in the *Rabi*-summer season. The yield potential is naturally higher than any other season. There are suitable varieties for *kharif* seasons *viz*., VRI 2, VRI 3 and VRI 4 but only one variety *viz*., VRI Gn 5 is found suitable for *Rabi*/ summer season. But this variety has the disadvantage of dormancy and has high oil content which reduces the germination percent very fast during storage. Hence to over come above defects, a culture *viz*., ICGV 92093 has been identified and found suitable for *rabi*-summer season.

The culture ICGV 92093 is a Virginia type maturing in 100-105 days. It is a derivative of the cross ICGV 86055 and ICGV 86699. In station trials, it has recorded a mean dry pod yield of 3152 kg/ha over past five seasons compared to 2679 kg/ha by VRI 4 and 2765 kg for VRI Gn 5 checks. The kernels of the culture ICGV 92093 are medium bold in size with rose testa colour. The shelling outturn is 74.2 per cent and oil content is 49.2% compared to VRI Gn 5 (51.5%). It has moderate resistant to late spot (3.8) and resistant to rust (2.4) (Table 1). Hence, it was forwarded to MLT testing.

During 2002, the culture ICGV 92093 has recorded a mean dry pod yield of 2140 kg/ha registering 22.8 % over VRI Gn 5 (1742 kg/ha) in Multilocation trial tested in eight locations (Table 2). Hence, this entry is proposed for ART testing and in AICRP trials.

During 2002-2003, the culture ICGV 92093 has recorded an average dry pod yield of 4571 kg/ha over eleven locations in MLT in *rabi*-summer seasons and registering 45% increased yield over the best check VRI Gn 5. Hence, this culture is best suited for *rabi*-summer season.

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Research Notes

Correlation and path analysis in brinjal *(Solanum melongena* L.)

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In Tamil Nadu, brinjal is grown over an area of 10,418 ha with 81,820 tonnes of an annual production (Anon, 2001). The study on genotypic association among yield and its component traits and the direct and indirect effects of the different components are invariably useful in improving selection efficiency. In brinjal, this information will be useful for selecting superior segregants from advanced generations. Hence an attempt was made to gather information on correlation between yield and its component characters and among the component characters as well as their direct

Table 1. Genotypic correlation coefficients in brinjal F_6 population of EP 65 x *S.viarum*

Characters	Plant height	Branches plant^{-1}	Mean fruit weight	Fruit length	Fruit girth	Fruit number plant^{-1}	Fruit borer infestation	Shoot borer infestation	Marketable yield plant^{-1}
Plant height	1.000	0.826**	0.810**	0.953**	0.349	0.990**	-0.061	-0.421	0.736**
Branches plant^{-1}		1.000	0.523*	0.835**	0.340	0.847**	-0.023	-0.076	0.478*
Mean fruit weight			1.000	0.834*	-0.073	0.285	-0.350	-0.670**	0.941**
Fruit length				1.000	0.233	0.918*	0.018	-0.400	0.743**
Fruit girth					1.000	-0.006	-0.468*	-0.173	0.012
Fruit number plant^{-1}						1.000	-0.058	0.107	0.383
Fruit borer infestation							1.000	-0.151	-0.268
Shoot borer infestation								1.000	-0.543*
Marketable yield plant^{-1}									1.000

* Significant at P=0.05; ** Significant at P=0.01

Table 2. Direct and indirect effects of yield components on marketable yield in brinjal F_6 population EP65 x *S.vianim*

Characters	Plant height	Branches plant^{-1}	Mean fruit weight	Fruit length	Fruit girth	Fruit number plant^{-1}	Fruit borer infestation	Shoot borer infestation	Genotypic correlation with marketable yield
Plant height	**-0.2445**	0.0450	0.3409	0.4507	-0.0471	0.0679	0.0166	0.1060	0.7360
Branches plant^{-1}	-0.2020	**0.0545**	0.2202	0.3950	-0.0672	0.0523	0.0062	0.0191	0.4780
Mean fruit weight	-0.1980	0.0285	**0.4210**	0.3944	0.0144	0.0176	0.0944	0.1687	0.9410
Fruit length	-0.2329	0.0455	0.3509	**0.4731**	-0.0460	0.0567	-0.0049	0.1007	0.7430
Fruit girth	-0.0583	0.0186	-0.0306	0.1103	**-0.1974**	-0.0004	0.1260	0.0437	0.0120
Fruit number plant^{-1}	-0.2690	0.0462	0.1202	0.4345	0.0013	**0.0617**	0.0156	-0.0269	0.3830
Fruit borer infestation	0.0150	-0.0013	-0.1475	0.0086	0.0923	-0.0036	**-0.2696**	0.0381	-0.2680
Shoot borer infestation	0.1028	-0.0041	-0.2819	-0.1890	0.0342	0.0066	0.0408	**-0.2520**	-0.5430

Bold letters indicate direct effects

and indirect contribution towards yield is essential for yield improvement in brinjal.

The material comprised of F_6 population of brinjal interspecific cross between EP 65 x *Solanum viarum* (Wild species of brinjal which is resistance to shoot and fruit borer). One hundred plants of the cross were raised at a spacing of 60 x 60 cm during March 2004 at College Orchard, Horticultural College and Research Institute, Tamil Nadu Agricultural University, Coimbatore. Data were recorded on plant height, number of branches per plant, mean fruit weight, fruit length, fruit girth, number of fruits per plant, fruit borer infestation, shoot borer infestation and marketable yield per plant on individual plant basis. Genotypic correlation was computed as per the method suggested by Johnson *et al.* (1955). The path analysis was done as per the procedure outlined by Dewey and Lu (1959).

Genotypic correlation coefficients between marketable yield and its component characters are presented in Table 1. The correlation studies in the present investigation revealed that the marketable yield per plant recorded positive correlation with plant height (0.736), branches per plant (0.478), mean fruit weight (0.941), fruit length (0.743) and fruit number per plant (0.383). Fruit borer infestation showed negative relationship with plant height, branches per plant, mean fruit weight, fruit girth and fruit number per plant. It showed that all the yield attributing traits were retarded by fruit borer infestation. So the present investigation revealed that lesser fruit borer infestation increased the marketable yield. The borer free plants or plants with lesser fruit borer infestation were selected and forwarded to next generation. These results are in accordance with Daliya and Wilson (2002) and Thangamani (2003).

The direct and indirect effects of yield components on marketable yield are presented in Table 2. The results indicated that considerable positive direct effect was exerted by branches per plant (0.0545), mean fruit weight (0.4210), fruit length (0.4731) and number of fruits per plant on marketable yield. These results are in accordance with the earlier findings of Ahmed *et al.* (1999) and Daliya and Wilson (2002). Negative direct effect on marketable yield by plant height, fruit girth, shoot and fruit borer infestation was observed in this study. This is in agreement with Preneetha (2002). The path analysis exhibited that the traits like number of branches per plant, fruit length, number of fruits per plant and mean fruit weight were the most important yield contributing characters owing to their high direct effects and indirect effects *via* other traits.

It can be concluded that mean fruit weight, fruit length and number of fruits per plant were the major contributing characters towards marketable yield and selection based on these characters can be effective for developing high yielding brinjal varieties.

References

Ahmed, N., Mehdi, M. and Narayan, R. (1999). Genetics of quality traits in eggplant *(Solanum melongena* L.). *Capsicum Eggplant News Letter,* **19:** 123-126.

Anonymous, (2001). Season and crop report of Tamil Nadu. Department of Economics and Statistics. Chennai.

Daliya, T. and Wilson, D. (2002). Correlation and path analysis in brinjal. *Madras Agric. J.,* **89(10-12):** 675-677.

Dewey, D.R. and Lu, K.H. (1959). A correlation and path coefficient analysis of components

of crested wheat grass seed production. *Agron. J.,* **51:** 515-518.

Johnson, W.W., Robinson, H.F. and Comstock, R.E. (1955). Genotypic and phenotypic correlation in soybeans and their implications in selection. *Agron. J.,* **47:** 477-482.

Preneetha, S. (2002). Breeding for shoot and fruit borer (*Leucinodes orbomdis* Guen.) resistance in brinjal (*Solanum melongena* L.). Ph.D. (Hort.) Thesis, Tamil Nadu Agricultural University, Coimbatore..

Thangarnani, C. (2003). Evaluation of F_1 brinjal (*Solanum melongena* L.) for yield and quality. M.Sc. (Hort.) Thesis, Tamil Nadu Agricultural University, Coimbatore.

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Research Notes

Variability and Heritability in Segregating Generation of Eggplant *(Solanum melongena* L.)

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By resorting to hybridization, attempts are being made to widen the variability and to evolve high yielding genotypes. Inheritance of yield is governed by polygenes, which include heritable and non-heritable variations. Estimates of heritability along with genetic advance are helpful to breeder in exercising the selection effectively. The present study was undertaken to evaluate F_4 segregating population of the four interspecific crosses to assess the magnitude of variability and to understand heritable component of variation in eggplant.

The F_4 populations of four interspecific eggplant crosses *viz*., EP 45 x *Solamun viarum* (cross A), EP 65 x *S. viarum* (cross B), CO 2x *S.viarum* (cross C) and MDU 1 x *S. viarum* (cross D) were raised at college orchard, Tamil Nadu Agricultural University, Coimbatore in a randomized block design and replicated thrice. In each replication, there were 30 plants per cross raised at a spacing of 60 x 60 cm during March 2003. The observations on the characters namely, plant height, number of branches per plant, mean fruit weight, fruit length, fruit girth, number of fruits per plant, fruit borer infestation, shoot borer infestation, calyx length and marketable yield per plant were recorded on individual plant basis. Phenotypic coefficient of variation (PCV) and genotypic coefficient of variation (GCV) were calculated by following the method of Burton (1952). Heritability estimates as per the method of Lush (1940) and genetic advance as per the method of Johnson *et al.* (1955) were calculated.

The GCV and PCV, heritability and genetic advance as per cent of mean for various