ANNUAL REPORT - FEBRUARY 1, 1951 - FEBRUARY 1, 1952

1. PROJECT: NORTH CENTRAL REGIONAL PROJECT 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.

2. COOPERATING AGENCIES AND PRINCIPAL LEADERS

State Agricultural Experiment Stations	Representative
Illinois	C. M. Woodworth
Indiana	H. H. Kramer
Iowa	I. J. Johnson
Kansas	H. H. Laude
Michigan	C. M. Harrison
Minnesota	W. H. Alderman
Missouri	Joe D. Baldridge
Nebraska	F. D. Keim
North Dakota	T. E. Stoa
Ohio	F. S. Howlett
South Dakota	S. A. McCrory
Wisconsin	D. C. Smith
U. S. Department of Agriculture	
Bureau of Plant Industry, Soils and Agricultural Engineering	C. O. Erlanson
Soil Conservation Service	Grover Brown
Regional Coordinator	
Primary Plant Introduction Station Ames, Iowa	M. M. Hoover
Administrative Adviser	W. V. Lambert

3. NATURE OF WORK AND PRINCIPAL RESULTS OF THE YEAR

Field work under Regional Project NC-7 is conducted at the Primary Plant Introduction Station, Ames, Iowa, and at secondary centers at selected state experiment stations having formal cooperative projects that receive NC-7 assistance. In addition, several states assist with the increase of seed and initial evaluation of new introductions on a contractual per accession cost basis.

The Division of Plant Exploration and Introduction cooperates with NC-7 by paying a portion of the salary of the coordinator and his technical assistant and by furnishing equipment, office supplies and technical assistance of its Headquarters staff. The Division supplies the Primary Station with new introductions after they have cleared the Inspection House and gives general guidance and coordination to all regions having active New Plants projects.

PRIMARY STATION PRODUCTION PROGRAM

The Primary Station conducts field work on approximately 30 acres of land owned by Iowa State College, located adjacent to its field headquarters. Suitable land for the production of new crops is limited on this acreage; hence the production program of the Primary Station is necessarily restricted to keep within the limitation of arable land available.

Table I presents a summary by crop groups of accessions received, increased, failed, and to be grown in 1952 by the Primary Introduction Station. Successful seed increase has been made for 4,351 of the total of 6,239 accessions received. The production program for 1952 concerns 1,357 accessions. Most of these must be grown because of danger from loss of the accession because of low seed viability. The number of accessions, 531, which failed is about 8½ per cent of the total received.

It will be noted that these summary tables divide all crops into three major groups to conform with the division of responsibility among the Division of Plant Exploration and Introduction headquarters staff. Group I comprises field crops, grasses and legumes, Group II comprises fruit and vegetable crops, and Group III contains forest tree, ornamental, oil, fiber and miscellaneous crop species.

During the past year twenty-seven genera numbering 2,310 accessions were transferred from the Primary Station of the North Central Region to the Southern Region with headquarters at Experiment, Georgia. Table II lists the crops and accessions involved in this transfer. The field production programs of the two regions were more nearly equalized by this shifting of crops. In the future the Southern Region will assume responsibility for increase and maintenance of these accessions although plant breeders from any region may obtain seed by request after consulting the appropriate seed list.

Table I. Summary by crop groups of accessions received, increased, failed, and to by grown in 1952 and established.

Group I - Field Crops and Grasses	Genera	Number of Accessions				
		Received	Increased	Failed	For Increase 1952	Established
	Aegilops	49	49			
	Agropyron	40	29	8	3	29
	Agrostis	3			3	3
	Arrhenatherum	1	1			1
	Brachypodium	2	2			2
	Bromus	43	31	3	9	31
	Cynosurus	1			1	
	Dactylis	55	47	1	7	47
	Elymus	2			2	
	Euchlena	1	1			
	Festuca	23	12	1	10	12
	Helianthus	132	113	6	13	
	Lolium	26	23		3	
	Panicum	68	61		7	
	Phalaris	35	33	1	1	5
	Phleum	9	4		5	4
	Poa	10	5	2	3	5
	Setaria	27	23		4	
	Stipa	14		2	12	
	Zea	822	709	49	64	
	20	1363	1143	73	147	139

Group I - Legumes	Genera	Number of Accessions				
		Received	Increased	Failed	For Increase 1952	Established
	Astragalus	7		1	6	6
	Coronilla	5		1	4	
	Hedysarum	2			2	
	Lathyrus	44	17	3	24	
	Lotus	9	7		2	7
	Medicago	106	96	1	9	95
	Melilotus	24	12	1	11	12
	Onobrychis	9		1	8	
	Ornithopis	2	2			
	Scorpiurus	1	1			
	Thermopsis	1			1	1
	Trifolium	53	35	2	16	17
	Trigonella	49			49	
	Vicia	6	5	1		
	14	318	175	11	132	138

Group II - Fruits and Vegetables	Genera	Number of Accessions				
		Received	Increased	Failed	For Increase 1952	Established
	Allium cepa	121	58	27	36	8
	Allium porrum	83	66	10	7	
	Apium (Celery)	57	19	6	32	19
	Asparagus	9			9	8
	Beta	143	83	1	59	59
	Cucumis	261	132	11	118	
	Cucurbita	409	233	12	164	
	Daucus	124	90	6	28	
	Fragaria	7		1	6	
	Lactuca	153	100	29	24	
	Lens	9			9	
	Lycopersicon	1067	994	3	70	
	Malus	1			1	
	Phaseolus	1243	730	303	210	
	Pisum	299	190	7	102	
	Prunus	12			12	
	Pyrus	2			2	
	Spinacea	114	104	3	7	
	18	4114	2799	419	896	94

Group III - Oil, Ornamental & Special Crops	Genera	Number of Accessions				
		Received	Increased	Failed	For Increase 1952	Established
	Acer	1			1	1
	Ageratum	1			1	
	Amaranthus	2	2			
	Anethum	53	47	3	3	
	Antirrhinum	2	1		1	
	Arracacia	1			1	1
	Atriplex	1	1			
	Betula	4			4	4
	Calendula	1	1			
	Camelina	8			8	
	Carthamus	31			31	
	Chrysanthemum	3	2	1		
	Cichorium	3	1		2	
	Coriandrum	19	16	1	2	
	Cuminum	10	8	2		
	Cyclanthera	1			1	1
	Cyphomandra	2			2	
	Dahlia	1			1	1
	Delphinium	1	1			
	Dianthus	5	4		1	1
	Eruca	16	15		1	
	Girardinia	2			2	
	Gladiolus	4			4	3
	Glycyrrhiza	1			1	1

Group III - (Continued) Oil, Ornamental & Special Crops	Genera	Number of Accessions Received	Increased	Failed	For Increase 1952	Established
	Hedera	1			1	1
	Helianthus sp.	1	1			
	Heliopsis	1	1			
	Hibiscus	11			11	
	Impatiens	1	1			
	Ipomea	1	1			
	Lepedium	58	48	3	7	
	Ligustrum	1			1	
	Mentha	7	4		3	1
	Metasequoia	1			1	1
	Nigella	26	19		7	
	Ocimum basilicum	14	13	1		
	Papaver orientale	1	1			
	Perilla	15		9	6	
	Petunia	1	1			
	Phlox	2		1	1	
	Physalis	10			10	
	Picris	1	1			
	Pimpinella	14	8	2	4	
	Pinus	2			2	2
	Portulaca	33	33			
	Rheum	2		1	1	1
	Rosa	3		2	1	1
	Rubus	23		1	22	16
	Rumex	34			34	33
	Stachys	1			1	
	Tagetes	3	2		1	
	Thuja	1			1	1
	Zinnia	2	1	1		
53		444	234	28	182	70

Summary by crop groups of accessions received, increased, failed, and to be grown in 1952 and established:

	Genera	Number of Accessions Received	Increased	Failed	For Increase 1952	Established
Group I - Field Crops and Grasses	20	1363	1143	73	147	139
Group I - Legumes	14	318	175	11	132	138
Group II - Fruits and Vegetables	18	4114	2799	419	896	94
Group III - Oil, Ornamental and Special Crops	53	444	234	28	182	70
	105	6239	4351	531	1357	441

Table II. Number of plant genera and accessions transferred to Southern Region.

	Genera	Number of Accessions
Group I - Field Crops and Grasses	Andropogon	24
	Bouteloua	1
	Briza	1
	Haynaldia	2
	Holcus	1
	Sorghum	175
	Trisetum	1
		205
Group I - Legumes	Cajanus	1
	Canavalia	1
	Cassia	1
	Crotolaria	2
	Cyamopsis	22
	Desmodium	1
	Dolichos	1
	Indigofera	1
	Pueraria	1
	Stizolobium	3
		34
Group II - Fruits and Vegetables	Abelmoschus	4
	Brassica	294
	Capsicum	367
	Citrullus	333
	Cucumis melo	481
	Petroselinum	81
	Raphanus	216
	Solanum melongena	187
		1963
Group III - Forest, Ornamental and Oil Crops	Ricinus	19
	Sesamum	89
		108
	Total	2310

One of the major responsibilities of the Primary Station concerns the evaluation of new introductions by project leaders at the several experiment stations. This work of screening, evaluating and reporting results back to the Primary Station is voluntary and it is not intended that NC-7 assistance should be recommended for this work. The amount of plant materials now in the hands of research workers is a very good indication of the need for and interest in the program.

Table III is a summary by crop groups of the seed packet distribution made by the Primary Station to workers in states of the North Central, Northeastern, Southern and Western Regions, foreign countries and headquarters at Beltsville. More than 10,000 seed packets have been distributed by the Primary Station with more than half of this number, 5,731 packets, going to research workers of the North Central states. It should be borne in mind that the number of packets distributed, as shown in Table III, is exclusive of the genera and accessions discussed in Table II as transferred to the Southern Region. Attention is also directed to the 908 accessions sent to headquarters of the Division of Plant Exploration and Introduction, Washington. Approximately half of these accessions were returned to Washington for reassignment after being grown at Ames and found to be unadapted to conditions at the Primary Station.

The increase of seed and initial evaluation by selected experiment stations by contractual agreement on the basis of cost of production per accession has proven to be a very effective means of seed multiplication. In contrast to the contributed research work of accession screening and evaluation as discussed for materials distributed to states listed in Table III, the Primary Station feels obligated to reimburse an experiment station for increasing such requested materials. We are in fact paying an experiment station for doing a job of seed increase that cannot be advantageously carried on at the Primary Station. The following states of the North Central Region have participated in this seed contract work:

Indiana	Cucumis melo
Michigan	Lettuce, celery, beans, onion, spinach, carrots
Minnesota	Cucurbita
North Dakota	Brassica
Ohio	Onions
Wisconsin	Peas, spinach

TABLE III. Distribution of Seed Packets by the Primary Station.

GROUP I - GRASSES AND FIELD CROPS	Illinois	Indiana	Iowa	Kansas	Michigan	Minnesota	Missouri	Nebraska	N. Dakota	Ohio	S. Dakota	Wisconsin	TOTAL	Northeast	Southern	Western	Foreign	TOTAL	Washington
Aegilops		1											1						
Agropyron		7					2	2	8			2	21				1	1	10
Agrostis		1	1										2	1				1	
Arrhenatherum		1											1						
Brachypodium		1											1						
Bromus		4	9			9			4			9	35				2	2	59
Cynosurus		1											1						
Dactylis		5											5						1
Elymus		1											1						
Euchlena		1											1		1			1	
Festuca		8	1										9						1
Helianthus	53	246		4			4	71	4				382	1	16		46	63	10
Lolium		8					6			2			16		1			1	1
Phalaris		5					1						6						2
Phleum		2											2						
Poa		1											1						2
Zea mays	19	99	526		188	44	133	106	53			127	1295	19			213	282	94
TOTAL	72	392	537	4	188	53	146	179	69	2		138	1780	21	18		262	351	180
GROUP I - LEGUMES																			
Lathyrus		2	8					21			17		48	5	1			6	19
Lotus		9	4			2	4	9			1		29	1				1	
Medicago	14	78	34		4	81		102			100	44	457	97	101	34	17	249	96
Melilotus		1										2	3		2			2	1
Onobrychis		2				2					2		6						1
Thermopsis		1											1						
Trifolium		15			1			35					51		2			2	2
TOTAL	14	108	46		5	85	4	167			120	46	595	103	106	34	17	250	119

TABLE III. Distribution of Seed Packets by the Primary Station (Continued)

GROUP II - FRUITS AND VEGETABLES	Illinois	Indiana	Iowa	Kansas	Michigan	Minnesota	Missouri	Nebraska	N. Dakota	Ohio	S. Dakota	Wisconsin	TOTAL	Northeast	Southern	Western	Foreign	TOTAL	Washington
Allium cepa					136					33		67	236	8	24			32	30
Allium porrum					32								32						9
Apium					34								34			1		1	7
Asparagus	4				4								8						
Cucumis		63			84					24		131	302	17	130		9	156	11
Cucurbita		24	4			42							70	20	3		7	30	11
Daucus					79							41	120		41	31		72	6
Lactuca					97								97			4		4	29
Lycopersicon			213			5			16	231		3	468	222	1962		47	2231	3
Phaseolus			10		513			703					1226	16	432	1126	17	1591	303
Pisum		70				176			1			302	549	50	228			278	134
Spinacea					55							25	80					3	
TOTAL	4	157	227		1034	223		703	17	288		569	3222	333	2820	1162	80	4395	546
GROUP III - SPECIAL CROPS																			
Betula	4		4			8	4		4		4		28						
Camelina	8												8						
Carthamus								34					34		4		1	5	
Chrysanthemum								1					1						1
Delphinium							1						1						
Dianthus										2			2						
Hibiscus											7		7						
Mentha		3			3								6	1				1	
Papaver						1							1						51
Perilla								10					10						9
Pinus		1											1	1				1	1
Rubus			15					13					28						1
Tagetes			2					2				2	6						
Thuja		1											1						
TOTAL	12	5	21		3	9	5	60	4	2	11	2	134	2	4		1	7	63

TABLE IV. Distribution

	North Central Region	Northeastern Region	Southern Region	Western Region	Foreign Countries	Total	Washington
GROUP I - FIELD CROPS AND GRASSES	1780	21	18		262	2081	180
GROUP I - LEGUMES	595	103	106	34	17	855	119
GROUP II - FRUITS AND VEGETABLES	3222	333	2820	1162	80	7617	546
GROUP III - SPECIAL CROPS	134	2	4		1	141	63
	5731	459	2948	1196	360	10694	908

Research Projects Receiving NC-7 Assistance

Illinois: The Illinois Experiment Station does not have a project receiving 9b-3 funds under NC-7. However, as shown in Table III, the Illinois Experiment Station is conducting evaluation tests with new plants received from the Primary Station in addition to their variety, cultural and crop adaptation research work. A maize research center for the North Central Region proposed by the Illinois Experiment Station is under consideration by the NC-7 Technical Committee. When fully activated as a formal NC-7 project in cooperation with the Illinois Experiment Station, 9b-3 funds will be used to meet part of the expense of this work.

Indiana: The collection, preservation and testing of Prunus for cherry leaf spot (Coccomyces) resistance. $1000 Annually since 7-1-50.

Progress: Items established and reported in 1950 have been maintained and replacements due to winter killing have been made. No scion wood from the planting has been made due to small size of trees. Three requests for these materials now on hand will be filled in 1952 if sufficient growth is made. A list of items being maintained was circulated to workers in Stone Fruit viruses during this past season.

The Indiana Experiment Station has been very active in evaluation of new plants, as shown in Table III. In addition, seed contracts for the increase of Cucumis melo have been completed during this past year.

Iowa: The Iowa Experiment Station has no formal project receiving NC-7 assistance except the Primary Station. Experiment Station staff members have been cooperative and given technical assistance to the Primary Station in the conduct of its production program.

Kansas: Multiplication, preservation and determination of potential value of forage grasses and legumes. $2000 Annually since 7-1-49.

Progress: The native forage species reported in 1950 were studied as individual plants for such characters as leafiness, freedom from diseases and vigor. These data will be correlated next season with growth and response to clipping. Plants and progeny showing superiority will be selected for propagation and further study. Requests for certain of these plant materials have been made by interested research workers.

Kansas: Maintenance of viable seed of open-pollinated corn varieties. $500 Annually since 7-1-50.

Progress: Seven varieties of Kansas open-pollinated corn were grown for increase by hand sib-pollination to provide a fresh supply of seed. Successful pollinations were made on four of these varieties.

Reports from other species such as Ziziphus, sunflowers, sorghum and Andropogon clones indicated either failure in establishment or general lack of adaptation to climatic conditions.

Michigan: The Michigan Experiment Station does not have active formal projects receiving NC-7 assistance. Mint breeding stocks are now being maintained for use by research workers but no longer receive NC-7 assistance.

Michigan is one of the most active states of the North Central Region in the evaluation of new plants. This is shown in Table III and concerns both the number of accessions and number of species being evaluated. In addition, members of the Experiment Station staff have assisted the Primary Station in the increase of seed of beans, lettuce, spinach, carrots, onions and celery through contractual agreements.

Minnesota: Testing newly introduced plants for susceptibility or resistance to diseases - Wheat. $1000 Annually since 7-1-47.

Progress: This formal project is in cooperation with the Division of Plant Pathology and Botany and the work has been conducted in a manner similar to that of previous years. Nearly 1,900 lots of wheat, of which 300 are recent introductions, have been grown in a disease garden maintained for optimum development of loose smut, bunt, root rot, scab and rust. Readings are recorded for incidence of disease and the more resistant accessions are propagated for basic plant breeding stocks.

Minnesota: Introduction, preservation and evaluation of stone fruit of probable potential value to the North Central Region.
$1000 Annually since 7-1-50.

Progress: The planting begun in the spring of 1950 has grown very well. Some vacancies occurred over winter but all units are still represented. The eleven varieties budded in 1949 made sufficient growth to permit digging in the fall of 1950. These were planted in four plant units in the spring of 1951. The hybrid nature of some of this material poses the question of the most suitable understock. More than one understock species was used for many of the hybrids. For example, #515 (Cherry-Plum) x Apricot was budded on plum as well as on apricot for the test planting. Plant varieties showing superior qualities are listed in the Regional Breeders' Stock Inventory and are made available to research workers upon request.

The Minnesota Experiment Station is assisting in the evaluation of materials available at the Primary Station as shown in Table III. It has also assisted in the seed increase and initial evaluation of squash and pumpkin under a contractual agreement.

Missouri: The Missouri Experiment Station does not have active cooperative projects for which they receive NC-7 assistance. A project for the maintenance of open-pollinated varieties of corn has been recommended by the NC-7 Technical Committee and will become active July 1, 1952, if funds are available. The Missouri Experiment Station has also assisted in the evaluation of certain plant materials furnished by the Primary Plant Introduction Station.

Nebraska: Preservation of Alfalfa clones and seed stocks needed in Alfalfa improvement. $500 Annually since 7-1-49.

Progress: During the past year the 300 clones of carefully selected superior alfalfa breeding stocks have been increased by the addition of ten lines with creeping habit and six mildew immune, common leaf spot and bacterial wilt resistant clones. This collection provides a rather complete collection of the known genetic and superior germ plasm stocks available in this country.

In addition, this project has evaluated nearly 100 accessions of newly introduced alfalfa supplied by the Primary Station.

Nebraska: Preservation of viable seed stocks of open-pollinated regional strains or varieties of corn. $600 Annually since 7-1-50.

Progress: This project is concerned with the maintenance of viable seed stocks of 13 corn strains and varieties which were collected in the state before they were completely replaced with corn hybrids. Four lots were grown in isolated blocks of one-fourth to one-half acre during 1951 and good supplies of increase seed were obtained. Regional strains preserved in this manner serve as a source of germ plasm for future corn breeding programs.

Nebraska: Preservation and preliminary evaluation of important native and introduced grasses considered valuable in improvement for forage and conservation purposes. $1200 Annually since 7-1-49.

Progress: The 1951 results were obtained from plantings made in 1950 and preceeding years. Foundation seed stocks of seven varieties of grasses are maintained under this project. Clone and progeny performance serves as the basis of retaining a given stock for future breeding work. Pure stands and mixtures in various combinations of warm-season and cool-season grasses were compared and analyzed statistically. Selection of superior plant materials for grass breeding programs by this method has resulted in several new named forage varieties. Requests for seed of certain of these forage materials have been sent to interested research workers.

North Dakota: Preservation of certain physiologic races of flax rust Melampsora lini. $500 Annually since 7-1-50.

Progress: Fifty-two physiologic races of Melampsora lini have been maintained by running them through their selective flax differential variety at least every six months. These are the races required to identify the common flax varieties and to differentiate and identify the different rust conditioning genes in flax.

Seventy-two hybrid lines and variety selections of flax were received from flax breeders and agronomists for test for reaction to specific races of flax rust. By the use of selected races it was possible to demonstrate that certain varieties of flax were either mislabeled or had become mixed with rust susceptible varieties.

North Dakota: Preservation of viable seed stocks of open-pollinated strains or varieties of corn grown in the Northern Great Plains.
$500 Anually since 7-1-49.

Progress: A total of 67 local open-pollinated strains were increased by sib-pollination and the seed stored in moisture-proof containers. Careful descriptive notes were taken and the desirable stocks were selected for foundation breeding material. Fifty-two strains of new introductions were obtained from the Primary Introduction Station for evaluation. Many of the introduced flint varieties were more free of tillers than the flints from North Dakota.

The North Dakota Experiment Station has assisted the Primary Station in the seed increase and initial evaluation of Brassica under contractual agreement.

Ohio: Multiplication, preservation and determination of potential value of pear varieties for North Central states introduced into and collected within the United States. $500 Annually since 7-1-49.

Progress: The pear planting consisting of more than 102 varieties was satisfactorily maintained during the year. As usual, varieties on their own trunks exhibited some blight which necessitated topworking on the Old Home framework which is now being utilized for all varieties. A portion of the orchard was removed following transplanting of the youngest trees to a new site. Budding of a number of Old Home trees was continued. A new planting of 220 Old Home trees was planted in December (1951). The description of newly introduced varieties was continued on fruits collected during the past harvest season.

A new orchard of Old Home trees was also established on the Belmont County Experimental Farm for further evaluation of some of the selected varieties.

Ohio: Maintenance of two or more nurseries of vegetatively propagated timothy strains possessing specific plant characteristics.
$500 Annually since 7-1-50.

Progress: Eighty-four clonal selections of timothy were evaluated for vigor of growth, leafiness, persistence of green leaves, and aftermath recovery following harvest. The clonal selections have been increased in spaced row plantings by vegetative propagation. Nine very early maturing clones, eighteen medium early maturing clones, nine medium maturing clones, fourteen late maturing clones and sixteen very late maturing clones are now sufficiently well established in the clonal nursery to permit distribution to plant breeders.

Twenty-one selections were sent to Dr. E. L. Neilsen at Madison, Wisconsin, for use in his breeding program at that station during the past growing season. Further distributions of the clonal material will be made at Purdue at the request of that station.

Ohio: The evaluation of the collection of domestic and wild species of tomato and the maintenance of the desirable accessions and valuable breeding stocks. $1000 Annually since 7-1-49.

Progress: One hundred and sixty accessions of tomato were evaluated for vine and fruit characters and for resistance to certain diseases. Of these, some were known gene markers. The characters which were included in the evaluation are type and species; vine characters, size, growth habit, pubescence; foliage character, wilty leaflets and size of leaflets; fruit characters, hairiness, type and amount of cracking, size, setting, maturity, flesh color, intensity of flesh color, skin color, locules, shape, fasciation and type of ripening. In addition, for the gene marker lines a column was included to show their known recessive genotypes. The majority of the evaluation work was conducted at Wooster. Some seed multiplication work was carried on at Ames, Iowa. The work of 1951 brings together approximately 1000 tomato accessions introduced into the United States over the period of the past 15 years.

The immediate major objective of this project, namely the seed multiplication and classification of new tomato introductions, is nearing completion with storage of fresh seed of some 1000 accessions. New emphasis will be directed toward greenhouse and field studies of disease reaction of these lots. This work will become a part of the national cooperation among pathologists and tomato breeders for a careful screening and evaluation of species for resistance to diseases. Application of these results will be made by tomato breeders in development of foundation breeding stocks.

South Dakota: The collecting, preserving, cataloging, propagating and testing of fruit plants having potential genetic value.
$2500 Annually since 7-1-47.

Progress: The first stages of this project have been completed, that is collecting and cataloging the material. Propagation of material for distribution has been done when there was demand from other experiment stations. The work of the past year has been largely evaluating and testing the material. Those varieties producing fruit were ranked and all apples were given a rating for resistance to apple scab. Winter hardiness, growth habits and such other characteristics as would be of interest to fruit breeders were observed. A report of this information is being prepared to be released at an early date. Evaluating the plant material for root stocks will be expanded during the coming year.

Propagation materials from this collection have been made available to research workers upon request. Much of this material is of Siberian origin and has been found to be winter hardy. When completely evaluated it should have wide use as breeders' stock.

The South Dakota Experiment Station has also assisted with the evaluation of plant materials from the Primary Station.

Wisconsin: The Wisconsin Experiment Station has no formal projects receiving NC-7 assistance except the Inter-Regional Potato Station, IR-1, located at Sturgeon Bay, Wisconsin.

The Wisconsin Experiment Station has assisted in the evaluation of new plant materials including the classification and disease reaction of spring wheat and oat varieties, corn, alfalfa and forage grasses.

Spinach, radish, carrot and Brassica strains were evaluated for disease and climatic reaction at Madison, and other workers have assisted in the evaluation of woody Quercus and Populus species. Peas were grown for seed increase and disease resistance under a contract agreement.

4. APPLICATION OF RESULTS AND BENEFITS REALIZED

Items reported in 1950 under this heading continued to be important for the project through 1951. The plant materials assembled through this work are becoming ever more effective as plant breeders learn of their superior values and put them into use. In addition to the examples of superior introductions mentioned in 1950, a Bromus sp. appears to have disease resistance in addition to winter hardiness and good forage characteristics. Two cucumber accessions have also been reported to show resistance to mosaic by research workers in Ohio.

Although these basic facts regarding superior qualities of new plant materials are slow in developing from research work, they are, nevertheless, sound fundamental and secure foundation blocks upon which to build future research work.

We believe the project is making good progress and we are encouraged by the manner in which the research workers throughout the Region are participating in this program.

5. WORK PLANNED FOR NEXT YEAR

The production program, as summarized in Table I, indicates that the full acreage of the Primary Station will be required to grow all of the original packets now on hand. An effort will be made to do this since some of the seed of these packets is now three years old and there is danger of loss of the accession due to low viability of the old seed.

There are now more than 5,700 accessions of new plants in the hands of research workers of the North Central Region for screening and evaluation. One of the major duties of the Primary Station during the next year will be the assembling of results of performance from the several workers to make this information generally available.

We wish to emphasize this need for evaluation information and urge that all research workers accept as rapidly as possible the available accessions of the crops in which they have interest. In order to hasten this screening of Zea, for which the Primary Station has over 700 accessions, we suggest that the four states now receiving NC-7 assistance for the maintenance of open-pollinated varieties consider the screening of these new Zea introductions as an obligation of their project. During those years when the complete allotment of 9b-3 funds is not required for the maintenance of open-pollinated stocks, the leader of the corn project would make a proportionate increase in the number of new introductions from the Primary Station for screening and evaluation.

During the coming year a North Central Maize Genetics Research Center has been proposed for consideration by the NC-7 Technical Committee as a formal project to be supported in part by 9b-3 funds. The project was prepared and submitted by the Illinois Experiment Station and will be concerned with the maintenance of chromosomal genetic marker stocks and with the screening of new maize introductions as basic breeding materials. In order to start field work this coming fiscal year it may be possible to grow certain of this genetic tester material under contractual arrangements on a per accession production cost agreement between the Primary Station and the Illinois Experiment Station.

As an outgrowth of screening tomato accessions for disease resistance by plant pathologists in many states throughout the United States, progress has been made toward coordinating this work for the nation. The secondary station at Wooster, Ohio, with the assistance of the Primary Station at Ames, will provide national leadership for this crop. Experience gained from this work with tomato may be helpful in the organization on a national scale for similar evaluation work with other crops.

6. PUBLICATIONS

Seed lists for 1951 of plant materials available for distribution by the Primary Station.

Publication of classification of nearly 1,000 accessions of tomato assembled and maintained by the secondary station for tomatoes at the Ohio Experiment Station, Wooster, Ohio.

7. APPROVED:

H. D. Johnson
Chairman, Technical Committee

W. V. Lambert
Regional Administrative Adviser