V. REPORT ON MAIZE COOPERATIVE

During the past summer a large series of andromonoecious dwarfs was grown and each stock was tested for allelism with \( d_1, d_2, d_3, d_5, \) and \( a_{n1}. \) The results have not yet been fully summarized, but most of the newly-acquired traits represent alleles at one of the five tested loci. Each of the stocks is being extracted in more uniform background to determine whether some stocks may represent distinct alleles at a particular locus.

Considerable confusion has developed in the labelling of some of the glossies. In several instances, stocks from different sources carrying the same designation have proved to be non-allelic. During the past season all of the known glossies, together with new and unidentified glossies, were grown and intercrossed to eliminate duplication of stocks and permit simplifying records. Some of the glossies were also crossed to \( wx \)-marked translocations or to genetic testers to determine or confirm chromosomal locations.

Stocks of brachytics, reduced, compact, and miscellaneous other mature plant dwarfs were increased and allele tested among themselves. In some cases, crosses were made to genetic or chromosomal testers to determine their chromosome locations.

About 900 families of permanently-lettered reciprocal translocations were grown to obtain fresh seed. Included were consecutive translocations from \( 1-2b \) to \( 4-9b. \) Crosses were made to obtain known homozygotes and heterozygotes and to preserve closely-linked genetic markers. All were outcrossed to adapted lines to increase vigor and standardize the maturity range. This material has not yet been catalogued for distribution.

Several hundred families of untested new chlorophyll traits from Dr. E. G. Anderson's collection were increased. Most of these have now been seedling tested for final evaluation. Some of the best traits, particularly those which survived as homozygotes in the field, were crossed to \( wx \)-marked translocations to determine chromosome locations. Most of the \( F_1 \)'s were selfed or testcrossed in the current Florida generation.

The stock collection was moved this winter to improved laboratory facilities provided by the Botany Department. A \( 45^\circ \) cold room with capacity for storage of a considerable quantity of seed samples is now in operation.

During 1962, 1932 seed samples were supplied in response to 100 letters of request. Both figures represent an all-time high. Distribution of seed samples was about thirty-five percent higher than in the previous peak year.
The following listing of available stocks is a supplement to those listed last year. Requests for stocks or for copies of stock lists should be sent to the Botany Department, University of Illinois, Urbana, Illinois.

Chromosome 1

<table>
<thead>
<tr>
<th>Gene Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ad_1$</td>
<td>an$_1$ bm$_2$</td>
</tr>
<tr>
<td>an$_1$ Kn</td>
<td>bm$_2$</td>
</tr>
<tr>
<td>as</td>
<td></td>
</tr>
<tr>
<td>br$_1$ Vg</td>
<td></td>
</tr>
<tr>
<td>Kn</td>
<td></td>
</tr>
<tr>
<td>Kn Ts$_6$</td>
<td></td>
</tr>
<tr>
<td>lw$_1$</td>
<td></td>
</tr>
<tr>
<td>pCR</td>
<td></td>
</tr>
<tr>
<td>pGW</td>
<td></td>
</tr>
<tr>
<td>pMO</td>
<td></td>
</tr>
<tr>
<td>pRR</td>
<td></td>
</tr>
<tr>
<td>$ad_1$ an$_1$</td>
<td></td>
</tr>
<tr>
<td>$ad_1$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>$an_1$ gs$_1$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>$br_1$ f$_1$ an$_1$ gs$_1$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>$p^WV$</td>
<td></td>
</tr>
<tr>
<td>$p^WR$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>$p^WR$ gs$_1$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>$p^WW$ br$_1$ f$_1$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>$p^WW$ br$_1$ f$_1$ an$_1$ gs$_1$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>$p^WW$ bm br$_1$ f$_1$</td>
<td></td>
</tr>
<tr>
<td>sr$_1$</td>
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Chromosome 1 (continued)

<table>
<thead>
<tr>
<th>Gene Symbol</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>sr$_1$ p$^WR$ an$_1$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>sr$_1$ p$^WR$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>sr$_1$ p$^WR$ an$_1$ gs$_1$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>sr$_1$ zb$_4$ p$^WW$</td>
<td></td>
</tr>
<tr>
<td>ts$_2$ p$^WW$ br$_1$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>Ts$_6$</td>
<td></td>
</tr>
<tr>
<td>v$_{19}$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>Vg</td>
<td></td>
</tr>
<tr>
<td>Vg an$_1$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>vp$_5$</td>
<td></td>
</tr>
<tr>
<td>vp$_8$</td>
<td></td>
</tr>
<tr>
<td>zb$<em>4$ ms$</em>{17}$ p$^WW$</td>
<td></td>
</tr>
<tr>
<td>zb$_4$ p$^WW$ bm$_2$</td>
<td></td>
</tr>
<tr>
<td>zb$_4$ p$^WW$ br$_1$</td>
<td></td>
</tr>
<tr>
<td>zb$_4$ ts$_2$ p$^WW$</td>
<td></td>
</tr>
<tr>
<td>an$_{6923}$-bz$_2$ (includes locus of an$_1$)</td>
<td></td>
</tr>
<tr>
<td>necrotic 8147-31</td>
<td></td>
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</table>

Chromosome 2

<table>
<thead>
<tr>
<th>Gene Symbol</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>al lg$_1$ gl$_2$ B sk</td>
<td></td>
</tr>
<tr>
<td>al lg$_1$ gl$_2$ b sk</td>
<td></td>
</tr>
<tr>
<td>ba$_2$</td>
<td></td>
</tr>
</tbody>
</table>
Chromosome 2 (continued)

\[ f_{11} \]
\[ l_{g1} g_{l2} B \]
\[ l_{g1} g_{l2} b \]
\[ l_{g1} g_{l2} b f_{11} v_{4} \]
\[ l_{g1} g_{l2} b f_{11} v_{4} Ch \]
\[ l_{g1} g_{l2} B g_{s2} \]
\[ l_{g1} g_{l2} b g_{s2} sk \]
\[ l_{g1} g_{l2} b g_{s2} v_{4} \]
\[ l_{g1} g_{l2} b g_{s2} v_{4} Ch \]
\[ l_{g1} g_{l2} B sk v_{4} \]
\[ l_{g1} g_{l2} b sk v_{4} \]
\[ l_{g1} g_{l2} b sk f_{11} v_{4} \]
\[ l_{g1} g_{l2} B v_{4} \]
\[ l_{g1} g_{l2} b v_{4} \]
\[ l_{g1} g_{l2} b v_{4} Ch \]
\[ l_{g1} g_{s2} b v_{4} \]
\[ w_{3} l_{g1} g_{l2} B \]
\[ w_{3} l_{g1} g_{l2} b \]
\[ w_{3} l_{g1} g_{l2} b f_{11} v_{4} \]
\[ w_{3} l_{g1} g_{l2} B sk \]
\[ w_{3} l_{g1} g_{l2} b sk \]

Chromosome 3 (continued)

\[ A^{d-31}; A_{2} C R \]
\[ aP et; A_{2} C R D_{t1} \]
\[ a_{1}; A_{2} C R B F_{l} dt_{1} \]
\[ a_{1} et; A_{2} C R D_{t1} \]
\[ a_{1} sh_{2}; A_{2} C R D_{t1} \]
\[ a_{1} sh_{2}; A_{2} C R dt_{1} \]
\[ a_{1} st sh_{2}; A_{2} C R D_{t1} \]
\[ a_{1} st et; A_{2} C R D_{t1} \]
\[ a_{x-1}; A_{2} C R \]
\[ a_{x-3}; A_{2} C R \]
\[ b_{a1} \]
\[ Cg \]
\[ c_{r1} \]
\[ d_{1} \]
\[ d_{1} g_{l6} \]
\[ d_{1} Lg_{3} \]
\[ d_{1} Rg \]
\[ d_{1} rt \]
\[ d_{1} ts_{4} l_{g2} \]
\[ d_{1} ts_{4} l_{g2} a_{1}; A_{2} C R D_{t1} \]
\[ d_{2} \]
\[ g_{l6} \]
\[ g_{l6} l_{g2} a_{1} et; A_{2} C R D_{t1} \]
\[ g_{l6} Lg_{3} \]
<table>
<thead>
<tr>
<th>Chromosome 3 (continued)</th>
<th>Chromosome 4</th>
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</thead>
<tbody>
<tr>
<td>gl₆ Rg</td>
<td>bm₃</td>
</tr>
<tr>
<td>gl₁₆ v₁₇</td>
<td>bt₂</td>
</tr>
<tr>
<td>gl₇</td>
<td>bt₂ gl₄</td>
</tr>
<tr>
<td>lg₂ A₁ᵇ et; A₂ C R Dt₁</td>
<td>de (1 or 16?)</td>
</tr>
<tr>
<td>lg₂ a₁ et; A₂ C R Dt₁</td>
<td>Ga₁ Su₁</td>
</tr>
<tr>
<td>lg₂ a₁ et; A₂ C R dt₁</td>
<td>ga₁ su₁</td>
</tr>
<tr>
<td>lg₂ a₁ sh₂ et; A₂ C R Dt₁</td>
<td>gl₃</td>
</tr>
<tr>
<td>lg₂ a₁ St et; A₂ C R Dt₁</td>
<td>J₂</td>
</tr>
<tr>
<td>lg₂ a₁ St sh₂; A₂ C R Dt₁</td>
<td>J₂ gl₃</td>
</tr>
<tr>
<td>lg₂ pm</td>
<td>la su₁ gl₃</td>
</tr>
<tr>
<td>Ig₃</td>
<td>la su₁ Tu gl₃</td>
</tr>
<tr>
<td>Ig₃ Rg</td>
<td>lw₁, lw₃</td>
</tr>
<tr>
<td>na₁</td>
<td>c₁</td>
</tr>
<tr>
<td>pg₂</td>
<td>st</td>
</tr>
<tr>
<td>pm</td>
<td>su₁ bm₃</td>
</tr>
<tr>
<td>ra₂</td>
<td>su₁ gl₃</td>
</tr>
<tr>
<td>ra₂ gl₁₆ lg₂</td>
<td>su₁ gl₄</td>
</tr>
<tr>
<td>ra₂ lg₂ pm</td>
<td>su₁ gl₄ Tu</td>
</tr>
<tr>
<td>ra₂ Rg</td>
<td>su₁ j₂ gl₃</td>
</tr>
<tr>
<td>Rg</td>
<td>su₁ c₁</td>
</tr>
<tr>
<td>rt; A₁ A₂ C R</td>
<td>su₁ ra₃</td>
</tr>
<tr>
<td>ts₄ na₁</td>
<td>su₁ Tu</td>
</tr>
<tr>
<td>v₁₇</td>
<td>su₁ Tu gl₃</td>
</tr>
<tr>
<td>vp₁</td>
<td>su₁ zb₆</td>
</tr>
<tr>
<td>Primary trisomic 3</td>
<td>su₁ zb₆ gl₃</td>
</tr>
</tbody>
</table>
Chromosome 4 (continued)

su1 zb6 Tu
su1 am
T5
T5 su1
Tu gl3
v8

Chromosome 5

a2; A1 C R
a2 bml bt1 bvl pr; A1 C R
a2 bml bt1 pr; A1 C R
a2 bml pr v2; A1 C R
a2 bml pr ys1; A1 C R
a2 bt1 pr; A1 C R
a2 bt1 pr ys1; A1 C R
a2 pr; A1 C R
ae
bml pr; A1 A2 C R
bml pr v2; A1 A2 C R
bml pr ys1; A1 A2 C R
bml pr ys1 v2; A1 A2 C R
bt1 pr; A1 A2 C R
gl5
gl8

Chromosome 5 (continued)

gl17 bt1
gl17 v2
lw2
lw3; lw4
na2
na2 pr
pr; A1 A2 C R
pr ys1; A1 A2 C R
shf1 = "sh4"
"sh3" = allele of bt1
v3 pr; A1 A2 C R
v12
vp2 gl8
vp2 pr; A1 A2 C R
vp7
vp7 pr; A1 A2 C R
Primary trisomic 5

Chromosome 6

at = allele of si1
po Y1 pl
Pt
si1 Y1 Pl
si1 Y1 pl
Chromosome 6 (continued)

si1 y pl
y1 l10
y1 ms(1?)
y1 pb4 pl
y1 pg11; wx pg12
y1 pg11; wx pg12
y1 Pl Bh
y1 pl Bh
y1 Pl sm py; A1 A2 b pRR
y1 pl su2
y1 pl su2
y1 Pl; seg w1
y1 pl; seg w1
y1 Pl; seg w1
y1 pl; seg w1
y1 pl; seg w1

14920
"male sterile-silky" =
allele of si1

"orobanche" (seedling)
"ragged" (seedling)
"white 8896" (seedling)

Chromosome 7 (continued)

gl1 ij bd

gl1 sl

Hs

ij

in; pr A1 A2 C R

o2

o2 gl1 sl

o2 ra1 gl1

o2 ra1 gl1 ij

o2 ra1 gl1 Tp

o2 v5 gl1; seg ra1

o2 v5 ra1 gl1

o2 v5 ra1 gl1 Hs

o2 v5 ra1 gl1 Tp1

Tpi

va1

vp9 gl1; wx

Chromosome 8

v16 j1

v16 ms8 j1

v16 ms8 j1; l1

"necrotic 6697" (seedling)

"sienna 7748" (seedling)
Chromosome 9

Bf₁
bm₄
bp wx; pRR
C Ds wx
C sh₁ wx; A₁ A₂ R
C sh₁ wx; A₁ A₂ R
c sh₁ wx; A₁ A₂ R
C wx; A₁ A₂ R
c wx; A₁ A₂ R
d₃
C₄ (See chromosome 3 stocks)

Chromosome 9 (continued)

wx Bf₁
wx Bf₁ bm₄
wx bk₂
wx bk₂ bm₄
wx d₃
wx l₆
wx pg₁₂; Y₁ pg₁₁
wx pg₁₂; Y₁ pg₁₁ pl
wx pg₁₂; Y₁ pg₁₁
wxₐ
yg₂ c sh₁ wx; A₁ A₂ R
yg₂ C sh₁ bz wx; A₁ A₂ R

Chromosome 10

a₃
a₃ g₁
bf₂
du₁
du₁; wx
g₁
g₁ rg; A₁ A₂ C
g₁ rch
g₁ r; A₁ A₂ C wx
g₁ R ar₂
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<thead>
<tr>
<th>Chromosome 10 (continued)</th>
<th>Unplaced genes</th>
</tr>
</thead>
<tbody>
<tr>
<td>g1 r sr2</td>
<td>br2</td>
</tr>
<tr>
<td>g1 g</td>
<td>ct</td>
</tr>
<tr>
<td>l1</td>
<td>e1</td>
</tr>
<tr>
<td>l1; seg w1</td>
<td>fl12</td>
</tr>
<tr>
<td>li g1 R; A1 A2 C</td>
<td>g111</td>
</tr>
<tr>
<td>li g1 r; A1 A2 C</td>
<td>g112</td>
</tr>
<tr>
<td>nl1 g1 R; A1 A2 C</td>
<td>g114</td>
</tr>
<tr>
<td>Og R; A1 A2 C B P1</td>
<td>g116</td>
</tr>
<tr>
<td>rR; A1 A2 C</td>
<td>g19</td>
</tr>
<tr>
<td>r abnormal 10; A1 A2 C</td>
<td>h</td>
</tr>
<tr>
<td>RsR sr2; A1 A2 C</td>
<td>l3</td>
</tr>
<tr>
<td>rR sr2; A1 A2 C</td>
<td>l4</td>
</tr>
<tr>
<td>rR wx; A1 A2 C</td>
<td>m</td>
</tr>
<tr>
<td>Rm: Boone; A1 A2 C</td>
<td>ms5</td>
</tr>
<tr>
<td>Rm; A1 A2 C</td>
<td>ms6</td>
</tr>
<tr>
<td>Rhj; A1 A2 C</td>
<td>ms7</td>
</tr>
<tr>
<td>Rst; A1 A2 C</td>
<td>ms9</td>
</tr>
<tr>
<td>v18</td>
<td>ms10</td>
</tr>
<tr>
<td>w2</td>
<td>ms11</td>
</tr>
<tr>
<td>w2 l1</td>
<td>ms12</td>
</tr>
<tr>
<td>zn</td>
<td>ms13</td>
</tr>
<tr>
<td>&quot;oil yellow&quot; (seedling and plant)</td>
<td>ms14</td>
</tr>
<tr>
<td>Primary trisomic 10</td>
<td>Mt</td>
</tr>
</tbody>
</table>
Unplaced genes (continued)

rд
Rs₁
rs₂
"sh₅"
v₁₃
va₂
v₁₁
wi
ws₁ ws₂
zb₁
zb₂
zb₃
"luteus 4923" (seedling)
"necrotic 8376" (seedling)
"white 8657" (seedling)

Multiple gene stocks

A₁ A₂ c r² pr B Pl
A₁ A₂ c R₅ pr B Pl
A₁ A₂ c R₅ pr B pl lg₁ y₁
A₁ A₂ c R pr
A₁ A₂ c R pr wx
A₁ A₂ c R pr wx gl₁
A₁ A₂ c R pr wx y₁

Multiple gene stocks (continued)

A₁ A₂ c R pr
A₁ A₂ c R pr su₁
A₁ A₂ c R pr su₁ y wx
A₁ A₂ c R pr y₁ gl₁
A₁ A₂ c R pr y₁ wx
A₁ A₂ c R pr y₁ wx gl₁
A₁ A₂ c R pr su₁
A₁ A₂ c R pr y₁ wx
A₁ A₂ c R pr y₁ sh₁ wx
A₁ A₂ c R pr su₁
A₁ A₂ c R pr su₁ y₁ gl₁
A₁ A₂ c R pr y₁ wx
A₁ A₂ c R pr y₁ sh₁ wx
bₘ₂ lg₁ a₁ su₁ pr y₁ gl₁ j₁
wx gl₁
colored scutellum

lg₁ su₁ bₘ₂ y₁ gl₁ j₁
su₁ y₁ wx a₁ A₂ c R₅ pr
y₁ wx gl₁

Popcorns

Amber Pearl
Argentine
Black Beauty
Popcorns (continued)

Hulless
Ladyfinger
Ohio Yellow
Red
South American
Strawberry
Supergold
Tom Thumb
White Rice

Exotics and Varieties

Black Mexican Sweet Corn
(with B-chromosomes)

Black Mexican Sweet Corn
(without B-chromosomes)

Gourdseed
Maiz chapolote
Papago Flour Corn
Parker's Flint
Tama Flint
Zapaluta chica
Chromosome rearrangements

The following rearrangements are being maintained primarily for use in determining the chromosome locations of new traits. All are marked with closely-linked endosperm or seedling traits.

The cytological positions of Inv 2a were determined by Dr. Morgan; those of Inv 9a were determined by Dr. Li. The indicated interchange points of the reciprocal translocations are taken from published work of Dr. Longley.

Inversions

lg\textsubscript{1} or \textit{gl}\textsubscript{2} Inv 2a (also available with \textit{Ch}) \hspace{1cm} 2S.7; 2L.8

\textit{wx} Inv 9a \hspace{1cm} 9S.7; 9L.9

Reciprocal translocations

\textit{wx} 1-9c \hspace{1cm} 1S.48; 9L.22

\textit{wx} 1-9 4995 \hspace{1cm} 1L.19; 9S.20

\textit{wx} 1-9 8389 \hspace{1cm} 1L.74; 9L.13

\textit{wx} 2-9b \hspace{1cm} 2S.18; 9L.22

\textit{wx} 3-9c \hspace{1cm} 3L.09; 9L.12

\textit{wx} 3-9 5775 \hspace{1cm} 3L.09; 9S.24

\textit{wx} 4-9b \hspace{1cm} 4L.90; 9L.29

\textit{wx} 4-9 5657 \hspace{1cm} 4L.33; 9S.25

\textit{wx} 4-9g \hspace{1cm} 4S.27; 9L.27

\textit{wx} 5-9a \hspace{1cm} 5L.69; 9S.17

\textit{wx} 5-9c \hspace{1cm} 5S.07; 9L.10

\textit{wx} 5-9 4817 \hspace{1cm} 5L.06; 9S.07

\textit{wx} 6-9a \hspace{1cm} 6S.79; 9L.40

\textit{wx}, \textit{y} 6-9b \hspace{1cm} 6L.10; 9S.37

\textit{wx} 6-9 4505 \hspace{1cm} 6L.13; 9 cent
Reciprocal translocations (continued)

wx 6-9 l778
wx 7-9a
wx or gl1 7-9 l363
wx 8-9d
wx 8-9 6673
wx 9-10b
su1 1-4a (also available with pRR)
su1 1-4d (also available with pRR)
su1 l-5j
su1 y l-6a
su1 l-8a
su1, R l-10b
y l-6c (also available with pRR)
gl2 2-3c
gl2 2-3 l304
gl2 2-6b
gl2, R 2-10b
gl1 6-7 l545

6S.80; 9L.30
7L.63; 9S.07
7 cent; 9 cent
8L.09; 9S.16
8L.35; 9S.31
9S.13; 10S.40
11L.51; 4S.69
11L.27; 4L.30
4L.21; 5L.36
4L.37; 6L.43
4S.59; 8L.19
4L.15; 10L.60
1S.25; 6L.27
2S.46; 3S.52
2S.62; 3L.29
2S.69; 6L.49
2S.50; 10L.75
6L.25; 7S.73

Stocks of A-B chromosome translocations

<table>
<thead>
<tr>
<th>Stock</th>
<th>Loci</th>
</tr>
</thead>
<tbody>
<tr>
<td>B-1a</td>
<td>1L.2</td>
</tr>
<tr>
<td>B-1b</td>
<td>1S.05</td>
</tr>
<tr>
<td>B-3a</td>
<td>3L.1</td>
</tr>
<tr>
<td>B-4a</td>
<td>4S.25</td>
</tr>
<tr>
<td>B-7b</td>
<td>7L.3</td>
</tr>
<tr>
<td>B-9a</td>
<td>9L.5</td>
</tr>
<tr>
<td>B-9b</td>
<td>9S.4</td>
</tr>
<tr>
<td>B-10a</td>
<td>10L.35</td>
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</tbody>
</table>

Proximal to Hm

Proximal to su1
Proximal to RAI
Proximal to R1
Between C and wx; close to wx
Proximal to g1

Earl B. Patterson