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STUDIES ON GENETIC PARAMETERS IN BABY CORN IN THE MID HILLS OF MEGHALAYA

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Baby corn refers to the young flowering corn ear harvested between two days before and three days after silking, which is a delicious, decorative and nutritious vegetable. It my be used as salad or as ingredient in various preparations viz., chopits suey (Chinese dish), soup, deep -fried with meat or rice, souted with other vegetables, pickles and corn pakoras. Galinet reported that baby corn ears with stirfry vegetables, including broccoli were served in Chinese- American and European restaurents. Thakur (2000) emphasized for the divfrsification and value addition of maize as well as the growth of food processing industry, which is an interesting recent development for growing maize for vegetable purpose as baby corn.

An experiment was conducted in the plant breeding research farm, of ICAR Complex for NEH region, Umiam (26°N latitude to 92°E longitudes at 1000m amsl), Meghalaya during the rainy season of 1999. five entries viz., RCM 1-1, MLY, MLW, RCM 1-3 and RCM 1-2 were grown in a randomized block design with three replications during kharif (rainy season) 1999 in rainfed acid alfisol condition (pH5.0). The plot size was 5m x 1.4m. A spacing of 50 cm between rows and 15cm between plants was given. The crop was fertilized as per package of practices. When the plants attained a height of 12-15 cm, they were thinned to maintain optimum plant population. Observations were recorded for 12 quantitative characters on 10 rondom plants in each plot for baby corn yield (g/sq m), baby corn yield with husk (g/ha), baby corn yield without husk (g/ha), ear leaf length (cm), ear leaf breath (cm), ear leaf area (sg cm), plant height (cm), ear height (cm), except for days to 50% of tasselling, days to 50% silking where data were recorded on plot basis as per Descriptors for Maize of CIMMYT (1991). The analysis of variance for each character was carried out by the procedures as given by Panse and Sukhatme (1967). The formula suggested by Lush (1949) and Johnson et al (1955) was used for calculation of heritability in broad sense, genetic advance and genetic advance as percentage of mean.

Variation is one of the most important criteria for selection and it is also responsible for evolution. The heritability, genetic advance (GA) and genetic advance as percent of mean for various characters are presented in Table1. Significant differences were observed for all the characters. Baby corn yield (g/sq cm), baby corn yield with husk (q/ha), baby corn yield without husk (q/ha), ear height (cm), ear leaf area (sq cm) and plant height (cm) had considerable amount of variation as revealed by high phenotypic (PCV) and genotypic coefficient of variation (GCV). Heritability in broad sence, genetic advences and genetic advances as percentage of mean (both at 5% and 1% selection intensity) were high for baby corn yield (g/sq cm), baby corn yield with husk (q/ha), baby corn yield wintout husk (q/ha), ear height (cm), ear leaf area (sq cm) and plant height (cm), indicating the preponderance of additive genc effects for these charaters and could be of great impertance for selecting better genotypes in baby corn improvement programmes. Non additive gene effects were found for characters viz, days to 50% tasselling, days to 50% silking, ear leaf length (cm), ear leaf breath (cm), internode above first ear and total number of leaves indicating that these traits were under the influence of environmental factors. Tiwari and Verma (1999) reported that heritability estimates were invariably moderate to high for all charater and observed high heritability with high GA for cob yield with husk and baby corn yield.

REFERENCES

Galinat, W.C (1985a). Proc Northeast Corn Improv. Conf. USAAA.40:22-27. IBPGR (1991) Descriptors for maize. International Maize and Wheat Improvement Centre, Mexico City, Mexico pp 1-88.

Johnson, H.W; Robinson, H.F and Comstock, R.E (1955) Agron J 47:314-318. Lush, J.L. (1949) Proc 8th Intel Congr Genetica 1948. Hereditas (Suppl): 356-318. Panse, V.G and Suklatme, P.V (1967) Statistical methods for Agricultural Workers. 2nd Eds. I.C.A.R, New Delhi.

Thakur, D.R (2000) Baby corn production technology. Directorate of Maize Research, New Delhi. India pp 1-12.

Tiwari, V.K and Verma, S.S (1999) Agril Science Digest 19:67-71.

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Table to the selection intensity at 6% selection intensity at 6% selection intensity at 6% selection intensity Days to 50% tasselling 54.67 40-57 1.12 7.87 8.06 5.11 10.45 7.32 133 Days to 50% silking 59.13 533 60-120 5.61 0.64 7.18 7.26 4.53 4.55 99.00 5.49 7.04 9.29 Ear leaf length (cm) 95.33 66-120 5.61 203.82 219.06 14.52 15.05 93.04 2.83.7 36.36 7.32 13.3 Ear leaf breacht (cm) 97.23 85-11.3 5.93 0.31 0.48 5.77 7.13 65.44 0.38 0.43 1.19 Ear leaf area (sc m) 97.23 85-11.3 5.93 0.31 0.48 5.77 7.13 65.44 0.38 0.43 1.19 1.53 1.15 Ear leaf area (sc m) 97.23 85-17 0.48 5.77 7.13 65.44 0.38 0.42 1.53	Characters	Grand mean	Range	S	0 ² g	o²ph	% GC	% PCV	h²(%)	G.S (%)	GS as %of mean	GS (%)	GS as % of mean
Days to 50% tasselling54.67 49.57 1.127.878.065.135.1997.665.7110.457.3213.31Days to 50% silking59.1353.610.647.187.264.534.5599.005.497.049.291191Ear leaf length (cm)95.3366-1205.61203.82219.0614.5215.6593.0428.3736.3028.8536.97Ear leaf length (cm)95.3366-1205.61203.82219.0614.5215.0593.0428.3736.3028.85Ear leaf length (cm)97.28.5-11.35.930.310.485.777.1365.440.939611.1912.32Ear leaf length (cm)97.28.5-11.35.930.310.445.7154.000.8656.8336.97Ear leaf length (cm)97.28.5-11.35.930.310.4457.3536.7467.9736.967.34Ear leaf length (cm)97.28.5-11.35.930.310.4457.3537.3419.4656.377.1647.35Far leaf length (cm)24.06.405.7719.3413.9317.9317.9319.3485.9587.2440.2743.24Far leaf length (cm)24.553.771393.0623.1124.1587.467.9534.2419.36Far height (cm)154.5397.1689.3129.771393.0627.1689.07				4 R/13	ter an		n Jaki Is dade I sett i	ន សាស សេដ្ឋស ទាំននេះ	17 (1996) 17 (1997)	at 5% si inter	election Isity	at 1% s inter	election isity
Days to 50% silking 59.13 53-61 0.64 7.18 7.26 4.53 4.55 99.00 5.40 7.04 9.29 1131 Ear leaf length (cm) 95.33 66-120 5.61 203.82 219.06 14.52 15.05 93.04 28.37 36.36 28.85 36.33 36.35 36.36 36.35 36.3	Days to 50% tasselling	54.67	49-57	1.12	7.87	8.06	5.13	5.19	97.66	5.71	10.45	7.32	13.39
Ear leaf length (cm) 95.33 66-120 5.61 20382 219.06 14.52 15.05 93.04 28.37 36.36 28.38 36.31 119 12.32 Ear leaf breadth (cm) 9.72 8.5-11.3 5.03 0.31 0.48 5.77 7.13 65.44 0.93 9.61 1.19 12.32 Ear leaf breadth (cm) 962.32 561-1260 9.39 3167292 35753.11 18.49 19.65 88.59 36.6 34.20 45.95 Internode afove 1*ear 6.40 5.77 0.13 4.03 5.71 5.70 0.03 0.15 317 45.95 36.56 34.20 35.86 44.21 45.95 Internode afove 1*ear 6.40 5.77 0.13 4.03 36.15 317 31.31 31.31 31.31 31.31 31.31 31.31 31.31 31.34 31.53 Plant height (cm) 155.53 97.12 31.32 231.83 17.39 23.16 31.53 31.36	Days to 50% silking	59.13	53-61	0.64	7.18	7.26	4.53	4.55	99.00	5.49	7.04	9.29	11.91
Ear lead breadth (cm) 9.72 8.5-11.3 5.93 0.31 0.48 5.77 7.13 55.44 0.93 9.61 1.19 12.32 Ear leaf area (sq cm) 962.32 561-1260 9.39 31672.92 35753.11 18.49 19.65 88.59 345.06 35.86 44221 45.95 Internode alyove 1*ear 6.40 5.7 5.70 0.13 4.03 5.71 50.00 0.68 5.88 0.48 7.53 Internode alyove 1*ear 6.40 5.7 5.70 0.07 0.13 4.03 5.71 50.00 0.68 5.88 7.53 1.53 Intel number of leaves 137.47 1297.77 1393.08 23.31 24.15 83.9 1.56 34.56 53.46 55.3 243.16 71.15 Plant height (cm) 245.00 35.6 65.63 77.54 12.1 83.95 17.53 243.16 71.16 71.65 Baby corn yield 341.73 211.50 35.62 8	Ear leaf length (cm)	95.33	66-120	5.61	203.82	219.06	14.52	15.05	93.04	28.37	36.36	28.85	36.97
Ear leaf area (sq cm) 962.32 561-1260 3.3 31672.92 35753.11 18.49 1965 88.59 345.06 345.06 345.06 345.06 345.06 345.05 345.05 345.05 345.05 345.05 345.05 345.05 345.05 345.05 345.06 345.06 345.06 345.05 345.105 345.15	Ear leaf breadth (cm)	9.72	8.5-11.3	5.93	0.31	0.48	5.77	7.13	65.44	0.93	9.61	1.19	12.32
Internode algove 1* ear 6.40 5.7 5.70 0.07 0.13 4.03 5.71 50.00 0.68 5.88 0.48 7.53 Total number of leaves 13.47 12-15.5 3.77 0.45 0.58 4.96 5.63 77.54 1.21 8.99 1.55 11.53 Plant height (cm) 249.00 157-325 10.25 1193.12 2318.83 17.93 85.95 85.26 3.24 109.27 43.86 Ear height (cm) 249.00 157-325 10.25 1193.12 2318.33 17.93 85.95 85.26 3.24 109.27 43.86 Ear height (cm) 154.53 97-218 8.93 1297.77 1393.08 23.31 24.15 83.16 71.63 46.35 91.79 59.40 Baby corn yield 341.73 211-500 3.70 86.42 27.03 20.16 55.53 243.18 71.16 Baby corn yield 34.13 5.91-5.03 3.75 86.42 27.03 <t< td=""><td>Ear leaf area (sq cm)</td><td>962.32</td><td>561-1260</td><td>9.39</td><td>31672.92</td><td>35753.11</td><td>18.49</td><td>19.65</td><td>88.59</td><td>345.06</td><td>35.86</td><td>442.21</td><td>45.95</td></t<>	Ear leaf area (sq cm)	962.32	561-1260	9.39	31672.92	35753.11	18.49	19.65	88.59	345.06	35.86	442.21	45.95
Total number of leaves13.4712-15.53.77 0.45 0.58 4.96 5.63 77.54 1.21 8.99 1.55 11.53 Plant height (cm) 249.00 157.325 10.25 1193.12 2318.83 17.93 85.95 85.26 34.24 109.27 43.88 Ear height (cm) 154.53 97.218 8.93 1297.77 1393.08 23.31 241.6 94.24 109.27 43.88 Baby corn yield (g/sqm) 341.73 $211-500$ 3.66 8562.70 8641.02 27.08 27.16 99.06 189.76 55.53 243.18 71.16 Baby corn yield with husk (q/ha) 342.33 $211-500$ 3.70 85.62 86.42 27.03 27.15 99.07 18.97 55.42 21.23 71.02 Baby corn yield with husk (q/ha) 34.23 $3.715.03$ 3.77 8.81 29.03 29.15 91.79 55.42 21.23 71.02 Baby corn yield with husk (q/ha) 10.18 $5.91-15.03$ 3.77 8.81 29.03 29.15 99.12 77.7 70.23 Baby corn yield without husk (q/ha) 10.18 $5.91-15.03$ 3.77 8.81 29.03 29.15 91.79 70.23 71.02 Baby corn yield without husk (q/ha) 10.18 $5.91-15.03$ 3.77 8.81 29.03 29.15 99.12 777 76.23	Internode at ove 1ª ear	6.40	5.7	5.70	0.07	0.13	4.03	5.71	50.00	0.68	5.88	. 0.48	7.53
Plant height (cm) 249.00 157-325 10.25 1193.12 2318.83 17.93 19.34 85.95 85.26 34.24 109.27 43.88 Ear height (cm) 154.53 97-218 8.93 1297.77 1393.08 23.31 24.15 93.16 71.63 46.35 91.79 59.40 Baby corn yield 341.73 211-500 3.66 8562.70 8641.02 27.08 27.15 99.09 189.76 55.53 243.18 71.16 Baby corn yield 341.73 211-500 3.70 85.62 86.42 27.03 27.15 99.07 189.76 55.53 243.18 71.16 Baby corn yield 34.23 21.13-50.09 3.70 85.62 86.42 27.03 27.15 99.07 18.97 55.42 21.23 71.02 Baby corn yield vith husk (q/ha) 10.18 5.91-15.03 3.75 8.74 8.81 29.03 29.15 99.07 18.97 55.42 71.77 76.33 71.02 Baby corn yield vith husk (q/ha) 10.18 5.91-15.03 3.75 </td <td>Total number of leaves</td> <td>13.47</td> <td>12-15.5</td> <td>3.77</td> <td>0.45</td> <td>0.58</td> <td>4.96</td> <td>5.63</td> <td>77.54</td> <td>1.21</td> <td>8.99</td> <td>1.55</td> <td>-11.53</td>	Total number of leaves	13.47	12-15.5	3.77	0.45	0.58	4.96	5.63	77.54	1.21	8.99	1.55	-11.53
Ear height (cm)154.5397-2188.931297.771393.0823.3124.1593.1671.6346.3591.7959.40Baby corn yield341.73211-5003.668562.708641.0227.0827.2099.09189.7655.53243.1871.16Baby corn yield341.73211-5003.7085.6286.4227.0327.1599.0718.9755.4221.2371.02Baby corn yield34.2321.13-50.093.7085.6286.4227.0327.1599.0718.9755.4221.2371.02Baby corn yield10.185.91-15.033.758.748.8129.0329.1599.126.0659.557.7776.33Without husk (q/ha)10.185.91-15.033.758.748.8129.0329.1599.126.0659.557.7776.33	Plant height (cm)	249.00	157-325	10.25	1193.12	2318.83	17.93	19.34	85.95	85.26	34.24	109.27	43.88
Baby corn yield 341.73 211-500 3.66 8562.70 8641.02 27.08 27.20 99.09 189.76 55.53 243.18 71.16 Baby corn yield with husk (q/ha) 34.23 21.13-50.09 3.70 85.62 86.42 27.03 27.15 99.07 18.97 55.42 71.03 Baby corn yield with husk (q/ha) 34.23 21.13-50.09 3.70 85.62 86.42 27.03 27.15 99.07 18.97 55.42 71.03 Baby corn yield with husk (q/ha) 10.18 5.91-15.03 3.75 8.74 8.81 29.03 29.15 99.12 6.06 59.55 7.77 76.33 without husk (q/ha) 10.18 5.91-15.03 3.75 8.74 8.81 29.03 29.15 99.12 6.05 7.77 76.33	Ear height (cm)	154.53	97-218	8.93	1297.77	1393.08	23.31	24.15	93.16	71.63	46.35	91.79	59.40
Baby corn yield 34.23 21.13-50.09 3.70 85.62 86.42 27.03 27.15 99.07 18.97 55.42 21.23 71.02 With husk (q/ha) 34.23 21.13-50.09 3.70 85.62 86.42 27.03 27.15 99.07 18.97 55.42 21.23 71.02 Baby corn yield 10.18 5.91-15.03 3.75 8.74 8.81 29.03 29.15 99.12 6.06 59.55 7.77 76.33 without husk (q/ha) 10.18 5.91-15.03 3.75 8.74 8.81 29.03 29.15 99.12 6.06 59.55 7.77 76.33	Baby corn yield (g/sqm)	341.73	211-500	3.66	8562.70	8641.02	27.08	27.20	60.09	189.76	55.53	243.18	71.16
Baby corn yield Without husk (q/ha) 10.18 5.91-15.03 3.75 8.74 8.81 29.03 29.15 99.12 6.06 59.55 7.77 76.33	Baby corn yield with husk (q/ha)	34.23	21.13-50.09	3.70	85.62	86.42	27.03	27.15	99.07	18.97	55.42	21.23	71.02
	Baby corn yield without husk (q/ha)	10.18	5.91-15.03	3.75	8.74	8.81	29.03	29.15	99.12	6.06	59.55	17.7	76.33
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