

3. Gametophyte factor on the 4th chromosome in South American maize.

Maize collections from the Brazilian Seed Center at Piracicaba were tested in order to get information concerning their constitution with reference to the gametophyte factor on the 4th chromosome. The details of the test are as follows: All possible plants of the variety under test were pollinated by a ga/ga stock, while a pollen mixture from seven plants was used to pollinate a plant of a Ga^S/Ga^S stock. The number of ears with full seed set (more than 90%), intermediary seed set (more than 10% and less than 90%) and no seed set (less than 10%) was scored in the cross ♀ collection x ♂ ga/ga stock. The percentage of seed setting was scored in the cross on Ga^S/Ga^S. The results are shown in Table 1. Our intention is to trace the migration of this gene through the South American maize.

Collections	crossed to <u>ga/ga</u>			crossed on <u>Ga^S/Ga^S</u>		
	Number of ears in relation to seed set	full	interm.	no seed	Ears in relation to percent of seed setting*	
1. INDIGENOUS RACES						
1.1 - Moroti						
RGS XIX	46	0	0	20	20	-
PR I	15	9	2	-	-	-
PR II	12	7	3	-	-	-
Pe I	1	1	1	45	-	-
MT II	1	1	0	-	-	-
MT III	2	1	0	-	-	-
MT IV	2	0	0	10	-	-
MT V	3	0	0	90	100	-
PAG VI (1)	5	5	4	0	-	-
(2)	7	9	4	60	-	-
(3)	17	9	0	5	20	50
(4)	-	-	-	40	-	-
(5)	11	0	0	0	5	-
(6)	7	1	0	0	-	-
PAG VII	4	1	1	20	40	100
BOL II	5	3	0	-	-	-
BOL III	14	9	1	-	-	-
1.2 - Caingang						
Par III (1)	22	1	0	0	10	-
(2)	60	0	0	10	-	-
SP XIV	5	2	0	-	-	-

1.3 - Lenha							
RGS XX	22	4	0	30	-	-	
2. OLD COMMERCIAL RACES							
2.1 - Cristal Sulino							
ARG I	45	1	0	-	-	-	
ARG VIII	46	3	0	-	-	-	
URG VIII	49	0	5	30	-	-	
2.2 - Cristal							
SP X	5	2	0	15	15	80	
SP XI	13	3	0	0	0	10	
SP XII	15	1	1	0	0	0	
MG III	24	2	0	5	10	-	
Ba II	2	0	0	-	-	-	
2.2.1 - Semi-dentado							
PAG II	3	0	0	0	50	100	
PAG III	22	1	0	0	10	-	
2.3 - Canario de Ocho							
ARG IV	52	12	0	0	0	-	
ARG VI (1)	-	-	-	40	-	-	
(2)	11	0	0	0	5	-	
(3)	7	1	0	0	-	-	
(4)	41	0	0	-	-	-	
2.4 - Cateto Sulino							
ARG II	22	10	5	0	-	-	
ARG IV	29	5	0	10	10	-	
URG I	11	10	8	0	40	100	
URG II	50	7	0	5	5	10	
URG IV (1)	32	6	0	5	-	-	
(2)	38	4	0	50	70	-	
2.4.1 - Cateto Sulino Escuro							
URG V	40	2	0	30	-	-	
URG VI A	28	4	1	60	60	60	
2.5 - Cateto Sulino							
2.5.1 - Cateto Sulino Grosso							
URG III (1)	54	1	0	-	-	-	
(2)	51	0	0	30	-	-	
(3)	52	0	0	10	-	-	

2.6 - Cateto

SP VII	29	0	0	15	-	-
SP VIII	40	0	0	50	-	-
MG II (1)	26	8	0	0	60	-
MG (2)	35	0	0	50	-	-
BA I	3	2	0	-	-	-
MA I	10	1	0	-	-	-
DESC I	1	1	0	-	-	-
CE I	33	4	0	5	10	-

2.6.1 - Cateto Grande

MT I	15	11	1	20	-	-
------	----	----	---	----	---	---

2.7 - Cateto Nortista

GF II	12	0	0	60	-	-
GF III (1)	1	2	0	0	15	60
(2)	21	3	0	50	-	-
G IN I	35	0	0	50	-	-
G IN II (1)	1	2	0	0	15	50
(2)	21	3	0	5	-	-

2.7.1 - Cateto Nortista Precoce

SUR I	31	0	0	80	-	-
-------	----	---	---	----	---	---

3. RECENT COMMERCIAL RACES

3.1 - Dente Riograndense

3.1.1 - D.R.G. Rugoso

RGS I	25	0	0	0	0	0
RGS II	46	3	0	0	0	0
RGS IV	42	2	0	1	0	0

3.1.2 - Dente Riograndense Liso

RGS V	40	2	0	30	-	-
RGS VI (1)	39	4	0	80	-	-
(2)	32	6	0	10	10	-
SC I	39	0	0	20	20	-

3.2 - Dente Paulista

SP IV	-	-	-	80	-	-
MG I	7	0	0	5	20	-

3.3 - Dente Branco

3.3.1 - Dente Branco Riograndense

RGS X	51	1	0	30	-	-
RGS XI	38	3	2	0	50	-
RGS XII (1)	60	1	0	0	70	-
(2)	20	5	0	0	20	70
RGS XIII (1)	9	3	1	-	-	-
(2)	20	9	3	0	50	-

3.3.2 - Dente Branco Paulista							
SP V (1)	36	9	3	0	-	-	
(2)	5	0	0	60	-	-	
3.4 - Semi-Dentado							
3.4.1 - Semi-Dentado Riograndense							
RGS XV	18	5	0	10	15	30	
RGS XVI	41	5	0	-	-	-	
3.4.2 - Semi-Dentado Paulista							
SP IX	19	5	1	0	0	0	
MT VII	2	0	0	-	-	-	
3.5 - Cravo							
3.5.1 - Cravo Riograndense							
RGS VII	58	3	0	30	-	-	
RGS VIII	39	0	0	20	20	-	
3.5.2 - Cravo Paulista							
SP I (1)	24	0	0	70	20	-	
(2)	18	1	0	80	-	-	
SP II	18	0	0	15	-	-	
4. EXOTIC COMMERCIAL RACES							
4.1 - Hickory King							
RGS IX	53	0	0	20	20	-	
4.2 - Cuõa Yellow Dent							
BA III	14	7	4	-	-	-	

*) - Subjective classification

Maria Ruth Alleoni

UNIVERSITY OF SASKATCHEWAN
Saskatoon, Saskatchewan, Canada
Department of Biology

1. Ethyl methanesulfonate induced mutations in maize.

To understand the genetic effects of radiations, the frequency of mutations induced by γ -rays and ultraviolet light was reported in our earlier works following treatment of Su pollen grains in maize. The present work is concerned with the mutations induced by ethyl methanesulfonate (EMS).