Table 4. Coefficient of Correlation Between Male and Female Fertility of Individual Plants.

Within the 39 class:	r = .329
Within the 40 class:	r = .252
Within the 41 class:	r = .289
Within the 42 class:	r = .632*
Overall disregarding classes:	r = .458**

possibility that 4N Argentine Flint, a long-time tetraploid, may behave differently than other maize autotetraploids in the characters studied.

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Studies at this station involving ultraviolet irradiation of pollen attempt to demonstrate some of the subtle changes which may be masked in large scale and/or long continued irradiation of this type in heterozygous populations. Recurrent irradiation involving 60-110 plants per generation in the check and treatment populations of homozygous diploid HD73, and long term inbred B14 have, after four generations of irradiation, yielded nothing of the spectacular. Irradiation has resulted in poorer stands in some generations, and in the occurrence of occasional monoploids and a single triploid (unproven cytologically). The series will be continued for two or more generations with seed of each generation placed in cold storage. Plans call for an eventual variance analysis in several quantitative traits to detect the presence of induced effects of an individually small, but cumulative, nature.

The possibility of selection pressure accompanying the exposure of pollen to ultraviolet was tested in 1960 in a latin square trial comparing the double cross (Wf9xM14) x normal (Os 420x187-2) with (Wf9xM14) x irradiated (Os420x187-2). The three-way crosses (Wf9x M14) x normal Os420, (Wf9xM14) x irradiated Os420, (Wf9xM14) x normal 187-2, and (Wf9xM14) x irradiated 187-2 were also included. Irradiation had no detectable effect upon harvest moisture or stalk quality. Yields of the two three-way crosses, in sharp contrast to the very slightly reduced double cross, were markedly lowered. The reduction was significant in the case of (Wf9xM14) x irradiated Os420. The full significance of this has not yet been determined.

The irradiator involved consists in principle of three 15 watt germicidal tubes mounted four inches above a cardboard plate. Pollen is exposed as an agitated cloud atop this vibrating plate. Inch high sides allow the cloud to be shifted back and forth to avoid pooling. A one minute exposure, as used in these studies, gives approximately a 50% mortality. Complete mortality has resulted from four minutes of exposure. Plate capacity is such that an individual exposure in the recurrent irradiation study involves the bulked pollen of ten plants. A 110-160 volt AC car generator enables a closed laboratory (station wagon) to be placed right beside the rows to be worked.

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1. The Colorado corn collection.

Colorado is still a fertile source of open-pollinated corn varieties, even though hybrids are rapidly becoming predominant. The percentage of corn acreage planted to hybrid seed in Colorado may be compared with that for the United States as follows (Colorado Agricultural Statistics, 1956 Final, 1957 Preliminary: 44; 1958 Final, 1959 Preliminary: 51):

Year	Colorado	United States
1940	1.9%	30.5%
1950	52.0%	78.0%
1959	81.5%	94.8%

In order to preserve sources of genetic diversity, a number of open-pollinated varieties were collected during the autumn season of 1960.

Although the climate of Colorado is generally cool and dry there is a great diversity of environments. Corn is grown at elevations of 3500 feet in the northeast and southeast to 8000 feet in the San Luis Valley of south central Colorado. The growing season for corn varies from 100 days in the San Luis Valley to 190 days at Grand Junction on the Western Slope. Dryland corn is grown on the sandy soils of the eastern plains under an average annual precipitation of 15 to 18 inches. In 1958 irrigated corn accounted for 68 percent of the total acreage and 87 percent of the total production in the state.