

for Production Research

soil nitrogen in contributing to the high soybean yields achieved in recent years. The two sources of nitrogen for the soybean (nitrates present in the soil and nitrogen fixed by symbiotic nodules) have a complex interrelationship which is sometimes competitive and at other times complementary. The objective of this study is to (a) search for genetic variants having greater capacity to utilize nitrates, and (b) attempt to find a genotype(s) that has more capacity to use nitrogen from both sources available to the soybean. Project leader—R.H. Hageman, Department of Agronomy.

Iowa State University, Ames: Title—Soil nutrient requirements of top-yielding soybeans (\$5000, 3 years). Description—High yields of soybeans will probably be made by farmers in the 1980's under different management conditions and using varieties with different growth habits. Higher demands will then be made on the fertility of the soil. This study will involve the highest yielding varieties of suitable canopy type, very narrow rows, optimum plant density, and optimum soil moisture conditions. An intensive investigation of various fertility levels, types of application, and the need for micronutrients will be conducted. The objective will be to determine nutrient requirements and most efficient fertilizer use for soybeans at a high level of management. Project leader—C.J. deMooy, Department of Agronomy.

University of Minnesota, St. Paul: Title—Shoot-root relations of nitrogen fixation by soybean nodules (\$5000, 3 years). Description—The root nodule tends to become less active during the critical period when pods are filling. This has limited soybean yields but the extent of limitation is not known. The objective of this study is to determine the degree of yield between symbiotic nitrogen fixation in root nodules and physiological processes of the shoot. A search will be made for genotypes more efficient than others in utilizing photosynthate for nitrogen fixation and/or those which keep nodules active longer to provide added nitrogen nutrition to the developing seeds. Project leader—W.A. Brun, Department of Agronomy and Plant Genetics.

North Carolina State University, Raleigh: Title—The investigation of the use of a male sterile character in soybean breeding (\$4000, 2 years). Description—Soybeans are 99% self-pollinated and are very difficult to cross-fertilize artificially. Only a few seeds are obtained per cross in contrast to crops such as corn, tobacco, tomatoes. A mechanism which promotes natural crossing in soybeans would provide plant breeders an opportunity to study the feasibility of hybrid seed production. Also, increased natural crossing should enable soybean breeders to utilize more efficient breeding procedures. The project leader has discovered the first completely male-sterile in soybeans. This study will evaluate the feasibility of recurrent selection procedures for yield as well as for hybrid seed production. Project leader—C.A. Brim, Department of Crop Science.

University of Tennessee, Knoxville: Title—Evaluation of induced mutant lines of soybean for increased yield potential and resistance to Race 4 of cyst nematode (\$4000, 2 years). Description—Mutations are the ultimate source of all variability in organisms. Four soybean varieties have resulted either directly or indirectly from artificially-induced mutants. A cooperative program exists between the University of Tennessee and the UT-AEC Agricultural Research Laboratory at Oak Ridge, Tenn. Soybean seeds will be irradiated at Oak Ridge in search of mutants resistant to Race 4 cyst nematode. Further objectives are (a) to evaluate genetic variance for yield characteristics including shorter internodes, increased branching, more pods and seeds per pod, and increased weight of seed; and (b) compare effectiveness of different mutagenic treatments for increasing genetic variability of traits mentioned. Project leader—B.V. Conger, Department of Plant and Soil Science.

Dick Doughtie Stricken

By Heart Attack

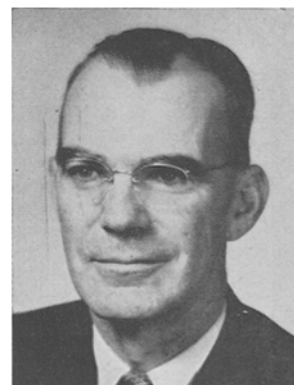
Richard T. Doughtie, 63, Supervisor of Cottonseed Grading of the USDA, died of a heart attack at his office in Memphis, Tenn., on April 6, 1972. Doughtie had been an AOCs member since 1933.

A native of Helena, Ark., Doughtie came from an oil milling family. His father owned and operated an oil mill in Helena and was president of the National Cottonseed Products Association in 1932-33.

Before joining USDA in 1936, Doughtie worked as a chemist for the Forrest City, Ark., Cotton Oil Mill. At the time of his death he was Supervisor of Cottonseed Grading for the 13 cotton-producing states.

Doughtie was active in several scientific organizations, devoting much time to the improvement of methods for sampling and analysis of oilseeds and oilseed products. He was especially involved in the work of AOCs, acting as chairman of the Smalley Committee and a member of the Examination Board. The Society honored Doughtie with the Award of Merit, given for outstanding service to AOCs. Doughtie was also active in the National Cottonseed Products Association.

He leaves his wife, Mrs. Esther Alice Jones Doughtie, two daughters, Mrs. William French of Jackson, Miss., and Mrs. Reece Taylor, Jr., of Memphis, a son, R.T. Doughtie III of Norfolk, Va., and three grandchildren. Also surviving are his mother, Mrs. R.T. Doughtie, Sr., of Memphis, and one sister, Mrs. Elizabetha, also of Memphis.



R.T. Doughtie, Jr.

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