

*Trogoderma granarium* Everts

(1) (1)

M221×M24 65 -  
65 -

F4

M221×M24

F4

F4

65 -  
F4

*Trogoderma granarium* :

---

(1)

---

...

## **The Effect of Genetic Cross In Wheat To The Infestation With Khapra Beetle *Trogoderma Granarium* Everts**

**R. A. Al-Iraqi<sup>(1)</sup> and R. S. Al – Safar<sup>(1)</sup>**

### **ABSTRACT**

In the present study, the susceptibility of four varieties of wheat Maxipak 65, M221×M24, Saberbek and Condoras in addition to the hybrid F4 (from the hybridization of Maxipak-65 with M221×M24 for four successive generation) against khapra beetle during storage was estimated. The population growth of the pest and percentage loss due to pest infestation were taken as criteria for measuring resistance the against insect. The study indicate that the hybrid F4 was the best in productivity and early in production which are favorable characters but contrarily it was highest susceptibility toward the insect infestation. When the insect reared on the hybrid F4, appeared the highest population density and at the same time the infestation caused in the highest loss weight percentage. On the other hand the Maxipak-65 variety showed the lowest population density of the pest and the lowest loss weight percentage due to infestation than the other varieties and hybrid F4. This result indicates that resistant character depressed during inbreeding during F4 hybrid production in compared to parents therefore it must be early consumed to prevent the infestation by the insect studied.

**Key Word:** Genetic crosses, Khapra beetle, *Trogoderma granarium*.

---

<sup>(1)</sup> Dep. of Biology, College of Science, Mosul Univ., mosul, Iraq.

(2001 ) 2020  
600

*Trogoderma granarium* Everts

(2002 Kulachi Khan)

(2006) Sayed (1984) Dobie

*Tritieum*  
)

M221×M24 65 -

*aestivum* L.

F4 (1988 M221×M24  
65 – 2005 F4  
.(2001 ) F4  
.(1997 )  
2009/10/1 2008/9/1  
100/ 2  
9 100  
2 2 6  
( )  
.( )  
0.6  
(1982) SAS  
0.05  
F4 (1)  
.(1988 ) F4  
F4 126.52  
88.53 F4 16.81

) 10.19  
 .(1982  
 116.53  
 F4 131.60  
 M221×M24 ( 122.31)  
 120.75  
 F4 .(2006)  
 / 24.63  
 F4  
 .(2006 )

F4 (1)

/	( )		/	
0.58 ± 23.62	0.45 ± 128.24	0.29 ± 12.56	0.68 ± 104.59	65-
0.16 ± 18.95	0.63 ± 120.75	0.20 ± 13.75	0.42 ± 99.61	M221× M24
0.44 ± 14.19	0.28 ± 116.53	0.13 ± 16.81	0.38 ± 126.52	
0.21 ± 19.72	0.57 ± 131.60	0.31 ± 15.34	0.40 ± 90.58	
0.69 ± 24.63	0.82 ± 122.31	0.18 ± 10.19	0.35 ± 88.53	F4

(2)

2944.70 65- 1142.33  
 11.33 .F4  
 .F4 33.00 65-  
 70.67  
 303.33 65-  
 1224.30 65-  
 F4

3128.33  
M221×M24

F4

(2004)

( )

100/

2891.49 1003.66

(2)

F4

%45.04

65-

F4

%91.17

(%85.27)

(%75.24)

(%72.46) M221×M24

1.06 1.21 1.24 2.02 F4

M221×M24

(2002 )

F4

(2)

100 /

%					
45.04 c	1224.30 b	70.67 b	11.33 b	1142.33b	<b>65-</b>
72.46 b	1688.00 c	95.33 b	32.33 a	1560.33 cd	<b>M221 × M24</b>
75.24 b	1887.00 c	96.33 b	28.33 ab	1762.33 bc	
85.27 ab	2391.33 b	303.33 a	13.33 b	2074.70 b	
91.17 a	3128.33 a	150.67 b	33.00 a	2944.70 a	<b>F4</b>

.05

M221×M24

F4

F4

F4

(2002)

100/ 2

%72.21 %7.43

12

%.43.96

F4

F4

F4

F3 F2 F1

Hallauer

inbreeding depression

F4

.(1992)

(1981) Miranda

## REFERENCES

- .(2001) .
- .*Hordium vulgare* L. 135 .
- .(1992) .
- .504 .
- .(2002) .
- .*Trogoderma granarium* Everts ( ) .97 .
- Trogoderma* .(2004) .
- .172-163 :(2) 20 .*granarium* Everts .(1988) .
- .*Triticum aestivum* L. ( ) 143 .
- .(1982) .
- .(2001) .
- .21-16 :(2) .(1997) .
- 183 .*Triticum durum* Desf .(2006) .
- .178-168 :
- Dobie, P. (1984). Biological methods for integrated control of insect and mites in tropical stored products. I: The use of resistance varieties. Tropical Stored Prod. Inf. 48: 4-7.**
- Hallauer, A. R. and Miranda, F. J. B. (1981). Quantitative genetics in maize breeding. Iowa State Univ. Press, Iowa, USA.**
- Khan, S. M. and Kulachi, I. R. (2002). Assessment of post harvest wheat losses in Pakistan. Asian J. Sci. 1 (2): 103-106**
- SAS Institute (1982). SAS users Guide: Statistics SAS Institute Inc. Cary North Carolina page 1025. USA.**
- Sayed, T. S., Hirad, F. Y. and Abro, G. H. (2006). Resistance of different stored wheat varieties to khapra beetle *Trogoderma granarium* Everts and lesser grain borer *Rhizopertha dominica* Fabricus.**

Received	2010/06/10	
Accepted for Publ.	2011/07/26	