

MAIZE GENETICS COOPERATION

NEWS LETTER

4

December 18, 1933

Department of Plant Breeding
Cornell University
Ithaca, N. Y.

November 13, 1933

To Maize Geneticists :-

As was the case last year, this laboratory will again attempt to act as a clearing house for information and a distributing point for genetic stocks.

This letter is a call for information to be used in succeeding corn letters. We thought it would be appropriate if the first letter in the fall of each year presented new and pertinent information of value to all maize investigators, such as new linkages, revised or corrected linkage maps, new combinations of genes, new allelomorphs, reoccurrences of known mutations, etc. So we are, therefore, requesting all maize geneticists to send us any information they deem of value to others. It is understood that any information or data which appear in this series of corn letters can not be cited in publications without the direct consent of the contributor. As an example of the kind of information we would like to have for the first letter, we will give the following unpublished facts:

1. Emerson has a new glossy seedling which is linked with fine-striped₁ (f₁). Seed available.
2. Hayes reports that argostripe (ag) is allelomorphic with iojap (ij) and that lazy (la) shows linkage with the su-Tu group.
3. Lindstrom has a new recessive sun red plant color. Seed available.

The above are sample items of a type that will interest everyone. We want more of them for the first corn letter. We would like to have this letter in your hands before the Christmas meetings at Boston so the dead line for contributions will be December 15th. Everyone is urged to contribute so that these letters will be of real value.

This winter we hope to make an inventory of all the genetic stocks in maize. The stocks will be listed under two categories: (1) Combinations of factors belonging to the same linkage group and (2) combinations of genes belonging to different linkage groups. It should be of great help to all investigators to know whether a desired combination of genes is already in existence or whether you must spend several years in

building it up. For that reason we are asking that you go over your genetic material and list the different combinations under the two categories. Care should be taken that the proper subscript is used for the different glossies, etc. If possible state whether of early or late season. We should like to have these lists as soon as possible. We hope to have the complete list ready for mailing by February 1st, so January 15th is set as the dead line for receipt of this information.

You will be interested in knowing that the *Drosophila* workers have recently decided to start a cooperative group modeled after the one for maize. The following paragraph is taken from the letter calling on the different laboratories to organize:

"For several years now workers on genetics of maize have been receiving mimeographed circulars prepared in Professor Emerson's laboratory, containing information contributed by various investigators. This service proved to be so useful that steps are being taken to extend it and make it a permanent institution."

We are glad that the success of the maize group has stimulated the *Drosophila* investigators to undertake a similar cooperative enterprise and we hope they find the same generous spirit of cooperation which you maize workers have shown.

Remember we would like to have the requested information as soon as possible.

Sincerely yours,

M. M. Rhoades

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December 18, 1950

Vol. 4

To maize geneticists :-

The response to our request for news items has been good. The various contributions which have been received comprise the bulk of this letter. All of the information given in this letter is unpublished and your cooperation has made it possible to place this mass of information in the hands of maize investigators considerably in advance of its publication. We believe you will find this letter interesting and profitable. If its success justifies it we plan to have a similar news letter in the fall of each year so that the workers in the different laboratories can keep in closer touch.

While this corn letter is essentially a list of new information, we shall be glad to include in subsequent letters for this year any facts which you think will be of interest to others.

We wish to emphasize again that the listing of information in these news letters does not constitute publication. The consent of the contributor should be obtained if you wish to cite his data in your papers.

News items from Ithaca:

1. Dwarf₂ (\underline{d}_2) gives approximately 25 per cent recombination with \underline{a}_1 . (Singh).
2. Dwarf₇ (\underline{d}_7) is in linkage group X. Order is \underline{d}_7 - \underline{r} - \underline{a}_1 . (Singh).
3. Glossy 10 (\underline{gl}_{10}) gives 15 per cent recombination with fine striped₁ (\underline{f}_1). (Emerson).
4. Pigmy₂ (\underline{py}_2) belongs in linkage group I. (Emerson).
5. Japonica₂ (\underline{j}_2) is about 5 units from \underline{Tu} . Order unknown at present. (Emerson).
6. Two new \underline{r} allelomorphs. \underline{R}^{rg} gives with \underline{A} red plant, red anthers, green silks; \underline{r}^{gr} gives with \underline{A} green plant, green anthers, red silks. (Emerson).

7. F_2 families segregating for in-ra- a_1 - v_5 give data which indicate the order is in-ra- a_1 - v_5 . (Fraser).
8. Aurea₁ (au₁) lies between wx and v_1 in linkage group IX. Order is c-sh-wx-au₁- v_1 . (Creighton).
9. Yellow-green₂ (yg₂) is about 1 cross over unit from the terminal knob on the short arm of chromosome 9. (Creighton).
10. Argentea (ar) and v_1 whose loci fall close together on the genetic map are not allelomorphs. (Creighton).
11. Brown midrib₁ (bm₁) is situated in the short arm of chromosome 5 and there is good evidence which suggests it lies extremely close to the insertion region. (McClintock).
12. A new narrow-leaved character is linked with a_1 . (McClintock). (As I remember, McClintock told me last summer it gave 30 per cent recombination with a_1 - Ed.)
13. Data from crossing over in trisomes indicate that ra and v_5 lie on opposite sides of the insertion region of chromosome 7. (Rhoades).
14. A dominant modifier interacts with recessive a_1 to give a speckled or spotted aleurone. Interaction with recessive c and r unknown as yet. No difficulty in classification. (Rhoades).
15. In addition to the #5 and #7 trisomes, #8, #9, and #10 trisomes can be distinguished from their disomic sibs by morphological differences. (Rhoades).
16. There is an extremely high correlation between small seeds and trisomy for chromosomes 5 and 6. (Rhoades).

Note:- Seed is available for all the new characters listed under the Cornell heading.

News items from Pasadena:

1. Chromosome 1 is involved in 17, chromosome 2 involved in 20, chromosome 3 in 22, chromosome 4 in 18, chromosome 5 in 16, chromosome 6 in 14, chromosome 7 in 11, chromosome 8 in 11, chromosome 9 in 15, and chromosome 10 in 16 different reciprocal translocations. Most of these translocations have been obtained in a homozygous condition. (Anderson).

Note: Anderson has kindly offered to furnish any of his translocations to anyone who can use them as a tool in his research. The complete list of these interchanges (reciprocal translocations) will be listed in the next corn letter. Anyone desiring an interchange should write to Anderson and explain his needs to him.

2. Chocolate pericarp (Ch), that long elusive gene, seems to belong in chromosome 5. (Anderson).
3. Something wrong with albescens (al). Does not seem to belong in linkage group VI. (Anderson).

News items from New Haven:

1. The character ramosa (ra) has appeared three times in different inbreds. All were allelomorphous with ra₁. (Singleton and Jones).
2. Mutation of Su to su occurred in one seed out of a total of 127,000. (Singleton and Jones).
3. A brittle endosperm was found in a flint corn from Germany. Tests showed it to be allelomorphous with bt₁. In this same flint corn two lazy (la) plants appeared in the second year. Tests are being made with la₁. (Singleton and Jones).
4. A dominant ragged (Rg) similar to Rg₁ occurred in a Leaming Evergreen hybrid back crossed twice to Leaming. Is being tested with Rg₁. Tentatively called Rg₂. (Singleton and Jones).
5. A new brown midrib appeared in an inbred line of Country Gentleman. Is being tested with the other brown midribs. (Singleton and Jones).

6. A viviparous seed-white seedling combination appeared in an F_2 population. The development of the character varies. Sometimes the seeds germinate on the ear. If they do not, the seeds have a pale yellow endosperm in contrast to the normal orange yellow seeds of this strain. Pale yellow seeds always produce white seedlings. Orange seeds produce only normal green seedlings. (Singleton and Jones).
7. Dull brown blotches (dl) appeared in the endosperm of one of our y su Country Gentleman inbreds. This behaves as a recessive character. Dull blotched seeds when planted produce sterile dwarf plants, about 2 feet high, with no tassel or ear. Non-blotched seeds produce normal plants. (Singleton & Jones).
8. The linkage relations of the following characters, which segregate sharply, are being studied:
- opaque₁ (o₁) - endosperm soft, starch, entirely opaque.
 - opaque₂ (o₂) - similar in appearance to o₁. Both give 25 per cent opaque in F_2 .
 - threaded (th) - seedling and plant character. Very fine pin stripes similar to "threaded" cloth.
 - semi-dwarf₁ - plants about 2-1/2 feet high.
 - semi-dwarf₂ - plants about 2-1/2 feet high.
 - Ragged₂ (RE₂) - may be RE₁.
 - lazy₂ - may be lc₁.
 - yellow dwarf (yd) about 25 per cent recombination between Y and yd.
 - micropyle color (mc) intense red dot at micropyle when plants have large P. Tests are being made to determine whether an allelomorph or modifier of P.
 - Additional tests are being made to determine the linkage relations of sp and lo with characters in the fourth linkage group other than su. (Singleton and Jones).

9. A much-branched ear and tassel character was found in a field of corn at Fort Atkinson, Wisconsin. Same as ra₁. (Burnham).
10. New genes being studied:
 - brown-midrib (bm₃)
 - yellow green (YE₂)
 - green stripe (GS?)
 - a mottling allelomorph of r₁ and an inhibitor of this mottling. (Burnham).
11. Revision of linkage group V. The most probable order is v₂-vs₁-pr-bv-bm₁ with bt₁ very close to bm₁. v₂ lies toward the end of the longer arm. (Burnham).
12. There is some evidence to indicate that ra is either between gl₁ and v₅ or that the order is gl₁-v₅-ra. (Burnham).
13. Albescent (al) may not be in chromosome 6. (Burnham).

News from Madison:

1. A new workable character, pale midrib (pm), appears to show 10 to 20 per cent crossing over with Rg₁. Seed available. (Brink).
2. A new allelomorph of the unplaced gene, golden 2, is reported. Golden 2 (A₂) appears to be independent of r. (Brink).
3. A new race (ra₂), less extreme than ra₁ but readily classifiable, is reported. Seed available. (Brink).

News from the U.S.D.A.:

1. Lazy₁ (la₁) shows linkage in F₂ with su and gl₃ and in back cross counts with Tu. Appears very close to su since there was only one crossover among several hundred F₂ plants. (Jenkins).
2. A₂ is linked with bt₁ with about 7 per cent of crossing over. Limited data of a three point backcross indicate the order is pr-bt₁-A₂. (Jenkins).

3. A new nature plant chlorophyll deficiency, tentatively called gs_2 is in the second linkage group much closer to B than to lg. (Sprague).
4. One of the duplicate factors for orange scutellum (so_1) is in linkage group IX. The order is apparently $so_1-c-sh-wx$. (Sprague).
5. Glossy 4 (gl_4) is in linkage group IX. Gives about 40 per cent recombination with v_1 and independence with c and sh. (Sprague).
6. An almost complete linkage was found between light colored seeds and albino seedlings. (Brunson).

News from Minnesota:

As was stated in the corn letter of November 15th, the following facts were reported:

1. Argostripe (ag) is allelomorphous with iojap (ij). (Hayes).
2. Lazy₁ (lz₁) shows linkage with the su-Tu group. (Hayes).

News items from Bucknell:

(During the past year Eyster sent in to this office the following pieces of unpublished information:

1. A dominant aleurone diluter (Da_2) is 6 units from c. Order is Da_2-c-wx .
2. Opaque endosperm₃ (o_3) belongs to linkage group IX.
3. Scarred endosperm₂ (sc_2) belongs to linkage group IX.
4. Yellow flecked seedling leaves (yf) belongs to linkage group IX.
5. Su_2 gives about 27 per cent recombination with y.

This office has already received several lists of genetic stocks. The dead line for receipt of lists of these stocks is January 15th. We strongly urge those of you who have not made an inventory of your genetic strains to do so in the near future so that the next corn letter may present an adequate list of existing stocks.

In the coming corn letter we hope to be able to present for your criticism a tentative system of nomenclature for maize genetics.

Sincerely yours,

M. M. Rhoades
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Marcus M. Rhoades

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