

PRINCIPAL FEATURES OF THE SEED ACCESSION SYSTEM IN USE
BY THE GREAT WESTERN SUGAR COMPANY
(Demonstration Paper)

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The system for numbering and recording seed lots was devised to provide a simple and efficient means of identification, showing the origin, description, year produced, deductions, and status of any seed lot in storage at any time after it is first recorded. The present system was recently adopted after it became evident that the system previously used was inadequate to meet the needs of rapidly growing complexity incident to the development of the domestic seed industry and of more extensive breeding stimulated by that development.

It would probably be useless to attempt to standardize numbering and recording systems. Many different types are in use and there is little information available in published form. Harrington^{2/} reviewed methods used by cereal breeders. The method adopted, as described below, includes certain features of the Minnesota system described by Harrington.

In general, the following groups or categories will cover all phases:

- I. Seed from individual either open or self-pollinated, crosses of individuals or mixtures of seed from two or more individuals to be used in progeny tests in the same manner as seed from individuals.
- II. Mixtures from more than one individual either as a group or a cross, primarily for breeding or testing purposes.
- III. Pedigreed lots for immediate production of commercial seed.
- IV. All Great Western commercial seed productions.
- V. New introductions. Individuals, small lots for breeding purposes, and commercial varieties not produced for or by the G. W. Sugar Co.

In more detail, the qualifications for each group are as follows:

I. Seed from individuals either open or self-pollinated, or crosses of individuals. Will also include mixtures of seed from two or more individuals to be used in progeny tests in a similar manner to seed from individuals. Such mixtures will carry the prefix "X". The seed of an individual will carry the mother number, which continued from 1 to infinity without break for the year. If self-pollinated the family number will carry the prefix "S". If a cross it will be written in either of two ways as follows: $\frac{15335}{15432}$ or 15335 x 15342, the

female parent being the numerator when written as a fraction or first number when written with a multiple sign; and the generation should be given as F₁, F₂, etc., immediately after the number in either case, e. g., $\frac{15335}{15342}$ F₁ or

15335 x 15342 F₁.

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^{2/} Harrington, J. B. Methods of keeping records of cereal breeding investigations. West Can. Soc. Agron. Proc. 3rd meeting, 1922.

One accession loose leaf book is devoted entirely to Group I seed. Mixtures of 2 or more individuals to be used as an individual in breeding strain tests will be entered at the bottom of each breeding group.

The breeding groups are numbered separately for each year, the scheme used being convenient but nonessential to the seed recording method. The group numbers for each year begin at 1 with a prefix consisting of the last two figures in the year, e. g., 391 was group 1 in the year 1939.

II. Mixtures from more than one individual, either as a mass grouping or a cross, primarily for breeding purposes or observation tests. These lots will carry the prefix "B" to a separate series of numbers 1 to infinity which are carried in Section 1^{3/} of a loose leaf accession book (End Lock Style).

III. Foundation or pedigreed lots for production of commercial seed the following generation. Only those productions by the G. W. Sugar Company will be included in this category. The lots will carry the prefix "GW". Numbers GW1001 to infinity will be used for pedigreed lots. Entries are made in Section 2 of the same accession book used for Group II seed.

IV. All productions of commercial seed made by or for the G. W. Sugar Company. Lots will carry the prefix "GW", numbers 1 to 1000 being reserved in Section 3 of the same accession book used for Groups II and III seed. Mass increases of commercial seed made by the G. W. Sugar Company, without selection, will carry the same GW number. When some selection, either natural or artificial, has been a factor in any such commercial increase, a new GW number is assigned.

V. New introductions. Individuals, small lots for breeding or testing purposes and commercial varieties not produced for or by the G. W. Sugar Company. All new introductions will be listed in the accession record referred to under II and III, with numbers "A" 1 to 1000 reserved for the commercial lots and with other lots being numbered A1001 to infinity.

Miscellaneous Considerations

1. Tags on lots for Group I will carry "Beet No." and "Breeding Group", and Groups II, III, IV, and V the "Accession number", "Lot" (when one is assigned) "Year Grown" and "Place". The variety name in case of commercials may be carried.

2. All additions and deductions for Groups II, III, IV, and V are recorded immediately in longhand in a separate bound entry book, numbers being assigned at this time for all new additions. Transfers are typed into the accession records at the beginning of each month.

3. A chronological index is used to provide easy reference to all lots in the accession book.

4. When pedigreed or other lots of seed are sent out from the Station for commercial seed production, they bear their own accession number, but a new "GW" commercial number is assigned at this time.

^{3/} Sections 1 to 5 referred to are separate sections of the loose leaf book used for all classes of seed other than I.

ACCESSION RECORD

	Acc. No.	Lot	Class	Stored	% Germ	No. Balls per lb.	Date	Amount of Seed Lbs.			Origin, Description and Source of Seed and Purpose for which used
								Rec'd	Used	Inv.	
G.W. Commercials (Group IV) SAMPLE PAGE	GW25	1K	D	"B"	86	27190	9/35	86.0			Leaf Spot resistant type produced at Windsor, 1935. Mass increase of GW1004. For variety tests. For variety tests. To Windsor for overwinter stecks
							4/36 4/39 8/39		4.0 1.75 1.50	82.0 80.25 78.75	
G.W. Pedigreed lots (Group III) SAMPLE PAGE	GW1004		C	"B"	85	28950	8/32	531.0			P-2LSR-1932-W. Select roots from families 10362, 10364, 10683, 10693, 11067, 11176, 11219, 11222, 11226, 11227, 11228, 11250, 11254, 11259, 11266, 11272, 11276, 11281, 11283, 11309, 11316, 11325, 11349, 11366, 11369, 11381, 11395. Stecklings from families 10014 R, 10017 R, 10369, 10544, 10545, 10553, 10655, 10658, 10661, 10666, 10667, 10675, 10756, Ped. 9154, Ped. 9542. Groups 284, 291, 292, 301, 302, 303, 304, 271, 284, 286, 291. P-9154 and 9542 were planted as family groups on the Donovan Tract in 1929 in connection with a large number of selected mothers from the 1928 breeding strain test with which they crossed. Seed of 9154 and 9542 were harvested separately. 9154-Gr. 212; 9542-Gr. 231. For commercial increase For variety tests
							4/34 4/39		517.5 2.0	13.5 11.5	
Commercial Introductions (Group V) SAMPLE PAGE	A36		D	"B"	73	33140	4/39	50.0			U.S. 200x215, commercial. Received from Ft. Morgan. Inbreds 200 and 215 were used as 25:75 seed mixture, respectively, to produce this variety. See "Report of 1938 tests of U.S. 200x215 and allied varieties." U.S.D.A. For variety tests
							4/39		15.0	35.0	

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