

## EVALUATION OF PHENOTYPIC TRAITS RELATED TO FORAGE YIELD IN FINGER MILLET (*ELEUSINE CORACANA* L. GAERTN) GERMPLASM ACCESSIONS

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### SUMMARY

The field study was performed at Research cum Instructional Farm of Shaheed Gundadhoor College of Agriculture and Research Station, Jagdalpur, Indira Gandhi Krishi Vishwavidyalaya, Raipur (CG), during *Khariif*- 2021 in an augmented randomized design with replicated checks including 54 germplasm accessions to evaluate the phenotypic traits related to forage potential in finger millet (*Eleusine coracana* L.) Mean sum of squares for analysis of variance revealed significant differences among blocks check and test entries for days to 50% flowering, days to maturity, plant height and biological yield. The genotype with greatest blooming date was recorded by ICO 477312 (82 DAS) followed by ICO 477043 (80 DAS), GEC 275 (80 DAS), GEC 346 (79 DAS) and GEC 278 (77 DAS). Similarly for days to maturity GEC-353, ICO 476882 and ICO 477312 exhibited equal days to maturity *i.e.* (115 DAS) followed by GEC 278 (114 DAS) and GEC 275 (113 DAS). Referring to plant height, genotype ICO 477913 (106cm) followed by GEC 5 (105.70cm), ICO 47045 (96cm), GEC 400 (94cm) and GEC 417 (93.80cm). For biological yield GEC 199 (106.07 q/ha) followed by GEC 400 (104.89 q/ha), GEC 238 (101.63 q/ha), GEC 371 (89.78 q/ha) and ICO 477232 (83.85 q/ha). For fodder yield GEC 400 (71.41 q/ha) was noted as most dominating genotype referring to the breeding goal and subsequently GEC 238 (70.52 q/ha), GEC 199 (69.78 q/ha), GEC 371 (66.07 q/ha) and GEC 275 (60.00 q/ha) also demonstrated fair potential. To evaluate the crop phenotypically in association with fodder as objective, we determine that (70-80 DAS) of days to 50% flowering, (103-113 DAS) of days to maturity, (85-95cm) of plant height and (76-104 q/ha) of biological yield may be opted to maximize finger millet's forage potential. We also recommend that GEC 400, GEC 238, GEC 199, GEC 371 and GEC 275 demonstrated good promise for forage yield and can be revalidated in next crop season followed by incorporation in replicated trials.

**Key words :** Finger millet, phenotypic traits, forage potential, germplasm accessions

*Eleusine coracana* (L.) Gaertn. is an allotetraploid ( $2n = 4x = 36$ , AABB) annual cereal small millet crop with two subspecies: Coracana (cultivated finger millet or ragi) and Africana (wild finger millet or ragi), Around 5000 years ago, the *E. coracana* subsp. *coracana* was domesticated in Western Uganda and the Ethiopian Highlands, Around 3000 BC, finger millet was introduced into the Western Ghats of India, As a result, India became a secondary centre of finger millet diversification (Upadhyaya *et al.*, 2007; Hittalmani *et al.*, 2017). It occupies 12% of the world's land and is grown in more than 25 nations on the African and Asian continents, making it the fourth most prominent millet after sorghum, pearl millet, and foxtail millet (Vetriventhan *et al.*, 2015). Finger millet has been predominantly grown in Southern Asia and Eastern Africa, both for grain and forage. Finger millet is a robust, tufted, tillering annual grass, up to 170 cm

high. The inflorescence is a panicle with 4-9 finger-like spikes that resembles a fist when mature, hence the name finger millet. Finger millet inflorescence is in the whorl of 2-11 digitate, straight or slightly curved spikes. The spike is 8-15 cm long and 1.3 cm wide. In each spike, about 50-70 spikelets are arranged alternatively on one side of the rachis (Gupta *et al.*, 2012).

Ragi is commonly referred to as "Nutritious millet" because the grains are more nutritious than many cereals In terms of protein, carbohydrates, and calories Devi *et al.*, 2014. Importantly, finger millet grain has a low glycemic index (GI), rich in calcium, fiber, and iron, and is free of gluten. For these reasons, diabetics often choose finger millet as a food source (Nambiar and Patwardhan, 2014). They are now referred to as nutraceuticals, the millet seed coat is an edible component of the kernel that is enriched in

phytochemicals such as dietary fiber and polyphenols (0.2 to 3.0 percent) (Hadimani and Malleshi 1993; Ramachandra *et al.*, 1977). The millets production in the World accounts for 30.73 million tonnes, out of which 11.42 million tonnes is produced in India accounting for 37% of total World production. India is the largest producer of various kinds of millets. Out of the total millets produced, finger millet accounts for about 85% of production in India (Haradari *et al.*, 2011). India is the largest producer of finger millet with an area of 1.19 million hectares, production of 1.98 million tons per annum and productivity of 1661 kg per ha. Karnataka accounts for 56.21% and 59.52% of area and production of finger millet followed by Tamil Nadu (9.94% & 18.27%), Uttarakhand (9.40% and 7.76%) and Maharashtra (10.56% & 7.16%) respectively (Sakamma *et al.*, 2017).

Finger millet *Eleusine coracana* (L.) Gaertn could become alternate forage crop; nutrient composition has shown that the forage quality of finger millet is relatively higher than that of corn and sorghum in terms of calcium, potassium, and phosphorus (Table 1) (Prasanna *et al.*, 2015). Currently, the nation has a net deficit of 64 percent in feeds, 21.9 percent in dry agricultural residues, and 61.1 percent in green fodder. Supply and demand scenario of forage and roughage is presented in (Table 2). Due to ever-increasing population pressure of human beings, arable land is mainly used for food and cash crops, and thus there is little chance of having good-quality arable land available for fodder production (Roy *et al.*, 2009).

## MATERIALS AND METHODS

The field study was performed at Research cum Instructional Farm of Shaheed Gundadhoor College of Agriculture and Research Station, Jagdalpur, Indira Gandhi Krishi Vishwavidyalaya, Raipur (CG), during *Kharif*- 2021 in an augmented randomized design with replicated checks including 54 germplasm accessions to evaluate the phenotypic traits related to forage potential in finger millet (*Eleusine coracana* L.). Each entry was directly seeded in paired row of 3 meters in length with 22.5 cm inter row spacing. In each row, three to four seeds were manually inserted at the gap of 10cm, which were afterward subjected to thinning in accordance with physical state of plant. The experiment was split into 5 blocks each of which consist of 10 test entries and four check varieties. Check varieties like IR 1, CG RAGI 2, GPU 28 and GPU 67 were randomly planted on paired rows

Table 1  
Nutrient Content in Forage of Different Cereal Crop

| Parameter         | Finger millet | Forage sorghum | Corn |
|-------------------|---------------|----------------|------|
| Crude protein (%) | 10.75         | 9.2            | 7.4  |
| NDF (%)           | 61.12         | 66.8           | 65.8 |
| NFC (%)           | 21.65         | 15.7           | 21.4 |
| TDN (%)           | 59.75         | 58             | 59   |
| CALCIUM (%)       | 1.19          | 0.59           | 0.54 |
| PHOSPHORUS (%)    | 0.44          | 0.25           | 0.09 |
| POTASSIUM (%)     | 4.53          | 2.34           | 2.88 |
| IVTD (%)          | 68.5          | 66             | 59   |

Source: (Prasanna *et al.*, 2015)  
(in million tonnes)

in each block in a way that, same check varieties visible in every block. The data was collected for 19 quantitative and qualitative variables, among them days to 50% flowering (DAS), days to maturity (DAS), plant height (cm), biological yield (q/ha) and fodder yield (q/ha) are being discussed in current manuscript. Days to 50% flowering was recorded when the fifty percent plant population blooms, by counting the number of days taken from days to sowing. Similarly days to maturity was noted when plant population reached at physiological maturity, by counting the number of days taken from days to sowing. Plant height was measured at maturity by scaling from bottom soil-plant contact to top of flag leaf. Biological yield was measured after crop harvest. Fodder yield was estimated after crop harvest, the method tracked was cutting the entire plant from base followed by removing the panicle and measurement of whole plot weight under dry condition. The raw data was subjected to statistical analysis through augmented techniques (Federer, 1956; Federer and Raghavarao, 1975).

## RESULTS AND DISCUSSION

Mean sum of squares for analysis of variance exhibited significant differences among blocks, check and test entries for days to 50% flowering, days to maturity, plant height, biological yield and fodder yield (Table 3). The presence of considerable variation among germplasm accessions reflects the scope of improvement for fodder and its associated characteristics (Kumar *et al.*, 2021). The range of days to 50% flowering was (51–105 DAS), with a mean of 70.31 DAS. Early genotypes avoid extreme weather conditions, high pest and disease incidence, and many crops development programmes, therefore majority of breeding programmes prefer early

TABLE 2  
Supply and demand scenario of forage and roughages

| Year | Supply |     | Demand |     | deficit as % of demand (as actual) |             |
|------|--------|-----|--------|-----|------------------------------------|-------------|
|      | Green  | Dry | Green  | Dry | Green                              | Dry         |
| 1995 | 379.3  | 421 | 947    | 526 | 568 (59.95)                        | 105 (19.95) |
| 2000 | 384.5  | 428 | 988    | 549 | 604 (61.10)                        | 121 (21.93) |
| 2005 | 389.9  | 443 | 1025   | 569 | 635 (61.96)                        | 126 (22.08) |
| 2010 | 395.2  | 451 | 1061   | 589 | 666 (62.76)                        | 138 (23.46) |
| 2015 | 400.6  | 466 | 1097   | 609 | 696 (63.50)                        | 143 (23.56) |
| 2020 | 405.9  | 473 | 1134   | 630 | 728 (64.21)                        | 157 (24.81) |
| 2025 | 411.3  | 488 | 1170   | 650 | 759 (64.87)                        | 162 (24.92) |

Source : (Roy *et al.*, 2009).

TABLE 3  
Mean squares for analysis of variance for check and test entries

| Source of variation | DF | DF       | DM        | PH        | BY        | FY       |
|---------------------|----|----------|-----------|-----------|-----------|----------|
| Block               | 4  | 37.66**  | 78.93**   | 77.86**   | 236.19*   | 101.23** |
| TREAT               | 53 | 184.48*  | 148.33**  | 231.35**  | 504.83**  | 189.30** |
| CHECKS              | 3  | 945.52** | 603.52**  | 848.31**  | 863.90*   | 257.25** |
| T.ENTRY             | 49 | 42.44**  | 72.95*    | 97.31**   | 336.19**  | 159.59** |
| cHKvTEST            | 1  | 4861.28* | 2476.32** | 4948.35** | 7691.00** | 1441.18* |
| ERROR               | 12 | 0.64     | 2.43      | 0.06      | 3.20      | 0.60     |
| Total               | 69 | 144.00   | 118.93    | 182.23    | 402.02    | 151.38   |

genotypes. In the current experiment, out of 54 genotypes, 2 genotypes (4%) fell into the early category, 26 genotypes contributing approximately (48%) fell under medium category (56-70 DAS) and 26 genotypes contributing about (48%) fell under the late category (>70 DAS) (Fig 4.9). The earliest genotype recorded was GEC-58 (51 DAS), and the genotype with the greatest blooming date was IR-1 (105 DAS). The early flowering genotypes were GEC-58 and GEC 319 while the medium flowering genotypes were ICO-476687 followed by GEC-105, ICO-477601, GEC-348, GEC-363 and GEC-485. The late duration genotypes were ICO-477043 followed by GEC-321, ICO-477913, GEC-65, GEC-278 and GEC-353. Considering the previous observations, Haradari *et al.* (2012), Jadhav *et al.* (2015), Ulaganathan and Nirmalakumari (2015) also reported variation in days to 50% flowering which ranged from 62-138 days in different locations which supported the present findings for variation in days to 50% flowering.

Days to maturity ranged from 83 to 131 days, with 102.33 DAS being the average. Genotypes were categorised as Early (105 DAS), Medium (105-120 DAS), and late (>120 DAS). Only the check genotype IR-1 (131 DAS) showed late maturity among the test

accessions, with 30 being early (55%) and 23 medium (43%). (Fig-4.10). GEC-58 (83 DAS) was early maturing among all, other Early maturing genotypes included GEC-100, GEC-369, ICO-476838, ICO-477159, and GEC-352; middle maturing genotypes included ICO-477312, ICO-477043, GEC-398, GEC-238, and ICO-476882. Since finger millet has the benefit of being both a grain and a fodder crop, the days to maturity are crucial in terms of harvesting the yield. Taking into account the earlier observation Days to maturity ranged from 84 (GE 5943) to 128 (GE 5006) days with mean of 109.20 days (Sumathi *et al.* 2007; Chandrashekhara *et al.* 2011; Haradari *et al.* 2012). Similar result in agreement with the present study was also observed by Malambane and Jaisil (2015), they suggested that Days to maturity were in the range of 65-139 days, which support the present findings for variation in days to maturity. The rules classified plant's height into five categories: very short (less than 40 cm), short (40.0–80.0 cm), medium (80.1–120.0 cm), tall (120.1–160.0 cm), and extremely tall (>160.0 cm). Plant height at maturity ranged from 47.5 cm to 106 cm with mean height at maturity was 82.52 cm, among the genotypes studied, no genotypes came under very short, tall and very tall category. 22 genotypes were short (41%), 32 genotypes were

TABLE 4  
Phenotyping of quantitative traits in finger millet

| S. No. | Genotypes  | DF     |           | DM     |           | PH    |           | BY     |           | FY     |           |
|--------|------------|--------|-----------|--------|-----------|-------|-----------|--------|-----------|--------|-----------|
|        |            | Mean   | Adj. Mean | Mean   | Adj. Mean | Mean  | Adj. Mean | Mean   | Adj. Mean | Mean   | Adj. Mean |
| 1.     | ICO 476838 | 66.00  | 65.90     | 99.00  | 66.96     | 50.22 | 50.32     | 66.35  | 98.50     | 85.00  | 84.93     |
| 2.     | ICO 477831 | 64.00  | 63.90     | 94.00  | 34.07     | 23.85 | 23.95     | 33.46  | 93.50     | 77.63  | 77.56     |
| 3.     | ICO 476786 | 62.00  | 61.90     | 93.00  | 72.00     | 49.19 | 49.29     | 71.39  | 92.50     | 91.00  | 90.93     |
| 4.     | ICO 477159 | 68.00  | 67.90     | 99.00  | 64.30     | 49.04 | 49.14     | 63.69  | 98.50     | 82.40  | 82.33     |
| 5.     | GEC 5      | 70.00  | 69.90     | 105.00 | 47.41     | 32.59 | 32.69     | 46.80  | 104.50    | 105.70 | 105.63    |
| 6.     | ICO 476539 | 62.00  | 61.90     | 89.00  | 38.81     | 28.30 | 28.40     | 38.20  | 88.50     | 83.20  | 83.13     |
| 7.     | GEC 100    | 70.00  | 69.90     | 104.00 | 51.26     | 34.37 | 34.47     | 50.65  | 103.50    | 79.20  | 79.13     |
| 8.     | ICO 477510 | 70.00  | 69.90     | 92.00  | 63.41     | 40.15 | 40.25     | 62.80  | 91.50     | 89.40  | 89.33     |
| 9.     | GEC 369    | 70.00  | 69.90     | 104.00 | 62.81     | 43.56 | 43.66     | 62.20  | 103.50    | 85.00  | 84.93     |
| 10.    | ICO 476520 | 60.00  | 59.90     | 89.00  | 23.41     | 16.44 | 16.54     | 22.80  | 88.50     | 69.60  | 69.53     |
| 11.    | ICO 477312 | 82.00  | 82.15     | 115.00 | 40.30     | 30.37 | 29.32     | 40.56  | 115.00    | 82.00  | 82.09     |
| 12.    | ICO 477043 | 80.00  | 80.15     | 112.00 | 56.30     | 37.48 | 36.43     | 56.56  | 112.00    | 87.20  | 87.29     |
| 13.    | GEC 398    | 71.00  | 71.15     | 110.00 | 77.63     | 54.96 | 53.91     | 77.89  | 110.00    | 93.20  | 93.29     |
| 14.    | ICO 477385 | 77.00  | 77.15     | 109.00 | 72.30     | 48.89 | 47.84     | 72.56  | 109.00    | 89.80  | 89.89     |
| 15.    | ICO 477681 | 69.00  | 69.15     | 99.00  | 68.44     | 45.33 | 44.28     | 68.70  | 99.00     | 79.20  | 79.29     |
| 16.    | GEC 251    | 60.00  | 60.15     | 88.00  | 44.44     | 31.11 | 30.06     | 44.70  | 88.00     | 75.80  | 75.89     |
| 17.    | GEC 238    | 72.00  | 72.15     | 114.00 | 101.63    | 70.52 | 69.47     | 101.89 | 114.00    | 84.80  | 84.89     |
| 18.    | GEC 352    | 64.00  | 64.15     | 98.00  | 55.41     | 34.22 | 33.17     | 55.67  | 98.00     | 84.40  | 84.49     |
| 19.    | GEC 41     | 73.00  | 73.15     | 105.00 | 65.48     | 44.59 | 43.54     | 65.74  | 105.00    | 90.20  | 90.29     |
| 20.    | GEC 322    | 75.00  | 75.15     | 111.00 | 64.00     | 35.70 | 34.65     | 64.26  | 111.00    | 80.00  | 80.09     |
| 21.    | ICO 476882 | 76.00  | 75.90     | 115.00 | 48.00     | 34.52 | 33.17     | 47.59  | 114.50    | 79.60  | 79.43     |
| 22.    | GEC 109    | 65.00  | 64.90     | 93.00  | 43.26     | 36.15 | 34.80     | 42.85  | 92.50     | 77.80  | 77.63     |
| 23.    | GEC 226    | 64.00  | 63.90     | 91.00  | 29.04     | 21.19 | 19.84     | 28.63  | 90.50     | 72.40  | 72.23     |
| 24.    | ICO 476962 | 72.00  | 71.90     | 107.00 | 76.74     | 51.11 | 49.76     | 76.33  | 106.50    | 89.80  | 89.63     |
| 25.    | GEC 199    | 71.00  | 70.90     | 104.00 | 106.07    | 69.78 | 68.43     | 105.66 | 103.50    | 91.60  | 91.43     |
| 26.    | GEC 144    | 66.00  | 65.90     | 93.00  | 44.44     | 32.89 | 31.54     | 44.03  | 92.50     | 81.60  | 81.43     |
| 27.    | ICO 477323 | 73.00  | 72.90     | 108.00 | 83.85     | 52.44 | 51.09     | 83.44  | 107.50    | 89.60  | 89.43     |
| 28.    | GEC 417    | 73.00  | 72.90     | 107.00 | 56.30     | 43.11 | 41.76     | 55.89  | 106.50    | 93.80  | 93.63     |
| 29.    | ICO 476299 | 68.00  | 67.90     | 101.00 | 71.11     | 46.96 | 45.61     | 70.70  | 100.50    | 92.60  | 92.43     |
| 30.    | GEC 400    | 72.00  | 71.90     | 103.00 | 104.89    | 71.41 | 70.06     | 104.48 | 102.50    | 94.40  | 94.23     |
| 31.    | GEC 371    | 70.00  | 69.90     | 104.00 | 89.78     | 66.07 | 65.14     | 89.43  | 103.50    | 89.20  | 89.13     |
| 32.    | ICO 476687 | 65.00  | 64.90     | 93.00  | 60.74     | 46.37 | 45.44     | 60.39  | 92.50     | 86.60  | 86.53     |
| 33.    | GEC 105    | 65.00  | 64.90     | 97.00  | 56.00     | 34.22 | 33.29     | 55.65  | 96.50     | 71.00  | 70.93     |
| 34.    | ICO 477601 | 60.00  | 59.90     | 93.00  | 61.04     | 39.11 | 38.18     | 60.69  | 92.50     | 69.20  | 69.13     |
| 35.    | GEC 348    | 66.00  | 65.90     | 98.00  | 49.19     | 28.30 | 27.37     | 48.84  | 97.50     | 76.20  | 76.13     |
| 36.    | GEC 266    | 65.00  | 64.90     | 98.00  | 62.81     | 43.41 | 42.48     | 62.46  | 97.50     | 84.60  | 84.53     |
| 37.    | GEC 321    | 73.00  | 72.90     | 105.00 | 60.44     | 34.96 | 34.03     | 60.09  | 104.50    | 91.80  | 91.73     |
| 38.    | ICO 477045 | 65.00  | 64.90     | 96.00  | 69.33     | 46.07 | 45.14     | 68.98  | 95.50     | 96.00  | 95.93     |
| 39.    | ICO 477913 | 76.00  | 75.90     | 108.00 | 66.96     | 44.15 | 43.22     | 66.61  | 107.50    | 106.00 | 105.93    |
| 40.    | GEC 65     | 73.00  | 72.90     | 108.00 | 80.00     | 57.93 | 57.00     | 79.65  | 107.50    | 86.00  | 85.93     |
| 41.    | GEC-278    | 77.00  | 77.15     | 114.00 | 62.22     | 43.70 | 46.93     | 63.32  | 115.50    | 89.20  | 89.43     |
| 42.    | ICO 476663 | 65.00  | 65.15     | 96.00  | 69.93     | 47.70 | 50.93     | 71.03  | 97.50     | 87.20  | 87.43     |
| 43.    | GEC 363    | 63.00  | 63.15     | 92.00  | 41.48     | 27.11 | 30.34     | 42.58  | 93.50     | 77.20  | 77.43     |
| 44.    | GEC 353    | 76.00  | 76.15     | 115.00 | 72.44     | 51.70 | 54.93     | 73.54  | 116.50    | 93.20  | 93.43     |
| 45.    | ICO 477405 | 73.00  | 73.15     | 106.00 | 65.78     | 43.41 | 46.64     | 66.88  | 107.50    | 78.00  | 78.23     |
| 46.    | GEC 319    | 55.00  | 55.15     | 88.00  | 42.07     | 28.00 | 31.23     | 43.17  | 89.50     | 47.57  | 47.80     |
| 47.    | GEC 346    | 79.00  | 79.15     | 111.00 | 65.19     | 43.85 | 47.08     | 66.29  | 112.50    | 73.41  | 73.64     |
| 48.    | GEC 275    | 80.00  | 80.15     | 113.00 | 76.44     | 60.00 | 63.23     | 77.54  | 114.50    | 89.13  | 89.36     |
| 49.    | GEC 485    | 64.00  | 64.15     | 96.00  | 77.04     | 52.59 | 55.82     | 78.14  | 97.50     | 76.62  | 76.85     |
| 50.    | GEC 58     | 51.00  | 51.15     | 83.00  | 30.22     | 25.04 | 28.27     | 31.32  | 84.50     | 71.11  | 71.34     |
| 1.     | IR 1       | 105.00 |           | 130.00 | 93.70     | 58.83 |           |        |           | 74.78  |           |
| 2.     | CG RAGI 2  | 88.00  |           | 116.40 | 71.80     | 44.22 |           |        |           | 76.29  |           |
| 3.     | GPU 28     | 86.20  |           | 110.20 | 100.72    | 59.64 |           |        |           | 49.33  |           |
| 4.     | GPU 67     | 71.40  |           | 104.40 | 79.54     | 52.00 |           |        |           | 58.63  |           |

medium (59%) (Fig 4.11). The genotype ICO-477831 followed by GEC-100, ICO-477681, GEC-251 and ICO-476882 recorded under short category. Genotypes which included under medium category were ICO-477312 followed by ICO-477043, GEC-398, ICO-47785 and GEC-352. The genotype GEC-319 (47.57 cm) was shortest and ICO-477913 was tallest plant among all genotypes and remaining under medium category. Trivedi *et al.* (2018) observed similar findings for the plant height whose value ranged from 71.71 to 140.30 cm. Chandrasekhar *et al.* (2011) also found similar finding for plant height, the germplasm accession GE 6058 had recorded lowest plant height (45.6cm). The biological yield refers to the total dry matter accumulation of a plant system and plays very important role in contributing fodder yield, in this experiment biological yield possesses wide range of variation ranging from 23.41 q to 106.07 q/ha with a mean of 63.68 q/ha. The highest biological yield was recorded by GEC-199 (106.07 q) followed by GEC-400 (104.89 q), GEC-238 (101.63 q), GPU-28 (100.72 q) and IR-1 (93.00 q) per hectare and the lowest biological yield was recorded by the genotype ICO-476520 23.41 q/ha.

Fodder, also called 'provender' is any agricultural foodstuff used specifically to feed domesticated livestock such as cattle, rabbit, sheep, horse, chicken and pigs. The fodder output varied greatly ranging from 16.44 q to 71.41 q with a mean of 43.31 q/ha. The maximum fodder yield was recorded by GEC-400 (71.41 q), followed by GEC-238 (70.52 q), GEC-199 (69.78 q), GEC-371 (66.07 q) and GEC-275 (60.00 q). In prior research Govintharaj *et al.*, (2018) investigated 116 pearl millet hybrid parents in two summer seasons for 30 forage specific morphological and quality traits, result found that Green forage yield (GFY) ranged from 15.0 to 29.0 t/ha at first cut and 12.0 to 42.0 t/ha at second cut, while the dry forage yield (DFY) ranged from 3.0 to 6.0 t/ha at first cut and 5.0 to 9.0 t/ha at second cut. The mean DFY was 4.39 t/ha and 6.30 t/ha at first and second cut, respectively, these outcome support the current findings of research work.

For fodder yield GEC 400 (71.41 q/ha) was noted as most dominating genotype referring to the breeding goal and subsequently GEC 238 (70.52 q/ha), GEC 199 (69.78 q/ha), GEC 371 (66.07 q/ha) and GEC 275 (60.00 q/ha) also demonstrated fair potential. To evaluate the crop phenotypically in association with fodder as objective, we determine that (70-80 DAS) of days to 50% flowering, (103-

TABLE 5  
Comparative table of dominating character for fodder yield

| Genotype | DF<br>(DAS) | DM<br>(DAS) | PH<br>(cm) | BY<br>(q/ha) | FY<br>(q/ha) |
|----------|-------------|-------------|------------|--------------|--------------|
| GEC 400  | 72          | 103         | 94         | 104.89       | 71.41        |
| GEC 238  | 72          | 114         | 84         | 101.63       | 70.52        |
| GEC 199  | 71          | 104         | 91         | 106.07       | 69.78        |
| GEC 371  | 70          | 104         | 89.20      | 89.78        | 66.07        |
| GEC 275  | 80          | 113         | 89.13      | 76.44        | 60.00        |

Note: DF (days to 5% flowering), DM (days to maturity), PH (plant height), BY (biological yield), FY (fodder yield), DAS (days after sowing).

113 DAS) of days to maturity, (85-95cm) of plant height and (76-104 q/ha) of biological yield may be opted to maximize finger millet's forage potential (Table 5). We also recommend that GEC 400, GEC 238, GEC 199, GEC 371 and GEC 275 demonstrated good promise for forage yield and can be revalidated in next crop season followed by incorporation in replicated trials.

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