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Performance of ginger and turmeric genotypes in Raigarh District of Chhattisgarh

R K Yadav*

Indira Gandhi Agricultural University
Regional Agricultural Research Station
Boirdadar, Raigarh - 496 001, Chhattisgarh.

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Abstract

Eleven turmeric and six ginger genotypes were evaluated at Regional Agricultural Research Station, Boirdadar, Raigarh, Chhattisgarh. All the entries were found better than the local genotypes used as checks. Varada gave the highest rhizome yield (175.3 q ha^{-1}) followed by V_3S_1 8 (174.0 q ha^{-1}) in ginger and in turmeric PTS-43 gave the maximum fresh rhizome yield (255.9 q ha^{-1}) which was closely followed by JTS-2 (251.2 q ha^{-1}), Acc. 360 (246.9 q ha^{-1}), Raj Sonia (234.9 q ha^{-1}) and JTS-1 (231.6 q ha^{-1}). These genotypes can be popularised for cultivation in Raigarh District of Chhattisgarh for increasing the production of ginger and turmeric.

Key words: genotypes, ginger, turmeric.

Ginger (*Zingiber officinale* Rosc.) and turmeric (*Curcuma longa* L.) are the two important rhizomatous spices grown in many parts of Chhattisgarh State. Systematic efforts on introduction and evaluation of improved genotypes suitable for Raigarh District of Chhattisgarh, where a large extent of area is under cultivation with inferior local varieties of ginger and turmeric, were not made so far. Hence, the present study was carried out to evaluate the performance of improved ginger and turmeric genotypes in this region.

The experiments were carried out for two crop seasons (1997 and 1998) for ginger and three crop seasons (1997, 1998 and 1999) for turmeric at Regional Agricultural Research Station, Boirdadar, Raigarh, Chhattisgarh. The trials were laid out in Randomised Block Design with three replications, using promising genotypes (Tables 1 & 2). The net plot size was 3 m x 1 m and the crops were raised as per the package of practices of Indian Institute of Spices Research, Calicut, Kerala. Observations on five randomly selected plants were recorded for characters listed in Tables 1 & 2.

The results indicated that there were significant variations among the genotypes of ginger (Table 1). Maximum plant height was recorded in Varada which was significantly superior to other genotypes. The number of leaves $clump^{-1}$ was higher in V_1S_1 8 (110) followed by Varada (103) and V_3S_1 8 (97.6). Varada produced maximum length of leaf (17.6 cm) and leaf width (2.2 cm). V_1E_8-2 produced maximum length of primary rhizome (25 cm) than the other genotypes. Significant variation was observed for number of primary rhizomes which was maximum in SG 554 (8) followed by Varada and V_1S_1 8 (7). Maximum fresh rhizome yield (175.3 q ha^{-1}) was obtained in Varada followed by $V_3S_1$8 (174.1 q ha^{-1}). The results of the present study are in conformity with those of Yadav *et al.* (1999) for plant height, leaves $clump^{-1}$ and rhizome yield.

* Present address : Department of Plant Bleeding & Genetics, College of Agriculture, Raipur.

Table 1. Growth characters, yield components and rhizome yield of different ginger genotypes

Genotype	Plant height (cm)	Leaves clump^{-1}	Leaf length (cm)	Leaf width (cm)	Length of primary rhizome (cm)	No. of primary rhizomes	Fresh rhizome yield (q ha^{-1}) (pooled data of 1997 and 1998)
Varada	50.2	103.0	17.6	2.2	23	7	175.3
SG 554	31.5	81.2	12.8	1.8	19	8	116.5
V_3S_1 8	38.3	94.6	11.9	1.9	28	5	174.1
V_3E_8-2	38.4	79.6	10.6	1.7	25	6	115.0
V_1S_1 8	40.6	110.0	12.1	1.8	21	7	134.8
RGS-1 (ch)	42.6	89.6	15.0	1.8	34	6	92.6
CD at 5%	6.8	15.9	2.2	0.3	4.2	1.1	23.0

Table 2. Growth, yield components and fresh rhizome yield of turmeric genotypes

Genotype	Days to maturity	Plant height (cm)	Leaves clump^{-1}	Length of primary rhizome (cm)	No. of secondary rhizomes	Fresh rhizome yield (q ha^{-1}) (pooled data of 1997 and 1998)
Raj Sonia	207	85	10	4.7	3.7	234.9
RH-5	206	89	17	5.4	2.2	230.1
PTS-43	215	97	13	8.7	4.0	255.9
PTS-12	222	86	19	3.0	1.8	200.1
PTS-62	229	77	10	6.3	2.1	214.3
Prabha	213	98	8	3.7	2.2	246.9
Prathibha	216	91	15	4.0	2.0	207.5
JTS-1	232	86	11	5.0	1.6	231.6
JTS-2	228	94	14	4.0	3.0	251.2
RTS-1 (Ch)	213	84	8	5.9	2.1	209.2
RTS-2 (Ch)	208	83	9	5.5	3.7	173.0
CD at 5%	11.3	19.2	5.0	5.3	1.4	28.4

In the case of turmeric genotypes evaluated (Table 2), the minimum days to maturity was recorded in RH-5 (206) followed by Raj Sonia (207), RTS-2 (208), Prabha and RTS-1 (213), PTS-43 (215) and Prathibha (216). PTS-12 produced maximum number of leaves clump^{-1} (19) followed by RH-5 (17), Prathibha (15) and JTS-2 (14). Length of primary rhizome was maximum in PTS-43 (8.7 cm) and minimum in PTS-12 (3.0 cm). Maximum number of secondary rhizomes (4.0) was obtained in PTS-43 followed by Raj Sona and RTS-2 (3.7), JTS-2 (3.0). Highest fresh rhizome yield was recorded in PTS-43 (255.9 q ha^{-1}), followed by JTS-2 (251.2 q ha^{-1}), Prabha (246.9 q ha^{-1}), Raj Sonia (234.9 q ha^{-1}) and JTS-1 (231.6 q ha^{-1}). Similar variations in length of primary rhizome and fresh rhizome yield were also reported by Sheshagiri & Uthaiah (1994) and Yadav (2001).

On the preformance of different genotypes of ginger and turmeric, all entries were found better than the local genotypes and these can be popularised in Raigarh District of Chhattisgarh state for increasing the production of both these crops.

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