178 | 229 | 267 | 167 | 217 | 9.98 | 9.48 | 9.73 | 10.18 | 9.37 | 9.78 | 10.08 | 9.42 | 9.75 |
| DCC-6 | 13.73 | 9.85 | 11.79 | 13.30 | 11.00 | 12.15 | 13.52 | 10.43 | 11.97 | 205 | 106 | 155 | 260 | 116 | 188 | 233 | 111 | 172 | 9.90 | 9.45 | 9.67 | 10.29 | 10.08 | 10.18 | 10.09 | 9.76 | 9.93 |
| Varadevi-1 (check) | 14.80 | 12.30 | 13.55 | 14.70 | 14.35 | 14.53 | 14.75 | 13.33 | 14.04 | 227 | 150 | 189 | 256 | 166 | 211 | 242 | 158 | 200 | 10.06 | 9.56 | 9.81 | 10.07 | 9.77 | 9.92 | 10.06 | 9.66 | 9.86 |
| DWD-3 (check) | 15.15 | 12.73 | 13.94 | 14.62 | 12.70 | 13.66 | 14.66 | 12.72 | 13.69 | 252 | 144 | 198 | 267 | 148 | 208 | 259 | 146 | 203 | 9.85 | 9.55 | 9.70 | 10.13 | 9.68 | 9.90 | 9.99 | 9.62 | 9.80 |
| Mean | 15.11 | 12.67 | | 15.36 | 13.10 | | 15.28 | 12.88 | | 275 | 182 | | 302 | 192 | | 288 | 187 | | 10.24 | 9.77 | | 10.32 | 9.88 | | 10.28 | 9.83 | |
| Comparison | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | |
| Moisture stress | 0.05 | 0.29 | | 0.10 | 0.59 | | 0.06 | 0.34 | | 7.17 | 43.62 | | 8.42 | 51.28 | | 5.07 | 30.89 | | 0.01 | 0.08 | | 0.02 | 0.10 | | 0.01 | 0.09 | |
| Genotypes | 0.28 | 0.79 | | 0.45 | 1.30 | | 0.26 | 0.74 | | 12.49 | 35.76 | | 16.18 | 46.39 | | 10.97 | 31.41 | | 0.03 | 0.08 | | 0.07 | 0.19 | | 0.04 | 0.11 | |
| Interaction | 0.32 | NS | | 0.51 | NS | | 0.26 | 0.73 | | 14.38 | 41.21 | | 15.99 | 44.96 | | 11.06 | 31.21 | | 0.04 | 0.10 | | 0.09 | 0.26 | | 0.05 | 0.15 | |

$I_1$: Non-stress; $I_2$: Moisture stress

**Table 3:** Effect of moisture stress on yield of coriander genotypes

| Genotypes | Seed yield plant$^{-1}$ (g) | | | | | | | | | Seed yield ha$^{-1}$ (q) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2021-22 | | | 2022-23 | | | Pooled | | | 2021-22 | | | 2022-23 | | | Pooled | | |
| | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean | $I_1$ | $I_2$ | Mean |
| RCr-20 | 3.55 | 2.35 | 2.95 | 3.73 | 2.51 | 3.12 | 3.64 | 2.43 | 3.04 | 11.01 | 7.55 | 9.28 | 11.58 | 7.78 | 9.68 | 11.30 | 7.66 | 9.48 |
| RCr-41 | 3.98 | 3.00 | 3.49 | 4.08 | 3.06 | 3.57 | 4.03 | 3.03 | 3.52 | 12.03 | 8.91 | 10.47 | 12.85 | 8.95 | 10.90 | 12.44 | 8.93 | 10.69 |
| RCr-435 | 3.72 | 2.76 | 3.24 | 3.97 | 2.85 | 3.41 | 3.85 | 2.81 | 3.33 | 11.80 | 8.67 | 10.23 | 12.28 | 8.73 | 10.50 | 12.04 | 8.70 | 10.37 |
| RCr-436 | 3.34 | 2.15 | 2.74 | 3.48 | 2.25 | 2.86 | 3.41 | 2.20 | 2.80 | 10.51 | 6.67 | 8.59 | 10.95 | 7.12 | 9.04 | 10.73 | 6.90 | 8.81 |
| RCr-446 | 4.05 | 2.94 | 3.50 | 4.15 | 2.98 | 3.55 | 4.10 | 2.99 | 3.56 | 12.20 | 8.76 | 10.48 | 12.95 | 8.80 | 10.87 | 12.57 | 8.78 | 10.68 |
| RCr-480 | 2.81 | 1.48 | 2.15 | 2.84 | 1.45 | 2.15 | 2.82 | 1.47 | 2.15 | 8.91 | 4.71 | 6.81 | 9.02 | 4.42 | 6.72 | 8.96 | 4.57 | 6.77 |
| RCr-684 | 2.49 | 1.62 | 2.06 | 3.14 | 1.72 | 2.43 | 2.82 | 1.67 | 2.24 | 7.92 | 4.84 | 6.38 | 8.30 | 5.23 | 6.77 | 8.11 | 5.03 | 6.57 |
| RCr-728 | 3.84 | 2.70 | 3.27 | 4.03 | 2.80 | 3.41 | 3.93 | 2.75 | 3.34 | 11.90 | 8.43 | 10.16 | 12.62 | 8.63 | 10.63 | 12.26 | 8.53 | 10.39 |
| ACr-1 | 3.42 | 2.20 | 2.81 | 3.62 | 2.33 | 2.97 | 3.52 | 2.27 | 2.89 | 10.88 | 6.55 | 8.72 | 11.80 | 6.99 | 9.40 | 11.34 | 6.77 | 9.06 |
| ACr-2 | 3.31 | 1.85 | 2.58 | 3.38 | 1.74 | 2.56 | 3.34 | 1.80 | 2.57 | 10.50 | 5.98 | 8.24 | 10.73 | 5.56 | 8.14 | 10.61 | 5.77 | 8.19 |
| AGCr-1 | 2.61 | 1.32 | 1.97 | 3.17 | 1.50 | 2.33 | 2.89 | 1.41 | 2.15 | 8.29 | 3.94 | 6.11 | 8.66 | 4.25 | 6.46 | 8.48 | 4.09 | 6.28 |
| CO-3 | 2.70 | 1.62 | 2.16 | 2.83 | 1.72 | 2.27 | 2.77 | 1.67 | 2.22 | 8.71 | 5.14 | 6.92 | 8.99 | 5.38 | 7.19 | 8.85 | 5.26 | 7.05 |
| DCC-1 | 2.23 | 1.23 | 1.73 | 2.66 | 1.33 | 2.00 | 2.45 | 1.28 | 1.86 | 7.04 | 3.42 | 5.23 | 7.32 | 3.82 | 5.57 | 7.18 | 3.62 | 5.40 |
| DCC-2 | 1.60 | 0.80 | 1.20 | 1.77 | 0.75 | 1.26 | 1.68 | 0.78 | 1.23 | 4.96 | 2.28 | 3.62 | 5.49 | 2.37 | 3.93 | 5.22 | 2.33 | 3.77 |
| DCC-3 | 1.69 | 0.80 | 1.24 | 1.87 | 0.90 | 1.38 | 1.78 | 0.85 | 1.31 | 5.21 | 2.28 | 3.74 | 5.78 | 2.41 | 4.09 | 5.49 | 2.34 | 3.92 |
| DCC-4 | 1.81 | 0.89 | 1.35 | 2.18 | 1.09 | 1.64 | 1.99 | 0.99 | 1.49 | 5.65 | 2.49 | 4.07 | 6.13 | 2.64 | 4.38 | 5.89 | 2.57 | 4.23 |
| DCC-5 | 2.29 | 1.39 | 1.84 | 2.79 | 1.69 | 2.24 | 2.54 | 1.54 | 2.04 | 7.18 | 4.27 | 5.73 | 7.39 | 4.43 | 5.91 | 7.28 | 4.35 | 5.82 |
| DCC-6 | 1.96 | 0.96 | 1.46 | 2.38 | 1.12 | 1.75 | 2.17 | 1.04 | 1.61 | 6.15 | 2.59 | 4.37 | 6.51 | 2.78 | 4.64 | 6.33 | 2.68 | 4.51 |
| Varadevi-1 (check) | 2.23 | 1.40 | 1.81 | 2.52 | 1.58 | 2.05 | 2.37 | 1.49 | 1.93 | 7.00 | 4.21 | 5.60 | 7.47 | 4.68 | 6.07 | 7.23 | 4.44 | 5.84 |
| DWD-3 (check) | 2.55 | 1.38 | 1.97 | 2.61 | 1.35 | 1.98 | 2.58 | 1.37 | 1.97 | 7.56 | 4.15 | 5.86 | 8.33 | 4.35 | 6.34 | 7.94 | 4.25 | 6.10 |
| Mean | 2.81 | 1.74 | | 3.04 | 1.84 | | 2.93 | 1.79 | | 8.77 | 5.29 | | 9.26 | 5.47 | | 9.01 | 5.38 | |
| Comparison | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | | S.Em (±) | C.D (0.05) | |
| Moisture stress | 0.01 | 0.07 | | 0.03 | 0.19 | | 0.01 | 0.08 | | 0.07 | 0.46 | | 0.03 | 0.16 | | 0.02 | 0.15 | |
| Genotypes | 0.08 | 0.24 | | 0.09 | 0.25 | | 0.07 | 0.21 | | 0.25 | 0.72 | | 0.28 | 0.81 | | 0.21 | 0.59 | |
| Interaction | 0.11 | 0.33 | | 0.12 | 0.34 | | 0.08 | 0.23 | | 0.40 | 1.15 | | 0.41 | 1.16 | | 0.27 | 0.78 | |

$I_1$: Non-stress; $I_2$: Moisture stress

## 4. Conclusion

It was concluded that the genotypes RCr-41, RCr-446, RCr-728, RCr-728 and RCr-435 were found tolerant against drought and hence, these can be used in further of crop improvement programme.

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