IASET: Journal of Applied and
Natural Sciences (IASET: JANS)
ISSN(P): Applied; ISSN(E): Applied
Vol. 1, Issue 1, Jan - Jun 2016, 25-32

International Academy of Science, Engineering and Technology
Connecting Researchers; Nurturing Innovations

CORRELATION AND PATH COEFFICIENT ANALYSIS IN CHILLI FOR YIELD AND YIELD ATTRIBUTING TRAITS

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ABSTRACT

Association of correlation and cause effect analysis in six parents and their thirty hybrids from a diallel design were evaluated for fruit yield and its components. Statistically, significant variation was observed among tested materials for all the characters studied. Number of fruits per plant, fruit length, individual fruit weight, fruit girth, plant height and seeds per fruit were the major characters contributing to yield as these traits were significantly and positively associated with dry pod yield per plant. Maximum contribution of fresh fruits yield per plant to dry pod yield was observed in path analysis, which was followed by individual dry pod weight, number of fruits per plant, number of harvest, days to 50% flowering, pedicle length and number of branches per plant through higher direct effect. So, for increasing fruit yield per plant a chilli hybrid should have higher number of fruits per plant, coupled with large fruit length, high fruit girth and high average fruit weight.

KEYWORDS: Chilli, Correlation, Dry Pod Yield, Path Coefficient

INTRODUCTION

Chilli (*Capsicum annuum* L.) is an important vegetable and spice crop grown in all parts of tropical and subtropical regions of the world**.** Owing to its high cash value and consumption rate, the annual trade of chilli is approximately 17 per cent of total spice trade in the world (Krishna *et al*. 2007). Chilli is grown in all parts of India and is largely cultivated in Andhra Pradesh, Karnataka, Maharashtra, Madhya Pradesh, Orissa, West Bengal, Rajasthan and Tamil Nadu. Chilli is an important exportable spice of India and India exports dried forms of chilli and earning 141,667 USD annually. However, low productivity of chilli is a major concern. Hence, if is highly important to develop high yielding varieties/hybrids to meet out the increasing demand. Improving of chilli through developing high yielding varieties with desirable qualities could reverse the existing trend of low productivity of this crop (Sreelathakumary and Rajamony, 2002; Verma *et al.*, 2004). To increase the yield, genetic information and efficient breeding methods are required. Knowledge of inter character relationship is very important in plant breeding for indirect selection for characters that are not easily measured. However, under complex situation, correlation alone become insufficient to explain relationships among characters and thus path analysis of economic yield components with yield is important. With this view the field investigation was carried out with the following objectives: to study the character association and direct and indirect effect of independent characters on dependent chilli yield.

MATERIALS AND METHODS

The present investigation was carried out in chilli at the College Orchard, Horticultural College and Research

Institute, Periyakulam during 2012-2014. The experimental materials consisting of six parental lines Arka Lohit (P_1), K1 (P_2), LCA 334 (P_3), LCA 625 (P_4), PKM1(P_5) and Pusa Jwala (P_6). These parents were crossed in all possible combination by 6 x 6 diallel cross and obtained 30 F_1 hybrids. Seeds of all 30 F_1 hybrids and their six parents were raised in nursery and forty day old seedlings were transplanted at spacing of 75 x 45 cm. the experiment was laid out in a randomized block design and replicated thrice. Biometrical observation on plant height (cm), number of branches per plant, days to first flowering, days to 50% flowering, fruit length (cm), fruit girth (cm), pedicle length (cm), individual fresh fruit weight(g), individual dry pod weight (g), number of fruits plant, number of harvest, fresh fruit yield per plant (g), dry pod yield per plant (g), seed weight per pod (g), number of seeds per pod and thousand seed weight (g) were taken from randomly selected fifteen plants from each treatment and replication. The mean data obtained from the result were used for statistical analysis to determine the phenotypic and genotypic correlation coefficients according to the formulae given by Johnson *et al.* (1955). Path coefficient analysis was carried out as per the procedure given by Wright (1921) and illustrated by Dewey and Lu (1959).

RESULT AND DISCUSSIONS

The estimates of phenotypic and genotypic correlation coefficient (Table 1) depicted that the genotypic correlation were higher than the corresponding phenotypes ones for all the character combinations establishing predominant role of heritable factors. This might be due to the masking effect of the environment in the total expression of the genotypes resulting in reduced phenotypic association. Dry pod yield per plant was positively and significantly correlated with plant height (0.393), fruit length (0.657), fruit girth (0.537), individual fruit weight (0.639) individual dry pod weight (0.424), number of fruits per plant (0.912), number of harvest (0.543), fresh fruit yield per plant (0.936) and number of seeds per pod (0.386) at both genotypic and phenotypic level. The results indicated that these traits have certain inherent relationship with yield and suggested their importance in determining fruit yield. This is in concurrence with the findings of Warade *et al*. (1996). Ganeshreddy *et al* (2008) who have observed significant correlation of various yield attributing traits with fruit yield. Whereas the non-significant positive correlation was noticed for number of branches per plant (0.300), pedicle length (0.122) seed weight per fruit (0.158) and thousand seed weight (0.218).

Thousand seed weight was positively and significantly correlated with days to flowering (0.685), days to 50% flowering (0.576), pedicle length (0.486), individual fruit weight (0.469) individual dry pod weight (0.551), seed weight per pod (0.670) and number of seeds per fruit (0.335). Similarly number of seeds per fruit was also positively and significantly correlated with plant height (0.340), number of branches per plant (0.398), fruit length (0.569), fruit girth (0.407) individual fruit weight (0.494) individual dry pod weight (0.432), number of harvest (0.392), fresh fruit yield per plant (0.414) and seed weight per fruit (0.610). The trait seed weight per fruit showed positive and significant correlation only with individual dry pod weight (0.483).

Estimated fresh fruit yield per plant conferred positive and significant correlation with plant height (0.382), number of branches per plant (0.347) fruit length (0.742), fruit girth (0.489) individual fruit weight (0.780), number of fruits per plant (0.888) and number of harvest (0.619). These findings were consonance with Sreelathakumary and Rajmony (2002) and Munshi *et al*., (2002). Positive association of average fruit weight and yield was also reported by Munshi and Behera (2000), Leaya and Khader (2002) and Ullah *et al*., (2011). The number of harvest was also positively and significantly correlated with plant height (0.614), fruit length (0.566), fruit girth (0.396), individual fruit weight (0.614) and number of fruits per plant (0.502). Number of fruits per plant is positively and significantly correlated with

fruit length (0.524), fruit girth (0.332), pedicle length (0.774) and individual fruit weight (0.427). Kumar *et al*., (2003) Krishnakumar *et al.*, (2003) and Ullah *et al*., (2011) emphasized the importance of fruits per plant in determining fruit yield in chilli.

Individual dry pod weight was positively and significantly correlated with fruit length (0.411), fruit girth (0.602) and individual fruit weight (0.600). Individual fruit weight was positively and significantly correlated with plant height (0.399), fruit length (0.768) and fruit girth (0.586). The positive and significant association of fruit length and fruit girth sustained that more length and girth of fruit increases weight of fruit thus resulted in increased total fruit yield per plant. Fruit girth was positively and significantly correlated with fruit length (0.624). The fruit length was positively and significantly correlated with plant height (0.456) and number of branches per plant (0.335). This is in agreement with the findings of Ibrahim *et al*. (2001) and Mubarak (2002). Days to 50% flowering was positively and significantly correlated with days to first flowering (0.922). Negative association of days to first flowering leads the early flowering to get early fruits per plants similar results were reported by Basavaraj (1997) and Dahiya *et al*. (1991). Whereas number of branches per plant shows significant positive correlation with plant height (0.527) due to more number of branches per plant provides more number of fruits, Shirsat (1994) also reported that more number of branches gives more number of fruits in their results.

Path coefficient analysis is a method of investigating such cause and effect relationships through partitioning correlation into direct and indirect effects. The perusal of data (Table 2) revealed that the highest direct and positive effect on dry pod yield per plant was exerted by fresh fruit yield per plant (0.854) followed by individual dry pod weight (0.495) number of fruits per plant (0.313), number of harvest (0.129) days to 50% flowering (0.125), pedicle length (0.069) and number of branches per plant (0.033). This indicated that more fruits per plant were highly reliable component on fruit yield which was supported by Kumar *et al*., (2003) Yadwad (2005) and Ullah *et al*. (2011). While the other traits viz., individual fresh fruit weight (-0.474) followed by days to flowering (-0.089), number of seeds per pod (-0.053), thousand seed weight (-0.035), fruit girth (-0.030), plant height (-0.025) and fruit length (-0.022) exerted direct but negative effects.

Plant height influenced the dry pod yield per plant indirectly and positively through fresh fruit yield per plant (0.326), number of fruits per plant (0.101), individual dry pod weight (0.100), number of harvest (0.079), pedicle length (0.018) and number of branches per plants (0.018). Number of branches indirectly influenced the dry pod yield per plant through fresh fruit yield per plant (0.297), number of fruits per plant (0.103), number of harvest (0.040) days to flowering (0.017) and thousand seed weight (0.009). Days to first flowering influenced dry pod yield per plant indirectly and positively through individual dry pod weight (0.128), days to 50% flowering (0.115), pedicle length (0.017), number of seeds per fruit (0.016), fruit girth (0.003), fruit length (0.002) and plant height (0.001). Days to 50% flowering influenced dry pod yield per plant indirectly and positively through pedicle length (0.015) and number of seeds per pod (0.009).

Fruit length had indirect influence on the dry pod yield per plant through fresh fruit yield per plant (0.634), individual dry pod weight (0.204), number fruit per plant (0.164), number of harvest(0.073), pedicle length (0.016), number of branches per plant (0.011), days to first flowering (0.006) and days to50% flowering (0.002). Fruit girth showed indirect influence on the dry pod yield per plant through fresh fruit yield per plant (0.417), individual dry pod weight (0.298), number of fruits per plant (0.104), number of harvest (0.051) number of branches per plant (0.008), days to flowering (0.008) and days to 50% flowering (0.004).

Pedicle length had influenced the dry pod yield per plant indirectly and positively through fresh fruit yield per plant (0.059), individual dry pod weight (0.057), days to 50% flowering (0.028), number of fruit per plant (0.024) and number of harvest (0.009). Individual fresh fruit weight influenced the dry pod yield per plant indirectly and positively through fresh fruit yield per plant (0.667), individual dry pod weight (0.297), number of fruit per plant (0.134), number of harvest (0.079), days to 50% flowering (0.020), pedicle length (0.010), and number of branches per plant (0.006). Individual dry pod weight influenced the dry pod yield per plant indirectly and positively through fresh fruit yield per plant (0.254), days to 50% flowering (0.027), number of harvest (0.020), pedicle length (0.008) and number of fruit per plant (0.006). Similar findings were reported earlier by Sahoo *et al*., (1990).

Number of fruits per plant influenced the dry pod yield per plant indirectly and positively through fresh fruit yield per plant (0.759), number of harvest (0.065), days to flowering (0.022), number of branches per plant (0.011) individual dry pod weight (0.009) and pedicle length (0.005). Number of harvest influenced the dry pod yield per plant indirectly and positively through fresh fruit yield per plant (0.528), number fruits per plant (0.157), individual dry pod weight (0.077), days to first flowering (0.014), number of branches per plant (0.010) and pedicle length (0.005). Fresh fruit yield per plant influenced the dry pod yield per plant indirectly and positively through number of fruits per plant (0.278), individual dry pod weight (0.147), number of harvest (0.080), days to flowering (0.013), number of branches per plant (0.012) and pedicle length (0.005).

Seed weight per fruit influenced the dry pod yield per plant indirectly and positively through individual dry pod weight (0.239), fresh fruit yield per plant (0.113), days to 50% flowering (0.008), pedicle length (0.004), number of harvest (0.004) and number of branches per plant (0.002). Number of seeds per pod influenced the dry pod yield per plant indirectly and positively through fresh fruit yield per plant (0.353), individual dry pod weight (0.214), number fruits per plant (0.069), number of harvest (0.051), days to flowering (0.028) and pedicle length (0.010). Thousand seed weight influenced the dry pod yield per plant indirectly and positively through individual dry pod weight (0.272), fresh fruit yield per plant (0.150), days to 50% flowering (0.072), number of harvest (0.041), pedicle length (0.034).

From this study it could be concluded that, the correlation studies with 30 hybrids of chill revealed the importance of number of fruits per plant, fruit length, individual fresh fruit weight, fruit girth, plant height and seeds per fruit in determining dry pod yield. The path coefficient analysis brought out the individual dry pod weight, number of fruits per plant, number of harvest, days to 50% flowering, pedicle length and number of branches per plant as major yield components, which could be considered selection indices for improvement.

REFERENCES

1. Basavaraj, N. 1997. Genetic Variability and genetics of quantitative and quality characters in green chilli *(Capsicum annuum* L.) genotypes. *Ph.D.Thesis*, University of Agricultural Sciences, Dharwad, India.
2. Dahiya, M.S., M.L. Pandita and R.N. Vashista.1991. Correlation and path analysis in chilli *(Capsicum frutescence). Haryana Journal of Horticulture Sciences.* **20:** 244-229.
3. Dewey, D.R. and K.H. Lu. 1959. A correlation and path coefficient analysis of components of created wheat grass seed production *Agronomy Journal.* **51:** 515-518.

4. Ganeshreddy, M., H. Kumar and P. Salimath. 2008. Correlation and path analysis in chilli. *Karnataka J. Agric. Sci.* **21:** 259-261.

5. Ibrahim, M., V.M. Ganigar and S.T. Yenjerappa. 2001. Genetic variability, heritability, genetic advance and correlation studies in chilli. *Karnataka Journal of Agricultural Sciences*, **14:** 784-787.

6. Johnson, H.W., H.F. Robinson and R.E. Comstock. 1955. Genotypic and phenotypic correlation in soybean and their implication in selection. *Agronomy Journal.* **47:**477-483..

7. Krishna, C. Ukkund, M.P. Patil, M.B. Madalageri, Ravindra Mulage and R.C Jagadeesh. 200**7.** Character association and path analysis studies in green chilli for yield and yield attributes (*Capsicum annuum* L.) *Karnataka J. Agric. Sci.* **20(1):** (99 -101).

8. Krishnakumar, B., A.D. Munshi, Subodh Jyoshi and Charanjit kumar. 2003. Correlation and path coefficient analysis for yield and bio-chemical characters in Chilli (*Capsicum annuum* L.). *Capsicum Egg plant Newsletter.* **22:** 67 - 70.

9. Kumar, B.K., A.D. Munshi, S. Joshi and C. Kaur. 2003. Correlation and path coefficient analysis for yield and biochemical characters in chilli. *Capsicum and Eggplant Newsletter*. **22:** 67-70.

10. Leaya, J. and K.M.A. Khader. 2002. Correlation and path coefficient analysis in chilli (*Capsicum annuum* L.). *Capsicum and Eggplant Newsletter*. **21:** 56-59.

11. Mubarak, 2002. Evaluation of chilli (*Capsicum annuum* L.) germplasm for productivity, its component traits and resistance to some biotic stresses, *M.Sc. (Agri.) Thesis*, University of Agricultural Sciences, Dharwad.

12. Munshi, A. D. and T.K. Behera, 2000. Genetic variability, heritability and genetic advance for some traits in chillies (*Capsicum annuum* L.). *Vegetable Sci*. **27:** 39- 41

13. Munshi, A.D., T.K. Behra, and S. Gyanedra. 2002. Correlation and path coefficient analysis in chilli. *Indian Journal of Horticulture.* **57(2):** 157-159.

14. Sahoo, S.C., S.N Mishra and S.M. Mishra. 1990. Association of traits in segregating population of chilli (*Capsicum annuum* L.). *Indian Journal of Agricultural Sciences*. **60:** 233-236.

15. Shirsat, S. S. 1994. Genetic variability and divergence studies in chilli *(Capsicum annuum* L.) *M.Sc. thesis,* University of Agricultural Sciences, Dharwad, India.

16. Sreelathakumary, I and L. Rajamony. 2002. Variability, heritability and correlation studies in chilli (*Capsicum* spp.) under shade. *Indian Journal of Horticulture.* **69:** 77-83.

17. Ullah M.Z., M.J. Hasan, A.I. Saki, M.A. Rahman and P.L. Biswas. 2011. Association of correlation and cause-effect analysis among morphological traits in chilli (*Capsicum frutescens L.*). *Intl. J. BioRes.* **10(6):** 19-24.

18. Verma, S. K., R.K. Singh and R.R. Arya, 2004**.** Genetic variability and correlation studies in chillies. *Progressive Horticulture.* **36:** 113-117.

19. Warade, S.D., M.M. Dhumal and K.G. Shinde. 1996. Correlation studies in chilli. *J. Maharashtra Agric. Univ.* **21:** 55-57.

20. Wright, S. 1921. Correlation and causation. *J. Agric. Res*. **20:** 557-587

21. Yadawad, A. 2005. Genetic studies in chilli (*Capsicum annuum* L.) with particular reference to leaf curl complex. *M.Sc., (Agri.) Thesis*, University of Agricultural Sciences, Dharwad.

APPENDIES

Table 1: Genotypic and Phenotypic Correlation among Different Pairs of Yield and Yield Contributing Characters for Different Hybrids of Chilli

Characters		PH	NBPP	DF	DFF	FL	FG	PL	IFW	IDPW	NFPP	NH	FFYPP	SWP	NSP	TSW	DFYPP
PH	rG	1.00	0.527**	-0.040	-0.000	0.456**	0.326	0.253	0.399*	0.201	0. 323	0.614**	0.382*	0.210	0.340*	-0.000	0.393*
	rP	1.00	0.503**	-0.040	-0.002	0.438**	0.299	0.235	0.372*	0.180	0.309	0.489**	0.368*	0.212	0.302	0.041	0.379*
NBPP	rG		1.00	-0.194	-0.138	0.335*	0.232	-0.004	0.179	-0.096	0.330	0.309	0.347*	0.060	0.398*	-0.241	0.300
	rP		1.00	-0.185	-0.130	0.319	0.203	-0.008	0.166	-0.724	0.310	0.208	0.328	0.048	0.344*	-0.456	0.283
DF	rG			1.00	0.922**	-0.066	-0.088	0.238	0.120	0.259	-0.256	-0.156	-0.143	0.069	-0.310	0.685**	-0.110
	rP			1.00	0.8681**	-0.063	-0.082	-0.225	0.116	0.221	-0.240	-0.140	-0.137	0.065	-0.272	0.243	-0.110
DFF	rG				1.00	0.017	0.031	0.223	0.157	0.214	-0.221	-0.121	-0.107	0.063	-0.166	0.576**	-0.105
	rP				1.00	0.017	0.034*	0.219	0.149	0.206	-0.218	-0.085	-0.105	0.061	-0.157	0.220	-0.103
FL	rG					1.00	0.624**	0.230	0.768**	0.411*	0.524**	0.566**	0.742**	0.307	0.569**	0.193	0.657**
	rP					1.00	0.598**	0.222	0.745**	0.381*	0.517**	0.463**	0.734**	0.290	0.538**	0.066	0.649**
FG	rG						1.00	0.000	0.586**	0.602**	0.332*	0.396*	0.489**	0.053	0.407*	0.049	0.537**
	rP						1.00	-0.009	0.549**	0.553**	0.318	0.289	0.468**	0.045	0.373*	0.031	0.515**
PL	rG							1.00	0.141	0.115	0.774**	0.070	0.069	0.063	0.150	0.486**	0.122
	rP							1.00	0.124	0.088	0.076	0.106	0.068	0.058	0.138	0.198	0.119
IFW	rG								1.00	0.600**	0.427**	0.614**	0.780**	0.256	0.494**	0.469**	0.639**
	rP								1.00	0.530	0.411*	0.490**	0.755**	0.238	0.466**	0.136	0.619**
IDPW	rG									1.00	0.017	0.156	0.297	0.483**	0.432**	0.551**	0.424**
	rP									1.00	0.015	0.117	0.278	0.425**	0.358*	0.232	0.386*
NFPP	rG										1.00	0.502**	0.888**	-0.048	0.221	0.000	0.912**
	rP										1.00	0.411*	0.887**	-0.049	0.210	-0.007	0.910**
NH	rG											1.00	0.619**	0.029	0.392*	0.314	0.544**
	rP											1.00	0.508**	0.042	0.276	0.085	0.445**
FFYPP	rG												1.00	0.132	0.414*	0.175	0.936**
	rP												1.00	0.127	0.394*	0.064	0.935**
SWP	rG													1.00	0.610**	0.670**	0.158
	rP													1.00	0.554**	0.189	0.152
NSP	rG														1.00	0.335*	0.386*
	rP														1.00	0.119	0.368*
TSW	rG															1.00	0.218
	rP															1.00	0.082
DFYPP	rG																1.00
	rP																1.00

***Significant at 5% level and **Significant at 1% level** PH: Plant height (cm), NBPP: Number of branches per plant, DFF: Days to flowering, DFF: Days to 50 per cent flowering, FL: Fruit length (cm), FG: Fruit girth (cm), PL: Pedicle length (cm), IFW: Individual fruit weight (g), IDPW: Individual dry pod weight (g), NFPP: Number of fruits per plant, NH: Number of harvest, FFYPP: Fresh fruit yield per plant, SWP: Seed weight per Pod (g), NSP: Number of seeds per Pod, TSW: Thousand seed weight, DFYPP: Dry pod yield per plant

Table 2: Path Coefficients Showing Direct (Diagonal Values in Bold) and Indirect Effects (Off Diagonal) Different Characters on Dry Pod Yield in Chilli

	Plant Height (cm)	Number of Branches / plant	Days to Flowering	Days to F 50% Flowering	Fruit Length (cm)	Fruit Girth (cm)	Pedicel Length (cm)	Individual Fresh Fruit Weight (g)	Individual Dry Pod Weight(g)	Number of Fruits / plant	Number of Harvest	Fresh Fruit Yield / Plant	Seed weight / Pod(g)	Number of Seeds / Pod	1000 Seed Weight (g)	Genotypic correlation with yield
Plant Height (cm)	**-0.025**	0.018	0.004	0.000	-0.010	-0.010	0.018	-0.189	0.100	0.101	0.079	0.326	0.000	-0.018	0.000	0.393*
Number Branches / plant	-0.013	**0.033**	0.017	-0.017	-0.008	-0.007	0.000	-0.085	-0.048	0.103	0.040	0.297	0.000	-0.021	0.009	0.300
Days to Flowering	0.001	-0.007	**-0.089**	0.115	0.002	0.003	0.017	-0.057	0.128	-0.078	-0.020	-0.122	0.000	0.016	-0.024	-0.110
Days 50% flowering	0.000	-0.005	-0.082	**0.125**	0.000	-0.001	0.015	-0.074	0.106	-0.069	-0.016	-0.091	0.000	0.009	-0.020	-0.104
Fruit Length (cm)	-0.011	0.011	0.006	0.002	**-0.022**	-0.018	0.016	-0.364	0.204	0.164	0.073	0.634	0.000	-0.030	-0.007	0.657**
Fruit Girth (cm)	-0.008	0.008	0.008	0.004	-0.014	**-0.030**	0.000	-0.278	0.298	0.104	0.051	0.417	0.000	-0.022	-0.002	0.537**
Pedicel Length (cm)	-0.006	0.000	-0.021	0.028	-0.005	0.000	**0.069**	-0.067	0.057	0.024	0.009	0.059	0.000	-0.008	-0.017	0.126
Individual Fruit Weight (g)	-0.010	0.006	-0.011	0.020	-0.017	-0.017	0.010	**-0.474**	0.297	0.134	0.079	0.667	0.000	-0.026	-0.017	0.640**
Individual Dry Pod Weight (g)	-0.005	-0.003	-0.023	0.027	-0.009	-0.018	0.008	-0.284	**0.495**	0.006	0.020	0.254	0.000	-0.023	-0.019	0.424**
Number Fruits / Plant	-0.008	0.011	0.022	-0.028	-0.012	-0.010	0.005	-0.202	0.009	**0.313**	0.065	0.759	0.000	-0.012	0.000	0.912**
Number of Harvest	-0.015	0.010	0.014	-0.015	-0.013	-0.012	0.005	-0.291	0.077	0.157	**0.129**	0.528	0.000	-0.021	-0.011	0.543**
Fresh Fruit Yield / plant (g)	-0.010	0.012	0.013	-0.013	-0.017	-0.014	0.005	-0.370	0.147	0.278	0.080	**0.854**	0.000	-0.022	-0.006	0.936**
Seed Weight / Pod (g)	-0.005	0.002	-0.006	0.008	-0.007	-0.002	0.004	-0.121	0.239	-0.015	0.004	0.113	**0.000**	-0.032	-0.024	0.158
Number of Seeds / Pod (g)	-0.009	0.013	0.028	-0.021	-0.013	-0.012	0.010	-0.234	0.214	0.069	0.051	0.353	0.000	**-0.053**	-0.012	0.385*
1000 Seed Weight (g)	0.000	-0.008	-0.061	0.072	-0.004	-0.001	0.034	-0.222	0.272	0.000	0.041	0.150	0.000	-0.018	**-0.035**	0.218
Residue = -0.094																