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FEDERAL-GRANT RESEARCH at the STATE AGRICULTURAL EXPERIMENT STATIONS

Projects on

FIELD CROPS

Part 8, Section b

Oil, Fiber, Tobacco

and Sugar Crops

Agricultural Research Service
UNITED STATES DEPARTMENT OF AGRICULTURE

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The State Experiment Stations Division, Agricultural Research Service, U. S. Department of Agriculture, Washington 25, D. C., for use of workers in agricultural research in the subject-matter areas presented. For information on specific research projects write to the Director of the Station where the research is being conducted.

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Contents

INTRODUCTION

This compilation is one of a series providing information on State agricultural experiment station research supported by Federal-grant funds appropriated annually by Congress under authorization of the Hatch Act of 1887, as amended and approved Aug. 11, 1955, and Section 204(b) of the Agricultural Marketing Act of 1946. It is prepared for use by research workers in the subject-matter areas presented. Only that part of each State's research program supported by Federal-grant moneys is included.

In addition to the Federal-grant moneys, the State experiment stations receive some Federal support through cooperative agreements or contracts with the U. S. Department of Agriculture. Information on such research, along with other departmental research, is available in the Central Project Office, Agricultural Research Service.

A substantial part of each State agricultural experiment station's research is supported with moneys appropriated by the respective State or Territorial Legislatures and through other forms of private and public financing. Information on current agricultural research at the stations which is not financed under the Federal-grant program or through USDA cooperation can be obtained from experiment station directors.

The information given in the series of Federal-grant compilations includes the title and objectives of each Federal-grant project pertaining to the subject given on the cover. The identification of each project gives the department(s) conducting the research, the station number of the project, and the number of the regional project if it is a contributing project.

Relevant regional projects, if any, appear at the end of the compilation. States having projects contributing to regional projects are indicated. The Roman numeral (and capital letter) refer to the location in the summary of the contributing project title and objectives. The States are grouped into four major regions. These are designated NC-North Central, NE-Northeastern, S-Southern, and W-Western. The capital letter "M" following the letters for the region indicates regional marketing projects.

I. OIL CROPS

A. Flax

N. Dak. The Structure of Certain Carbohydrates in Flaxseed Hull. To determine more completely the structure of a complex carbohydrate found in the flaxseed hull.
Agr. Chem. 2-1

N. Dak. Chemical Modification of Flaxseed Mucilage. (1) Prepare chemical modifications of flaxseed mucilage. (2) Study physical & chemical properties of chemical modifications. (3) Learn if modified mucilages will be commercially useful for gelling agents, emulsifiers, adhesives, or wetting agents.
Agr. Chem. 2-4

N. Dak. Fat Acid Composition of Linseed Oil from the World Collection of Flax Varieties. Find a flax variety producing a quick drying oil that is non-yellowing in paint & that has following properties: high linoleic acid content, low linolenic acid content, low saturated & oleic acid content.
Agr. Chem. 2-5

N. Dak. Breeding and Genetics of Flax. To (1) develop varieties of flax with desirable agronomic qualities--high resistance to wilt Fusarium lini; resistance to races of rust; tolerance to pasmo, Sphaerella linorum; and quantity and quality of oil, and seed yielding ability; and (2) determine if some relationships exist between reaction to rust and other characters of flax.
Agron. 6-13 Coop. USDA

N. Dak. Preservation of Certain Physiologic Races of Flax Rust Melamspora Lini. To (1) preserve and maintain in uredinial stage races of flax rust having desired genes for virulence on selected flax varieties; and (2) test material for flax breeders who desire such assistance, or furnish them on request specific cultures for such testing.
Pl. Path. 13-1 (NC-7) Coop. USDA

Tex. Flax Improvement. To (1) develop or discover new varieties of flax better suited to Texas than now available, (2) search for greater cold resistance among imported or domestic strains & hybrid material, (3) cooperate in testing domestic & imported strains for sources of disease resistance, cold resistance & agronomic characteristics of value in the program, (4) test rate & date of seeding, fertilizer needs of crop & cultural methods for flax, (5) cooperate in control tests of nematodes & insects which attack flax.
Agron., Pl. Physiol. & Path. 1028 Coop. ARS

B. Peanuts

Ala. Cause and Control of Collar Rot on Peanuts. To (1) determine cause or causes of collar rot of peanuts; and (2) develop control measures.
Bot., Pl. Path 546

Ala. The Market Value of Peanuts as Affected by Changes in Chemical and Physical Properties During Storage. To learn (1) effects of storage on chemical, biochemical, & physical changes in peanuts; (2) relationship of initial quality of peanuts to changes during storage; (3) relation of microflora to respiration & associated deteriorative changes in peanuts, (4) relationship between chemical, biochemical, & physical properties & changes in odor, flavor, & certain nutritive factors affecting market value of peanuts.
Bot., Pl. Path. 570

Fla. Peanut Breeding for Superior Types for Market and for Livestock Feed. To develop (1) superior market varieties having seed qualities of Spanish, N. C. Runner, & Virginia Jumbo peanuts; & (2) superior varieties for livestock feed with good qualities for hogging-off.
Agron. 20

Fla. Nutrition and Physiology of the Peanut. To determine the growth requirements and study the physiology of peanuts as a basis for increasing yield and quality.
Agron. 488

Ga. The Effect of Fertilizer Ratios and Methods of Placement on Peanut Yields. To (1) determine most profitable ratios & rates of fertilizers for use on peanuts, (2) determine optimum placement of peanut fertilizers, & (3) develop satisfactory equipment for optimum fertilizer placement when determined.
Agr. Engin. 20 Coop. ARS

Ga. Lime, Minor Elements--Effect of Lime on Availability of Molybdenum and the Resulting Influence on Yield and Mineral Nutrition of the Peanut and on Certain other Minor Element Relationships. (1) Learn influence of lime on availability of Mo in representative soils of peanut belt. (2) Study effect of lime on Mo uptake by peanuts. (3) Measure combined influence of lime & Mo on mineral content of peanut. (4) Establish level at which Mo becomes a limiting factor in production. (5) Where minor element deficiencies occur, study their relation to lime levels & other factors.
Agron. 44

Ga. Roasting Peanuts. To study chemistry of the process of roasting peanuts & learn effect of variations in the process on the resulting product.
Agr. Chem. 62

Ga. Susceptibility of Various Strains of Spanish Peanuts to Rancidity Development. To (1) determine susceptibility of various strains of Spanish Peanuts to oxidative rancidity development, & select less susceptible strains for production of this type; & (2) isolate & characterize factor or factors that are responsible for the difference in susceptibility of various types to oxidative rancidity development.
Agr. Chem., Pl. Path. 63

Ga. Peanut Curing. To learn effect of (1) various curing methods upon quality & yield of peanuts for seed stock, edible trade, & oil & (2) high temperatures on edible qualities & viability of peanuts, (3) to devise methods of curing to reduce labor costs & improve the quality of peanuts.
Agr. Engin., Pl. Path. 65 Coop. USDA

Ga. The Effect of Various Treatments upon the Keeping Qualities of Peanuts and Peanut Products in Common and Refrigerated Storage. To determine (1) temperature, time, moisture conditions under which peanuts keep maximum flavor during storage of processing; (2) suitable containers for shelled and unshelled peanuts and peanut products, and determine to what extent quality may be controlled by improved packaging; (3) effectiveness of anti-oxidants or other additives in preventing staleness and rancidity in peanuts and peanut products; and (4) influence of variety, grade, and prestorage quality of peanuts on processing and on shelf life of peanut products.
Food Proc. 73

Ga. Control of Southern Blight (Sclerotium Rolfsii) on Peanuts. To develop (1) well integrated practicable schemes of culture that apply the fundamental requirements for control of southern blight on peanuts and other crops; and (2) implements which will obtain these cultural requirements in widely different types of soil.
Pl. Path., Agr. Engin., Hort., Agron. 102 Coop. ARS

Ga. Peanut Breeding and Improvement. Develop high yielding disease resistant varieties of peanuts; conduct basic studies in inheritance involving genetic studies of peanut & related species, inter- & intra-specific hybridization & cytogenetic investigations of breeding materials; evolve improved production practices in collaboration with specialists in various phases of peanut production research.
Agron., Pl. Path. 204 Coop. ARS

Ga. Control of Insects Attacking Peanuts and Tobacco. To develop effective methods to: (1) reduce damage done to peanuts by insects feeding on foliage & on roots & nuts; & (2) learn regular spray & dust schedules for control of budworm, hornworm, & green peach aphid on tobacco.
Ent. 215

N. C. The Federal Peanut Programs and Their Effects on Peanut Farming and Marketing. To (1) measure & appraise effects of federal price support, production adjustments & surplus removal programs on supply, consumption, markets & prices of peanuts, with emphasis on competition between type of peanuts grown in N. C. & Va., & types grown in other sections of the South; (2) measure & appraise effects of programs on income from peanut farming, allocation of resources within, & between, farms, & interrelationships of product & factor prices in peanut growing regions; (3) study interconnections of peanut programs with programs for cotton & tobacco, & examine interaction of effects of such programs at farm level; & (4) make available to farmers & general public, pertinent information on peanut program.
Agr. Econ. HM-2 (SM-14) (Also see Part 2, Section a.)

N. C. Peanut Curing Studies. (1) Correlate response of peanuts to their environment during curing process. (2) use formulations from above objective as functional design specifications in development of a practical curing system.
Agr. Engin., Agr. Chem., Statis., Agron. 12

N. C. Peanut Breeding and Cultural Investigations. To develop strains of peanuts with greater yielding ability, high oil content, and superior disease resistance; and to determine the relative response of different types or varieties, as measured by both yield and quality, on different soil types and to various cultural practices.
Agron. 50 Coop. AEC

N. C. Etiology, Epiphytology and Control of Soil-Borne Diseases of Peanut. To (1) obtain basic information on influence of environmental factors, cropping & cultural practices, soil microflora, & varietal susceptibility upon severity of soil-borne diseases of peanut caused by various bacteria, fungi, & nematodes; & (2) use such basic information in developing effective, practical control measures.
Pl. Path. 88

N. C. The Influence of Plant Nutrients Upon the Development of the Peanut Plant and Upon the Quality and Quantity of Fruit Produced. To (1) characterize deficiency conditions in peanuts for all mineral elements considered to be essential for plant growth; (2) evaluate effect of different plant nutrients upon production of flowers & development of fruit; (3) characterize changes in chemical composition of different parts of plant thruout growing period; & (4) study physiological interrelationship between B & Ca in peanuts.
Soils H-108

N. C. The Productivity of Peanut Soils as Influenced by Crop Sequence and Management Practices. To (1) isolate factors responsible for marked reduction in productivity of soils which are planted frequently to peanuts; & (2) evaluate different crop rotations & use of various fertilization & management practices upon production of peanuts & other crops in the rotation.
Soils 109

Okla. Marketing Efficiency and Price Policy Related to Peanuts. (1) Learn nature of domestic supply function for peanuts of various types. (2) Characterize demand structure for various types of peanuts. (3) Evaluate impact of selected alternative policies & programs on peanut industry (special reference to marketing). (4) Isolate & analyze marketing problems involved in moving peanuts from producers to 1st handlers.
Agr. Econ. 978

Tex. Improvement of Peanuts Through Breeding and Selection. To (1) develop new varieties & strains of Spanish type peanuts with resistance to Southern blight, & Cercospora leaf spots, high yielding ability, uniformity of shape & size of seed, & seed dormancy; (2) increase emphasis on assembling & testing of new peanut breeding materials for a substantially higher order of resistance to major diseases; (3) conduct hybridization & selection within groups of new & old breeding materials in the direction of combining high disease resistance with other outstanding characteristics; & (4) use all available genetic techniques in reaching the above objectives, including chemical & radiological methods of modifying germ plasm.
Pl. Path. & Physiol., Agron. 569

Tex. Diseases of Peanuts. To study major diseases of peanuts in Texas & develop practical measures toward their control. 1. Southern Blight. 2. Seedling infections. 3. Leaf spots.
Pl. Physiol. & Path. 605 Coop. ARS

Va. Peanut Nutrition and Factors Affecting the Fruiting and Maturity of Peanuts. Study of the physiological factors affecting the maturity of peanuts is undertaken to obtain information that is essential for proper evaluation of any peanut research involving yields.
Pl. Path. & Physiol. 86027

Va. Control of the Southern Corn Rootworm Attacking Peanuts. To obtain information on: (1) insecticidal effectiveness of new compounds & decreased concentrations of those now recommended; (2) insecticidal effectiveness of new formulations; (3) efficiency of insecticide-fertilizer mixtures compared to granulated & dust formulations; (4) insecticidal effectiveness of side dress applications compared with broadcast; (5) most effective application time; (6) effect of insecticide treatment on maturity of peanut crop; (7) soil persistence of insecticides for rootworm control; (8) amount of residue in peanuts after control measures; & (9) effect of palatability after control measures.
Ent. 86042

Va. Soil-Plant Nutrient Relationships in Peanut Production. To (1) determine the optimum calcium-potassium ratio in the fruiting area of peanuts; (2) estimate the quantity of calcium and potassium adsorbed and released by soil constituents; (3) compare several liming materials and gypsum as sources of calcium for peanut fruits; (4) compare the ability of peanuts with that of oats to utilize the less available forms of nutrients in the soil; (5) evaluate the relationship of the various forms of plant nutrients in the soil to peanut production; (6) investigate indirect fertilization of peanuts; and (7) study the phosphorus and nitrogen needs of peanuts.
Agron. 86049 Coop. USDA

Va. Effects of the Price Support, Acreage Adjustment, and Surplus Removal Programs in Peanuts Upon the Price Relationships Between Peanuts and Various Competing Products. Measure extent to which end-users have modified their purchase & use of peanuts due to varying price relationships. Measure demand & price, income & cross-elasticities of peanuts & peanut products at end-use levels.
Agr. Econ. 86080 (SM-14) (Also see Part 2, Section a.)

C. Soybeans

Ark. Improvement, Production, and Management of Soybeans. (1) Obtain superior varieties or strains especially adapted to State conditions; test performance of strains & varieties developed by USDA Agricultural Experiment Stations, & private breeders under State conditions. (2) Study effects of rates & dates of planting, seedbed preparation, etc., on production; evaluate management practices as planting in stubble following small grains, cultural methods for weed & grass control, etc.
Agron. 137 Coop. ARS

Del. Soil Fertilization and Cultural Practices in Soybeans. Learn (1) most effective time of applying different ratios of fertilizers; (2) yield response of soybeans to supplemental N as affected by soil acidity; (3) cultural practices most suitable for new & improved varieties being recommended for Delaware.
Agron. 12-A

Del. Chemical Control of Weeds in Soybeans. Evaluate herbicides for development of satisfactory & economical weed control practices in soybeans with emphasis on pre-emergence applications.
Agron. Agr. Engin. 36A

Ga. Breeding, Culture, and Fertilization of Soybeans in Georgia. To (1) develop disease resistant varieties of soybeans that can be profitably grown in Georgia for these uses: for hay that will give good forage yields & abundant seed, for hogging-off with low oil content that hold seed well & produce high seed yields, & for edible varieties that will make suitable green vegetable beans or dry beans; (2) determine environmental factors which prevent seed setting & development of varieties resistant to these factors; & (3) determine effect of lime & fertilizer nutrients on yield of seed & hay, & on oil content.
Agron., Crop 29

Ill. The Effect of Feeding the Soybean Plant or its Fractions on Animal Reproduction, Growth, Lactation, and Aging. To (1) learn cause for impaired reproduction & other physiological failures in female rabbit fed a diet composed of 49.5 parts soybean hay, 49.5 parts of ground wheat & 1 part NaCl, (2) extend study to dairy cattle & goats to learn reasons why soybean forage as a nutrient source has lost favor with dairymen in Illinois, (3) study soybean dietary factors as related to vitamins, hormones, & body metabolism.
Dairy Sci. 35-312

Ill. Soybeans and Soybean Products as Human Food. To investigate desirability of soybeans and their products for human consumption, study suitability of different varieties for cooking and processing and determine chemical constituents of soybeans so as to ascertain why they differ in culinary qualities from other legumes and if treatment of beans might be modified to make them more acceptable.
Home Econ. 60-324

Ind. The Liberation of Vitamins from Casein, Soybean and Other Proteins. Study methods for liberation of vitamins from proteins to prepare vitamin-free proteins suitable for use as dietary proteins in test rations.
Biochem. 576

Ind. The Occurrence and Inheritance of Linolenic Acid in Soybeans and its Relationship to Other Fatty Acids. To (1) develop techniques & methods for rapid & accurate evaluation of fatty acids, especially linolenic acid in soybean oil; (2) learn range of fatty acid composition, especially linolenic acid, of foreign introductions of soybeans; (3) learn mode of inheritance of linolenic acid content of soybeans; (4) develop strains of soybeans low in linolenic acid content which can be used in development of commercial varieties.
Agron., Biochem. 719 Coop. USDA

Ind. Host Relationships, and Methods of Control of Diseases of Soybeans. (1) Learn prevalence & economic importance of diseases of soybeans. (2) Identify causal organisms, their life histories, pathogenicity, epidemiology & methods of infection. (3) Develop disease resistant varieties & other appropriate control measures.
Bot., Pl. Path., Agron. 970 Coop. ARS

Iowa Development of Superior Soybean Strains. To (1) develop new soybean varieties adapted to the various climatic & edaphic conditions in Iowa & superior to those now grown in respect to yield & other agronomic characters, in chemical composition, & in resistance to the major diseases, (2) cooperate with Regional Soybean Lab. FCRB, USDA, in regional testing of soybean varieties, (3) determine value of different breeding methods in soybean improvement & to develop more effective methods of selection, (4) obtain basic data on the inheritance of & nature of gene action, (5) determine the nature of host-parasite relationships, (6) evaluate the disease reaction of breeding material, (7) determine factors that influence the development of soybean diseases.
Agron., Bot. 1179 Coop. ARS

Kans. Breeding and Production of Soybeans, Sweet Clover and Special Crops. A. Soybean investigations. To (A) obtain by breeding, selection and testing more satisfactory varieties of soybeans for yield, content, and quality of oil, and adaptability to combine harvesting.
Agron. 241 Coop. ARS

Ky. Improvement of Soybean Production in Kentucky. (1) Learn adaptability of promising new strains & named varieties. (2) Evaluate cultural practices likely to result in improved production, as: land preparation & cultivation, soil treatments & crop rotation, planting methods; spacing & rates - solid or row planting, distance between rows, etc.; planting date, methods of weed control.
Agron. 172 Coop. ARS

La. Soybean Breeding. To develop varieties of soybeans which are particularly well adapted for the production of seed, forage & soil improvement under varying soil & climatic conditions in Louisiana.
Crops, Soils 134 Coop. ARS

Minn. Soybean Genetics. To (1) study inheritance & heritability of important characters in soybeans, (2) learn mode of action & study segregation in succeeding generations of genes determining quantitative characters in soybeans, (3) evaluate responses of known genotypes under various environmental conditions with particular respect to effects on maturity, oil content, & yield, (4) study & develop technics of investigation of quantitative inheritance.
Agron., Pl. Genet. 1322 Coop. ARS

Minn. Epidemiology of Leaf Spots and Other Foliage Diseases of Crop Plants.—III, Soybean and Legume Crops. To study prevalence & distribution of diseases of soybeans & other legume crops.
Pl. Path., Bot. 2219-3

Mo. Improvement of the Missouri Soybean Crop. (1) Secure information on performance of new strains of soybeans in comparison with standard varieties in various parts of state. (2) Develop varieties with improved agronomic & chemical characteristics & with improved resistance to disease. (3) Secure information on effect of date of planting, rate of planting, etc., on performance of new & standard varieties; (4) certain questions of importance in breeding & production of soybeans.
Field Crops 49 Coop. ARS

Nebr. Selection, Breeding, and Testing of Soybeans for Productivity, High Oil and Protein Content for Industrial and Farm Utilization. To (1) conduct uniform tests of U. S. Regional Soybean Lab. designed especially to improve & test varieties for industrial uses & (2) determine effects of differences of soil & other environmental influences, including diseases, on yield & composition of soybeans--including improvement & testing of varieties for home use as feed & food.

Agron. 270 Coop. ARS

Nebr. Evaluation of Effects of Radiations on Quantitative Characters in Soybeans as Related to Breeding Improved Varieties. (1) Evaluate genetic variability induced in the quantitative characters yield, plant height, maturity, oil content, & protein content. (2) Predict genetic gain to be expected from selection within a population derived from irradiated seed as compared to selection in a control population. (3) Observe irradiated populations in all generations & isolate promising genotypes.

Agron. 555 Coop. AEC

N. C. Riboflavin Content of Soybeans and Cowpeas.--A. Growth Stimulant(s) Associated with Riboflavin in Soybeans. To (1) find why rat-growth bioassay for riboflavin in soybeans yields values approximately twice those obtained by the photofluorometric method, and (2) isolate and determine the nature of interfering substances.

Anim. Indus., Inst. of Statis. 18

N. C. The Investigation of Genetic Variability of Soybeans and the Effect of Various Characters on Yield and Chemical Composition. To (1) estimate for the various characters of soybeans, (a) magnitude of genetic variability & changes in variability resulting from selection, (b) nature & magnitude of interactions between genotypes & environment, (c) expected genetic advance due to different degrees of selection, & (d) genetic correlations; (2) develop breeding procedures to make maximum use of genetic variability; & (3) obtain information on relative importance of various characters on yield.

Agron. 53 Coop. ARS

N. C. The Breeding of Grain-Type Soybean Strains that are Superior to Existing Varieties in Agronomic Characters and Possess Resistance to the Common Diseases. To (1) develop soybean strains that are resistant to shattering & lodging & that produce high yield of good quality seed that are high in oil & protein; & (2) study inheritance of resistance to certain diseases & to transfer resistance to these diseases & resistance to bacterial pustule to strains possessing good agronomic characters.

Agron. 54 Coop. ARS

N. C. Soil Fertility in Relation to Soybean Growth and Production. To (1) determine relative importance & contributions of native soil fertility, other properties of entire root zone, & supplementary plant nutrients to growth & fruiting of soybeans; & (2) study relationships between soil & environmental conditions & crop in soybean growing areas of N. C. with special reference to factors which are limiting yields.
Soils 118

N. Dak. Soybean Improvement for North Dakota. (1) Develop lines of soybeans suitable for North Dakota conditions. (2) Evaluate soybean cultural practices.
Agron. 6-15

Ohio Factors Affecting Growth and Mineral Absorption by Plants--4-Factors Affecting the Absorption by Soybeans of Native Soil Manganese and Applied Manganese. (1) Study effect of rate & placement of N, P, & K fertilizers applied individually & in combination on the availability to soybeans of native soil Mn, & Mn incorporated with fertilizers. (2) Learn residual effect of applied Mn in light & heavy textured soils. Investigate (3) relation between variation in soil temperature & soil moisture & apparent fluctuation in rate of absorption of Mn by soybeans; (4) susceptibility of various varieties to Mn deficiency.
Agron. 1-4

Ohio Development and Evaluation of Improved Varieties of Soybeans for Farm and Industrial Utilization. To (1) develop by introduction, hybridization & selection improved strains of soybeans adapted to Ohio: (2) cooperate thru U. S. Regional Soybean Lab in interstate programs of exchange & evaluation of basic breeding, stocks, segregating populations, & promising new strains originating from breeding programs of all cooperating states; (3) make genetic studies as they may affect methods of breeding & field plot technique; (4) assist in orderly, effective program of increase & early distribution of foundation seed of new improved strains; & (5) evaluate breeding material to existing varieties in regard to reaction to soybean diseases prevalent in Ohio.
Bot., Pl. Path., Agron. 46 Coop. ARS

Ohio

Improving Methods and Equipment for Harvesting Soybeans. (1) Evaluate problems involved in soybean harvesting under farm conditions; learn extent & nature of losses. (2) Learn principles of operation & adjustment of existing equipment resulting in highest harvesting efficiencies & bean qualities. (3) Learn feasibility of high moisture harvesting & subsequent drying as a means for reducing losses & permitting more timely wheat seeding after soybean harvesting. (4) Develop & evaluate design changes & changes in equipment as methods for reducing harvesting problems.

Agr. Engin. 162

Tenn.

A Study of the Insects Attacking Legumes, with Special Reference to Alfalfa and Soybeans. Study will be made of insect pests of soybeans and alfalfa; their life histories as they apply to these crops under Tennessee conditions. A spraying and dusting program with various organics will be undertaken.

Ent. 96

D. Minor Oil Crops

Nebr.

Improvement of Safflower by Development of Better Cultural Methods and Superior Varieties. (1) Learn cultural practices for safflower production under irrigated & dryland conditions. (2) Study chemical & cultural methods of weed control. (3) Cooperate with existing safflower varietal improvement program.

Agron. 544 Coop. ARS

Okla.

The Mechanization of Castor Bean Production and Harvesting. (1) Learn principles of operation needed for successful castor bean harvesting. (2) Continue work on hullers, & combine hulling with harvesting. (3) Develop planter seed boxes that will meter seeds accurately. (4) Learn best placement for fertilizer in relation to bean seed. (5) Survey health hazards from bean seed & dust.

Agr. Engin. 924 Coop. ARS

S. C.

Breeding Disease Resistant Sesame Adapted to Mechanized Production. To develop & test desirable indehiscent & even-maturing varieties of sesame with emphasis on (1) adaptability to mechanized production, (2) resistance to diseases (Fusarium wilt & Cerospora leaf spot), & (3) adaptability to climate & soils of the Southeast.

Hort. 19 Coop. USDA

S. C. Food Value and Utilization of Sesame Meal. To (1) determine vitamin content and general composition of sesame meals produced in various ways; (2) develop new recipes in which sesame meal is incorporated; and (3) determine desirability of incorporating sesame meal into bread and other foodstuffs.
Nutr., Home Econ., Chem. 67

S. Dak. The Breeding and Testing of Soybeans, Sunflower, Safflower, and Castor Beans for South Dakota. To (1) develop & test new strains (as in title) especially adapted to South Dakota; (2) locate new sources of earliness, drought, disease & insect resistance, & quality for use in breeding superior varieties; (3) cooperate with stations of adjacent states & USDA by participating in conferences & exchanging breeding materials & information on improved methods, techniques & varieties; & (4) study fundamental problems of breeding behavior of these crops.
Agron. 148 Coop. ARS

II. COTTON

A. Varieties, Breeding and Genetics

Ariz. A Study of the Inheritance of Fiber Qualities in Selfed Lines and Hybrids of Upland Cottons. To determine to what extent uniformity in length, strength and fineness of fiber and abundance of fiber, as determined by lint percentage, have a genetic basis.
Pl. Brdg. 47 Coop. ARS

Ariz. Breeding Cotton for Disease and Insect Resistance and for Plant Types Suitable for Mechanical Harvesting. To (1) evaluate resistance of present breeding stocks to local diseases & insects & ability for mechanical harvesting, (2) introduce stocks from other localities having similar problems, (3) cooperate in production of high yielding varieties of good spinning quality suitable for mechanical harvesting & (4) provide adequate initial seed stocks of desirable strains for distribution to growers.
Pl. Brdg. 278 (S-1) Coop. ARS

Ariz. Breeding Long Staple Cotton (Gossypium Barbadense) for Length, Fineness and Strength of Fiber and Improved Type of Plant with High Production. To produce a long staple cotton with medium fineness of fiber, medium length of fiber, & increased strength of fiber with a reduced size of plant with larger bolls & high yield.
Pl. Brdg. 294 Coop. ARS

Ark. Cotton Genetics: The Inheritance of Boll Size, Lint Percentage, and Other Economic Characters in Cotton. To (1) establish mode of inheritance of economic characters in cotton; and (2) evaluate with respect to genetic linkages and/or environmental correlation, the apparent antagonistic association between long fibers and high lint percentage, high strength and high yield, earliness and good fiber quality, and other associations of characters that may be found.
Agron. 358 (S-1)

Ark. Cotton Breeding and Genetics: The Development of Cotton Varieties Having Good Agronomic Properties and Resistance to Verticillium Wilt. To (1) develop breeding stocks of cotton resistant to Verticillium wilt; (2) determine how resistance factor, when discovered, is inherited and how it can be transferred to varieties of commercial importance; and (3) screen advanced breeding lines developed by the station breeder with respect to Verticillium wilt reactions.
Agron., Pl. Path. 359

Ga. Cotton Breeding. To develop (1) a high yielding cotton with a staple of 1 inch or longer which is wilt resistant & (2) new strains or varieties having superior qualities of disease & insect resistance, earliness, & yielding ability combined with special foliage branching, & picking qualities needed to meet the requirements of mechanized farming.
Agron., Crops 26 Coop. ARS

Ga. Upland Cotton Breeding for Coastal Plain Conditions. To (1) develop high yielding cottons adapted to Coastal Plain area which possess superior fiber qualities, with emphasis on high fiber strength with acceptable levels of yield and for resistance to fusarium wilt; & (2) study methods preventing damage to seeds and fibers due to high rainfall and high humidity conditions at harvest.
Agron. 203 Coop. ARS

La. Cotton Breeding and Varietal Evaluation. (1) Study fiber characteristics of strength, fineness, length, uniformity, lint percentage, & yield & influences of plant type, & leaf pubescence in proving or developing varieties adapted to state conditions. (2) Learn relation between above characteristics & predicted quality of yarn expected by confirming predictions in spinning trials. (3) Develop & coordinate a comprehensive evaluation program at Baton Rouge, St. Joseph, LeCompte, Bossier City, & Calhoun. (4) Evaluate influence of mechanical harvesting on the grade & quality of cotton. (5) Continue breeding for improvement of variety Stardel.
Agron. 204

La. A Study of Genetic Factors Involved in Yield Potential Fiber Quality and Disease Resistance in Cotton. Study: (1) nature of inheritance of & interrelation among quantitative characters concerned with yield & fiber properties in crosses within upland cotton & in crosses between G. hirsutum (upland) & G. barbadense (Sea Island); (2) nature of inheritance of resistance to rootknot nematodes. (3) Evaluate effect of recurrent selection on frequency of desirable genes in crosses between varieties of upland cotton & interspecific hybrids of upland x Sea Island.
Agron. 557 (S-1)

La. Transfer of Genes for High Quality of Fiber from Gossypium Barbadense to American Upland Strains of Cotton. To (1) attempt to combine the superior length, strength, & fineness of fiber in strains of species Gossypium barbadense with the high yield, high lint percentage & early maturity of varieties of Upland cotton now grown, & (2) test effectiveness of new methods of plant breeding in combining genes for desirable quantitative characters by interspecific hybridization.

Agron. 852 Coop. ARS

Miss. Cotton Improvement Through a Genetic Study of the Introduction of Genes from the Diploid American and Other Diploid Species of Gossypium. To study inheritance of certain characters, such as gossypol, oil, bract size & lintlessness, in cottonuusing crosses involving hirsutum as one parent & segregates from a species hybrid, hirsutum x (armourianum x thurberii), as the other.

Agron. HC-7

Miss. A Comprehensive Collection of Stocks of Mendelian Characters, Principal Commercial Varieties and Selected Inbred Lines of Upland Cotton. To (1) maintain a genetics garden & a catalogued seed supply of characters segregating in Mendelian ratios; (2) maintain a catalogued supply of viable seed of all commercial varieties & certain selected inbred lines of cotton; & (3) screen material of upland or Sea Island Stocks collected in other countries, evaluate it, & add to the Regional Collection those having desirable or outstanding characteristics.

Agron. RRFU-1-a (S-1)

Miss. Fundamental Studies of Properties of Cotton Species, and the Development and Use of Techniques to Facilitate the Transference of Desirable Characters to Upland Cotton. To (1) maintain and propagate cotton species, interspecific hybrids, & other stocks necessary for prosecution of fundamental cytogenetic experiments in progress, or to be started, & to procure other stocks or materials as may be required; (2) survey basic stocks, certain hybrid progeny & various derived lines for desirable plant characters & fiber properties; (3) study critically the cytogenetic problems in transferring these characters & properties to a stable Upland cotton background; & (4) develop & extend experimental techniques to be used in character transference study.

Agron. RRFU-1-b (S-1)

Miss. Inheritance Studies Concerning Yield, Fiber Properties, and Disease and Insect Resistance in Upland Cotton. To (1) classify & isolate as far as possible factors which affect yield, fiber properties, & disease & insect resistance, (2) learn when possible genetic ratios expressed by simply inherited factors & number of factors involved where inheritance is more complex; & (3) learn at what stage in cotton development, specific factors are operating to produce end results observed.

Agron. RRFU-1-c (S-1) Coop. ARS

Mo. Better Cotton Varieties for Southeast Missouri. (1) Breed better cottons for Southeast Missouri. (2) Evaluate performance of cotton varieties & new strains. (3) Pursue studies significant to cotton breeding & variety performance as related to genetics, agronomy, physiology, pathology, entomology, & fiber technology.

Field Crops 160 Coop. ARS

N. Mex. Breeding Upland Cotton and the Evaluation of Strains and Varieties for Southern New Mexico. To (1) develop strains or varieties of upland cotton that have the following characteristics: high yield, early maturity, strong seedling vigor high tensile strength, high degree of fiber maturity, desirable degree of fineness, staple length of 1-1/16 to 1-1/8 inches, superior spinning quality, resistant or tolerant to Verticillium wilt, resistant to bacterial blight, (2) determine adaptation of strains & varieties produced in this & other breeding programs to the different producing areas of N. Mex., (3) estimate grade & staple of cotton produced in N. Mex.

Agron. 12 Coop. ARS, AMS

N. Mex. Variety Test of American Upland Cottons Suitable for Combed Yarns. Learn the adaptation of selected high quality American Upland cotton varieties to southern New Mexico.

Agron. 19

N. Mex. The Genetics of Bacterial Blight Resistance and the Value of Osmotic Selection in Upland Cotton. To (1) determine genetic basis of resistance to blight; (2) use induced mutation to obtain blight resistance; (3) determine if & in what way osmotic selection can be of benefit in applied cotton breeding work, & (4) perfect techniques for using osmotic selection to best advantage with cotton.

Agron. 45 (S-1)

N. C. The Comparative Cytogenetics of Upland Cottons and Related Diploid Species. To (1) maintain collection of wild species of Gossypium in a vigorous condition; (2) assess their value with regard to characters of potential economic value which they may possess; (3) hybridize them with cultivated cottons, giving emphasis to obtaining hybrids with American wild species; (4) synthesize fertile types by colchicine treatment of initial hybrids & backcross them to Upland cottons; (5) investigate cytological mechanism in such backcrosses making use of cytological & cytogenetic methods; & (6) develop efficient techniques of transferring characters of potential economic importance based on a more complete understanding of cytological mechanism.

Agron. 60 (S-1) Coop. ARS

N. C. Cotton Improvement and Breeding Methodology. To (1) introduce & transfer desirable germ plasm from various wild cultivated Gossypium species into adapted Upland cottons, with emphasis on improved fiber properties; (2) develop & evaluate more efficient cotton breeding techniques; & (3) evaluate current varieties & new strains for N. C.

Agron., Statis. 63 Coop. ARS

N. C. The Internal Mechanism of Species Generation in Cotton. To analyze & evaluate internal factors which account for differentiation & genetic isolation of interfertile species, including (1) recombination & transmission of genes in interspecific hybrid progenies; (2) effects of introgression on gene action, expression & coordination; & (3) comparative studies of homologous genetic loci in related species at biochemical level.

Genet. H-71

N. C. An Analysis of Preference Exhibited by Boll-Weevils for Certain Varietal Characteristics of Cotton, and an Evaluation of the Possibility of Breeding for Resistance to Boll-Weevil. (Anthonomus Grandis Boh.) (1) Assemble a collection of simply inherited, morphological & physiological varients in cotton deterrent to boll-weevil. (2) Test if weevils exhibit preferences when offered choice of hosts in replicated tests. (3) Combine into 1 strain all variant physiological & morphological characteristics weevil has exhibited a negative preference for.

Genet., Field Crops 73

Tenn. Production and Improvement of Cotton Varieties Suitable to Tennessee Conditions. Improvement by (1) selection of established varieties, (2) crossing standard upland varieties, & (3) hybridizing between long-staple & upland varieties.

Bot. 79

Tex. Genetics of Qualitative Characters in American Upland Cotton. To make more exact genetic analysis of economic characters, usually inherited quantitatively thru (1) development of more multiple dominant & recessive genetic marker lines with simply inherited qualitative characters (known, or to be discovered), & (2) establish a series of lines in which specific chromosomes carry known qualitative characters.
Agron. 14 Coop. ARS

Tex. Genetics and Improvement of Cotton. To establish sound principles & practices for improvement of cotton thru basic research in cytology & genetics by: (1) maintenance of the Gossypium species, interspecific hybrids & geographic races of Gossypium hirsutum, (2) cytogenetic studies on nature of species differences, & barriers, (3) cytogenetic investigations on effects of individual chromosomes within species & in derivatives of species hybrids, (4) development of marked stocks as an aid in cytological & genetical analysis, (5) evaluation of interspecific hybrids, polyploids, & primitive & foreign stocks with respect to their potentialities as sources of characters of economic importance, (6) genetic analysis of desirable characters in interspecific hybrids & in stocks derived from them, & (7) development of primary stocks which possess useful characters, or combinations thereof, not found in American Upland cotton.
Agron., Ent., Genet., Pl. Path. & Physiol. 600 (S-1) Coop. ARS

Tex. Development of Superior Cotton Varieties for Texas and Southwest Conditions. To develop cotton varieties with new or improved economic characters, or combinations of economic characters, using field performance, yield in particular, as the principal standard of comparison & selection.
Agron. 850 Coop. ARS

Tex. Spontaneous and Induced Modification of the Gossypium Hirsutum Genome. To obtain basic information on the cytogenetics of Gossypium hirsutum, by following these problems: (1) effect of changes in chromosome number, especially effects of individual chromosomes as studied by their addition to, or subtraction from, the hirsutum genome, (2) effect of specific chromosomes or characters from Asiatic & wild diploid species transferred to the hirsutum genome, by addition or substitution, (3) detection of spontaneous & induced intra- & inter-chromosomal changes, & study of their transmission, (4) detection of gene mutations, spontaneous or induced by radiation or mutagens, (5) improvement of techniques of cytology & inter-specific crossing needed for study of above problems, & (6) building of stocks with each chromosome marked with visible, transmissible cytological aberration.
Agron. 859 Coop. ARS

B. Culture and Physiology

Ala. Identification and Evaluation of Some of the More Common Factors Limiting Cotton Yields in Alabama. Determine (1) effect of moisture on cotton yields, disease, insects, & morphological characters in cotton; (2) inter-relationship of N levels, insects, & disease on production; (3) relationship between cultural practices, soil physical properties, insect & disease control measures, & vegetative growth & yield of cotton plant; (4) average maximum yield obtainable without supplemental irrigation in various regions of state.
Agron., Soils 113 Coop. ARS

Ariz. Cotton Production Under Irrigation. To (1) improve cotton cultural practices, & (2) determine influence of environmental, physiological & genetic factors on quality & industrial qualities of cotton grown in southern Arizona.
Agron., Agr. Chem., Engin. 264 Coop. ARS

Ark. Rotation and Fertilizer Experiments for Cotton Production on Heavy Delta Soils. To study various crop rotations and fertilizer treatments for cotton production on heavy-textured soils (Sharkey series) of Eastern Arkansas.
Agron. 365

Ark. A Study of Factors Affecting Germination and Seedling Growth of Cotton at Low Temperatures. To study (1) effects of temperature on basic germination processes & growth of cotton (2) devise methods of increasing cold tolerance in seedling cotton.
Agron. 405 Coop. ARS

Ark. A Study of Factors Affecting the Fruiting Behavior of Cotton. To (1) investigate factors affecting fruiting habits of cotton: initiation, intensity, fruiting pattern, cutout, etc., (2) use obtained information to tailor growth of plant that maximum yields may be secured from available soil & climatic resources.
Agron. 406 Coop. ARS

Ark. Physiological Effects of Selected Herbicides on Cotton, Soybeans, and Noxious Weeds. Establish maximal limits of certain herbicides for cotton & soybeans, & minimal requirements for control of noxious weeds, as may be influenced by age of plants & environmental conditions. Learn degree to which varieties within a given species differ in their tolerance to any given herbicide & learn cause of differences. Investigate mechanism by which herbicides kill plants.
Agron. 408 (S-18) (Also see Part 24.)

Ark. The Influence of Cultural Practice Combinations on the Yield and Quality of Cotton. (1) Learn influence of combining recommended cultural practices on yield & quality of cotton produced. (2) Find ways of increasing efficiency of production with emphasis on acceptable yields on a shortened land use time & on higher yields utilizing full growing season. (3) Learn better ways of using hairy vetch & crimson clover with cotton planting practices. (4) Determine a "stand" of cotton under different fertility levels & planting dates. (5) Learn effects of varying cultural practice combinations on quality of lint produced.

Agron., Agr. Engin. 413

Ark. Fertilizer Studies with Cotton and Soybeans. Cotton; (1) anhydrous ammonia, urea, N solutions, & any other newer source of N that may become available with ammonium nitrate. (2) Study time of application of various fertilizer elements. (3) Evaluate methods of application of elements singly & in combination, on germination growth, maturity, & yield. (4) Evaluate varying rates of application of high & low analysis fertilizers. (5) Learn differences between high & low analysis fertilizer for cotton. (6) Evaluate residual effects. (7) Study fertilizer response as related to results of chemical soil tests & to soil types.

Agron., Brdg. Sta. 444

Calif. Chemical Weed Control on Cotton. To develop (1) satisfactory programs of weed control in cotton culture, by controlling annual and perennial weeds in cotton fields, and by controlling similar weeds in nearby areas that act as weed seed reservoirs; and (2) comparative programs in other row crops, using as a basic source of information the results obtained from investigations in cotton.

Bot. 1568 Coop. USDA

Calif. Factors Affecting the Abscission Process in Relation to Defoliation in Cotton. To learn of the physiological factors affecting abscission and to develop more reliable and efficient methods of defoliating cotton.

Bot., Agron., Soils, Agr. Engin. 1581 Coop. ARS

Calif. Development, Improvement, and Testing of Mechanical Equipment for the Production of Cotton. To reduce labor & costs & improve yield & quality. Stock shredders, planters, fertilizers, cultivators, sprayers, dusters, topping machines, & harvesters as well as cultural practices to improve performance of equipment are to be tested.

Agr. Engin., Agron. 1677 (W-24) Coop. USDA (Also see Part 3, Section b.)

Ga. Mechanization of Cotton Production. To improve (1) methods of disposal of cover crops & crop residues, (2) machinery for planting cotton in trashy soil, & (3) methods of controlling weeds in cotton, including cost reduction.
Agr. Engin. 21 (S-2) Coop. ARS (Also see Part 3, Section b.)

Ga. The Effect of Different Moisture Levels on Rates of Evapotranspiration from Row Crops in the Piedmont of Georgia. Learn (1) response of cotton to 3 soil moisture regimes under completely adequate & normal fertilization. (2) Rate of evapotranspiration from cotton grown with irrigation.
Agr. Engin., Agron. 310 (S-24) Coop. ARS (Also see Part 3 Section a.)

La. Development of Techniques and Evaluation of Chemicals for the Defoliation and/or Second-Growth Inhibition of Cotton. (1) Screen & evaluate new chemicals as defoliants & second-growth inhibitors, (2) Study process of abscission & 2nd-growth inhibition. (3) Develop ground spray machines for field application of defoliants &/or 2nd-growth inhibitors, (4) Evaluate different nozzles & nozzle arrangements, (5) Determine proper spray volume & rate of chemical, (6) Evaluate concept of bottom defoliation as an aid to reducing boll rot.
Pl. Path., Agr. Engin. 885

Miss. Improvement of Methods and Equipment for Growing Cotton. To (1) determine efficiency of different types of stalk shredders, (2) evaluate methods of seedbed preparation, (3) learn effects of several deep tillage methods on hardpan soils of the Yazoo-Mississippi Delta, (4) learn effect of different openers & planting methods on stand & yield, (5) test, evaluate, & improve equipment for field application of both liquid & granular fertilizers, (6) design, test, evaluate, & improve machines & techniques for the application of both pre- and post-emergence herbicides, (7) test, modify & improve mechanical methods of weed control, including flame cultivation equipment, & (8) evaluate & improve machines & methods for controlling cotton insects.
Agr. Engin., Agron. RRFU-2-a (S-2) Coop. ARS (Also see Part 3, Section b.)

Miss. Improvement of Methods and Equipment for Defoliating and Harvesting Cotton. To (1) learn most effective stands & plant spacing for mechanical cotton harvesting in Delta area, (2) evaluate cultivation & weed control practices & develop methods for efficient mechanical harvesting, (3) test & improve methods & equipment for application of defoliants, (4) study mechanical characteristics of basic types of mechanical pickers, (5) learn amount of water actually added to seed cotton during picking operation & its ultimate effect on seed cotton storage & quality of lint, (6) investigate & locate causes of large concentrations of leaf trash & other foreign matter in mechanical cotton picker storage baskets, & (7) evaluate performance of mechanical pickers.
Agr. Engin., Agron. RRFU-2-b (S-2) Coop. ARS (Also see Part 3 Section b.)

Miss. The Residual Effect of Various Herbicides on Cotton and Other Crops. To (1) learn rate of disappearance of certain herbicides from soil under field conditions, & (2) evaluate effects of these herbicides on crop & weed plots under varying soil conditions.
Pl. Path. RRFU-3 (S-18) Coop. ARS (Also see Part 24.)

Mo. Soil Fertility and Cotton Production. Cotton Fertilization. Soil treatment of N, P, K, Ca, Mg, S, & trace elements will be made on different soils of cotton area both with & without supplemental irrigation to learn effect on yield, maturity & quality.
Soils, Agron. 267

Mo. Water Management in Cotton Production. To study (1) problems relating to obtaining suitable water supply for irrigation, (2) methods & improve techniques for applying irrigation water to cotton, (3) methods & improve techniques of drainage.
Agr. Engin., Field Crops 271

Mo. Weed Control and Crop Defoliation in Cotton Production. Discover more effective & more efficient (1) chemical & cultural methods of weed control in relation to cotton production; (2) methods of defoliating cotton.
Field Crops 332

Nev. Cotton Weed Control in Southern Nevada. Test weed control measures developed in other areas for Nevada conditions, find economical control for Johnson grass & perennial morning glory.
Agron. 15

Nev. Soil Fertility Problems of Cotton in Southern Nevada. To learn (1) response in cotton in early maturity & total yield to varying applications of N, P, & K; (2) relative merits of liquid vs. dry fertilizer.
Agron. 34

N. Mex. Water Requirements of Cotton (Extra-Long Staple, and Upland, Acala 1517C) Grown on Light-Textured to Medium-Textured Soils in Mesilla Valley, New Mexico. To determine (1) desirable frequencies of irrigations for cotton production; (2) desirable range of depths of irrigation applications for optimum production with limited, & an adequate water supply; (3) effect of variable depth irrigation applications; (4) utility of electical resistance blocks as a suitable method for determining "when to irrigate"; & (5) relative use of water by single beds as compared to double beds with furrow irrigation.
Agr. Engin. 41

N. Mex. Development of Improved Methods and Equipment for Planting, and Weed Control in Cotton Production. (1) Develop or modify a planter which will: plant at a uniform depth, prevent dry soil from depositing around seed; prevent void space from remaining in soil around seed; reduce lateral placement of seed to a minimum. (2) Evaluate effectiveness of planter under different weather & soil conditions. (3) Learn effect of plant spacing on yield & mechanical harvesting efficiency. (4) Develop or modify equipment & methods for complete weed control. (5) Learn picking efficiency of various harvesting machines & techniques.
Agr. Engin. 42 (W-24) (Also see Part 3, Section b.)

Okla. Development of Improved Machines and Methods for Seedbed Preparation Planting and Early Weed Control in Cotton Production. Subproj. I-B--To evaluate some newer tillage tools for their place in seedbed preparation for cotton production; Subproj. I-C--To (1) evaluate existing seed grading equipment & determine physical measurements of cotton seeds; (2) evaluate performance of different grades of cotton seed as to emergence & yield; (3) evaluate performance of graded seed in now available planters & modify planters; (4) evaluate planter performance in obtaining different plant populations; (5) study beneficial effects of planting seed at different depths; (6) evaluate & improve present furrow openings on cotton planters; (7) evaluate & improve seed bed profiles as they may promote more rapid & better emergence; & (8) evaluate available covering devices now used; Subproj. I-D--To (1) determine influence of machines & chemicals now available for early weed control; (2) find influence of plant population on number of weeds & ease of controlling weeds; & (3) improve seedbed profiles to minimize early season weed control problem.
Agr. Engin. 802 (S-2) (Also see Part 3, Section b.)

Okla. The Physiology of Seedling Vigor and Cold Tolerance in Cotton. (1) Develop procedures in cooperation with plant breeders to select for cold tolerance & vigor in germinating seed, seedlings, & maturing plants. (2-5 To learn) (2) metabolic factors controlling the degree of vigor under cold conditions & how related to germination, to post seedling development, & vigor; (3) how phases of environment & nutrition affect these responses to cold; (4) effects of applied chemicals as growth regulators on cold responses; (5) by cooperating with pathologists, the relationships between seed reactivity & vigor & susceptibility or resistance to seedling disease organisms & see how use of fungicides affect such relationships.

Agron. 923

Tex. Spraying Equipment for the Control of Cotton Insects and for Defoliation. To (1) improve spraying equipment in efforts to obtain better distribution of chemicals for control of pink bollworm; (2) determine nozzle type, arrangement & spacing to give optimum spray patterns for insect control including pink bollworm and for defoliation of cotton plants; & (3) check insect infestations to determine effectiveness of insecticidal applications with various types & arrangements of nozzles on booms & effects of chemical removal of foliage of cotton on full populations of insects, especially overwintering of pink bollworms in unharvested material.

Agr. Engin., Ent. 722

Tex. Mineral Nutrition of the Cotton Plant. To (1) obtain basic information on a. role of sodium in nutrition of cotton plant, b. interactions between Na & major nutrient cations with special emphasis on Ca & K, & c. growth & development of cotton plant & changes in organic constituents as influenced by nutrient treatments; (2) study absorption, distribution, & accumulation of Mg by cotton & learn specific needs of cotton for Mg regarding amount, season, & supply of other nutrients; & (3) study influence of deficiencies & excesses of various nutrients on plant vigor, yield, & disease resistance.

Pl. Physiol., Path. 916 Coop. ARS

C. Harvest, Storage and Processing

Ala. Mechanization of the Harvesting of Cotton. To evaluate & improve (1) machines & methods for preparing cotton crop of mechanized harvest; (2) machines & methods for mechanical harvesting; & (3) mechanical harvester performance in relation to plant characteristics.
Agr. Engin. 506 (S-2) Coop. ARS (Also see Part 3, Section b.)

Ariz. Mechanization of Cotton Production and Harvesting. Reduce cost of producing cotton by eliminating as much hand labor as possible while maintaining or improving quality & yield.
Agr. Engin., Agron., Pl. Path. 269 (W-24) (Also see Part 3, Section b.)

Ariz. Influence of Climatic Factors on Fiber Properties in Cotton. To learn (1) if differences occur in fiber properties of same variety of cotton grown in various climatic areas of state, (2) if climatic factor or factors which may influence fiber property variation between areas as well as year to year variation at same time.
Agron., Range Mgt. 380 Coop. ARS

Ark. An Evaluation of Cost and Quality of Ginning Services in the Delta Sections of Arkansas. To ascertain (1) quality of ginning services performed by ginning establishments equipped with adequate amounts of cleaning & conditioning equipment for handling machine-picked cotton; (2) cost of providing such services; (3) operating practices & conditions affecting quality of ginning services performed; & (4) comparative advantages to cotton producers from ginning machine-picked & hand-picked cotton at gins using various basic types of lint cleaners.
Agron., Agr. Engin. 385

Ark. Engineering Aspects of the Mechanization of Cotton Production and Harvesting in Arkansas. To design & improve machines & develop methods which will reduce manpower needs & increase output per laborer with respect to the following phases: (1) seedbed preparation, (2) weed control, (3) evaluating & improving machines for preparing the cotton crop for harvest, & (4) evaluating mechanical harvester performance in relation to plant characteristics.
Agr. Engin. 395 (S-2) (Also see Part 3, Section b.)

La. To Study Those Factors Which Affect Cotton Fiber Quality. To learn (1) fiber length, length uniformity, fineness & strength of fibers of varieties & advanced strains; (2) effects of different methods of harvesting cotton on fiber length, length uniformity, fineness & strength of fibers; (3) effect of certain insects, spider mite, & nematode infestations, upon fibers.
Agron., Ent., Home Econ. 895

La. Selected Cotton Fiber Properties as Related to the Quality of Sheeting. To (1) establish exact measurement of length & fineness properties of types of raw cotton, selected by strength-elongation, used in regional investigation & having as wide a range of elongation as possible, (2) measure certain fabric properties in laboratory of flat fabric made from selected types of raw cotton, (3) coordinate finding of objectives 1 & 2 with data from other segments of regional research.
Home Econ. 944 (SM-18) Coop. ARS, AMS (Also see Part 14, Section a.)

Mo. Serviceability of Sheets Made from Cottons of Selected Fiber Properties. (1) Learn end product performance of sheets made of fibers with selected physical properties. (2) Correlate findings on fabrics with those from other stations on fabrics, as well as yarns & fibers used in sheetings.
Home Econ. 319 (SM-18) (Also see Part 14, Section a.)

Okla. Mechanized Cotton Harvesting in Oklahoma. Subproject IIA (1) To evaluate several methods of preparing the cotton for harvest & several dates of preparation; Subproject IIA (2) To (1) evaluate & improve stripper roll materials, stripper roll speed, the stripper roll shielding & entrance section shielding on present commercial cotton harvesters; (2) evaluate the various methods of conveying cotton from the stripping chamber to the wagon, & (3) evaluate & improve other functional mechanisms of the cotton stripper; Subproject IIB--To (1) evaluate harvester performance on most common varieties of cotton grown in Okla.; & (2) evaluate & improve harvester performance as related to different plant populations.
Agr. Engin., Agron. 578 (S-2) Coop. ARS (Also see Part 3, Section b.)

Okla. Adapting and Testing Cotton Ginning Equipment and Techniques. Regional Sub-Project IV-A--To (1) test, evaluate, and improve new or experimental equipment for adaption of Oklahoma type cotton production; & (2) devise, test, evaluate & design methods & techniques for preparing, conditioning, & ginning cotton harvested mechanically; Regional Sub-Project IV-B--To (1) determine the combination of drying, cleaning, & extracting machinery in overhead systems; (2) determine the correlation between drying & lint cleaning; (3) determine amounts of overhead & lint cleaning equipment to be used in rough harvested cotton; & (4) study effects of cleaning on color of lint sample.
Agr. Engin. 753 (S-2) (Also see Part 3, Section b.)

S. C. Harvesting Cotton Mechanically in the Piedmont and Coastal Plains Areas of South Carolina. To (1) evaluate & improve a. machines & methods for preparing the cotton crop for mechanized harvest, & b. machines & methods for mechanical harvesting, (2) evaluate mechanical harvester performance in relation to plant characteristics, & (3) investigate possibilities of removing the cotton from the plant by principles other than the conventional ones now being used.
Agr. Engin. 10 (S-2) Coop. ARS (Also see Part 3, Section b.)

S. C. Handling Seed Cotton from the Plant to the Gin in the Piedmont and Coastal Areas of South Carolina. (1) Evaluate, modify, & improve present methods & equipment used in handling seed cotton from picking to ginning. (2) Design & develop new equipment & methods for handling cotton from time of picking to ginning. (3) Evaluate & improve methods of handling seed cotton for maximum preservation of inherent qualities of lint & seed from time of picking to ginning.
Agr. Engin. 97-H (S-2) Coop. ARS (Also see Part 3, Section b.)

S. C. A Study of the Nutritive Factors of Cottonseed Meal and Cottonseed By-Products in Poultry Rations. To learn effects of protein levels, animal protein sources, & amino acid supplementation & energy levels in rations having cottonseed meal; & effects of cottonseed by-products (oil & fatty acids) in poultry rations.
Poultry Husb. 110

Tenn. The Inter-Relation of Certain Fundamental Properties of Cotton Fibers and Fabric Characteristics. (1) Analyse internal surface area of cotton fibers. (2) Study relation of this property to other fundamental properties of cotton fibers & effect of properties on fabric characteristics, as those related to crease resistance.
Home Econ. 113 Coop. ARS

Tenn. Theory of Textile Fabrics. To develop physical theories of yarn, cord & fabric structures that will reveal the functional relations of the physical properties of these structures to the physical properties of the constituent fiber & to the method of fabrication.
Physiol. 129 Coop. ARS

Tenn. Rapid Methods for Measuring Lengths and Other Properties of Cotton Fibers. To determine (1) the adaptation of the photoelectric cell to the measurement of the length of lint in ginned cotton; (2) the value of the clamped-silver-weight method for determining the final length statistic; & (3) to develop a rapid method of measuring fineness.
Phys. 130 Coop. USDA

Tenn. Development of New and the Improvement of Existing Instruments and Techniques for Measuring Properties of Cotton. Develop instruments that will effectively utilize the "rapid methods for measuring physical properties of fibers." Study & attempt to improve existing instruments. Develop & refine testing techniques.
Phys. 131 (S-1) Coop. USDA

Tex. The Development and Improvement of Machines and Methods Used in the Mechanization of Cotton Production, Harvesting and Processing in Texas. To design & improve machines & develop methods which will reduce manpower needs to a minimum & increase output per laborer to a maximum with respect to the growing of cotton by the evaluation & improvement of machines & methods.
Agr. Engin., Agron. 601 (S-2) (Also see Part 3, Section b.)

Tex. Storage of Cotton Seed for Planting Purposes. To (1) determine effectiveness of different methods of aeration with forced air in maintaining high germination & in preventing increase in fat acidity value of cotton planting seed stored in large tanks; & (2) study air distribution systems & equipment & determine their effectiveness in cooling cotton planting seed when stored in large quantities.
Agr. Engin. 655

Tex. The Relationship Between Cotton Fiber Properties and Fabric Quality. To (1) learn selected fiber properties of each of 4 cottons to be service tested, (2) learn physical properties of fabrics made from each of 4 cottons, (3) ascertain relationship among various fiber & fabric properties for 4 cottons, (4) correlate data from fiber & fabric properties with results of end-use portion of study.
Home Econ. 1132 (SM-18) (Also see Part 14, Section a.)

D. Diseases and Insects

Ala. Control of Cotton Insects. To determine effectiveness of new insecticides against the boll weevil & other cotton insects & the effect of controlling various species upon the yield of cotton & to develop a dusting schedule for the control of the major insects attacking cotton.
Zool., Ent. 512

Ariz. Verticillium Wilt of Cotton. To study the complete or partial control of Verticillium wilt of cotton.
Pl. Path. 256

Ariz. The Biology and Control of Insects Affecting Cotton in Arizona. (1) Ecological Studies of Cotton Insects. (2) Life History Studies. (3) Chemical Control Studies. (4) Miscellaneous Studies.
Ent., Agron. 383 Coop. ARS

Ark. Improvement of Insecticidal Control of Cotton Insects. (1) Develop better timing of insecticidal applications in relation to infestations, weather, & agronomic practices. (2) Learn feeding habits & methods of exposure of weevil to insecticides. (3) Develop alternative insecticides & control methods for weevils & aphids. (4) Study off-season habits & activities of cotton insects in relation to outbreaks on cotton. (5) Evaluate predator populations & factors affecting them.
Ent. 333

Ark. Etiology and Control of the Verticillium Wilt of Cotton in Arkansas. To (1) make a thorough study of morphology & physiology of the pathogen of Verticillium wilt disease of cotton; (2) study reaction of the pathogen to various types of commercial & wild cotton; (3) measure degree of resistance of all available selections of upland cotton & other possible breeding material; (4) determine environmental conditions which modify severity of outbreaks of Verticillium wilt of cotton; & (5) devise methods of controlling or ameliorating severity of attacks of disease.
Pl. Path. 334

Ark. Ecology and Control of Pink Bollworm. To (1) learn probable future importance of the pink bollworm as a pest of cotton, & (2) develop satisfactory control measures applicable to Arkansas agricultural practices & climatic conditions.
Ent. 367 Coop. ARS

Ark. Etiology and Control of Certain Soil-Borne Diseases of Cotton. To learn what etiological factors are associated with destructive incidence of Fusarium wilt-root knot complex & devise or improve methods for its control thru varietal resistance, soil fumigation, green manuring, better methods of culture & improved fertilization techniques.
Pl. Path. 394

Ark. Etiology and Control of Seedling Blights and Boll Rots of Cotton. (1) Learn distribution & importance of seedling blights & boll rots of cotton in state. (2) Ascertain virulence of various organisms associated with cotton seedling diseases & boll rots. (3) Study influence of soil types, current cultural practices & previous cropping history on cotton seedling & boll complex. (4) Develop control methods thru chemical seed &/or soil treatment, modified cultural procedures &/or varietal resistance.
Pl. Path., Agron. 422 Coop. USDA

Ark. Pink Bollworm Control in Arkansas. (1) Learn probable future importance of bollworm as a pest of cotton in State. (2) Develop control measures applicable to State agricultural practices & climatic conditions.
Agron. 453 (S-37) Coop. ARS (Also see Part 7, Section a.)

Ark. Biological and Physiological Factors in Relation to Boll Weevil Abundance and Control. To (1) study activity of boll weevil & relate this activity to selection of particular cotton fields or plant types & to insecticidal & cultural control methods, (2) evaluate earlier biological studies in relation to present control practices, (3) study effect of physical characteristics of plant on activity, (4) study effect of physical environment & feed on longevity, fecundity, appearance & development of diapause & relate this information to improvement of control methods.
Ent. 461

Calif. Study of the Basic Factors Influencing the Development of Strains or Types of Cotton Resistant to Verticillium Wilt. To learn (1) influence of moisture, temperature & nutrition to infection by verticillium wilt fungus & development of disease in cotton, (2) infection court & progression of fungus in plant in relation to symptoms, (3) different strains of fungus as they are related to development of resistant cotton, (4) source of resistance & study inheritance of resistance.
Field Crops, Pl. Path. 1651 Coop. ARS

Ga. Cotton Insect Control with Improved Insecticides Under North Georgia Conditions. To determine value of various insecticides for control of cotton insects, especially the boll weevil, and to determine most profitable schedule for applications.
Ent., Agron. 67

La. A Study of Insects, Mites and Nematodes Destructive to Cotton and the Development of Economical Means for Controlling Them. To study insects, mites, & nematodes which infest cotton, determine economic importance of the pests, & develop satisfactory & economical methods of control.
Ent. 465

La. To Conduct Studies on the Ecological Factors Responsible for Destructive Outbreaks of Cotton Insects. To obtain information on ecological factors responsible for destructive outbreaks of cotton insects and to develop methods for accurately forecasting such outbreaks.
Ent. 606

La. Control of Sore-Shin, The Important Seedling Disease of Cotton in Louisiana. (1) Study various fungicides for sore-shin control. (2) Make studies involving application of screened fungicides & effect of these fungicides in field. (3) Work out an inexpensive, practical method of sore-shin control.
Pl. Path. 931 Coop. ARS

La. Breeding Cotton for Resistance to Major Diseases and Insects. (1) Develop new varieties having combined resistance to rootknot nematodes & Fusarium wilt. (2) Evaluate commercial varieties of cotton recently released by Agricultural Experiment Stations & private companies for resistance to major cotton diseases. (3) Screen genetically divergent types of cotton for resistance to boll weevil, boll-worm, aphids, spider mites, Fusarium wilt, rootknot nematodes, seedling disease due to Rhizoctonia & boll rot to be used in breeding new varieties with resistance to these pests & diseases.
Agron. 949 Coop. ARS

Miss. A Study of Thrips on Cotton. Learn (1) economic importance of thrips, (2) effect of existing control recommendations on fruiting cycle; (3) varietal differences & their effect on fruiting with relation to thrip injury; (4) interrelation of thrips infestation on cotton to that on other host plants.
Ent., Agron. HH-12

Miss. Investigation of the Seedling Diseases of Cotton and Their Control Under Mississippi Conditions. To (1) evaluate value of various chemical seed treatment materials for prevention of diseases of cotton seedlings, & determine other characteristics of these chemicals which would be of benefit to seedsman & farmer; (2) study post-emergence diseases of cotton & attempt to develop effective control measures; & (3) study seed-borne diseases of cotton & attempt to determine feasibility of disinfesting cotton seeds of seed-borne pathogens.
Pl. Path. HL-5 Coop. ARS

Miss. Investigation of the Diseases of Cotton and Their Control Under Mississippi Conditions. To (1) develop greenhouse & field techniques to determine resistance & susceptibility to certain cotton diseases; (2) investigate seed stocks & sources now available, & those becoming available, for resistance to major cotton diseases; (3) study genetics of resistance; & (4) design & conduct work on other forms of disease control.
Pl. Path. HL-6

Mo. Insects of Cotton in the Cotton Growing Section of Missouri. To become familiar with the biology and habits of major insect pests of cotton in the cotton section of Missouri; to evaluate their importance; determine the insect pest population levels which justify use of control measures; and work out effective controls.
Ent. 214

Mo. The Diseases of Cotton of Missouri. (1) Learn diseases of economic importance & describe those found to be new. (2) Make crop yield loss estimates due to diseases. (3) Learn resistance rating of present breeding lines & varieties to the common diseases of cotton, cooperate with plant breeder in development of new, more resistant varieties. (4) Learn optimum & limiting environmental factors for disease development. (5) Test established & newly developed chemicals & antibiotics for control of diseases. (6) Study available methods of inoculation for inciting epiphytotics & develop new techniques for the study of the diseases of cotton.
Field Crops 322

N. Mex. The Occurrence of Beneficial Insects as Related to Insecticidal Control Programs for Hemipterous Insect Pests of Cotton. To determine (1) occurrence & abundance of beneficial insects in cotton fields; (2) relative importance of species found; (3) effect of chlorinated hydrocarbon type insecticides on beneficial insects when applied as control of harmful hemipterous species.
Biol., Ent. 54

N. Mex. The Relationship of Nematodes to Seedling Diseases and Verticillium Wilt of Economic Plants. Learn (1) nematodes associated with seedling diseases & Verticillium wilt; (2) role played by nematodes in development of these diseases. (3) Devise & evaluate control measures for any disease complexes found.
Bot., Ent. 74 Coop. ARS

N. C. The Control of Cotton Insects in North Carolina. To (1) determine thru field experiments, best available chemical & cultural control for important cotton insects, including boll weevil, boll worms, thrips, mites & aphids; (2) Conduct lab screening tests on these pests using new candidate insecticides to find new & better materials for control; (3) study possible correlation between climatic conditions & cotton pest incidence; & (4) determine effects of insecticide residues occurring in the soil as a result of chemical control of cotton insects on crops subsequently grown on same land.
Ent. 43

Okla. New Developments in the Use of Fungicides for Cotton Seedling Disease Control. To protect cotton seed against decay & cotton seedlings against damage from seedling disease pathogens.
Bot., Pl. Path. 482

S. C. Cotton Seedling Diseases, and the Etiology of Boll Rots as Related to the Quality of Seed and Fiber. To (1) develop seed & soil treatments that will assist in obtaining adequate stands of seedlings; & (2) study etiology of boll rots as related to seed & fiber quality, & their possible control thru cultural practices.
Bot. 120 Coop. USDA

S. C. Causes of Non-Fluffed Locks in Cotton and Their Effect on Yield, Quality, Mechanical Harvesting and Ginning. Learn (1) influence of insects & insecticides; fungi & bacteria; defoliants & defoliation; soil temperature, atmospheric temperature, & soil moisture on occurrence of non-fluffed locks; (2) influence of non-fluffed locks on mechanical picker performance; ginning; lint fiber qualities; seed quality & germination; yield of seed cotton, seed, & lint.
Agr. Engin., Ent. 395 Coop. ARS

Tenn. A Study of the Life History and Means of Control of Insects that Affect the Growth of Cotton. To determine the harm done to the cotton plant in early stages of growth by thrips, flea beetles, root lice, plant bugs, &, in some years, boll weevil.
Ent. 98

Tenn. Control of Cotton Verticillium Wilt. To (1) develop means to reduce loss from the disease by study of contributing environmental factors, determining range of the disease in Tenn., differentiating incidences of Verticillium & Fusarium wilts, determining means of spread of causal organism, & developing cropping systems to restrict further spread & minimize losses where disease now exists; (2) study use of fungicides, soil fumigants, & antibiotics to reduce incidence of the disease; & (3) breed a Verticillium & Fusarium wilt-resistant upland cotton acceptable to Tennessee.
Pl. Path. 135

Tex. Physiological and Biochemical Effects of Systemic Insecticides on the Cotton Plant. To (1) determine role of the plant in translocation, alteration, & persistence of systemic insecticides, to better understand mechanics of distribution within plant of compounds involved; (2) investigate effect of systemics on plant development, defining dosage levels & conditions at which stimulation or phytotoxicity occurs; (3) determine effect of systemics on plant's organic & inorganic nutrition in relation to their insecticidal effectiveness; & (4) attempt to develop a concept of alterations in chemical structure or systemics which contribute to increased or decreased phytotoxicity.
Pl. Physiol. & Path., Ent. 428 Coop. ARS

Tex. The Interrelations and Control of Insects Attacking Legumes and Cotton. To (1) learn effect of insect populations developed on legumes grown for seed & soil improvement upon abundance of injurious insects in cotton; (2) develop or discover cultural methods to control or modify insect injury to cotton from use of legumes for seed production & soil improvement; (3) learn relation of over-wintering & abundance of thrips, spider mites, fleahoppers & aphids on wild winter & spring host plants in permanent & improved pastures & fence rows, roadsides, etc. to migration & abundance in seedling cotton; & (4) develop most economical control for these insects.
Ent., Agr. Engin. 557 Coop. ARS

Tex. The Relationship Among Insects, Insecticides, Weather and Host Plants in the Control of Field Crop Pests, With Special Reference to Cotton. To determine (1) effect of wind, rain, temperature, light, humidity, and dew, under controlled conditions individually and in combination, on the toxicity of various insecticides to specific insect pests; (2) effect of age, size and condition of growth of host plant on the toxicity of insecticides to plant pests; (3) speed of action of various insecticides to certain pests; and (4) effect of dosages and single and multiple applications on residual toxicity of insecticides.

Ent. 933 Coop. ARS

Tex. Treatment Schedules for Control of Insects Attacking Cotton. To determine most economical schedules of insecticidal applications for control of cotton insects.

Ent. 934 Coop. ARS

Tex. The Seedling Disease Complex of Cotton. (1) Extend & intensify existing knowledge of occurrence & importance of fungal pathogens of cotton seedling disease complex in terms of geography & soil type. (2) Establish standard physiological responses for principal species of complex, as: cardinal temperatures, growth on standard artificial & synthetic media, growth in soils of different levels of moisture & organic matter. (3) Develop system of seedling disease grades reflecting relative symptomatology on quantitative basis & adaptable to current statistical methods. (4) Evaluate in terms of disease grades, responses of major commercial varieties & representative genetic types of cotton to seedling disease complex in soils at controlled temperature levels. (5) Cooperate with existing programs in selecting for tolerance of seedling diseases within current material, or in adding tolerance by hybridization & selection. (6) Examine prior treatment of seed, as to fuzzy, reginned, acid-delinted or flamed, in light of possible predisposition to seedling disease. (7) Evaluate selected chemicals, applied to seed prior to planting or mixed in covering soil, as means of controlling losses from seedling disease.

Pl. Physiol., Agron. 990 Coop. ARS

Tex. The Influence of Physiological Factors on the Expression of Parasitic Diseases of Cotton. To (1) study relation between organic & inorganic content of cotton seeds & their susceptibility to seedling diseases, (2) learn relationship between the supply of major & minor nutrient elements & resistance of cotton to bacterial blight, & (3) learn effect of increased concentrations of certain minor elements in cotton seeds on seedling disease resistance.

Pl. Physiol. & Path., Agron. 1007 Coop. ARS

Tex. Chemical and Biotic Control of the Pink Bollworm. (1) Develop effective controls & coordinate these with control of other cotton insect pests. (2) Evaluate & learn nature of biotic action in cotton types exhibiting resistance or tolerance.

Ent., Agr. Engin., Agron. 1094 (S-37) Coop. ARS (Also see Part 7, Section a.)

Tex. Biological and Chemical Factors Influencing the Cotton Root Rot Fungus, Phymatotrichum Omnivorum. By biochemical, microbiological, & physical procedures establish interrelations between cotton root rot fungus & its environment, emphasizing: (1) influence of chemical & physical factors operating in soil on mycelial development & formation of sclerotia; (2) factors involved in longevity & breaking of dormancy of sclerotia; (3) evaluation of role of concomitant soil microorganisms; (4) effect of fungitoxic chemicals on growth & activity of Phymatotrichum omnivorum; (5) isolate & study compounds secreted by root rot fungus; (6) development of improved criteria for evaluating actual infestation status of disease potential of field situations.

Substa. 5, Pl. Path. 1102 Coop. ARS

E. Economics and Marketing

Ala. Marketing of Cottonseed for Planting Purposes in Alabama. To (1) study & describe organization & operation of existing marketing structure including agencies, facilities, & legal regulations about cotton seed for planting; (2) determine practices of cotton producers in obtaining seed for planting; (3) learn adequacy of supply of planting seed in relation to demand; (4) evaluate practices of distributing agencies in marketing planting seed; & (5) learn possibilities of improving marketing system for planting seed to reducing costs & improving adequacy & availability of seed of desired quality.

Agr. Engin. 541 Coop. USDA

Ariz. Market Potential for Pima S-1 Cotton. To learn (1) changes, having occurred in elasticity of demand for American-Egyptian cotton since the development & commercial use of Pima S-1; (2) market outlets of Pima S-1 & evaluate potential outlets & conditions under which enlarged outlets could be attained. (3) Develop criteria for a pricing policy for American-Egyptian cotton tending to assure a stable supply & create & maintain a competitive position for enlarged markets.

Agr. Econ. 412 (WM-32) (Also see Part 14, Section a.)

Ariz. Economic Analysis and Evaluation of the Use of Fiber Tests in the Marketing of Cotton. Determine (1) nature & extent of use of measures of differences in fineness, strength, & other fiber properties in addition to grade & staple length at various stages in marketing process; (2) influences of measurements on prices paid for cotton; (3) charges for, or estimated costs of tests; (4) basis for & adequacy of criteria used by firms in relating fiber testing to value of cotton.

Agr. Econ. 426 (SM-18) Coop. AMS (Also see Part 14, Section a.)

Ark. Profitable Enterprise Combinations on Cotton Farms. To (1) learn physical & economic input & output data for various enterprises adapted to cotton-type farms; (2) learn returns to different types & intensities of alternative enterprises; & (3) evaluate effect of various enterprise combinations on farm business as a whole on the most important cotton-type farms.

Agr. Econ. & Rur. Sociol. 330 Coop. ARS

Ark. Economic Analysis and Evaluation of the Use of Fiber Tests in the Marketing of Cotton. To learn (1) nature & extent of use of measures of differences in fineness, strength, & other fiber properties also grade & staple length at various stages in marketing; (2) influences of measurements on prices paid for cotton; (3) estimated costs of tests; (4) basis for & adequacy of criteria used by firms in relating fiber testing to value of cotton; (5) value of fiber testing in appraising cotton breeding & production programs designed to produce consumer desired qualities.

Agr. Econ. & Rur. Sociol. 437 (SM-18) Coop. AMS (Also see Part 14, Section a.)

Ark. The Effect on Market Value of Specified Handling and Storage Practices Prior to the Ginning of Cottons Having Origin Under Varying Growth Conditions. (1) Learn effect on fiber quality of storing cotton harvested by machines. (2) Evaluate changes in fiber quality in terms of spinning & market value.

Agron., Agr. Econ. & Rur. Sociol. 447

Ark. Effects of Price Support, Acreage Adjustment, and Surplus Removal Programs Upon Arkansas Cotton Marketing Agencies and Facilities. (1) Analyze effects of legislative acts & their interpretation at national level, & administrative decisions of the State Agricultural Stabilization & Conservation Office on shifts in market supply areas within State on cotton marketing agencies & facilities.

Agr. Econ., Rur. Sociol. 466 (SM-14) Coop. USDA (Also see Part 2, Section a.)

Ga. Effects of Governmental Price and Income Policy Upon Georgia Cotton Producers. To analyze & appraise the effects of the cotton programs in terms of concurrent changes in farm enterprise combinations, market systems, & interrelationships of product & factor prices for cotton.

Agr. Econ. M-11 (SM-14) (Also see Part 2, Section a.)

Ga. An Economic Analysis of Effects of Fires on Insurance and Other Costs at Gins. Reduce fire insurance cost to ginners. Learn (1) effect of prevention devices & practices on frequency & extent of fires & cost, (2) relation of premiums for gin fire insurance to losses, (3) trends in types of & rates for insurance to ginners, (4) legal limitations & regulations of fire insurance companies.

Agr. Econ., Agron. M-14 (SM-17) Coop. AMS (Also see Part 14, Section a.)

Ga. Economic Analysis and Evaluation of the Use of Fiber Tests in the Marketing of Cotton. To learn (1) nature & extent to which differences in fineness, strength, & other fiber properties are used in marketing cotton at various stages; (2) influence of these differences on prices paid for cotton; (3) estimated costs of tests; (4) basis for & accuracy of criteria used by firms in relating fiber testing to value of cotton; (5) value of fiber testing in guiding cotton breeding & production programs designed to produce qualities desired by consumers.

Agr. Econ. M-17 (SM-18) Coop. AMS (Also see Part 14, Section a.)

La. A Study of the Marketing of Cotton and Cottonseed and the Economics of Cotton Gin Operation in Louisiana. To (1) Analyze economic position of the cotton ginning industry in Louisiana; (2) study methods of marketing cottonseed in Louisiana; (3) analyze methods of marketing cotton, to explore opportunities of new marketing methods, & (4) estimate, in cooperation with Cotton Division of AMS, in the grade & staple length of cotton produced in Louisiana.

Agr. Econ. 467 Coop. AMS

La. An Economic Analysis and Evaluation of the Use of Fiber Tests in the Marketing of Cotton. To learn nature & extent of use of measures of differences in fineness, strength, & other fiber properties in addition to grade & staple length at various stages in marketing process; influence of measurements on prices paid for cotton; charges for tests; basis & adequacy of criteria used by firms in relating fiber testing to value of cotton; value of fiber testing in appraising cotton breeding & production programs designed to produce desired consumer qualities; practicability of furnishing growers with additional information on quality of cotton produced.

Agr. Econ. 924 (SM-18) Coop. AMS (Also see Part 14, Section a.)

Miss. The Effects of Price Support and Related Farm Programs on Cotton Marketing Services and Facilities in Mississippi. (1) Analyze effect of administrative decisions of the state ASCC on cotton acreage & production in economic areas of the state. (2) Learn from marketing agencies the effects of shifts in market supplies on cotton marketing facilities & services.

Agr. Econ. HA-1, RRFA-1 (SM-14) (Also see Part 2, Section a.)

Miss. An Economic Analysis of the Effects of Fires on Insurance and Other Costs at Cotton Gins. To learn (1) effect of preventive devices & practices on frequency & extent of gin fires, & related costs to ginners; (2) relation of premiums for gin fire insurance to associated losses; (3) trends in types of & rates for fire insurance for ginners, (4) legal limitations & regulations of fire insurance companies.

Agr. Econ. HA-22, RRFA-10 (SM-17) Coop. USDA (Also see Part 14, Section a.)

Miss. Evaluation of the Use of Fiber Tests in the Marketing of Cotton. Learn (1) extent of use of tests of fiber properties other than grade & staple length; (2) influence of tests on prices paid for cotton; (3) charges for or estimated costs of tests; (4) basis for & adequacy of criteria used by firms in relating fiber tests to value of cotton; (5) role of tests as a guide to breeders in developing varieties with fiber properties desired by consumers; (6) role of tests in developing production programs designed to produce cotton of qualities desired by consumers.

Agr. Econ. RRFA-2 (SM-18) Coop. USDA (Also see Part 14, Section a.)

Mo. A Study of Cotton Marketing in Missouri, Including Pricing Mechanisms in Local Markets, and the Effect of Quality and Market News Services on Price. To discover factors affecting the level of price and the price differentials due to quality differences in local markets, the effect of quality and price information on price establishment.

Agr. Econ. 65

Mo. Effects of Fires on Insurance and Other Ginning Costs. Determine legal & regulatory framework in which fire & accident insurance companies serving cotton gins operate, effect of prevention devices & practices on frequency & extent of gin fires & accidents & their relation to costs, & the relation of premiums & credits for use of these devices & practices.

Agr. Econ. 288 (SM-17) (Also see Part 14, Section a.)

N. Mex. Economic Effects of Alternative Methods of Pricing Pima S-1 Cotton. (1) learn elasticity of demand for Pima S-1 cotton & learn its importance as a guide in pricing. (2) Measure economic effect of recent regulation which sets minimum price of Pima S-1 at 75% of parity. (3) Learn present methods for setting price-quality differentials & subjectively appraise their efficiency in relation to surpluses & potential uses of specific qualities.

Agr. Econ. 58 (WM-32) (Also see Part 14, Section a.)

N. Mex. Economic Analysis and Evaluation of the Use of Fiber Tests in the Marketing of New Mexico Cotton. To learn (1) nature & extent of use of measures of differences in fineness, strength, & other fiber properties & grade & staple length at various stages in the marketing process for New Mexico cotton; (2) influences of these measures on prices paid for cotton; (3) charges for, or estimated costs of tests; (4) basis for & adequacy of criteria used by firms in relating fiber testing to the value of cotton; (5) value of fiber testing in appraising cotton breeding & production programs designed to produce the qualities desired by consumers.

Agr. Econ. 64 (SM-18) Coop. AMS (Also see Part 14, Section a.)

Okla. Effects of Cotton Price Support, Acreage Adjustment, and Surplus Removal Programs Upon Oklahoma Agriculture. To analyze & appraise the effects of (1) Federal price support, acreage adjustment, & surplus removal programs upon the supply, domestic and foreign consumption, markets & prices, & gross income from cotton lint; & (2) cotton programs in terms of concurrent changes in farm enterprise combinations, market systems, and interrelationships of product & factor prices for cotton.

Agr. Econ. 876 (SM-14) Also see Part 2, Section a.)

Okla. Marketing Practices and Harvesting Methods Affecting Cotton Quality and Net Income from Cotton in Oklahoma. To learn (1) cultural practices followed that affect cotton quality, quantity, price, & income from cotton marketed in Oklahoma, (2) effect of defoliation on cotton quality, price & income, (3) effect of harvesting methods used on quality & income, (4) effect of marketing practices followed, as type of vehicle used for hauling, (5) combined effect of pre-harvest field preparation, defoliation, harvesting methods & marketing practices on net income from cotton, per bale, acre, and farm.

Agr. Econ., Agron. 907

Okla. An Economic Analysis of the Effects of Fires on Insurance and Other Costs at Cotton Gins. To learn (1) effect of preventive devices & practices on frequency & extent of gin fires, & related costs to ginners; (2) trends in types of & rates for fire insurance available to ginners, & relation of premiums for gin fire insurance to losses.

Agr. Econ. 927 (SM-17) (Also see Part 14, Section a.)

Okla. An Economic Analysis and Evaluation of the Use of Fiber Tests in the Marketing of Cotton. Learn (1) Nature & extent of use of measures of differences in fineness, strength, & other fiber properties in addition to grade & staple length at various stages in marketing process; (2) influence of these measurements on prices; (3) charges for, or estimated costs of tests; (4) basis for & adequacy of standards used by firms in relating fiber testing to value of cotton; (5) value of fiber testing in appraising cotton breeding & production programs designed to produce qualities desired by consumers.

Agr. Econ. 948 (SM-18) (Also see Part 14, Section a.)

P. R. Effects of Federal and Commonwealth Programs Upon the Sea-Island Cotton Industry and the Economy of Puerto Rico. (1) Measure & appraise effects of Federal & Commonwealth programs upon: supply, consumption, price, & gross income for Sea-Island cotton; concurrent changes in farm enterprise combination, market systems, & interrelationships of product & factor prices for Sea-Island cotton. (2) Study interconnections of program for above with other programs for either farm commodities or farm practices important in Puerto Rico, & examine their interactions.

Agr. Econ. & Rur. Sociol., Agron. 96 (SM-14) Coop. AMS
(Also see Part 2, Section a.)

S. C. Economic Evaluation of Alternatives to Grade and Staple in Marketing Cotton. Learn (1) nature & extent of the use of measures of differences in fineness, strength, & other fiber properties (other than grade & staple length) at various stages in the marketing process for cotton; (2) influences of these measurements on prices paid for cotton; (3) charges for, or estimated costs of tests; (4) basis for & adequacy of criteria used by firms in relating fiber testing to quality & value of cotton; (5) relation of fiber testing to cotton breeding & production programs designed to produce qualities desired by consumers.

Agr. Econ. & Rur. Sociol. 137 (SM-18) Coop. AMS (Also see Part 14, Section a.)

Tenn. An Economic Analysis of the Effects of Fires on Insurance and Other Costs at Gins in Tennessee. To learn (1) relation of premiums for gin fire insurance to losses associated therewith; (2) trends in types of & rates for fire insurance available to ginners; (3) legal limitations & regulations of fire insurance companies.

Agr. Econ. & Rur. Sociol. 18 (SM-17) Coop. AMS (Also see Part 14, Section a.)

Tenn. Economic Analysis and Evaluation of the Use of Fiber Tests in the Marketing of Cotton. To ascertain (1) nature & extent of use of measures of differences in fineness, strength, & fiber properties in addition to grade & staple length at various stages in marketing process for cotton; (2) influences of these measurements on prices paid for cotton; (3) charges or costs for tests; (4) basis for & adequacy of standards used by firms in relating fiber testing to quality & value of cotton; (5) value of fiber testing in appraising cotton breeding & production programs designed to produce the qualities desired by consumers; & (6) practicability of furnishing growers with additional information on quality of cotton produced.

Agr. Econ. & Rur. Sociol. 21 (SM-18) Coop. AMS (Also see Part 14, Section a.

Tex. Economic Aspects of the Mechanization of Cotton Production and Competing Enterprises in Selected Areas. To (1) learn effects & efficiency of certain desiccants & defoliants on yield & quality of cotton, (2) evaluate relative cost of harvesting cotton mechanically after using harvest-aid chemicals as compared with hand harvesting, (3) learn factors which contribute to successful use of mechanical strippers.

Agr. Econ., Pl. Physiol. & Path. 606 Coop. ARS

Tex. Economic Analysis and Evaluation of the Utilization of Fiber Tests in the Marketing of Cotton. Ascertain (1) nature & extent of use of measures of differences in fineness, strength, & other fiber properties in addition to grade & staple length at various stages in marketing of cotton; (2) influence of measures on prices paid; (3) costs for these tests; (4) basis for & adequacy of standards used by firms in relating fiber testing to quality & value of cotton; (5) learn economic significance of quality & spinning performance of cottons in areas where control could be made of variety, seed renewal, fertilization, harvesting practices, etc.

Agr. Econ. & Sociol. 1084 (SM-18) (Also see Part 14, Section a.)

Tex. Analysis of Factors Affecting Cottonseed Margins in Relation to Ginning Rates. (1) Learn if low ginning rates are related to wide margins on cottonseed. (2) Compare accuracy of estimating seed weight with scale weights. Learn (3) influence of selling seed on official grade on price spread between oil mills & gins; (4) frequency of seed price change at gins & oil mills. Compare (5) gross income at gins by source of income including seeds, ginning & wrapping, & cotton buying; (6) methods of determining & paying patronage refunds. (7) Learn difference in gross margins on seeds when sold to one oil mill or to several different oil mills.

Agr. Econ., Rur. Sociol. 1117 Coop. FCS

III. TOBACCO

Calif. An Investigation of the Mechanism of Tobacco Mosaic Virus Reproduction. To learn more about intimate details of plant virus reproduction.
Bot. 1664

Conn. Chemical Appraisal of the Market Grades of Tobacco and of the Changes that Occur in the Curing and Fermentation Processes. To establish objective methods of defining quality of tobacco used for wrappers & binder; to extend previous basic research in chemistry of curing tobacco; to reduce these results to practice in the marketing of tobacco.
Biochem. 204

Conn. Enzyme Catalyzed Changes in the Curing of Tobacco and the Relation of These Changes to Quality and Thus to Market Value. (1) Study enzymatic reactions occurring in green leaves, to isolate & purify enzymes bringing about these reactions, & to study the role enzymes play in metabolism of the leaf.
Biochem. 205

Conn. Components of Cigar Tobacco Leaf Which Contribute to Market Quality, in Particular to Odor. (1) If possible, identify chemically substances in fermented tobacco which give its characteristic odor. (2) Study manner in which these substances arise & how the quantity present can be altered or controlled.
Biochem., Pl. Path. 206

Conn. Interspecific Hybridization in Nicotiana. (1) Further genetic, cytolological, & biometrical studies of variegation phenomenon so as to elucidate mechanisms involved in the instability of gene action. (2) Try to develop blue mold & black rootrot resistant lines of Connecticut Shade, Havana Seed, & Broadleaf tobaccos; learn fundamental information on the mechanism of transfer of heritable disease resistance from species to species.
Genet. 506

Conn. Curing and Fermentation of Cigar Wrapper and Binder Tobacco. To determine which chemical reactions in curing and fermentation processes lead to high quality in cigar tobacco and to promote these reactions by controlled curing and fermentation so as to produce leaves of higher and more uniform quality.
Pl. Path., Bot., Biochem. 646

Conn. "Open Shade" Tobacco. To produce an open grown tobacco leaf with the quality for cigar wrappers of present shade tobacco.
Pl. Path., Bot. 647

Conn. Effect of Soil Properties on the Yield and Quality of Tobacco Grown Under Irrigation. To learn (1) interrelation of irrigation, soil type, physical soil condition, fertilization, row spacing, kind of tobacco, & nature of tobacco root system on yield & quality of tobacco; (2) effect of deepening effective tobacco root zone (by loosening & fertilizing subsoil) on more efficient use of water applied by irrigation in increasing yield & quality of tobacco.
Soils, Pl. Path. 724 (NE-22) (Also see Part 3, Section a.)

Storrs (Conn.) Competitive Market-Grade Pricing of Cigar Tobacco Types Suitable for Binder Use. To develop information & analyses for interpreting competitive pricing of identifiable qualities & market-grades of cigar tobacco types suitable for binder use by (1) establishing the physio-economic characteristics that identify substitutability & define market grades among tobaccos suitable for binder use in export or cigar manufacture, (2) measuring changing price differentials & quality characteristics among identifiable market grades, & (3) relating yearly utilization & production by types to changing market-grades & market-grade price differentials.
Agr. Econ., Agron. ES 320 Coop. AMS

Fla. Flue-Cured Tobacco Improvement. To develop varieties of flue-cured tobacco of good type & yield combined with resistance to nematodes & other pests.
Agron. 372

Fla. Fertilization and Culture of Flue-Cured Tobacco. To determine the influence of fertilization, irrigation, and soil fumigation on flue-cured tobacco.
Agr. Engin., Agron. 555

Fla. Curing Bright Leaf Tobacco Grown Under Different Levels of Nitrogen. Learn best procedures for curing tobacco during yellowing stage when grown under different levels of N.
Agron., Agr. Engin. 758

Fla. Influence of Cultural Practices on the Incidence and Control of Insect Infestations in Flue-Cured Tobacco. Learn influence of crop rotation, irrigation, fertilizer, & soil fumigation on kinds & numbers of insects attacking flue-cured tobacco, & develop methods of prevention & control.
Ent., Agron. 780

Ga. Irrigation Practices for Flue-Cured Tobacco. Learn amount & frequency of application of supplemental irrigation required for optimum yields & for efficient production of flue-cured tobacco under high rates of fertilization.
Agr. Engin., Agron. 205 (S-24) (Also see Part 3, Section a.)

Ga. Soil Physical and Chemical Studies as Related to Supplemental Irrigation of Field Crops. Obtain data on soils of Coastal Plain area of Georgia useful for determining most efficient & economical supplemental irrigation practices for crops.
Soils, Agr. Engin., Agron. 207 Coop. ARS

Ga. Costs and Innovations in Marketing Flue-Cured Tobacco. To (1) determine cost of marketing flue-cured tobacco, (2) evaluate technological innovations which might lower costs & contribute to a more serviceable market facility, & (3) ascertain needed adjustments in length of marketing season & other customs & habits in the marketing arrangement.
Agr. Econ., Agron. ES 337

Hawaii Investigation on the Production of Tobacco. Learn potentials of tobacco production in Hawaii.
Agron. & Soils 136

Ky. Breeding Studies with Tobacco. To (1) develop tobacco varieties resistant to black root rot, mosaic, brown root rot, fusarium wilt, angular leaf spot, wildfire, streak virus, and black shank, (2) improve smoking qualities of burley tobacco by crossing with Turkish tobacco and selecting for aromatic strains, and (3) develop smoking tobaccos of satisfactory quality that are extremely low in nicotine content, and other strains having a maximum total alkaloid content of about 2.5 percent.
Agron. 152

Ky. The Effect of Cropping and Soil Management Practices on Yield and Quality of Burley Tobacco. To determine effect of cropping, fertilizing, manuring, liming, etc., on yield & quality of the cured leaf of burley.
Agron. 153

Ky. Virus Diseases of Tobacco, with Special Reference to Streak. To study the virus that causes streak of tobacco to determine: (1) natural method of spread of the virus, (2) natural host range of the virus, & (3) properties of the virus.
Agron. 154

Ky. A Study of the Physical and Chemical Properties of Burley Tobacco. To determine physical & chemical properties of burley tobacco as affected by soil conditions, fertilization methods of culture & curing, & varieties & to relate these properties to market grade & to specific use value.
Agron. 163 Coop. ARS

Ky. Control of Subterraneous Insect Pests of Tobacco Plants. To determine phytotoxicity, possible simulating effect, method of application, as well as the insecticidal action of some of the new organic insecticides for the control of wireworms, cutworms, & white grubs.
Ent., Bot. 451

Ky. Control of Tobacco Hornworms. To develop new or improved insecticides for the control of Protoparce sexta Johanssen & Protoparce quinquimaculata Haworth.
Ent., Bot. 458

Ky. Control of the Green Peach Aphid, Myzus Persicae (Sulz.), on Burley and Dark Tobacco. To determine the relative effectiveness of new organic insecticides or combinations of insecticides in control of green peach aphid on tobacco.
Ent., Agron. 460

Ky. The Development and Use of Chemical Standards of Quality for Marketing Burley Tobacco. (1) Develop methods of analysis & sampling procedures for chemical constituents associated with quality of burley tobacco, (2) test feasibility of methods in marketing burley tobacco.
Agron., Agr. Econ. 1003

Ky. Transmission of Virus Diseases of Field Crops by Insects and Mites. To learn (1) which insects & mites transmit virus diseases of field crops; (2) entomological factors influencing virus transmission of these diseases; (3) host naturally infected by selected viruses transmitted by insects or mites. (4) Find new methods & improve & simplify present methods of achieving above objectives.
Ent., Bot., Agron. 1010

Md. Production, Harvesting, Curing and Storing of Maryland Tobacco.--D, Tobacco Housing. To determine optimum conditions of temperature, humidity & air movement for the curing & storing of tobacco, to determine the extent to which it is economically justifiable to achieve these conditions, & to design & develop equipment & methods to maintain these conditions as uniformly as possible in all parts of full-size barns.
Agr. Engin. R-11-D

Md. Production, Harvesting, Curing and Storing of Maryland Tobacco.--E, Structures and Equipment for Tobacco Stripping. To determine the best design of stripping room as affected by size, arrangement and natural and artificial lighting; to determine optimum conditions for keeping tobacco in desirable condition and to design and test equipment for this purpose; and to develop new and improved equipment for stripping operations.
Agr. Engin., Agron. R-11-E

Md. Development of Improved Strains of Maryland Tobacco Resistant to Diseases. To develop improved strains of Maryland tobacco resistant to major diseases of tobacco, as mosaic, black root rot, wildfire, black shank, Granville wilt, and fusarium wilt.
Bot., Agron. J-95 Coop. ARS

Mass. The Improvement of Havana Seed Tobacco. To improve Havanna Seed tobacco inherently by breeding new strains of tobacco which combine high resistance to black root rot, common tobacco mosaic, & wildfire, with habits of growth & yielding capacity that are highly acceptable to growers, &, also, the capacity to produce tobacco of type of quality that are highly acceptable to cigar manufacturers.
Agron. 4

Mass. Studies of the Usefulness of Soil Conditioning Materials in the Production of Tobacco Plantbeds to Include Investigations on the Causes and Prevention of Ammonia Injury. Expand study on use of soil conditioning materials to include a study of conditions causing NH_3 to develop in harmful amounts in plantbeds & find means of preventing NH_3 injury.
Agron. 8

N. Y. (Cornell) Studies of Heredity in Plants.--C, Cytogenetic Studies on Nicotiana and Related Problems. Investigations consist primarily of analyses of the inheritance of quantitative characters, the effects of alterations in chromosome number and structure, and related problems.
Pl. Brdg. 117-C

N. C. Fundamentals of Tobacco Curing. To formulate basic curing principles pertinent to development of improved methods & procedures for processing & marketing tobacco.
Agr. Engin. HM-7 Coop. ARS

N. C. Tobacco Mechanization. To determine principles pertaining to the mechanization of tobacco culture, evaluate their importance & apply them toward improving present cultural practices.
Agr. Engin., Agron. 11 Coop. ARS

N. C. Studies of Certain Physical and/or Chemical Properties of Tobacco as Related to Quality. To (1) devise new methods or adapt existing procedures for measurement of physical or chemical characteristics of tobacco as related to quality, (2) study relationship between these measurable properties & quality, & (3) integrate into quality evaluation schedule, measurement of appropriate characteristics.
Agron. 40

N. C. Insecticidal Control of Insects Attacking Flue-Cured and Burley Tobacco. (1) Evaluate effectiveness of insecticides used to control tobacco insects. (2) Improve application methods. (3) Learn relation of insect injury to yield & quality of tobacco.
Ent., Chem., Agr. Engin. 47 Coop. ARS

N. C. Genetic Investigations with Natural and Synthetic Strains of Nicotiana Tabacum. (1) Learn nature & magnitude of heritable variation in natural & synthetic strains of Nicotiana tabacum. (2) Learn usability of variation in a varietal improvement program & devise methodology for its genetic control. (3) Develop basic genetic stocks for use in varietal improvement programs.
Field Crops 66 Coop. ARS

N. C. The Control of Tobacco Diseases by Soil Fumigation. (1) Learn effectiveness of soil fumigants against parasitic nematodes & other soil borne organisms pathogenic in tobacco. (2) Study dosage, method of application & treatment conditions for fumigants used in soil. (3) Learn effects of soil fumigants on yield, grade distribution, & value of tobacco & on chemical composition of cured leaf. (4) Formulate recommended procedures for soil fumigation practice.
Pl. Path., Chem., Field Crops 92

Pa. Agronomic Aspects of Improvement of Yield and Quality of Pennsylvania Tobacco. To (1) study rotations, fertilizer applications & other soil management practices to increase yields & quality of cigar filler tobacco, (2) determine specific factors & combination of factors which improve yields & quality of cigar filler tobacco, (3) investigate new materials to stimulate growth of tobacco plants in seed beds, & control suckers on the growing plants, & (4) study techniques of harvesting to improve quality & reduce losses of the crop.
Agron. 1244-A Coop. ARS

P. R. Tobacco Breeding. To obtain cigar-filler and chewing types of tobacco resistant to tobacco-mosaic virus, Marmor tabaci Holmes, and adapted to Puerto Rican conditions.
Agron., Tob. 62

P. R. Biology and Control of Tobacco Insects. (1) Obtain biological data on important insect pests affecting tobacco as flea beetles, tobacco aphid, & the tobacco horn worm. (2) Develop control measures.
Ent. 113

Tenn. Production of Burley Tobacco. To study (1) influence of soil type & fertilizer, manure, & liming treatments on yield & quality of leaf, (2) effect of preceding crops & length of crop rotation on yield, quality, & disease control, (3) hybridization & selection, with special regard to disease resistance, for strains better adapted to Tennessee conditions, (4) influence of curing conditions on quality of leaf, & (5) effect of cultural practices on yield & quality.
Agron. 37 Coop. ARS

Tenn. Breeding Disease-Resistant Tobacco. Develop a dark tobacco resistant to diseases of economic importance. Incorporate such resistance into acceptable varieties. Refine by breeding, lines so obtained, into a high yielding variety that will bring a high market value under existing requirements.
Pl. Path., Hort. 132 Coop. ARS

Tenn. Culture of Dark Tobacco. (1) Learn optimum spacing & height of topping dark tobacco on different soils at various fertility levels. (2) Evaluate various chemicals for suppression of sucker growth after topping & compare yield & quality of tobacco obtained by using these materials by hand control of suckers.
Agron. 163

Va. Investigation of Some Aspects of the Etiology and Control of Tobacco Root Rot Disease-Complexes. To investigate as many different aspects of the etiology & control of tobacco root rot disease-complexes as possible, in an effort to improve vigor, quality, & per acre yield of tobacco crop in the area as measured by per acre value of the crops.

Pl. Path. & Physiol. 86013

Va. Breeding Tobacco for Disease Resistance. To (1) develop thru breeding & selection, high yielding & high quality strains of flue-cured, fire-cured & burley tobacco resistant to the major tobacco diseases, including black shank, Granville wilt, mosaic, root knot, root rot, & the nematode-root rot complexes, with attempt made to incorporate blue mold resistance into the best strains, & in the case of burley, to also include wildfire resistance; & (2) determine genetic behavior of resistance in tobacco to several diseases under investigation in order to predict possibilities from breeding with a high degree of certainty.

Pl. Path. & Physiol., Agron. 86018

Va. Control of Insects Affecting the Production of Flue-Cured Tobacco. To (1) investigate the control of the tobacco flea beetle in plantbeds, on newly set plants, & on field tobacco obtained from a. sprays & dusts applied to foliage, b. chlorinated hydrocarbon insecticides applied in transplant water; (2) investigate hornworms from the standpoints of a. insecticides effective in controlling both hornworms & other insects on tobacco, b. certain biological & ecological studies, & c. control with new type black-light traps; (3) determine the effectiveness of systemic insecticides applied in transplant water in controlling the green peach aphid & flea beetle; (4) determine the effects of new & promising insecticides on the flavor & aroma of tobacco products, & (5) develop control methods for other tobacco insects if they should constitute a major problem.

Ent. 86054 Coop. ARS

Va. Fertilizer, Variety, and Sucker Management as They Affect the Quality and Yield of Burley Tobacco. To learn (1) effects of different rates of N fertilizers, 3 methods of sucker management, & 2 types of varieties upon yield, grade, nicotine, & total alkaloid content of burley tobacco, (2) extent of interaction of rates of N fertilization, varieties & sucker management, as measured by yield, grade, & nicotine content of burley tobacco, (3) residual influence of different rates of nitrogen fertilization of burley tobacco on yields of wheat & red clover.
Agron. 86069

W. Va. The Production of Burley Tobacco. (1) Evaluate methods of seed bed management for production of healthy, vigorous plants. Learn (2) varieties & strains best adapted to various conditions under which tobacco is grown in State; (3) level of soil fertility needed for production of optimum yield & quality of burley tobacco. (4) Investigate efficiency of various management systems on production of burley tobacco, including cropping systems, methods for disease & insect control, & irrigation.
Agron. & Genet. 108

IV. SUGAR CROPS

A. Beets

Colo. Utilization of Labor in the Production of Sugar Beets, Northeast Colorado. Learn (1) month-by-month patterns of labor; (2) how patterns vary with extent of mechanization; (3) shift in labor use resulting from mechanization; (4) length & seasonality of shifts for family & workers; (5) how patterns of labor use vary with size of operation, tenure, etc.: (6) changes in types of hired workers used in mechanized & nonmechanized methods; (7) labor supply & recruitment problems for skilled & unskilled; (8) changing role of sugar beet companies, grower associations, public agencies, etc., in recruitment; (9) changes in labor; (10) general changes in labor use from comparison with surveys of previous years & with less mechanization.

Agr. Econ., Agron. 97 Coop. ARS

Colo. The Effects of Previous Cropping Practices on the Incidence of Root Diseases of Sugar Beets. To learn (1) effects of previous cropping practices on development or suppression of said diseases, (2) effect of crop residue on soil microbiological populations, (3) value of control measures for pre- & post-emergence damping-off with application of crop residues to soil at time of planting.

Pl. Path., Agron. 231 (W-38) (Also see Part 17, Section a.)

Mich. A Study of Soil Conditions as Influenced by Crop Rotation, Tillage Methods and Plant Nutrient Supply on the Yield and Quality of Sugar Beets and Beans. To investigate: (1) influence of crop sequence & tillage practices on soil porosity & aggregates. (2) best plant nutrient ratio for different soil types, (3) most profitable rate of fertilizer application, (4) need for minor elements as indicated by growth characteristics & yield, (5) need for additional nitrogen as related to cropping system, etc., (6) effect of plowing under of green manures compared with perennial sods on the physical condition of soil & crop yields, (7) use of segmented or whole seed in cropping systems, & (8) value of different tillage implements in preparing suitable seedbed.

Soil Sci. 23

Minn. Biology and Control of Injurious Insects on Sugar Beets in Minnesota. (1) Evaluate injury caused by injurious insects on sugar beets. (2) Identify species involved & make observations on their biologies. (3) Study ecological conditions under which injury occurs. (4) Study control methods in cooperation with American Crystal Sugar Co.
Ent. & Econ. Zool. 1736

Mont. Development by Testing and Selection of Varieties of Sugar Beets Resistant to Aphanomyces, Rhizoctonia, and Fusarium Root Rots. To (1) test resistance of new varieties of sugar beets to Aphanomyces, Rhizoctonia, & Fusarium root rots; & (2) learn if resistance is correlated to certain environmental factors such as temperature, percentage of moisture in soil, soil type, & soil nutrients, & learn reaction of various strains of these organisms on beet varieties.
Bot., Bact. 916

Mont. Improvement of Soil Fertility for Sugar Beet Production Through Organic Matter and Fertilizer Treatments. To determine (1) value of organic matter in improving soil fertility for sugar beets thru comparisons with commercial nitrogen fertilizer; (2) comparative value of green manure, barnyard manure, & N fertilizer in improving soil fertility for sugar beet production; & (3) relative value of sweet clover & alfalfa as green manure crops under different systems of irrigation.
Agron. 944

Mont. Nature of the Influence of Crop Residues on Fungus-Induced Root Diseases of Sugar Beets Caused by Aphanomyces Cochlioides Drechs. (1) Evaluate chemical, physical, & biological effects of crop residues & associated factors on development or suppression of root rot of sugar beets caused by Aphanomyces cochlioides. (2) Study influence of soil temperature, moisture, & aeration on effects of residues in developing or suppressing root rot of sugar beets.
Bot. & Bact. 981 (W-38) Coop. USDA (Also see Part 17, Section a.)

Nebr. The Etiology and Control of Soil-Borne Diseases of Sugar Beets. To determine (1) identity of the organisms causing pre- and post-emergence damping-off of seedlings, root rots, wilt, and storage rots following these diseases, and effect of cropping systems, cultural practices including seed treatments, soil types, and environmental factors on occurrence of these diseases; and (2) factors for resistance, and discovery of resistant parent stocks.
Pl. Path. 314 Coop. USDA

N. Mex. Testing Sugar Beet Strains and Varieties for Curly-Top and Leaf Spot Resistance. To (1) test strains & varieties of Sugar Beets for yield, percentage sugar, size & shape of beets, & resistance to curly-top & leaf spot; (2) increase in isolated plantings, seed of select mother roots which have characters sought in objective 1; & (3) increase select seed lots in isolated plantings to make seed available for commercial plantings.
Agron. 9 Coop. ARS

Wyo. Use of Herbicides for Control of Weeds in Sugar Beets. (1) Screen & evaluate promising herbicides for control of weeds in beets. (2) Learn effect of chemicals upon yield & composition of beets. (3) Devise & develop a band method for field application of herbicides.
Agron. 608

B. Cane and Sorgo

Ark. Ecology and Control of the Sugar Cane Beetle (Rough-Headed Corn Stalk Beetle). To (1) develop an effective & practical insecticidal control, (2) arrive at an understanding of insect's ecological needs as a prerequisite to control through management, identifying areas prone to attack, & learning conditions favorable for outbreaks.
Ent. 458

Hawaii The Growth of Saccharum Officinarum as Affected by Environmental Conditions with Special Reference to Moisture. To (1) continue studies under the original project 653, but using variety 32-8560, with the view of refining the concept of fitting crop growth to environment; & (2) to work out a formula for the control of moisture relations of sugarcane through irrigation based on the physiological status of plant in relation to atmospheric conditions, soil moisture, & fertilization.
Pl. Physiol. 653-I

Hawaii The Growth of Sugar Cane, Saccharum Officinarum, as Affected by Environmental and Other Factors.--Physiological Factors Influencing Organogenesis (Development of Organs) in Saccharum. To determine physiological factors influencing development of vegetative & reproductive organs of certain varietal hybrids of S. officinarum.
Pl. Path., Bot. 653.2

La. A Study of a Species of Pythium in its Action on Sugar Cane. The effect of environment will be studied by growing corn & cane under different conditions of temperature, moisture & acid, with Pythium both absent & present, & best temperatures will be determined for infection by work with incubators.
Pl. Path. 205

La. To Develop New Varieties of Sugar Cane. To develop through the breeding of pedigreed sugar cane new varieties & strains which will improve yields per acre.
Sugar Cane 370 Coop. ARS

La. A Study of the Destructive and Beneficial Insects of Sugar-Cane in Order to Develop Economical and Practical Measures of Controlling the Harmful Species. To determine or further refine & correlate control measures of the important insects attacking sugarcane thru studies of biology of the pests & their natural enemies & insecticidal, cultural, & biological control practices for such insects as sugarcane borer, root-stock weevil, aphids, wireworms, nematodes, springtails, sugar-cane beetle, parasites & predators.
Ent. 581 Coop. ARS

La. Utilizing Certain Properties of Agricultural Chemicals to Increase Yields of Sugarcane, or Sugar, per Acre. Learn if sugarcane tonnage or sugar per acre yields can be increased thru use of properties of Urea Form & Gibberellic acid.
Sugar Cane 681

La. Studies on Sugarcane Diseases. To (1) study cause & control of diseases of sugarcane with special emphasis on Phytophthora rot, mosaic, red rot & root rot; (2) develop information on resistance of cane varieties to major diseases of sugarcane; & (3) investigate nature of seed cane failures & stubble failures & develop methods of control.
Pl. Path. 766

La. The Ratoon Stunting Disease of Sugarcane. To determine (1) presence of ratoon stunting virus or a similar one in La.; (2) role of virus in degeneration of varieties which apparently are senescent; (3) if hot water treatment will permit development of virus free seed stocks; (4) all modes of spread of the disease to aid control; (5) a means other than inoculation to identify virus in stalks either not obviously stunted or in area where environment is not productive of good growth: (6) inheritance of resistance to obtain production of new resistant varieties; & (7) environmental factors responsible for severity of the disease.
Pl. Path. 773

La. Enterprise Combinations, Management Practices, Costs and Income on Farms in the Sugar Cane Section of Louisiana. To obtain annual data from farmers on family type farms in the sugar cane section of southern La. concerning the business organization, management practices, input & output relationships by enterprises & for the farm as a unit.
Agr. Econ. 824

La. Fundamental Studies on Sugarcane Diseases. (1) Learn nature of causative agent of ratoon stunting disease of sugarcane; (2) Learn specific diagnostic methods for disease. (3) Develop additional control methods for the disease.
Bot., Bact., Pl. Path. 910

La. Sugar Cane Field Machinery. To build a functional, low cost machine for construction & maintaining quarter drains in sugar cane.
Agr. Engin. 922

Miss. Sorgo Improvement. To evaluate new sorgo strains for sirup and silage and to assist in any spacing, irrigation, or fertility trials which interested workers may agree should be made.
Agron. HC-8

P. R. Nutritive Status of Sugarcane by Foliar Diagnosis. Learn relation between content of N, P, K, or other elements in tissues of cane & relative yields (percentage which actual yield of crop is of maximum yield obtained with heavy applications of a given nutrient to the soil) of the cane represented by said plant tissue samples considering: (1) What part of plant is most suitable for reflection of nutrient deficiencies & yields. (2) When tissue samples must be taken during life of plant & time of day to best show nutrient-yield relationship; (3) Influence played by climate in modifying nutrient content of plant; (4) What influence variety & soil play in modifying nutrient content.
Agron. & Hort. 30

P. R. Control of the Sugarcane Moth-Borer, Diachtraea Saccharalis (Fabricius) in Puerto Rico. To determine (1) usefulness & effectiveness of insecticides, in control of sugarcane moth-borer; (2) proper time, intervals & number of applications of insecticides for effective borer control; & (3) minimum dosages per acre of insecticides to be applied in fields for an economical & effective borer control.
Ent., Agron., Hort. 35

P. R. Sugar Cane Breeding. To develop by hybridization new & superior varieties of sugar cane resistant to mosaic & other diseases.
Agron., Hort. 38

P. R. Microbiological Studies on the Utilization of Molasses. (1) Search for new strains of microorganisms that better satisfy needs of alcoholic, lactic, citric, & acetic fermentations. (2) Produce new strains of yeasts to more efficiently carry out the alcoholic fermentation. (3) Learn optimum conditions under which microorganisms used for above-mentioned fermentations would carry out desired transformations. (4) Establish correlations between physiological activities of yeast cells & their microscope appearance.
Rum Pilot Plant 57

P. R. Marketing of Sugar in Puerto Rico. To determine (1) nature & importance of various items of expense incurred in marketing sugar; & (2) influence of certain factors of organization & operation upon efficiency of sugar marketing.
Agr. Econ. & Rur. Sociol. 75

P. R. Effects of the Quota System, Surplus Allocation, and Price Control with Governmental Subsidy and Incentive Payments Upon the Sugar Industry and the Economy of Puerto Rico. To measure & appraise (1) effects of quota system, surplus allocation & price control with governmental subsidy & incentive payments upon supply, consumption, price, & gross income for sugar; (2) effects of sugar program in terms of concurrent changes in farm enterprise combinations, market systems, & interrelations of product & factor prices for sugar; & (3) impact of policies on the economy at large.
Agr. Econ. & Rur. Sociol. 84 (SM-14) Also see Part 2, Section a.)

P. R. Factors Affecting the Sucrose Content of Cane. To determine (1) and statistically evaluate factors in sucrose content of cane, and (2) possibility of controlling in a practical way the sucrose content of cane.
Soils 91

P. R. Transmission of the Chlorotic-Streak Virus of Sugarcane by Insects. (1) Find insect vector(s) of chlorotic-streak virus of sugarcane. Study (2) relationship of virus to vector; (3) host range of virus among sugarcane varieties & related plant species (in greenhouse); (4) degree of susceptibility of cane varieties to streak virus under field conditions. (5) Devise methods to control disease.
Pl. Path., Ent. 120 Coop. ARS

V. MINOR CROPS

Ariz. Production and Improvement of New Crops for Arizona. (1) Learn adaptability of new crop strains & varieties for Arizona. (2) Develop cultural practices suitable for new crops. (3) Aid Arizona Crop Improvement Association in maintaining pure seed stocks of new crops.
Agron. 401 Coop. ARS

Fla. Evaluation of Introduced Plant Species and Varieties. Screen foreign & domestic plant introductions for adaptations & use as forage & cover crops in state, & provide data on performance of newly developed field crop species & varieties.
Agron. 767 (S-9) Coop. ARS

Hawaii Assay of Native and Introduced Tropical Plants for Products of Economic Value. (1) Gather information regarding content of plant products of economic value in certain tropical plants. (2) Evaluate quality of product, if present in relatively high concentrations. (3) Study possible methods for commercial processing of products.
Agr. Biochem. 620

Idaho Testing and Evaluating Agronomic and Horticultural Crops for Idaho Agriculture. To (1) maintain contact with regional primary station at Pullman, Washington, with respect to available plant materials which might be of value to Idaho agriculture; (2) secure promising material of above nature for evaluation under Idaho conditions; (3) evaluate materials for specific purposes & under conditions of a divergent nature peculiar to Idaho; (4) report any findings from tests to Regional Primary Station at Pullman; (5) coordinate important findings with breeding & testing programs extant in Idaho; & (6) develop new crops which might be found under this program.
Hort. 261 (W-6) Coop. SCS

Ind. The Introduction and Testing for Adaptation of New Field Crops and Crop Varieties in Indiana. Investigate the adaptability of plant species & varieties under Indiana conditions for possible industrial utilization.
Agron. 846 (NC-7)

Ind. Specialty Crops: Costs and Returns. Obtain costs & return data with regard to the growing of various specialty crops--canning factory tomatoes, tobacco, mint, potatoes, canning factory sweet corn, watermelons, & strawberries; relate size of enterprise, crop yields, & other related factors to these data; obtain physical resource inputs that can be used to budget these enterprises in the future.

Hort., Agr. Econ., Agron. 957

Iowa The Introduction, Testing, Multiplication, and Preservation of New and Useful Plants of Potential Value for Industrial and Agricultural Uses. To (1) cooperate in a coordinated program of plant exploration & introduction to obtain plant materials of potential value for industrial & agricultural uses, & as sources of new germ plasm for use in plant improvement; (2) maintain regional primary plant introduction station; (3) maintain & periodically publish an inventory of seed & plants; (4) prepare Breeders Stocks Inventory of field & horticultural plants of economic value to states of North Central Region & assist the states in preserving, maintaining, & distributing these stocks; & (5) establish regional accession record system & publish information on performance of new introductions & domestic accessions as reported by research workers.

Bot., Agron., Hort., For., Pl. Path. 1018 (NC-7) Coop. ARS

Ky. Introduction, Multiplication, Preservation, and Determination of Potential Value of New Plants and Plant Species for Industrial and Other Purposes, and for the Preservation of Valuable Germplasm of Economic Plants. To (1) introduce species & varieties of plants into Kentucky which are considered to have possible agricultural value; (2) multiply & evaluate introduced plants as new crops, as sources of new germplasm in crop improvement, & for possible new uses; (3) evaluate any native plants which may have potential value to Kentucky agriculture; & (4) preserve varieties & species of economic plants which have valuable germplasm.

Agron. 166 (S-9)

Nebr. Development of Crops for Industrial or Other Special Uses. Study adaptation & determine economic value of varieties of new or potential crops for special uses in state; improve adaptation of potential or present crops for special uses by breeding & selection; conduct cultural & weed control studies with new crops; conduct fundamental research to augment improvement program.

Agron., Pl. Path. 506 Coop. ARS

N. Mex. The Preliminary Testing and Evaluation of New Foreign and Native Plants of Potential Value for Oil, Protein, and Leguminous Forage. To (1) learn their adaptability, seed &/or forage yields, & other agronomic characteristics; (2) evaluate by chemical analysis seeds & other parts of new plants to learn their value as potential sources of oil, protein, & leguminous forage; & (3) maintain supplies of viable seed of the evaluated plants.
Agron. 43 (W-6) Coop. ARS

N. C. New Plant Investigations. To (1) introduce & test new strains, varieties, species, & kinds of plants for possible economic value in N. C.; (2) maintain & use introduced plants having important genetic characteristics in existing plant breeding programs & (3) cooperate with regional primary station on evaluation & maintenance of genetic materials.
Hort., Agron. S-116 (S-9) Coop. ARS

Okla. Introduction and Evaluation of New Plants for Oklahoma. Learn (1) economic value of minor crops in Oklahoma farm program; (2) amount of oil from oil bearing seeds & its value as a possibility of making Oklahoma a source of vegetable oils needed in domestic economy; (3) quantity & quality of such constituents for crops with other special values because of composition. (4) Cooperate with Primary Plant Introduction & Evaluation Station in primary evaluation of such new field crops as should, from time to time, be of interest in State.
Agron. 732 (S-9)

Okla. Marketing Broomcorn in Oklahoma. To learn (1) effects of aggregate production, marketing practices, & cultural practices on prices received by state growers for their broomcorn; (2) requirements in terms of market stability & market prices for a stable or growing broomcorn industry in Oklahoma.
Agr. Econ. 937

P. R. Introduction and Evaluation of New Plants for Industrial and Other Purposes, and the Preservation of Valuable Germ Plasm of Economic Plants. To introduce economically important plants, evaluate them as sources of food and industrial use and as new germ plasm for crop improvement, and evaluate usefulness of some native species.
Pl. Brdg. 94 (S-9) Coop. ARS

Tex. Introduction, Multiplication, Preservation, and Determination of Potential Value of New Plants for Industrial and Other Purposes, and for the Preservation of Valuable Germplasm of Economic Plants. To (1) introduce species & ecotypes of plants into Texas which might have possible agricultural value; (2) evaluate introduced plants as new crops, as prospective sources of new germplasm in crop improvement, for possible new uses; & (3) evaluate prospective usefulness of certain native species & forms appearing to be worthy of trial.

Agron., Range & For., Hort., Flor. 717 (S-9)

Regional Research, Including States with Contributing Projects

NC-7 The Introduction, Multiplication, Preservation and Determination of Potential Value of New Plants, for Industrial and Other Purposes and for the Preservation of Valuable Germ Plasm of Economic Plants. To: (1) cooperate in an exploration program for foreign and domestic plant materials and determination of their potential industrial or other value; (2) set up a primary regional plant introduction station for such seed or planting stock adapted to and of potential value in the North Central Region with secondary stations when necessary: (3) catalog, preserve, multiply and distribute such materials; (4) maintain and preserve the germ plasm of crop plants of economic value; and (5) to coordinate this program with that of other regions.

Cooperating stations: Federal-grant projects - Ind. V, Iowa V, N. Dak. I-A

S-1 Genetics and Cytology of Cotton. To (1) accumulate, maintain, evaluate, and utilize cotton species, interspecific hybrids, races and genetic types; (2) produce interspecific hybrids and study their cytological and cytogenetic behavior; (3) study the inheritance of quantitative and qualitative characters.

Cooperating stations: Federal-grant projects - Ariz. II-A, Ark. II-A, La. II-A, Miss. II-A, N. Mex. II-A, N. C. II-A, Tenn. II-C, Tex. II-A

S-9 The Introduction, Multiplication, and Evaluation of New Plants for Industrial and Agricultural Use and the Preservation of Valuable Germ Plasm. To: (1) cooperate in a coordinated program of foreign and domestic plant exploration and introduction; (2) multiply, evaluate and maintain introduced materials adapted to the Southern Region; (3) catalog and distribute introduced plant materials and maintain records of their use in the region; (4) maintain and preserve germ plasm of field and horticultural crops of economic value; and (5) coordinate these programs with similar programs in other regions.

Cooperating stations: Federal-grant projects - Fla. V, Ky. V, N. C. V, Okla. V, P. R. V, Tex. V

W-6 The Introduction, Multiplication, Preservation and Determination of the Potential Value of New Plants for Industrial and Other Purposes. To: (1) cooperate in a coordinated program of plant explorations both foreign and domestic to obtain plant materials and to determine their potential value for industrial and other purposes; (2) establish and maintain a Regional Plant Introduction Station and secondary stations if desired; (3) initiate a program of cataloging, preserving, multiplying distributing, and reporting performance of introduced and domestic seed and plant materials of potential value in the region; (4) maintain and preserve the germ plasm of field and horticultural plants of economic value in the region; (5) coordinate the program with programs in other regions.

Cooperating stations: Federal-grant projects -
Idaho V, N. Mex. V

LIST OF COMPILATIONS OF FEDERAL-GRANT RESEARCH PROJECTS
AT STATE AGRICULTURAL EXPERIMENT STATIONS

ARS-23-8: Part Numbers	Subject-Matter Area	Title of Section
1	Agricultural Chemistry	Agricultural Chemistry
2	Agricultural Economics	a. Prices, Incomes, & General Studies of Commodities & Industries b. Farm Management c. Land Economics d. Farm Finance & Taxation
3	Agricultural Engineering	a. Land & Water Use & Development b. Power Machinery & Equipment c. Farm Structures & Materials
4	Animal Husbandry	a. Beef Cattle b. Sheep & Goats c. Swine
5	Dairy Husbandry	Dairy Cattle
6	Dairy Technology	Dairy Technology
7	Entomology & Economic Zoology	a. Field Crop Insects b. Fruit, Nut & Vegetable Insects c. Miscellaneous Insects & Economic Zoology d. Insecticides
8	Field Crops	a. Cereal Crops b. Oil, Fiber, Tobacco & Sugar Crops
9	Food Science & Technology	a. Food Chemistry, Microbiology, Sanitation & Public Health b. Food Engineering, Processing, Product and Process Development, Utilization and Waste Disposal c. Food Quality & Standards, Acceptance, Preference, & Marketing
10	Forage Crops, Pastures & Ranges	Forage Crops, Pastures & Ranges
11	Forestry	Forestry

ARS-23-8: Part Numbers	Subject-Matter Area	Title of Section
12	Fruits & Nuts	Fruits & Nuts
13	Home Economics	a. Human Nutrition b. Housing c. Clothing & Textiles d. Foods-Consumer Quality & Utilization e. Household Economics & Management
14	Economics of Marketing	a. Field Crops b. Fruits & Vegetables c. Livestock, Meats & Wool d. Dairy Products e. Poultry & Poultry Products f. Forest Products & Ornamental & Drug Plants g. Cross-Commodity & Functional Studies
15	Meteorology	Meteorology
16	Ornamental & Drug Plants	Ornamental & Drug Plants
17	Plant Pathology & Bacteriology	a. Plant Pathology, Botany, & Diseases of Miscellaneous Crops b. Diseases of Field Crops c. Diseases of Fruit Crops d. Diseases of Vegetable Crops
18	Plant Physiology & Nutrition	Plant Physiology & Nutrition
19	Poultry Industry	Poultry Industry
20	Rural Sociology	Rural Life Studies
21	Soils	a. Soil Chemistry & Microbiology b. Soil Fertility, Management & Soil-Plant Relationships c. Soil Physical Properties, Conservation & Classification
22	Vegetables	a. Vegetable Crops b. Potatoes
23	Veterinary Science	Veterinary Science
24	Weeds	Weed Control