computerized so that it is readily available as a reference source. An information retrieval system enables queries concerning various aspects of the germplasm bank to be answered with a minimum of human effort. The data bank is constantly being updated as new information regarding old varieties is released; and as new varieties appear, they are added to the list.

Consequently, we would be grateful for any information resulting from screening of the germplasm, particularly with regard to disease and insect resistance, physiological and morphological characteristics, which could be entered into the computer data bank and increase its usefulness.

Correspondence concerning germplasm screening, and requests for queries of the data bank on specific items of information, should be addressed to Dr. T. Hymowitz, c/o Dr. C. A. Newell, Department of Agronomy, University of Illinois, Urbana, IL 61801, U.S.A.

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1. Cytological abnormalities associated with male sterility genes in soybean.

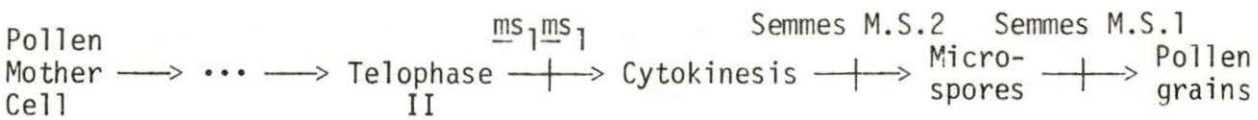
Singh et al. (1974) reported the inheritance as well as the pollen behaviour of 3 male-sterile lines of soybean, viz: 'Semmes M.S.1', 'Semmes M.S.2' and 'N 69-2774'. They observed monogenic inheritance with sterility being the recessive trait in all these lines. Semmes M.S.1 had nonfunctional pollen but of the same size as that of normal pollen grains; Semmes M.S.2 had no pollen at all, whereas N 69-2774 had nonfunctional pollen but these were much bigger as compared to the normal pollen grains. The present study was undertaken to elucidate the cytological basis for the differential pollen behaviour of these male-sterile lines.

Male-sterile plants from the segregating progeny rows of each of these lines were identified by microscopic examination of the pollen grains at initiation of flowering. Young buds from the male-sterile plants were fixed in

acetic-alcohol fixative for 24 hours and then transferred to 70% alcohol. Acetocarmine squashes were prepared to study the meiotic stages.

The cytological studies revealed specific abnormalities in these lines. Semmes M.S.1 showed normal cytokinesis and normal microspore formation but the microspores failed to develop into normal pollen grains. Consequently nonfunctional pollen grains were observed. Normal cytokinesis was observed in Semmes M.S.2 also, but the daughter nuclei degenerated immediately thereafter and no microspores or pollen grains could be observed. In N 69-2774, there was a complete failure of cytokinesis after telophase II and, thus, the 4 daughter nuclei remained together and got encapsulated within a single pollen wall, resulting in a single large size nonfunctional pollen grain.

Apparently, the manifestation of the sterility genes in these lines is quite different. The mutant gene blocks the normal cytokinesis in N 69-2774; it blocks the microspore formation in Semmes M.S.2, whereas in Semmes M.S.1 it blocks one of the steps involved in normal pollen development from microspores. Obviously, the genes for sterility appear to be different in these lines. The gene symbol '$\underline{ms}_1\underline{ms}_1$' has been assigned for N 69-2774 (Brim and Young, 1971). [Further genetic studies are in progress, on completion of which gene symbols will be proposed for Semmes M.S.1 and Semmes M.S.2, and sent to the Soybean Genetics Committee for consideration. Editor's note.] The order and the probable place of action of these genes during meiosis and pollen development may be as indicated below:



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