*Both experimental t values are highly significant, being much larger than the tabular t at .01 of 2.71 (Snedecor Statistical Methods).

The results show that when P39 was paired with A158, the P39 component was more productive than when grown alone, but A158 with P39 was significantly less productive. Apparently P39 which has a tendency to tiller can compete more successfully than A158 which is single stalked. The net gain of 11 percent of the mixed stand over the pure stand is significant and may suggest an effect similar to heterosis, but the results are far from conclusive. A better experiment could probably be made by using two inbreds with similar or identical growth habits.

W. C. Galinat
P. C. Mangelsdorf

4. Effect of natural selection on teosinte introgression.

Various teosinte derivatives of A158 were intercrossed and a blend of the resulting seed was grown in isolation for four generations (years). Reserve seed from each year was planted in a 4 X 4 latin square yield test with the following results:

| Generation | | Yield bu/acre | Shelling % |
|---|---|---|---|
| 1 (1957) | | 67.2 | 80.1 |
| 2 (1958) | | 70.8 | 77.1 |
| 3 (1959) | | 69.8 | 78.5 |
| 4 (1960) | | 66.6 | 78.1 |
| For Significance | 0.05 | 8.7 | 0.7 |
| | 0.01 | 13.1 | 0.8 |

If the introgression of teosinte germplasm into corn causes evolution for increased yield, four generations of natural selection were inadequate to show it in the corn under the conditions involved in this experiment. The trial did show a significant drop in shelling percentage between the first and second generation.

W. C. Galinat
P. C. Mangelsdorf

5. Colchicine induction of an amphidiploid of multiple tester corn X Tripsacum dactyloides.

Among the many techniques and dosages for colchicine induction of polyploidy which were tried, only one was successful in producing the desired amphidiploid of a WMT corn X T. dactyloides hybrid. The successful procedure was as follows: A tiller about 18 inches long with adventitious roots starting to develop near its base was cut and grown in a nutrient solution until well rooted. The plant was then transferred to a mixed solution of aqueous colchicine (1:1000) and a non-ionic wetting agent (Tergitol 1:500) for 72 hours. The plant which appeared to be almost dead after this severe colchicine treatment, was transferred to a soil-Sphagnum mixture. After two months of being nursed along, a fairly normal cluster of seven shoots had emerged.