

Soybean Processing Industry Awards Grants

Research into the soybean plant's nitrogen utilization, mutations to provide genetic variability, and alteration of growth characteristics, to achieve greater soybean yields, are underscored in new university grants announced by the National Soybean Crop Improvement Council.

Seven landgrant universities, of 21 that submitted proposals, were awarded \$33,000 for soybean research projects over the next three years, according to Robert W. Judd, managing director of NSCIC, research arm of the National Soybean Processors Association that is funding the programs. These 1972 grants are an extension of the \$75,000 research monies underwritten during the past 5 years.

"The industry is concerned," said Judd, "that simply encouraging farmers to plant more acres in soybeans is not the total answer to reaching an anticipated annual need of 1,750,000 bushels of U.S. soybeans by 1980.

"Current demand is calling for 1,375,000 bushels against 1971's actual production of 1,225,000 bushels, which we are hard pressed to meet. The picture is further aggravated by nearly depleted carryover stocks."

The realistic way to boost bean output to meet worldwide demands for meal, protein and oil, Judd continued, is to mount a three-pronged offensive: more acreage, better

growing and management techniques, and greater harvesting efficiency—"and that's what our research grants are all about."

Looking at the national average crop yield increases for the period 1950-70, Judd explained, soybeans are at the bottom of a list of 12 principal commodities, with a per-acre yield increase of only 24% during those 20 years.

Peanuts headed the list with a 128% increase. Corn showed a 91% increase, wheat 88% and barley 57%.

"Higher soybean yields," according to Judd, "are vital to an ever-increasing proportion of the world's population. People in many countries depend on us to supply soybeans and soya products. We think the key to many of our production deficiencies is in research, and this is why the processing industry welcomes the opportunity to work hand-in-hand with our scientists through research grants."

Five of the current awards are in the amount of \$5000 each for 3 year projects, and two for \$4000 for 2 year project terms. The participating universities are Arkansas, Georgia, Illinois, Iowa, Minnesota, North Carolina and Tennessee.

Judd summarized the projects as follows:

University of Arkansas, Fayetteville: Title—Growth regulating chemical evaluations for increasing soybean production indeterminate soybean varieties (\$5000, 3 years). Description—The objective is to select chemicals for growth control that will increase pod set and seed size. Several new growth-regulating chemicals will be evaluated in field test plots. Measurements of physiological processes will be made to find significant influences on increasing photosynthetic efficiency resulting in increased seed yield. Potentially useful growth-regulating chemicals will be measured to determine their effects on uptake and utilization of water and plant nutrients and their effect on specific photosynthates and metabolites. Project leader—Charles A. Stutte, Department of Agronomy.

University of Georgia, Athens: Title—Effect of mycorrhiza on yield, nodulation and nitrogen fixation of soybeans (\$5000, 3 years). Description—Little is known about soil microbial interactions with soybeans. The effect of microorganisms in the area around the plant roots has been studied and one, *Endogone*, has given an increase in yield when the soybean plants were inoculated with this fungus. The fungus growth can function as root hairs in absorbing water and inorganic nutrients. The objectives of this study are to determine the relationship of soybean mycorrhiza to growth and seed yield, nitrogen fixation, infection and nodulation by *Rhizobium* (nodulating bacteria), and nutrient uptake. Project leader—Joel Giddens, Department of Agronomy.

University of Illinois, Urbana: Title—Genetic variation in the capacity and duration of nitrate uptake and assimilation of soybeans (\$5000, 3 years). Description—Relatively little attention has been given to the role of

New Fungicide and Nematicide Data Available

Fungicide and Nematicide Tests, Results of 1971 is now available. This report is issued annually by The American Phytopathological Society Committee on New Fungicide and Nematicide Data. Volume 27 contains the results of 326 experiments from 30 states of the U.S., Chile, China, Germany, India, Israel, Libya, Mexico, New Zealand, Canada, Spain and the United Kingdom. It also includes an index of all fungicides and nematicides reported, a description of the materials available for testing in 1972, a discussion of suggested procedures for evaluation of experimental nematicides in field applications, and a list of ca. 500 chemicals now under trial or in general use.

The book is available for \$3.00 per copy when payment accompanies the order, or \$2.50 per copy for 100 or more copies mailed to one address. Reports for 1970 are available at \$3.00 per copy. Copies of the reports for 1960 through 1966 plus a few older copies are available at \$1.00 per copy plus the usual charge of 25¢ per copy if billing is required. Make remittances payable to the American Phytopathological Society and send orders to K.D. Hickey, Virginia Polytechnic Institute and State University, Fruit Research Laboratory, Winchester, Virginia 22601.

CALL FOR PAPERS

AOCS 46TH ANNUAL FALL MEETING

The Technical Program Committee has issued a call for papers to be presented at the AOCS Fall Meeting, September 24-28, 1972, in the Chateau Laurier Hotel, Ottawa, Canada. Papers on lipids, fats and oils, and all related areas are welcome.

Submit three copies of a 100-300 word abstract with title, authors and speaker to Neil Tattrie, Division of Biology, National Research Council, 100 Sussex Drive, Ottawa, Ontario, Canada K1A 0R6.

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

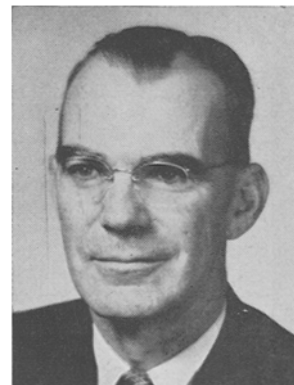
Richard T. Doughtie, 63, Supervisor of Cottonseed Grading of the USDA, died of a heart attack at his office in Memphis, Tenn., on April 6, 1972. Doughtie had been an AOCs member since 1933.

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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