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| cd | def | / abcd | / fghij | ŷ/ b | ŷ/ f | cde | fgh | | K18×K3651/1 |
| cd | def | / bcde | / ghij | ŷ/ b | ŷ/ def | cdef | efgh | | K18×A679 |
| ŷŷ ^{abcd} | ef | / ŷe | / abcde | ŷ/ b | ŷ/ ef | ŷ ^a | abcdef | | K18×K166A |
| a | a | / e | ŷ ⁱ | ŷ/ b | ŷ/ a | abcd | abcde | | K18×K166B |
| abcd | bcde | / abcd | / ab | ŷ/ b | ŷ/ f | cd | ŷ abc | | K18×K3640/5 |
| abcd | a | / ŷabcd | ŷ/ j | ŷ/ b | ŷ/ abcd | cde | abcdef | | K18×K47/2-2-1-21-2-1-1-1 |
| ab | bcde | / cde | ŷ/ ij | ŷ/ b | ŷ/ cdef | bcd | a | | K18×K19 |
| ŷ ^d | f | / ŷ ^{abcd} | / abcdefg | ŷ/ b | ŷ/ cdef | cde | abcdef | | K3651/1×A679 |
| abcd | def | / ŷ ^{ab} | / abcdef | ŷ/ b | ŷ/ def | cdef | abcdef | | K3651/1×K166A |
| abcd | cdef | / abc | / bcdefg | ŷ/ b | ŷ/ ef | def | ŷ bcdefg | | K3651/1×K166B |
| bcd | def | / ŷ ^a | / abcd | ŷ/ b | ŷ/ cdef | def | fgh | | K3651/1×K3640/5 |
| ŷ ^{abcd} | def | / abcd | / abcd | ŷ/ b | ŷ/ f | ŷ ^{def} | fgh | | K3651/1×K47/2-2-1-21-2-1-1-1 |
| abcd | ŷ ^{cdef} | / ŷ ^{abc} | / abc | ŷ/ b | ŷ/ f | def | ŷ cdefgh | | K3651/1×K19 |
| abcd | def | / a | / abcdefg | ŷ/ b | ŷ/ bcde | cde | abcdef | | A679×K166A |
| ŷ ^{abcd} | def | / abc | / abcd | ŷ/ b | ŷ/ f | ŷ ^f | h | | A679×K166B |
| abcd | cdef | / abcd | / abcdef | ŷ/ b | ŷ/ f | cd | gh | | A679×K3640/5 |
| d | ŷ ^{def} | / de | / hij | ŷ/ b | ŷ/ ef | ef | gh | | A679×K47/2-2-1-21-2-1-1-1 |
| cd | ef | / abcd | / a | b | ŷ/ ef | cd | fgh | | A679×K19 |
| ŷ ^{abc} | bcd | / abcd | / fghij | ŷ/ b | ŷ/ cdef | abc | ŷ abcd | | K166A×K166B |
| abcd | bcde | / ŷ ^{abcd} | / ŷ ^{abcdef} | ŷ/ b | ŷ/ bcde | cde | fgh | | K166A×K3640/5 |
| ŷ ^{abcd} | bcde | / ab | / abcdef | ŷ/ b | ŷ/ def | def | ab | | K166A×K47/2-2-1-21-2-1-1-1 |
| ŷŷ ^{abcd} | ŷ ^{bcde} | / abcd | / ŷ ^{defghij} | b | ŷ/ ab | ab | abcdef | | K166A×K19 |
| abcd | def | e | / defghij | / a | ŷ/ cdef | abcd | ŷ abcd | | K166B×K3640/5 |
| abc | b | / abc | / defghij | ŷ/ b | ŷ/ cdef | abcd | abcdef | | K166B×K47/2-2-1-21-2-1-1-1 |
| abcd | ŷ ^{bc} | / abcd | / ŷ ^{efghij} | ŷ/ b | ŷ/ abc | abcd | abcde | | K166B×K19 |
| abcd | ef | / ŷ ^{abcd} | / hij | ŷ/ b | ŷ/ def | cdef | ŷ ^{defgh} | | K3640/5×K47/2-2-1-21-2-1-1-1 |
| ŷ ^{abcd} | ef | / abc | / abc | ŷ/ b | ŷ/ def | def | ŷ ^{fgh} | | K3640/5×K19 |
| ŷ ^{abcd} | ŷ ^{bcde} | / abcd | / abcdef | ŷ/ b | ŷ/ cdef | ŷ ^{cdef} | abcdef | | K47/2-2-1-21-2-1-1-1×K19 |

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| y/ y | y/ | -y/y | y/ * | y/y | y/ |
| y/ | y/y | -y/ | y/ * | y/ | y/ |
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An Evaluation of Some Quantitative Traits in Maize (*Zea mays* L.) Hybrids Under Heat Stress Using Multivariate Analysis

Z. Khodarahmpour¹ and R. Choukan²

Abstract

In order to determine the best index for evaluating maize genotypes, 28 maize hybrids were evaluated in two planting dates, 6 July to coincide heat stress with pollination time and 27 July as normal planting to avoid high temperature during pollination and grain filling period, using a randomized complete block design with three replications, in Shushtar city, in 2008. Results showed that in stepwise regression analysis for heat stress condition, grain dry matter weight and grain depth traits were entered in model but, for normal condition, nothing trait werenot entered in model. Factor analysis, for heat stress and normal conditions indentified three and five independent factors which explained 73.59 and 75.78 percent of all variations, respectively. In heat stress condition, first factor, named yield and yield components and in normal condition named ear morphology, explaining 43.78 and 18.96 percent of total variations, respectively. Second factor for heat stress and third factor for normal condition named grain characteristic, which explained 15.67 and 17.58 percent of total variations, respectively. Third factor in heat stress named ear morphology. Second factor, yield components, fourth factor grain width and grain dry matter weight and fifth factor grain yield named in normal condition. Based on the results, grain dry matter weight and grain depth under heat stress revealed as suitable traits which can discriminate maize genotypes.

Keywords: Factor analysis, Heat stress, Maize, Hybrids

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