development) and without the aid of the 9^B chromosome (note effect on C wx kernels). The immediate question is whether the "mutation" is real or the product of a rare combination of genes from the F_2 segregation. The answer is not yet known.

Wayne Carlson

ISTITUTO DI GENETICA VEGETALE
Universita Cattolica
Piacenza, Italy

1. Genes for spikelet bearing two fertile pistillate flowers.

The cultivated varieties and hybrids of maize normally develop a pistillate inflorescence bearing spikelets with a single fertile flower. The second flower present in the spikelet aborts at an early stage. A few varieties with a fertile second flower and a spikelet producing two grains have been described.

In 1966, we isolated from a plot sown with an open pollinated variety some plants having ears with two kernels in each spikelet. From the preliminary morphological and genetical analysis of this character the following conclusions have been drawn:

1) The appearance of two kernels per spikelet is associated with the development of a second flower with functional pistil. The homozygous mutant ear has about 90% of spikelets with two flowers.
2) In the F_1 ears obtained from crosses between mutant plants and normal inbred lines, some spikelets (5% or less) located at the top part of the ear bear two fertile flowers. This suggests that at least one of the factors controlling the character is partially dominant.
3) The phenotype of the F_2 ears is variable. About 50% of the ears are normal (group 4), 40% show intermediate phenotypes classifiable into at least two groups (groups 3 and 2), and 10% fully express the mutant phenotype (group 1).

4) The F_3 progenies obtained from group 1 reproduce the mutant phenotype, with some exceptions possibly due to incorrect F_2 classification.

5) The F_3 ears derived from F_2 intermediate groups segregate for normal, intermediate and mutant phenotypes. The progenies from F_2 group 4 contain phenotypically normal and intermediate ears. From the data at hand, it is possible to hypothesize that two factors control the character.

6) In the F_3 progenies studied, mutant ears bear more seeds than the normal ones (404 versus 289), with a slightly higher total kernel weight (69 versus 64 g per ear); the average kernel weight is lower (17 versus 21 g).

C. Lorenzoni
F. Salamini

2. Gametophyte factors in chromosome 9 of inbred lines.

The genetic stock marked with $\underline{yg}_2$ $\underline{sh}_1$ $\underline{wx}$ $\underline{Ga}_8$ has been crossed with 60 inbred lines and the ensuing hybrids have been self-pollinated. The ears obtained have been analyzed (in number, about six) as to the segregation ratios for the markers mentioned. The following table reports the cases in which the data suggest the presence in the inbred lines of ga factors, with the exception of the line H 21 in which there is indication of a super-$\underline{Ga}_8$ factor. Obviously, in general, all the

Line tested	Marker rate significantly deviating from .25			Ears deviating/ Total ears
	sh	wx	yg	
H 21	.29	.29		4/8
MIBO 4	.17			3/15
R 157	.16	.17		1/4
R 158	.04	.00		1/4
W 32H	.20	.17		3/3
W 64A		.18		3/6
L 1047	.20	.17		3/3
L 1057	.14	.01		1/5
L 1058	.15		.00	1/6