4. Investigation of new sources of restorer genes.

Texas cytoplasm restorers. More than 200 new "T" restorer sources have been found. Work is now in progress to determine if any of these new sources are different from or non allelic to the presently used "F" locus to be found in K6, Ky21, K55, Txl27c, I153, A344, etc.

"S" cytoplasm restorers. More than 100 sources of restoration for this cytoplasm have been screened out. Explanation of mode of inheritance of restoration of this cytoplasm from this work is far from conclusive, and further investigation of these sources is being directed entirely to a better explanation of gene action involved. The difficulty lies in establishing what might constitute a valid genic background. This work involves use of WF9 MS (S) x M14 as tester parent, and hence future information will by necessity include the assumption that this single cross does in fact represent a valid threshold from which to measure factors affecting restoration of "S" cytoplasm, since the recyling technique in use progressively removes restoring factors from the original source genic backgrounds (usually O.P.) and inserts these factors into the WF9 x M14 background in the usual backcross rate of 50% per generation.

33-16 cytoplasm restorers. Mode of inheritance of restorer mechanisms found in six inbred lines is being investigated, assuming the Inb. WF9 constitutes a valid "threshold."