

MAIZE GENETICS COOPERATION

NEWS LETTER

6

February 21, 1934

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

Vol. 6

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To Maize Geneticists :-

The proposed nomenclatorial system for maize has provoked considerable discussion and we have received comments and suggestions from Jones, Brink, Sprague, Jenkins, Stadler, Mangelsdorf, Beadle and Anderson. As might be expected, the proposed system in its present form was not acceptable to everyone. In this letter we shall list the different items in the proposed system and then state the criticisms or comments made about each item.

Item 1 - (see proposed nomenclatorial system in corn letter of January 25th).

Comments: This seemed to be generally acceptable to everyone but Anderson suggests that it be worded as follows: "Arabic numerals are preferred to Roman for designating both linkage groups and chromosomes except where other usage helps clarify or simplify expression." It is, of course, possible that in some special study clarity can not be obtained by using Arabic numerals throughout and there should be, in those exceptional cases, no hesitation in using some other means of designating either linkage groups or chromosomes. But in the majority of cases the use of Arabic numerals will satisfactorily meet all requirements and it seems to us best that the statement, as made in the corn letter, should stand.

Item 2 - Whenever biliteral symbols are used the second letter shall not be dropped as a subscript. Italicize gene symbols.

Comments: Satisfactory to everyone.

Item 3 - Literal superscripts shall be used to represent different members of an allelomorphic series, e.g. R^r , R^E , r^r , r^E .

Comments: Satisfactory to everyone.

Item 4 - Numeral subscripts shall be used to represent different genes which give phenotypically similar effects, e.g. V_1 , V_2 , V_3 , etc.

Comments: O.K. but Anderson suggests it might be well to dispense with all subscripts and raise the numeral to the same level as the rest of the symbol.

While this suggestion seems good we believe that the present system of dropping the numerals as subscripts has become widely used and is satisfactory so that any benefits which might accrue from raising the numeral to the same level as the rest of the symbol are

not of sufficient value to justify the change.

Therefore we suggest that Item 4 remain as stated.

Item 5 - (see proposed nomenclatorial system in corn letter of January 25th).

Comments: This suggestion has met with such widespread objection that we withdraw it and believe that the old system for designating normal allelomorphs should be continued, i.e. that either a + sign or capital letters be used (e.g. Ra, Su, Lg for the normal allelomorphs of ra, su and lg). Sprague and Jenkins made the interesting suggestion that the + sign be used to designate the dominant allelomorph rather than the normal allelomorph since such a procedure would tell at a glance whether the cross was made in coupling or repulsion phase.

Item 6 - (see letter of January 25th).

Comments: This was acceptable to all save Anderson, who wishes to use T 1-2a, T 1-2b, etc., in place of $\underline{T}(1-2)_1$, $\underline{T}(1-2)_2$, etc. He meets the objection that the use of the letters of the alphabet will necessitate the use of bilaterals by stating that it will be some time before we have more than 26 translocations involving the same two chromosomes. He further objects to the use of parentheses and sees no need for italicizing the letter T (as does Jones). But the question of whether or not Anderson's system is preferable is meaningless now since he has a paper in press in which he has listed all known translocations and has designated them by T 1-2a, etc.

Therefore it seems best that we modify the proposed system to agree with Anderson's terminology. Since some objection has been raised to italicizing the letter T we suggest that it shall not be italicized.

Stadler states that he sees no reason why the symbol T can not be used for any kind of translocation, i.e. simple, reciprocal or progressive. We see no a priori reason why his suggestion is not workable.

Item 7 - The symbol Df (italicized) shall be used for Deficiency. For example, the first deficiency involving chromosome 10 will be represented as Df 10₁; the second as Df 10₂, etc.

Comments: Generally satisfactory although Anderson would prefer Df 10a in place of Df 10₁. However Stadler states that he will have a good many deficiencies involving a single chromosome so the alphabet would soon be outstripped and since Stadler is using Df 10₁ and finds it satisfactory, we suggest that the proposed system for deficiencies stand as listed except that the symbol Df shall not be italicized.

Item 8 - The symbol In (italicized) shall stand for Inversion. An inversion involving chromosome 4 will be represented as In 4₁; the second one as In 4₂, etc.

Comments: Same as for Item 7.

Item 9 - It was decided that there was, as yet, no need to formulate a system of nomenclature for duplications.

No comment necessary.

We want to strongly emphasize that in the attempt to formulate a nomenclatorial system for maize there is no intention of establishing a set, rigid system which can not be modified to fit the varied needs of a rapidly changing field of research. That there will arise occasions when a modification of the proposed system is necessary for clarity we do not doubt, but without question some general rules of nomenclature which will be followed when possible are essential. To provide such a general code has been one of the purposes of these corn letters. We wish to thank those of you who have been sufficiently interested to communicate your views to us.

After taking into consideration your comments and criticisms we wish to submit a revised nomenclatorial system for maize which has been modified so as to incorporate some of the changes which were recommended.

The modified nomenclatorial system for maize is as follows:

1. The linkage groups and chromosomes will be designated by Arabic numerals. Linkage group 1 will include those genes which lie in the longest chromosome, etc. The longest chromosome of the non-ploid set of 10 will be called chromosome 1 and the shortest chromosome 10.
2. Whenever biliteral symbols are used the second letter shall not be dropped as a subscript. Italicize gene symbols.
3. Literal superscripts shall be used to represent different members of an allelomorph series, e.g. R^r, R^s, r^r, r^s.
4. Numeral subscripts shall be used to represent different genes which give phenotypically similar effects, e.g. V₁, V₂, V₃, etc.
5. The normal allelomorph of a recessive mutant gene shall be designated as has been customary in the past, i.e. either by a + sign or by a capital letter; e.g. the normal allelomorph of su can be either Su or +, depending upon which is the most convenient to use. The normal allelomorphs of what are commonly considered dominant genes can be designated, as in the past, by either a + sign or by small letters, i.e. the normal allelomorph of Tu can be either + or tu.