

#### 4. Fertility Restorers.

Some 25 single crosses were grown for observation in 1952, representing combinations of widely used inbred lines with the Texas strain of cytoplasmic male sterile WF9 obtained from Dr. D. F. Jones. Of those tested only one yellow line, Ia 153, completely restored fertility of every plant in the single cross. Three F<sub>1</sub> plants of this cross were both selfed and backcrossed onto WF9<sup>T</sup>, and the progeny grown in 1953 with the following results:

	F <sub>2</sub>			Total
	Fertile	Intermediate	Sterile	
1-27 S	67	7	70	144
1-40 S	86	10	78	174
1-45 8	73	15	86	174
Total	226	32	234	492
Observed	258		234	
Calc. 9:7	276 3/4		215-1/4	492

  

	Backcross			Total
	Fertile	Intermediate	Sterile	
WF9 <sup>T</sup> x 1-27	20	9	63	92
WF9 <sup>T</sup> x 1-40	40	6	128	174
WF9 <sup>T</sup> x 1-45	26	1	100	127
Total	86	16	291	393
Observed	102		291	
Calc. 1:3	98-1/4		294-3/4	393

If the intermediate tassels are classified with the fertile tassels the results fit reasonably well to a hypothesis of two complementary factors necessary to restore fertility. Deviations as large as observed in the F<sub>2</sub> population could occur by chance 9% of the time and in the backcross population could occur over 50% of the time. Small backcross populations used to introduce fertility restoring genes to other lines tend to confirm this hypothesis.