

CHARACTER ASSOCIATION ANALYSIS IN YIELD AND YIELD COMPONENTS IN BREAD WHEAT (*TRITICUM AESTIVUM* L.) GENOTYPES

Ashok Kumar Malav*¹, B.A. Monpara², Arpit Gaur³ and Shakti S. Bhati⁴

^{1,2,4} Department of Genetics and Plant Breeding, College of Agriculture, J.A.U., Junagadh-363001 (Gujarat)

³ Department of Genetics and Plant Breeding, C. S. A. U. A & T., Kanpur -208002 (U. P.)
Email: ashok3251@gmail.com

Received-05.02.2017, Revised-16.02.2017

Abstract: A study was undertaken to estimate correlation and path coefficient analysis of yield and yield contributing traits in 50 wheat cultivars grown in Randomized Block Design with three replications during *rabi* season 2013-14. The grain yield per plant has significant and positive correlations both at genotypic and phenotypic levels with biological yield per plant, grain weight per main spike, 1000 grain weight and number of grains per main spike. The path coefficient analysis revealed high and positive direct effects of the number of effective tillers per plant, number of grains per main spike, 1000 grain weight, biological yield per plant and harvest index on grain yield per plant. Thus, these traits are to be considered as the most important yield contributors and due emphasis should be given while attempting yield improvement in wheat.

Keywords: Characters, Correlation, Direct & indirect effects, Grain yield

REFERENCES

- Al-Jibouri, H. A.; Miller, P. A. and Robinson, H. F. (1958). Genotypic and environmental variances in upland cotton cross of interspecific origin. *Agron. J.*, **50**: 633-635.
- Das, N. R. (2008). Wheat crop management. Scientific Publication, Jodhpur.
- 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**: 511-518.
- Dixet, P. and Dubey, D. K. (1984). Path analysis in lentil (*Lens culinaris* Med.). *Lens Newsletter*. **11**: 15-17.
- DWR Vision (2030). Published by Project Director, DWR, Karnal.
- Bhushan, B.; Bharti, S.; Ojha, A.; Pandey, M.; Gourav, S. S.; Tyagi, B. S. and Singh, G. (2013). Genetic variability, correlation coefficient and path analysis of some quantitative traits in bread wheat. *J. Wheat Res.*, **5**(1): 24-29.
- Gelalcha, S. and Hanchinal, R. R. (2013). Correlation and path analysis in yield and yield components in spring bread wheat (*Triticum aestivum* L.) genotypes under irrigated condition in Southern India. *African J. Agril. Res.*, **8**(24): 3186-3192.
- Ihsan, K.; Najma, P. and Chowdhry, M. A. (2004). Correlation and path coefficient analysis in bread wheat. *Inter. J. Agril. Biol.*, **6**(4): 633-635.
- Johnson, H. W., Robinson, H. F. and Comstock, R. E. (1955). Genotypic and Phenotypic correlations in soyabeans and their implication in selection. *Agron. J.*, **47**: 477-483.
- Khan, A. J.; Azam, F.; and Ali, A. (2010). Relationship of morphological traits and grain yield in recombinant inbred wheat lines grown under drought conditions. *Pak. J. Bot.*, **42**(1): 259-267.
- Kumar, B.; Gaibriyal, M.; Lal, Ruchi, and Upadhyay, A. (2009a). Genetic variability, diversity and association of quantitative traits with grain yield in bread wheat (*Triticum Aestivum* L.). *Asian J. Agril. Sci.*, **1**(1): 4-6.
- Kumar, B.; Singh, C. M. and Jaiswal, K. K. (2013a). Genetic variability, association and diversity studies in bread wheat (*Triticum aestivum* L.). *The Bioscan*. **8**(1): 143-147.
- Kumar, R.; Gaurav, S. S.; Bhushan, B. and Pal, R. (2013b). Study of genetic parameters and genetic divergence for yield and yield components of bread wheat (*Triticum aestivum* L.). *J. Wheat Res.*, **5**(2): 39-42.
- Kumar, B.; Dhananjay and Singh, B. N. (2014). Evaluation of genetic divergence in wheat (*Triticum aestivum* L.) germplasms. *The Bioscan*. **9**(2): 755-758.
- Mohammadi, M.; Sharifi, P.; Karimizadeh, R.; Kazem, M. and Shefazadeh, M. K. (2012). Relationships between grain yield and yield components in bread wheat under different water availability (dryland and supplemental irrigation conditions). *Not. Bot. Hort. Agrobiol.* **40**(1): 195-200.
- Munir, M.; Chowdhry, M. A. and Malik, T. A. (2007). Correlation studies among yield and its components in bread wheat under drought conditions. *Intern. J. Agril. Biol.*, **9**(2): 287-290.
- Nagi, K.; Sharma, R. N., Nandah, C. and Kanwer, S. S. (2013). Genetic variability and association studies among yield attributes in Pigeon Pea (*Cajanus cajan* (L.) Millsp.) accessions of Bastar. *The Ecoscan* **6**: 267-271.
- Rangare, N. R.; Krupakar, A.; Kumar, A. and Singh, S. (2010). Character association and

*Corresponding Author

- component analysis in wheat (*Triticum aestivum* L.). *Elect. J. Pl. Bre.*, **1**(3): 231-238.
- Robinson, H. F.; Comstock, R. E. and Harvey, P. H.** (1951). Genotypic and phenotypic correlation's in wheat and their implications in selection. *Agronomy Journal*, **43**: 282- 287.
- Sen, C. and Toms, B.** (2007). Character association and component analysis in wheat (*Triticum aestivum* L.). *Crop Res. Hisar*. **34**(1/3): 166-170.
- Sharma, V.; Pawar, I. S. and Munjal, R.** (2006). Variability parameters, correlation and path coefficient for yield and its component and quality traits in bread wheat. *Natl J. Pl. Improv.*, **8**: 153-155.
- Singh, V.; Singh, D. and Singh, N.** (2003). Studies on correlation and path coefficient analysis in bread wheat (*Triticum aestivum* (L.) em. Thell). *Natl. J. Pl. Improv.*, **5**: 106-109.
- Singh, S. K.; Singh, B. N.; Singh, P. K.; Sharma, C. L.** (2008). Correlation and path analysis in some exotic lines in wheat (*Triticum aestivum* L.). *New Botanist*. **35**(1/4): 89-94.
- Singh, K.; Sharma, S. N. and Sharma, Y.** (2011). Effect of high temperature on yield attributing traits in bread wheat. *Bangladesh J. Agril. Res.*, **36**(3): 415-426.
- Singh, A. K.; Singh, S. B.; Singh, A. P. and Sharma, A. K.** (2012). Genetic variability, character association and path analysis for seed yield and its component characters in wheat (*Triticum aestivum* L.) under rainfed environment. *Indian J. Agric. Res.*, **46**(1): 48-53.
- Sokoto, M. B.; Abubakar, I. U. and Dikko, A. U.** (2012). Correlation analysis of some growth, yield, yield components and grain quality of wheat (*Triticum aestivum* L.). *Niger. J. Basic Appl. Sci.* **20**(4): 349-356.
- Yadav, A. K.; Singh, P. K. and Mishra, S. B.** (2009). Genetic variability and association of quantitative traits with grain yield in wheat (*Triticum aestivum* L. and *Triticum durum* Desf.). *RAU. J. Res.*, **19**(1/2): 29-36.
- Yadav, D. K.; Pawar, I. S.; Sharma, G. R. and Lamba, R. A. S.** (2006). Evaluation of variability parameters and path analysis in bread wheat. *Natl. J. Pl. Improv.*, **8**(1): 86-89.