recombination in this study.

3. The X^2 tests failed to show significance, that is, to affect distribution when the parameters of structural constitution, background and adjacency were considered.

4. The negative interference effect previously reported to be associated with the whole arm has been found to be a property of region 2 specifically, as indicated by X^2 tests which tested the distribution for pairs of regions against empirical proportion determined from the first graph described.

Detailed description of the results and their theoretical implications are forthcoming in a paper soon to be published.

S. L. Goldman

2. Structure of an$_{6923}$

An experiment was made in which + +/an$_{6923}$ bz$_2$ was crossed to an$_1$, bz$_2$. Both the bronze and purple seed classes were planted. Of the 4,952 bronze seeds recovered, all gave rise to plants which were anther ear in phenotype. Of the 5,048 plants derived from fully colored seed, no instance of anther ear phenotype was noted.

In a population of 10,000 gametes, ten crossovers are expected between an$_1$ and bz$_2$, since the map distance separating them in the control amounted to 0.1 of a map unit. The failure to obtain any crossovers when an$_{6923}$ was involved is further support for the idea that this may indeed be a pollen transmissible, homozygous viable deletion.

S. L. Goldman

3. Survival kinetics of pollen grains in aqueous medium.

Pollen of ACR stock was mixed with 25 ml of aqueous medium (Newsletter 42:126) and applied sequentially with a #8 brush to silks of a colorless F_1 hybrid, W23/M14. Colored kernels were counted at harvest.

Five experiments were conducted (Table 1). In Expt. A, substantial spilling occurred in the haste of keeping to 5-sec. intervals; these numbers of ears and kernels are adjusted to account for spillage. Estimates indicate 2.5×10^6 pollen grains per cc of dry pollen, so the overload (in thousands of pollen grains per kernel) was both extreme and

surprisingly uniform. A 10-fold dilution made relatively little difference in the overload level, where the averages of two replicates (B+C vs. D+E) yielded one kernel per 5,400 vs. 3,900 pollen grains, respectively.

Table 1

Sequential pollination experiments with pollen in 25 ml of aqueous medium

Expt.	Pollen cc	Interval sec	Ears no.	Kernels no.	Pollen grains per kernel (10^3)	Av. kernels per ear
A	10	5	64	3883	6.4	61
B	10	10	59	3912	6.4	66
C	10	10	68	5352	4.7 5.4	79
D	1	10	59	782	3.2	13
E	1	10	53	507	4.9 3.9	10

The implication that dilution is unimportant is not supported by the time pattern, however (Table 2). The 10-fold richer suspension (B+C) at first yielded only 4 times as many kernels as the other (D+E), but by the time 270 sec. had passed the yield became 20 times greater. Apparently half or more of the potentially effective pollen grains are prevented from functioning (possibly by competition for the same ovules) during the first few minutes. Later the richer mixture develops a double advantage, per pollen grain applied, over the other. Since both appear to level off by the 6th to 7th minute, long-term survival is influenced by a "population effect".

The extreme overload requirement (over 1,000 pollen grains per kernel during the first half minute) is puzzling. Dry pollination of these ears would have yielded 500 to 800 kernels each, but even with extra care in application of the suspensions less than 1/2 of the maximum set was obtained (Expt. C, highest individual set was 232). Notably, the dilute suspensions (D and E), though applied with the same care as the richer ones, gave even less per ear (highest set 82, next higher set 59). Since the same number of silks have been "effectively painted" at both concentration levels, a property of pollen grains must be responsible for the overload requirement.

Thus, for efficient pollen treatment work in aqueous medium, populations should be kept high (e.g., 1 cc pollen in 2.5 ml medium), and

pollination should be delayed for two minutes or longer.

Table 2

Seed sets from sequential pollinations

Time sec	Sliding average of five ears			Ratio B+C/D+E
	A	B+C	D+E	
30	80	169	39	4
60	75	167	38	4
90	57	115	37	3
120	73	112	26	4
150	48	109	16	7
180	48	76	8	9
210		72	6	12
240		77	5	14
270		93	4	25
300		82	4	22
330		57	3	17
360		50	3	17
390		44	2	19
420		39	2	20
450		45	2	19
480		39	2	19
510		37	2	21
540		33	2	22
570		40		
600		50		

E. H. Coe, Jr.

UNIVERSITY OF MISSOURI
and
ARS, UNITED STATES DEPARTMENT OF AGRICULTURE
Crops Research Division and
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1. Multiple aleurone layering in maize.

The aleurone layer of corn comprises from 1 to 2 percent of the corn kernel. It contains about 20 percent protein with a large proportion of the amino acids being of the basic type and therefore valuable nutritionally. Unfortunately, less than 5 percent of the kernel protein is found in the aleurone layer. Normally the aleurone layer is made up of