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SOUTHERN REGIONAL COOPERATIVE PROJECT S-9, ON "NEW PLANTS"

Clemson, South Carolina

August 19-20, 1957

Members Present:

Administrative Advisor - R. D. Lewis, Director, Texas Agricultural Expt. Sta.  
College Station, Texas

Regional Coordinator - Edwin James, Experiment, Georgia

U. S. D. A. - C. O. Erlanson, New Crops Research Branch, A. R. S., Beltsville,  
Maryland  
W. C. Kennard, State Experiment Stations Division, U. S. D. A.,  
Washington, D. C.

Alabama - W. R. Langford, Alabama Polytechnic Institute, Auburn, Alabama

Arkansas - A. M. Davis, University of Arkansas, Fayetteville, Arkansas

Florida - B. B. Killinger, University of Florida, Gainesville, Florida

Georgia - A. H. Dempsey, Georgia Agr. Expt. Sta., Experiment, Georgia

Kentucky - E. N. Fergus, University of Kentucky, Lexington 29, Kentucky

Louisiana - Julian C. Miller, Louisiana State University, Baton Rouge 3, La.

Mississippi - H. W. Bennett, Miss. Agr. Expt. Sta., State College, Miss.

North Carolina - H. D. Gross, North Carolina State College, Raleigh, N. C.

Oklahoma - Ralph S. Matlock, Oklahoma A & M College, Stillwater, Oklahoma

Puerto Rico - Roy O. Woodbury, Puerto Rico Agr. Expt. Sta., Rio Piedras,  
Puerto Rico.

South Carolina - J. A. Martin, Clemson College, Clemson, South Carolina

Tennessee - W. E. Roever, University of Tennessee, Knoxville, Tennessee

Texas - R. G. Reeves, Texas A & M College, College Station, Texas

Virginia - T. J. Smith, Virginia Polytechnic Institute, Blacksburg, Virginia

Others Present

D. H. Beard - A. R. S., U. S. D. A., Beltsville, Maryland

Quentin Jones - A. R. S., U. S. D. A., Beltsville, Maryland

W. C. Young - S. C. S., U. S. D. A., Athens, Georgia

P. H. Harvey - North Carolina State College, Raleigh, North Carolina

R. W. McMillen - North Carolina State College, Raleigh, North Carolina

M. D. Farrar - Dean of Agri., Clemson College, Clemson, South Carolina

O. B. Garrison - Director, South Carolina Experiment Station, Clemson, S. C.

R. W. Ogle - Hort. Dept. Clemson College, Clemson, South Carolina

## Agenda

Julian C. Miller, Chairman, presiding -

1. Announcements and appointments of temporary committees
2. Report of activities of Southern Regional Plant Introduction Station during 1956-1957 - Edwin James
3. Report of state activities contributing to S-9 - State representatives. Be prepared with typed report for the Secretary.
4. Report of ARS Plant Introduction Section -- C. O. Erlanson
5. Report from March 1957 meeting of National Coordinating Committee - Miller - James
6. Review of report of Task Group on New and Special Crops - under President's Commission on Increased Industrial Use of Agricultural Products (1957) - R. D. Lewis
7. Plans and programs for supplying materials for chemical and biological screening, analysis, and processing - Quentin Jones, Plant Resource Investigations, ARS
8. Ways and means of Increasing Regional and State Research on Industrial Uses of New Crops - Discussion -
9. Policies and proceedings on increase and release of proven introductions of interest to two or more states. Sunturf Bermudagrass and "Israel" sweet clover as examples - Discussion -
10. Explorations suggested.
11. Plant Patents - R. D. Lewis

The meeting was called to order at 8:30, August 19, by J. C. Miller who appointed W. R. Langford, R. O. Woodbury, and W. E. Roever as a Nominating Committee.

### Report of the Coordinator

#### Improvement of facilities

A 500 square-foot addition for seed processing has been made to the Plant Introduction. This eliminates all dust and trash resulting from seed cleaning from the other working areas of the building. The installation of a dehumidifier in the seed storage room has served to lower the humidity to about

50 percent except during about three months in the summer. With humidities reaching 80% or more at times it is still necessary to store in moisture-proof containers.

A much-needed power sprayer was constructed by the Agricultural Engineering Department at cost for the Plant Introduction Station. This has proven to be a versatile piece of equipment. The Agricultural Engineering Department has also given the Station an indefinite loan of a gravity seed separator. This has not yet been installed but will solve the problem of the separation of sand from seed. A "Dearborn" field cultivator is the only other item of new field equipment.

The indefinite status of the land on which our nurseries are located has halted the work of clearing a new area mentioned at our last meeting. It appears at present that we have adequate land for our immediate needs. If it is deemed necessary to clear this area ample heavy equipment is on the Experiment Station grounds to complete the work mechanically.

#### Work Accomplished

The year 1956 was the biggest year in seed shipments since the establishment of the Station in 1949. Referring to the annual report for 1956 it will be noted that 7425 lots of seed were shipped to all regions and for foreign exchange. During the same period 717 new introductions were received and catalogues distributed representing 906 new accessions. In the present year (1957) we have shipped out as of August 13, 5148 lots of seed and received 748 new introductions. It is anticipated that at least a thousand new introductions will have been received by the end of the year.

#### Financial Statement

Fiscal year 1955-1956

Source	Amount
Regional Research Fund (9b3)	\$20,000.00
U. S. D. A.	4,972.44
State	<u>956.62</u>
	\$25,929.06

Expenditures

Personal services	\$22,747.14
Operating expenses	2,010.45
Capital outlay	482.66
Travel	<u>688.81</u>
	\$25,929.06

Fiscal year 1956-1957

Regional Research Fund	\$20,000.00
U. S. D. A.	9,355.80
State	<u>1,350.00</u>
	\$30,705.80

Expenditures

Personal Services	\$22,254.77
Operating Expenses and Travel	2,328.73
Capital outlay	5,912.33
Unexpended	<u>42.91</u>
	\$30,705.80

Fiscal year 1957-1958

Regional Research Fund (9b3)	\$22,000.00
U. S. D. A.	9,430.00
State	<u>500.00</u>
	\$30,930.00

Tentative Budget

Personal Services	\$22,280.00
Operating Expense and Travel	3,300.00
Capital outlay	<u>5,350.00</u>
	\$30,930.00

Whenever feasible increase and evaluation work is done on a contract basis. In some cases this is a very successful method; in others the results are rather poor. In the 1955-56 fiscal year expenses for contract work amounted to \$10,399.58. In the 1956-57 fiscal year the amount was much less, \$479.50. A portion of this reduction is due to the fact that peanuts are handled by Dr.

Hammons at Tifton, Georgia free of charge for the opportunity of having a first look at them.

### Future plans

The New Crops Research Branch A.R.S. has authorized the appointment of a plant pathologist at the Southern Regional Plant Introduction Station. Four prospective candidates have been contacted during the past year without results. At present the prospects are somewhat more encouraging. Four additional men have been approached during the past two weeks. It is hoped that an appointment can be effected within the very near future.

Office space and laboratory will be developed for the new man. This will be accomplished by some remodeling in the present Plant Introduction Building which at the present time is in a rather roughly completed condition. The rooms for the Pathologist and Technical Assistant will be completely plastered, insulation installed, and the floor covered. Space heaters are to be replaced by wall furnaces. This will account for a large amount of the capital outlay for the present fiscal year. It is more than likely that the greenhouse space will have to be expanded.

Through the expenditure of \$50.00 to \$60.00 refrigeration engineers advise that a humidity of 50% or less can be effected in the seed storage the year around. This equipment will be installed in the near future.

### State Reports

Alabama - Since the last meeting of this committee, Alabama has received 98 accessions of New Plants. These include forage grasses and legumes, corn, ornamentals, and horticultural crops. Twenty-seven of these were new introductions of Sea mays sent to commercial corn breeders. The other new plant material was distributed among state experiment station personnel for evaluation. Among these were accessions of perennial ryegrass, smooth brome, and orchardgrass, which were grown in nursery rows and observed for vigor diseases, and persistence. None of these new lines survived the summer satisfactorily in central Alabama.

Israel sweetclover, planted at several experiment fields last year, yielded well in central and southern Alabama; but it appeared too stemmy for high quality pasturage.

Twelve Vicia accessions were observed last winter for qualities that could be used in vetch improvement work. Two of these were highly indehiscent and will be retained for possible crosses with other vetches.

A number of bluestems and related species are under study on deep sandy soil in southern Alabama. Some of these are quite leafy, drought tolerant, and show promise for summer pasture on these drouthy soils.

A few accessions received prior to the last committee meeting are still under evaluation, being used in breeding programs, or released for commercial production. An accession of Capsicum frutescens resistant to tobacco etch virus is now being used in pepper improvement work; and a Lycopersicon introduction, resistant to certain rootknot nematodes, is used as a check in studying nematode resistance in tomatoes.

Sunturf Bermuda, an excellent turf grass under Alabama conditions, has been released and a number of nurseries now have it for sale.

Agrostis tenuis has looked good for year-around turf, but diseases occasionally reduce its stand, and it is a ppor seeder under our conditions.

Arkansas - New crops and plant introductions are carried under state project 323. Individual workers in the Experiment Station request seed supplies directly from the Regional Stations. Perons actively participating in plant introductions are: R. L. Thurman, small grains, sorghum and millets, John Bowers; cucumbers and cowpeas (edible), Joe McFerran; spinach, chard, asparagus, poke, etc., V. M. Watts, watermelon, ornamentals, M. S. Offutt; alfalfa, lespedeza, A. M. Davis; grasses and miscellaneous material ie., sesame, crotolaria, etc.

Dr. Thurman has found no material in the small grains (oats) that has indicated value to the breeding program. This is also true of the sorghums. Two millets are being retained in the breeding program. Development of a highly disease resistant, leafy, good tilling strain is anticipated,

using one or both of these plants.

Dr. Bowers is incorporating a line 197087 into some cucumber breeding lines for anthracnose resistance. He is also carrying two additional lines that, under greenhouse conditions of short days, produce only staminate flowers or only pistillate flowers. No plant introductions of edible cowpeas are being incorporated into breeding lines.

Dr. Watts is continuing work with two citron type watermelons in an attempt to transfer their wilt and anthracnose resistance to a commercially acceptable melon. One plant is being retained because of its bush growth type. Ornamental plants are being retained only under observation.

Dr. Offutt is retaining the lespedeza and alfalfa materials for another season. Intensive breeding work on these two crops is just now getting underway.

Dr. Davis is handling the sesame testing at Fayetteville and Van Buren, using the Uniform test from Dr. Kinman. Also at Fayetteville, 20 introduction lines are being grown in conjunction with the variety trial.

One line, P.I. 158901 is producing pods with 8 rows of seed and a weak, highly branched, plant type.

All Orchardgrass lines classified as outstanding by the Northeast Station have proven to be very susceptible to rust, and have produced no seed heads in their seedling year. Warm season grasses have not been too successful in past plantings.

In the past two years, Arkansas has received 223 introductions. The only introduction now being distributed in the state is Sunturf Bermudagrass (*Cynodon Dactylon*) P.I. 184339.

Florida - From July 1, 1956 through June 30, 1957 seeds and propagation material placed in nurseries at various locations in Florida totalled 1541. These introductions consisted 959 grass and legumes, 358 horticultural crops (primary vegetable), 123 corn and 101 miscellaneous species - ornamental, tree, shrub and special.

Work with peppers has been reactivated in the Plant Pathology Department. The entire stock of peppers from the Introduction Station (Griffin) has been screened for Tobacco Mosaic V(TMV) and Tobacco Etch Mosaic (TEM). Only one number 152225 has shown resistance. This number has been previously reported by Greenleaf of Alabama and Younkin of Campbell Soup Co., to carry resistance to these two diseases. Approximately 25-30 gave a questionable reaction and the entire stock is being rerun for confirmation.

Most of the muskmelons stored at the Introduction Station have been screened for gummy stem blight. No report has yet been made on this work, however preliminary results indicate some resistance.

An accession of rye was introduced into Florida in 1951 in a collection of seed obtained from South America by the Plant Introduction Section of the U.S.D.A. One plant proved resistant to leaf rust, stem rust and mildew and was increased and subsequently became Gator rye.

A new permanent type of nursery installation is being planned for the Gainesville station which will include irrigation for field plantings and a greenhouse for the initial starting of certain types of plants and/or seed.

One introduction, P.I. 233707, known as Romphagrass (Phalaris sp. from South Africa) has created much interest in at least one location, because of its high yielding qualities and high protein content. At the Gainesville nursery Romphagrass has not shown superior growth qualities as yet. This is thought to be a natural cross between Reed's canarygrass and Hardinggrass.

Various plant species will be planted next year to test their adaptation, yielding ability, quality, disease resistance and other factors.

Georgia - Most of the 704 introductions requested by workers in Georgia during the year consisted of agronomic crops. Participation by plant materials men in the Soil Conservation Service has been considerably high than in past years.

Breakdown of request for material:

- (1) 100 lots of grasses and legumes.
- (2) 391 lots of corn. These were used chiefly by Greenwood Plantation and Coastal Plain Experiment Station, Tifton, Georgia. Crosses were made between a Dwarf Canary Island Introduction and Dixie 18 with the objective of lowering the ear for better machine harvesting.
- (3) 115 lots of vegetable seeds. Tomatoes with crack resistance and prolific set under a wide range of environmental conditions were attributes needed. Okra with a high level of resistance to nematodes was requested.
- (4) Most of the peanut selections (*Arachis*) were requested by U.S.D.A. workers at Coastal Plain Experiment Station, Tifton, Georgia.

The release of P.I. 193145 was discussed by the Crop Improvement Committee and it was decided to obtain a one year grazing test before final release. The SCS station at Americus, Georgia has a source of foundation seed for P.I. 193145.

Kentucky- Five Plant Introduction items have been received in Kentucky in the past twelve months. Two were seeds of Crotolaria intermedia of South Rhodesia origin. one was a plant of Carpinus tachonoskii, and the fourth and fifth were seeds of Carpinus tachonoskii. One of the last two items was sent from the Ames, Iowa Station to Walter J. Guernsey of the Soil Conservation Service last October. I have no report from Mr. Guernsey on this item. The other of these two was a packet of seed sent to the Kentucky Station. These seeds were planted by the Station forester in the forestry beds but none of the seed grew. The plant of Carpinus tachonoskii was planted by the Kentucky Station forester but it was so dried upon receipt that it failed to grow. The two Crotolaria items were received too late for proper planting this year but will be planted in the Kentucky Station crops nursery next year.

Several items were received early in 1956 but no report was made on them at the last meeting of this Committee. All of these were sent to Dr. C. O. Spillman, Berea College, Berea, Kentucky. This consisted of two lots

of seeds of Medicago falcata, seeds of 5 species of Lycopersicon, 7 entries of Zea mays and seed of 5 species of Trifolium. The Trifolium species were from the Southern Introduction Station, the others from the Station at Ames, Iowa. Dr. Spillman is using all of these species in soil potassium research financed in part by the Kettering Foundation. He reports that 4 of the species - all Lycopersicon - have been satisfactory in this research.

The hybridizing of Trifolium species mentioned in annual report for 1956 has been continued. Only 14 plants have been obtained. These are from T. pratense x T. sp. P.I. 204517 (species not determined) and all are male and female sterile. Doubling of chromosome number and consequent induction of fertility is being attempted.

Louisiana - New introduction covered by this report include the following:

<u>Discorea</u>		<u>Apples</u>	
No. plants	2189	No. budsticks & trees	4
P.I. numbers	29	P.I. number	2
<u>Rauvolfia</u>		<u>Pears</u>	
No. plants	1797	No. plants	5
P.I. number	6	P.I. number	5
<u>Ipomoea</u>		<u>Ornamentals</u>	
No. plants	175	No. plants	1
P.I. number	25	P.I. number	1
<u>Rubus</u>		<u>Crotolaria</u>	
No. plants	27	Packages of seed	2
P.I. number	8	P.I. number	1

These introductions will be screened for various characters, general adaptation and breeding purposes.

Pepper: A number of pepper introductions were made last year and screened. From these we have made several selections which we can use in our commercial areas, and these are being pure lined for the purpose of introducing them as commercial peppers or for use in our breeding program.

Sweet Potato: Of the Caribbean introductions of sweet potato these 200 lots have been screened rather thoroughly, and only the varieties showing resistance to one or more diseases, such as black rot, soil rot, or internal cork, have been kept for breeding purposes. Some of these lines do not show a great deal of promise as commercial varieties, which is usually the case, but they can be used very effectively in the breeding program for one or more major diseases mentioned.

Okra: A variety of okra, which we will release as the result of germ plasm obtained from the Gold Coast of Africa and used in our breeding program, will be officially released this year and will be called Green Coast. It is a dwarf okra with short pods and a more or less open type plant. It is ideally suited for freezing as well as for the fresh market. The growers around New Orleans are particularly anxious to have this variety for their plantings.

Dioscorea and Rauvolfia: It is too early to predict what can be done with the two medicinal plants, Dioscorea and Rauvolfia, with which we are working, but we are obtaining some valuable information regarding them, I believe in time we can recommend both for commercial planting, at least along the Gulf Coast area of the southern United States. The Rauvolfia in particular shows exceptional vigor with us, but has produced half the commercial yield reported from India.

In the case of Dioscorea, I feel that we should grow the seedlings or young plants in protected beds where they can be watered and weeded carefully for at least two years and then removed to the field to be planted for commercial production. If the plants could then be trellised similar to pole beans, they would produce much more effectively than if allowed to grow on the ground. Efforts are being made to select outstanding seedlings and increase these with the hope of making crosses between varieties that have a high cortisone content.

Comments: The Dawn variety of castor bean, which the Texas station and the U. S. Department of Agriculture has released, goes back to an introduction of dwarf castor bean that we obtained from Brazil some 15 years ago, seed of which was given to the Baker Laboratory. From this stock the variety that has been released and named Dawn was selected. This variety offers possibilities and is now being grown as a commercial group.

As stated before, in most cases the introductions can be used most effectively in the breeding program in adding characters needed to give our commercial crops greater resistance to diseases, high yielding ability and ease in handling so as to bring about a more economical and efficient production of the individual crop.

Mississippi: Since the last technical committee meeting 352 introductions have been received by workers in Mississippi. All introductions of peas, Pisum sativum, have been screened for resistance to *Ascochyta*. No resistance has been found. This screening has been done at no expense to the S-9 project.

Three new varieties of crops have been released during 1956-57. Chief crimson clover, Wiley sorgo, and Mid-South oats.

North Carolina - Because of the transfer of a considerable body of the Horticulture research to a new location a large number of accessions have not been fully evaluated. Most of the brambles and strawberries have been moved to this new (Clayton) site. The majority of these introductions are of tropical or subtropical origin. To date they have shown little promise in Mr. Williams' program.

Midseason evaluation indicates that a recent watermelon accession, from Africa through Charleston, shows some resistance to anthracnose. This introduction has not yet been assigned a P.I. number according to Dr. Barham.

Dr. Pope is conducting work resistance evaluation on the sweet potato accessions. Some of which have not shown any cork, but it is too early to say that they are actually immune. He has experienced considerable difficulty

in increasing these lines. They are apparently sensitive to day-length and make few roots or none at all. Few (1 or 2 out of 150-175 intros.) have any commercial value; most are redskinned, white-fleshed and rough in appearance.

The tomato accessions, tested against bacterial wilt and nematode, Meloidogyne hapla, have proven susceptible to both.

Among the alfalfa accessions being tested, a qualitative evaluation indicates that only one (P.I. 217419 from Denmark) is as good as our present commercial varieties. Even this intro. is poor in reaction to "leaf spot", (excluding Pleospora).

The more recent cotton accessions are being used by Dr. Phillips in his fundamental cytogenetic studies. No agronomic evaluation is being made in this phase of the cotton program.

Dr. Gregory is confident that the interspecific hybridization barrier in peanuts has been partially broken. Through a system of bridge crossing he hopes to get seed from every cross. Four drought years have delayed full evaluation of the Argentinian introductions in his program.

P.I. 121067 is one of the stock incorporated into the most likely new variety to be released in North Carolina. It is unusual in that, though late, it is resistant to leaf spot.

Basse, P.I. 229552 et.al., is in Dr. Gregory's opinion one of the most important introductions in the program; it is the introduction which has given the most boost to the present peanut breeding and production programs in our area.

Dr. Haynes is continuing the investigation of the bacterial wilt resistance reported in Solanum pinnatisectum. Also he has initiated a cytological study of the diploid species most closely related to S. tuberosum (4N).

Dr. Cochran plans to reactivate the Phaseolus work. He plans to test all Phaseolus intros. against root rot and anthracnose and to test the pole beans against rust (33 races).

Castorbeans and sesame are being tested in cooperation with A.R.S.

Being of a preliminary nature no conclusions can presently be formulated.

Oklahoma - A total of approximately 1300 domestic and foreign introductions were received and are being evaluated since our last meeting. Approximately 1000 were received by 10 workers in 1956 and 300 in 1957. A large percent of the accessions received were forage grasses and cowpeas.

During this report I should like mention general plant needs as well as the general performance. Dr. Robert Ealy stated that Dwarf Euonymus looks very good under greenhouse conditions but that outdoor testing for winter-hardiness and drought resistance is pending. He also emphasized the need for small growing ornamentals particularly broadleaf evergreens. These small ornamentals are needed to meet demands created by low story building trenches and for planter boxes.

Drs. Jack Harlan and Robert Celarier are still concentrating heavily on the old world Bluestems. The possibilities of this apomitic complex are great. They need a diploid sexual Bothriochloa so the chromosome number can be doubled and crossed with existing apomitic forms. They would like to have more accessions of Dichanthium. Harlan believes these needs could best be filled by collecting from the Indian Ocean Basin (East Africa to the prairies).

After preliminary observation Drs. Chessmore and Bates report that an accession of wooly pod vetch appeared high yielding, early and apparently resistant to some foliar diseases. Of the group of winter peas received from Dr. Hoover, one survived the winter in Southern Oklahoma. One accession of Sorghum alatum looked promising, but necessary steps need to be taken to make sure it is not a weed threat.

For our area, it appears that crops which are versatile have the best chance to occupy sizeable acreages. The mung bean, cowpea, and guar acreage could be increased in our state. The 1956 season was one of our driest on record yet these crops along with sesame made fair yields.

The mung bean would not replace present crops since most of the acreage is grown as a double crop following wheat. Some mung bean introductions are higher yielding than local strains and produce a seed that would be acceptable to sprouters, however, most introductions that we have observed and tested produce dull irregular seed which is not popular with canners. Since the sprouters also prefer a slick seed coat, this type of bean would serve both. This year we were able to offer an assistantship to a graduate student who is working on the botanical classification of all the mung beans available.

In areas where rainfall is not usually excessive during the time guar is maturing, an excellent quality seed can be obtained for commercial use. At present we are trying to get certified seed of the Texsel and Groehler varieties available to answer immediate needs so that more time can be spent in testing and screening the more promising accessions. We have not had the alternaria disease show up in our nurseries but, are getting a fair reading on fusarium wilt this season.

With cowpeas we would like to seed a good forage variety that could also be used for edible purposes and that could be harvested with a combine. The bottleneck now is to screen forage strains for edible qualities. Prof. L. L. Ligon has completed the cowpea classification bulletin based largely on seed characteristics.

Other publications include one on Sunturf Bermuda by Dr. Wayne Huffine, and the student essay on Plant Introductions for the South which placed sixth in the National Student Essay Contest and published last spring in the Crops and Soils.

No additional report on peanuts except that 40 or better accessions have been tested at two or more locations during 1956 and 1957.

We are continuing to test certain strains of sesame, safflower, sunflower, and crotolaria.

Puerto Rico - Nature of Research and Principal results of the year:

Through the cooperating of S-9 Regional Project, the U.S.D.A. government agencies of the Island, and foreign agencies, we have obtained 506 accessions of plant material and seeds. Most of these accessions have been planted for evaluation and/or seed increase at the Substations.

The following is a summary of the work conducted under each specific crop:

Tea and coffee:

Seed of five varieties of tea from South America and four varieties of coffee from San Salvador, were planted at Castaner.

Of the 251 varieties of seedling coffee plants obtained from the USDA about one-half have now been planted in Castaner.

Oil Crops:

Simarouba glauca (Aceituno) seed beds of the white and black fruited varieties were planted at Corozal. About 4,000 seedlings of these two varieties have been planted at different permanent locations for evaluation.

Seeds of the Pili-nut and sapucaia-nut were obtained and planted at Trujillo Alto.

A test plot of five varieties of castor beans was planted at Lajas to obtain yield and behavior data.

Also a test plot of five varieties of sesame was planted at Lajas to obtain yield and behavior data.

Fruit:

A number of Ceylon peach plants were transferred to Castaner from Trujillo Alto for further study.

About 75 plants of five species of Malpighia were planted at Isabela to be tested as a possible root stock for the acerola. Several grafts have been made at Trujillo Alto.

Seeds of several native plants related to Persea americana have been collected and planted at Trujillo Alto to be used as a possible root stock for the avocado.

Thirteen new hybrid strawberries from New Jersey have been planted in flats at Rio Piedras.

Two hundred plants of Rubus albascens have been transferred to Castaner for yield tests.

Legumes:

Two hundred and fifty-two varieties of legumes have been planted at Isabela for evaluation and seed increase.

Ornamentals:

Several species of native and foreign ornamental were planted for adaptability as exotics.

Cut flowers:

Several varieties of Annuals were planted at Lajas and Isabela for evaluation as cut flowers for the local market.

USEFULNESS OF FINDINGS:

The Cimarron variety of castor bean shows promise of being a high yielder under Lajas conditions.

Malpighia infestissima, M. linearis, and M. schaferi show promise as possible root stocks for the acerola.

The ornamental tree Markhamia sp. planted at Trujillo Alto flowered this winter producing large yellow flowers much like those of the Tabebuia's. It shows promise as an ornamental for Puerto Rico.

WORK PLANNED FOR NEXT YEAR:

1. Continue the introduction and trial of new plant material for adaptability to different parts of the Island.
2. Continue the work with root stocks for avocado and acerola.
3. Continue the preliminary trials of varietal introductions.

## SOUTH CAROLINA

Peppers: Evaluations of several hundred P. I. accessions of peppers are being made to determine the various plant characteristics, initial color and its retention ability, pungency, disease and nematode resistance, and ornamental value. An attempt is being made to group these peppers into their respective classifications as to species of which the following are recognized: Capsicum frutescens L., C. Annum L., C. pubescens R. and P., and C. pendulum Willd..

In the ornamental group P. I. 165518, 200724, 200726, 203522b, 203523, 215739, and 215741 appear to have value in landscaping, as well as use in pickling and powdered pepper to season meats. These lines are being tested and purified with the hope that one or more will be acceptable for naming and releasing to the trade in the near future.

In the commercial group for pungent types there are a number of types which show promise for bright red color when dried and ground for the spice trade and these also retain the red color for a long period of time. P. I. 159236 continues to show best retention of the deep red color. P. I. 198637 runs second in color retention. P. I. 159239 continues to possess high pungency with P. I. 194568 in second place.

There is a great deal of interest in this large pepper collection and it offers many good problems which would fit in with graduate programs. At the present there is a possibility that a graduate student will be accepted for studying the various capsicins of the different species with the hope of developing a quick test for determinations of type of pungent substances and quantity, etc.

Okra: In cooperation with Dr. W. M. Epps, Pathologist, all the P. I. Okra accessions have been screened for root-knot nematode resistance. From a second testing of the most promising accessions P. I. 120833, 109215, 172674, 175567 and 178808 appeared most promising. P. I. 120833, 109215, 172674, 175567 and 178808 appeared most promising. P. I. 120833 and 109215 appeared to have the most uniform resistance to root-knot nematode. These lines have already been crossed with Clemson Spineless okra in an attempt to transfer this resistance to well known and popular varieties of okra. Work is being continued for developing a pure breeding line which has high resistance to nematodes. This work gives us great hope in our long search for nematode resistance which is badly needed wherever okra is grown. The resistance to nematodes may aid in reducing the attacks by wilt diseases. It is hoped that the okra accessions can be screened for wilt(s) resistance also.

Chufas: Work is continuing with the 15 strains of chufas which have been selected from the P. I. 184949 from Nigeria. These strains have remained in good condition in the nursery for three years without any replanting or disturbance. However, cultivation to keep down grass and weeds has been maintained as needed. A new planting was made this year for increase. Some attempt will be made to name and release one of these strains in the near future. The work has proven very interesting and helpful to wildlife people.

Sunturf Bermuda: The Sunturf Bermuda Lawn grass which was named and released jointly by S. C., Ark., Oklahoma, and Alabama in cooperation with the U. S. D. A. - A. R. S. Division of Plant Introduction Section which has given a good account of itself in this area. When given good attention it produces a dark green fine textured lawn, and in several cases it has ex-

celled any other grass in a given location. It makes a turf in 4 to 8 weeks under good conditions.

Bamboo: Clemson Agricultural College has recently initiated a bamboo project located at the Edisto Substation, Blackville, S. C. Three plots totaling 100 acres have been planted to Phyllostachys bambusoides, P. vivax, and P. sulfurea viridis which are to be subjected to paper pulping and mechanical harvesting tests in 5 to 10 years from now. Other bamboo there include fertilizer, varietal, and grazing tests.

Sesame: The sesame accessions are being evaluated and tested as in the past. No outstanding lines have been found this year. Disease ratings are incomplete at this time.

Tephrosia vogellii: We have 6 acres of land planted to Tephrosia vogellii on a contractual basis with a farmer in Anderson County with the objective of producing 3000 pounds or more for a sample to be used in making a large pilot-run for extracting the rotenone. Leaf analyses of many individual plants are to be made with the hope of raising the rotenoid levels of this variable variety. Plants which show highest levels will be transplanted to greenhouses for inducing conditions favorable for seed production and thus lead the way for development of high rotenoid lines.

In General: Samples of various plant material is to be made available to the Utilization Laboratory for analyses. Cooperation will be maintained for increasing and evaluating the various seed stocks of sesame, peppers, okra, etc., with S-9 Regional Station at Experiment, Georgia.

Tennessee: Project 57--Evaluation of New Plants  
Southern Regional Project S-9  
1957 Report  
J. K. Underwood Reporting

Fifty-three new accessions were received by the Tennessee Experiment Station, thirteen of which were *Rubus* spp for breeding work and evaluation, four were ornamental and fruit trees and seventeen were grasses and legumes for evaluation as forage.

Many of the *Pyrus* importations and P. I. numbers have just begun to fruit. Others have been killed by fire blight. The breeding work involves *Pyrus communis*, *P. serotina* and the cultivated pear of Asia *P. sp.*

Attached is a publication on inheritance in four raspberry species which is self explanatory. No other species have been selected having promise as parents.

Thirty of 39 ornamentals introduced during the past several years are still under observation. Considering the fact that several years are required to fully evaluate no definite statement regarding them can be made at this time.

Observations are continuing on 16 forage grasses and legumes including a number of *Eragrostis*, *Panicums*, *Pennisetums*, *Ornithopus*, and *Crotolaria*. Additional *C. intermedia* strain Mtoroshanga from S. Rhodesia appears immune to nematodes.

Texas. Project--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 Value.

Recent release: Sun Turf Bermuda Grass (*Cynodon magenisii*), P.I. 184339. This is a superior turf grass for Texas.

Proposed for release, approval pending: (1) Gulf Rye Grass (Lolium multiflorum), P. I. 193145. The outstanding desirable character of this grass is resistance to rust. (2) Israel Sweet Clover (Melilotus alba annua), P. I. 200355. This strain is much superior to Hubam Clover in productivity, it is later also.

Proposal for release anticipated, because of superiority in forage production, drouth tolerance, seedling vigor and seed production: Two accessions of Cane Bluestem (Andropogon barbinodis), 2 of Sideoats Grama (Bouteloua curtipendula), several of Blue Grama (Bouteloua gracilis) and 1 of Plains Bristlegrass (Setaria macrostachya) are in this category. Trifolium tomentosum (P. I. 180492) produces about 50 per cent more forage in the Gulf Coastal area than commercial strains, but selection for hard seed is being continued. Several introductions of Switch Grass (Panicum virgatum = P. coloratum) are being increased by the Soil Conservation Service for the final steps in improvement and selection.

Approximately 150 additional accessions of grasses, forage legumes and beans are rated as showing promise on the basis of observation during a single season.

Sunchoke has repeatedly demonstrated high productivity of tubers in localized areas of Texas.

Virginia. - During 1956 and 1957, 345 lots of seed were received in Virginia. These included the entire stock of alfalfa carried by the North Central Station. These are being screened with the objective of finding resistance to some of the more common alfalfa diseases in Virginia. To date, none of these are equal or superior to our accepted varieties.

The work in ornamental crops has been expanded with the appointment of a specialist in this field. Fifteen ornamentals were placed under observation in 1957. Additions will be made as new material becomes available.

Report of the New Crops Research Branch - C. O. Erlanson

The Plant Introduction Section has completed the following major assignments since September 1956.

1. Europe - Forage Plants

The main objective of this trip was to collect species of immediate interest to the plant breeders of the northeastern states. It seemed desirable to especially concentrate on the selections or breeding stocks being held at the various research centers in Belgium, Denmark, France, Germany, Holland, Italy, Spain, Sweden, and Switzerland. A poor season climatically limited the total collections to 515, but additional samples have been promised from the 1957 crop. While a major part of these collections have gone into the Northeastern Region, a fair portion have also been distributed to the Northcentral and Western Regions.

2. Western Canada - Forage Grasses

The collectors experienced one of the poorest seasons possible during the months of August and September 1956 because of the cool, moist conditions. The collections totaled 330 and did include a few legumes, ornamentals, and related stocks. All material was placed with the Regional Introduction Station at Pullman, Washington, for subsequent distribution and evaluation.

3. Japan - Ornamentals

Through a cooperative agreement between the Section and Longwood Gardens in Pennsylvania, a trip was made to Japan during the months of September - December 1956. 560 items were obtained including many new species, and practically all have been reported under successful propagation at Glenn Dale, Maryland. Many of these species should prove adaptable to the warmer climes of the southern latitudes.

4. South America - Small Fruits

Special emphasis was placed upon covering the areas of Chile where relatives of the wild strawberry, Fragaria chiloensis, could be found. Resistance to red stele root rot had been located earlier in this species, and it seemed desirable to broaden the germ plasm base. Portions of Colombia and Ecuador were also visited where a few wild raspberries and other small fruits were obtained. A total of 187 items were gathered.

## 2 - PLANT EXPLORATIONS AND COLLECTIONS

### 5. New Guinea - Sugar Cane Relatives

The presence of "ratoon stunting" in most of the commercial sugar cane areas of the world emphasized the need for new germ plasm to combat this disease. Since New Guinea is considered the origin of our present sugar canes, exploration was concentrated in that area. Approximately 275 individual selections of living canes and around 350 seed samples were obtained. The latter largely represented close relatives of this crop which are to be used in future hybridization.

Two foreign expeditions are still active but will be terminated in the fall of 1957.

#### 1. Southern Europe - Ornamentals

Ornamental horticulturists in the United States have long believed there were many new and interesting types of this material located in continental Europe that would be worth introducing. Certain restrictions have made it rather difficult to procure these stocks through regular channels, and a special representative of the Section and Longwood Gardens has been touring the southern part of Europe since March 1957. Collections to date are near the 800 figure and are being propagated at Glenn Dale, Maryland. Distribution will be made later to interested arboreta or experiment station personnel who have active programs for the development of ornamental plants.

#### 2. Mexico, Lower California - *Simmondsia*

With the emphasis upon new crops of potential value to the agriculture of the United States, an attempt has been made during the period of March - September 1957 to study *Simmondsia* in its natural habitat. Variations in flowering and seeding habits as well as other characteristics which might be associated with oil content will be correlated with corresponding analytical studies. Seed will be obtained from the variants for preliminary work on cultural aspects of this plant in case it may later become economically important. A few other genera are being observed at the same time during this Mexican trip.

Preliminary plans are under consideration for:

#### 1. Angola, Belgian Congo

There has been a general interest in getting from parts of Africa such plant stocks as sesame, wild soybeans, sorghums, forages, and vegetables, and there has been no previous concentrated effort to determine what might be found in these countries. There may be

### 3 - PLANT EXPLORATIONS AND COLLECTIONS

good sources for other oil seeds, drug plants, or similar groups that should be screened for future potential crops. Preliminary data seem to indicate that the optimum time for locating the above plants in their fruiting stage would be from December 1957 - April or May 1958.

#### 2. Southern Europe, Mediterranean

There seems sufficient interest in undertaking a second phase of a forage and other crop collecting during the 1958 season. Special requests cover such items as safflower, lupines, ryegrasses, asparagus, fescues, citrus, and miscellaneous material which might carry disease and drought resistance as well as new ecotypes for general plant improvement. An attempt will be made to cover portions of Spain, Portugal, Italy, and Greece with some hope of getting into portions of Yugoslavia.

Domestic exploration is being attempted for a short period during the late summer of 1957 in Minnesota and nearby areas of the Dakotas, Wisconsin, and Canada to obtain native or naturalized forms of Rubus. Arrangements for extensive work on this project were not completed in sufficient time to get much done in 1957. A more complete survey will be made in 1958 providing there is sufficient interest.

In addition to the above, arrangements have been completed with the Kansas and Nebraska experiment stations to collect or otherwise supply native plant materials for chemical screening through a cooperative program with the various Regional Utilization Laboratories. It is anticipated that a similar agreement will become effective with the Texas station.

#### Progress Report on National Seed Storage Laboratory, Ft. Collins, Colorado

A contract for the building of this federal facility has been made. Construction should start in August and the building may be ready for occupancy by next March, although the contractor has 12 months to complete the job.

The Seed Storage Laboratory will be administered by the New Crops Research Branch and plans toward staffing it are underway.

Arrangements have been made for a committee, consisting of representatives of the various groups to be served by this facility, to meet with Dr. Erlanson in Washington in the near future for the purpose of formulating

policy recommendations covering its operation. These representatives are:

State Experiment Stations

Dr. D. W. Robertson, Head of the Agronomy Dept., Colorado State College  
Dr. Wm. M. Myers, Head of Dept. of Agronomy and Genetics, University of Minn.

National Council of Commercial Plant Breeders

Floyd L. Winter, Associated Seed Growers, Inc.

American Seed Trade Association

Earl M. Paige, Corneli Seed Co., St. Louis, Mo.

A. R. S., U. S. D. A.

H. A. Rodenhiser, Acting Head, Cereal Crops Branch  
C. O. Erlanson, Acting Head, New Crops Research Branch

Report on the Meeting of the National Coordinating  
Committee March 28-29, 1957 - Edwin James

The reports to, and the actions of the National Coordinating Committee were reviewed. Particular attention was called to the expanding services of all the Regional Introduction Stations. The value of crop group sub-committees in obtaining better evaluations, as practiced in the North Central Region was discussed with the possibility in mind that a similar arrangement could be initiated in the Southern Region.

Attention was directed specifically to the resolution concerning the Policy on Naming and Releasing Plant Introductions after Field Trials. It was pointed out that the resolution did not intend to convey the impression that the various committees in their respective regions were to function as release agencies, but rather to approve in unofficial capacities the action of other releasing agencies in the release of varieties or strains arising from plant introductions.

The portion of the meeting related to the Evaluation of New Crops for Industrial Use was discussed by R. D. Lewis under the next item in the agenda.

Review of Report of the Task Group on New and Special Crops under the Presidents Commission on Increased Industrial Use of Agricultural Products. - R. D. Lewis

In this discussion R. D. Lewis reviewed his article, "Task Group Explores Potentials for Developing New Farm Crops" appearing in the April 1957 issue of Chemurgic Digest. A discussion of screening procedures followed. Lewis pointed out that New Crops may fall in one of four categories:

1. Wild plants not under cultivation in any part of the world.
2. Plants cultivated in other countries but not in the United States.
3. Plants under preliminary cultural investigation but not yet in commercial production.
4. New crops in production, but not yet firmly established in our agricultural economy.

It was suggested by Lewis that members of New Crops Technical Committees could act as emissaries in calling the attention of people in their respective states the potentials in this field.

Plans for Supplying Materials for Chemical and Biological Screening, Analyses, and Processing - Quentin Jones

I. Utilization Research.

- A. Northern Utilization Research and Development Division, Peoria, Ill.  
New Crops work here falls into two areas:
  1. Developmental studies on promising new crops.
    - a. high amylose corn
    - b. safflower oil
    - c. bamboo for alpha pulp, fiber board, boxboard, etc.

2. General screening for specific plant constituents.
  - a. new sources of plant proteins for industrial and feed uses.
  - b. new sources of paper pulp.

B. Southern Utilization Research and Development Division, New Orleans, La.

Again, the New Crops work encompasses both developmental and pioneer research.

1. Developmental.
  - a. Castorbean oil and meal research.
  - b. Jojoba (*Simmondsia*) oil composition and modification studies.
2. Screening.

New sources for oils and waxes.

C. Western Utilization Research and Development Division, Albany, Calif.

The Western Laboratory does not have a general screening program. Their New Crops responsibility consists of finding ways to process new or little-used fruits and vegetables to make them more attractive to the public.

They are working on such new crops as: pistachio nuts, jujube, persimmon, mango, bamboo sprouts, chinese waterchestnut, chayote, etc.

D. Eastern Utilization Research and Development Division, Philadelphia, Pa.

The Eastern Laboratory has screened about seven thousand plant accessions for precursors of the drug cortisone. Species of the genus *Dioscorea* have been determined to be the best of those tested. They are now screening, under a limited program, for tannins, flavonols, alkaloids, sterols, and cardiac glycosides.

## II. Crops Research

Within the Crops Research Division, ARS, the responsibility for procuring plant materials to service the utilization studies outlined under I above has been assigned to the New Crops Research Branch.

During fiscal year 1957 about 2,000 accessions of plant materials were provided the four Regional Laboratories. These were procured through:

1. crop evaluation projects in various other branches in Crops Research Division.
2. Soil Conservation Service regional nurseries.
3. plant introduction accessions held by the Regional Coordinators.
4. cooperative arrangements with State Experiment Stations.
5. collection from the wild.
6. purchase from commercial seed companies.

In addition to the procurement work in New Crops, the New Crops Research Branch is engaged in the following New Crops activities:

1. Plant Resources Investigations to provide recommendations as to species to be investigated chemically and culturally.
2. Stepped-up crop evaluation program on timber bamboo.
3. Field studies of jojoba (Simmondsia) with the view of selecting superior clones as sources of propagating material for a cultural program.

### III. Regional Participation.

At this time none of the regions has initiated a program on New Crops as such, excluding evaluation of new germ plasm for existing crops.

#### Ways and Means of Increasing Regional and State Research on Industrial Uses of New Crops

As a result of the discussions by advisor Lewis and Q. Jones a motion was made by E. N. Fergus and seconded by H. W. Bennett that the coordinator, James, secure a list of potential new crops for screening from the state representatives and that a consolidated list be sent to Jones who will review the same and request materials for screening. The motion was carried. The coordinator was requested to prepare a statement for mailing to the state representatives which could be distributed in their respective states. A copy of this statement is shown in Appendix A. State Representatives were charged with the responsibility of informing other workers in their states of the screening program.

Advisor Lewis suggested that a sub-committee be appointed to study industrial uses of new crops. Appointment of such a committee is pending.

#### Policies and Proceedings on Increase and Release of Proven Introductions of Interest to Two or More States

In consideration of the possibility of future releases of plant introductions as approved varieties attention was called to the method and form used in the release of "Sunturf Bermuda". C. O. Erlanson pointed out that wherever possible the P.I. number of the introductions should be given in the release. A copy of the approved form appended under B.

### Explorations Suggested

1. J. A. Martin - Collections of sesame, wild soybeans, and forage plants in Egypt and the Belgian Congo. A collection of kenaf to obtain nematode resistance was also deemed important.

2. J. C. Miller - Domestic exploration for adapted fruits along the Gulf Coast.

3. G. B. Killinger - Domestic exploration for lupines as a source of disease resistance.

4. H. D. Gross - Wild peanut species from Brazil and Argentina.

C. O. Erlanson stated that preliminary plans were in the making for an exploration in Southern Australis. The coordinator was requested to obtain suggestions from committee members, for collections in this area.

### Plant Patents

R. D. Lewis called the attention of the committee to the action of certain agencies in obtaining patents on findings applicable to plant breeding techniques. The consensus of experiment station directors and staff members was that if such a policy were upheld by the courts, free exchange of materials and ideas on the part of plant breeders throughout the country would be stifled or possibly eliminated. The desirability of discouraging such tendencies was emphasized.

### National Repository for Asexually Propogated Plants

A resolution by the N. E.-9 Technical Committee (Appendix C) recommending the consideration of a national repository for asexually propogated plants was read. The S-9 Committee approved, in substance, the resolution presented. As a result of the discussion related thereto, it was deemed advisable to have a subcommittee study the possibilities, and report to the S-9 Committee at a later meeting. Chairman Miller appointed W. E. Roever, R. G. Reeves, and A. H. Dempsey to serve in this capacity.

### Card Index System for Evaluations

Advisor Lewis suggested the possibility of setting up, in the Coordinators office, an I.B.M. or similar system for recording evaluation results. A. H. Dempsey and J. C. Miller were appointed to work with the Coordinator to investigate the possibility of such a system.

### Theses Problem in the Southern Region Involving Plant Introductions

The coordinator reminded the committee that at the last meeting it was agreed that thesis work in which plant introductions were used was to be encouraged and that a report of such theses be sent to the coordinator. No such reports were received by the coordinator but subsequent discussion revealed that in several colleges, degree candidates used or are using plant introductions as the basis for their theses problems. They were as follows:

Several Cucurbitaceae species	-	North Carolina
Old world Bluestems	-	Oklahoma
Phaseolus aureus	-	Oklahoma
Trifolium species	-	Kentucky
Ipomaeas	-	Louisiana

### Election of Officers

The Nominating Committee submitted the names of R. G. Reeves as Chairman, and A. H. Dempsey as Secretary. The nominees were unanimously accepted and declared duly elected to serve for the ensuing year.

### Next Meeting

It was agreed that the next meeting is to be called at the discretion of the Executive Committee. A motion was made by H. W. Bennett and seconded by G. B. Killinger that the next meeting be held at the Southern Regional Plant Introduction Station, Experiment, Georgia. The motion was approved.

## APPENDIX A

Dear Coworker:

The 84th Congress established a five-man commission to investigate the possibilities of and to make recommendations for the increased use, by industry, of agricultural products. One of several "Task Forces" working with the Commission had as its objective the exploration of potentials for developing new farm crops. The recommendations of the Commission including those of the Task Force on New Crops has been formulated and is reported in Senate Document No. 45.

The apparent strong connection between the recommendations of the Task Force on New Crops and the objectives of Regional Project S-9 "New Crops" leads to the obvious conclusion that an organization is already in existence which might be instrumental in accelerating the search for new crops for industrial use. The S-9 "New Crops" Technical Committee in a recent meeting voted to take any step necessary to stimulate interest in the search for new crops in their respective states. This communication outlines the initial procedure in our endeavor to find new crops for southern farmers.

Under the definition of potential new crops we may include the following:

1. Wild plants not cultivated anywhere in the world such as *Rauvolfia*. There may be many such wild plants in the south.
2. Plants cultivated as crops in foreign countries but not in United States. African millet, *Eleusine coracana* may serve as an example.
3. Plants now under preliminary cultural investigation but not in commercial production in this country.
4. New Crops recently placed under commercial production but not yet firmly established in our agricultural economy.

The Federal Utilization Laboratory now have a project to analyze any material for industrial potentials. The problem is to provide material to assist in this work. The laboratories require about 10 pounds dry weight of vegetative material or about 4 ounces of seed to run their assays.

The New Crops Technical Committee members feel that assistance is required if anything tangible is to be accomplished. Hence your cooperation is requested. Will you please send to the above office any suggestions you may have regarding possible new crops for laboratory analysis. Any suggestion is welcome even if under present conditions they may seem far-fetched. Your suggestions will be assembled with others and be forwarded to the Southern Regional Plant Introduction Station for compilation and submission to the New Crops Research Branch.

There is a possibility that materials suggested may have already been analyzed, but if not a request will be forthcoming in the future for materials for analysis. If any assistance is required in the collection of the samples as a committee member I will cooperate in any way possible.

This action constitutes the first concentrated effort on the part of the New Crops Projects toward achieving one of the objectives of the same, and it is only through your cooperation that results, even though minor, can be obtained.

Appendix B

CLEMSON AGRICULTURAL EXPERIMENT STATION  
CLEMSON, SOUTH CAROLINA

and

(Other Experiment Stations who wish to release at same time)

Release Date: April 1, 1956

NOTICE RELATIVE TO THE NAMING AND RELEASE  
OF THE BERMUDA GRASS VARIETY SUNTURF

The Clemson Agricultural Experiment Station, South Carolina, in conjunction with (other Experiment Station), hereby release for propagation under the name Sunturf an introduced South African grass.

The variety Sunturf was introduced in 1951 under the technical name Cynodon magemissii, P.I. No. 184339, by the United States Department of Agriculture Plant Introduction Section, from Kimberley, South Africa. It produces few seed and is said to be a triploid natural hybrid between Cynodon dactylon and Cynodon transvaalensis.

The variety Sunturf produces a thick turf with very fine foliage, resembling Zoysia matrella. The foliage remains green without watering during periods of drought and is darker in color than other Bermuda types. The plants produce relatively few seed-heads, green-up 1-2 weeks earlier in the spring than common Bermuda, and remain green about two weeks later in the fall. Sunturf withstands temperatures as low as 3° Fahrenheit. The plants give complete ground cover in 4-8 weeks when sprigged 12-18 inches apart. The variety succeeds on any soil type and requires very little mowing on poor soils.

Through the Southern Regional Cooperative Plant Introduction Project, the variety Sunturf has been tested in every state in the South with only an occasional adverse reaction. In deep Coastal areas some rust is found but does not detract from its appearance unless conditions make it unusually severe.

Sunturf is adapted only to conditions of full or nearly full sunlight and should not be tried in shady areas. It has excellent characteristics for a lawn grass and appears ideal for golf greens.

Appendix B (cont'd)

<u>/s/ O. B. Garrison</u> Director, Clemson, Agric. Expt. Sta.	<u>Feb. 13, 1956</u>
<u>/s/ Lippert S. Ellis (Ark.)</u> (Other Experiment Stations)	<u>Feb. 18, 1956</u>
<u>/s/ L. E. Hawkins, (Okla.)</u> (Other Experiment Stations)	<u>March 6, 1956</u>
<u>/s/ E. V. Smith (Als.)</u> (Other Experiment Stations)	<u>March 12, 1957</u> Date

Appendix C

Subject: Clonal plant materials

I attended the NE-9 Technical Committee meeting at Geneva, New York, on August 13-14 and wish to advise you of action that was recommended concerning the maintenance of clonal plant materials.

You may recall that the National Coordinating Committee, at the March 28-29, 1957, meeting, appointed a standing sub-committee composed of R. E. Larson, NE-9, Chairman; I. J. Johnson, NC-7; J. C. Miller, S-9; Q. B. Zielinski, W-6; F. A. Krantz, IR-1; and W. E. Whitehouse, U. S. D. A., to study the needs for a National Repository for asexually propagated materials and prepare a report and recommendations for consideration of the National Coordinating Committee at the next meeting.

This matter was covered by resolutions by the NE-9 Technical Committee as follows:

NO. 1 Resolved: whereas, the need of repositories for plant germ plasm has been recognized by the establishment of a National Seed Storage and whereas, this facility makes no provision for the maintenance and preservation of vegetatively propagated materials, be it resolved that a fully adequate reservoir of valuable germ plasm as represented by, in, or through clonal or vegetatively propagated food, fiber, oil and drug plants and other crops for industrial use be preserved and maintained by the New Crops Research Branch of the U. S. D. A. through the establishment of a unified repository for these crops.

NO. 2 Resolved: that the Chairman appoint a sub-committee of NE-9 for study of the proposed repository for asexually propagated plants, to prepare an inventory of all such stocks currently held at the various experiment stations of the NE Region and to make a report at the next meeting of NE-9 in August 1958.

Appendix C (cont'd)

The sub-committee was appointed and charged with the following responsibilities:

1. Inventory of materials at the NE Experiment Stations.
2. Recommendations for required facilities, personnel, locations, and estimated costs, as seen by NE-9.
3. Recommended procedures for selecting materials for maintenance in repositories, advisory committee for policy and techniques in handling crops.

Inasmuch as each region will be called on to assist the sub-committee of the National Coordinating Committee in making its report, you may wish to bring this action taken by the NE-9 Technical Committee to the attention of your Technical Committee at its next meeting.

The factual information obtained from the regional inventory will be the basis of recommendations covering cost and procedure in maintaining clonal stocks.