ANNUAL REPORT OF COOPERATIVE REGIONAL PROJECTS
Supported by Allotments of the Regional Research Fund,
Hatch Act, as Amended August 11, 1955
January 1 to December 31, 1956

1. PROJECT: NORTH CENTRAL REGIONAL PROJECT NC-7

The Introduction, Multiplication, Preservation and Evaluation of New Plants for Industrial and Agricultural Use.

2. COOPERATING AGENCIES AND PRINCIPAL LEADERS:

State Experiment Stations	Representatives
Alaska	M. F. Babb
Illinois	E. B. Patterson
Indiana	H. H. Kramer
Iowa	I. J. Johnson
Kansas	R. V. Olson
Michigan	C. M. Harrison
Minnesota	A. N. Wilcox
Missouri	A. D. Hibbard
Nebraska	L. C. Newell
North Dakota	T. E. Stoa
Ohio	F. S. Howlett
South Dakota	S. A. Mc Crory
Wisconsin	D. C. Smith
Administrative Adviser	E. F. Frolik
U. S. Department of Agriculture	
Agricultural Research Service, Plant Introduction Section	C. O. Erlanson
State Experiment Stations Division	N. F. Farris
	T. S. Ronningen
Soil Conservation Service	A. D. Stoesz
Regional Plant Introduction Station	M. M. Hoover
	A. F. Dodge

3. PROGRESS OF THE WORK AND PRINCIPAL ACCOMPLISHMENTS:

During the reporting year, the NC-7 Technical Committee and cooperating states of the North Central Region were increased from twelve to thirteen by the addition of the Alaska Experiment Station with Dr. M. F. Babb as Technical Committee Representative.

This change in the North Central Region area and in technical Committee representation is very welcome in-as-much as many lines of research work in states of the North Central Region have direct application to the Alaska area and also many plants native to Alaska, particularly small fruits, are in great demand by research workers as sources of winter hardiness and disease resistance.

The Regional Plant Introduction Station at Ames, Iowa serves as the regional center for assembling all incoming plant materials for initial evaluation, seed increase, maintenance and for further redistribution to research workers. The growing season of 1956 was the ninth crop year since the establishment of the Regional Station in 1947. It is estimated that approximately 5 percent of the 2419 accessions planted in the spring of 1956 failed to become established due to unfavorable moisture conditions that characterized this season.

The complete statistical summary of plant accessions described in the Regional Seed list is reported in Appendix A., and shows the cumulative total of plant accession received by the Regional Station, the number and description of more than 6000 items that have been grown successfully and are now available for distribution to research workers, the number of items by species that are to be grown for seed increase in 1957, and the number of seed packets that have been distributed by the Regional Station to research workers during the 1956 calendar year. The 8478 seed packets distributed by the Regional Station does not report 6750 seed packets of tomato seed that were distributed to approximately 40 pathologists and plant breeders who are cooperating in the National Cooperative Disease evaluation of tomatoes.

The Regional Station also produced woody planting stock of approximately 30 species and more than 50 accessions for use in field plantings in the low rainfall areas of the North Central Region and are not reported in the statistical summary in Appendix A.

Garden beans, Phaseolus vulgaris, seed stocks have been transferred to the Western Region as recommended by the Coordinators at their last annual meeting. These stocks will be maintained by the Western Region but seed will be available to project leaders of the North Central Region upon request to the Coordinator of the Western Region.

During 1956 there has been significant expansion in the research work concerned with the industrial use of existing and newly introduced crops.

New crop plants are being sought through introduction and also through more intensive study of native species for sources of starch, oil, waxes, proteins and fiber. This expanded research work is closely cooperative between project leaders of the several state experiment stations and the staff of the Northern Utilization Branch Laboratory at Peoria, Illinois. At the present time the Peoria laboratory is making chemical analysis of several hundred plant introductions supplied by the Regional Station for starch, oil, amino acids and fiber.

There also has been an increase in the amount of research work conducted by project leaders at Experiment Stations on the evaluation of plant introductions for use in plant breeding programs. Much of this increased research activity is attributed to the assistance provided through the seed contract arrangements.

An equally significant expansion is noted in the number of contributing projects initiated by several state experiment stations during the past year. The nature and scope of research work covered by formal project outlines are summarized by contributing project Title, date and amount of assistance from Regional funds as follows:

STATE CONTRIBUTING PROJECTS AND DATE OF INITIATION FOR GERM PLASM PRESERVATION AND EVALUATION RECEIVING ASSISTANCE THROUGH REGIONAL FUNDS.

State	Project		1956-57 Budget
Illinois	The Assembly, Evaluation and Seed Increase of New Introductions and Genetic Chromosomal Tester Stocks of Maize	7/1/53	$3,500
Illinois	Evaluation of Grasses and Legumes	7/1/56	500
Indiana	Evaluation of Corn Accessions	7/1/56	1,500
Indiana	Evaluation of Grasses and Legumes	7/1/56	900
Iowa	Evaluation of Grasses and Legumes	7/1/56	500
Kansas	Multiplication, Preservation and Determination of Potential Value of Forage Grasses and Legumes	7/1/49	2,000
Kansas	Evaluation of Miscellaneous Legumes	7/1/56	500
Michigan	Evaluation of Peas	7/1/56	900
Minnesota	Introduction Preservation and Evaluation of Stone Fruit of Probable Potential Value to the North Central Region	7/1/50	1,000
Nebraska	Preservation of Alfalfa Clones and Seed Stocks Needed in Alfalfa Improvement	7/1/49	700

State	Project		1956-57 Budget
Nebraska	Preservation and Preliminary Evaluation of Improtant Native and Introduced Grasses Considered Valuable in Improvement for Forage and Conservation Purposes	7/1/49	$1,500
Nebraska	Evaluation of Special Legumes	7/1/56	500
North Dakota	Preservation of Certain Physiologic Races of Flax Rust, Melamspora lini	7/1/50	500
Ohio	Multiplication, Preservation, and Determination of Potential Pear Varieties for North Central States Introduced Into and Collected Within the United States	7/1/49	500
Ohio	The Evaluation of the Collection of Domestic and Wild Species of Tomato and the Maintenance of the Desirable Accessions and Valuable Breeding Stocks	7/1/49	1,000
South Dakota	The Collection, Preserving, Cataloging, Propagating, and Testing of Fruit Plants Having Potential Genetic Value	7/1/49	2,500
South Dakota	Evaluation of Grasses and Legumes	7/1/56	1,000
Wisconsin	Yellow Dwarf Evaluation of Barley	7/1/56	1,000

4. USEFULNESS OF FINDINGS:

The increasing participation by research project leaders through the initiation of contributing state projects and the seeking of new industrial uses for new introductions is very encouraging.

Progress is also reported by several project leaders in the use of plant introductions as basic breeding material for the development of new and improved varieties having superior yield adaptation and disease resistance. It is difficult to assay the true value of these findings however until the particular characteristic has been carefully studied and is incorporated into the finished product as developed by the plant breeder.

We can say with conviction, however, that more serious interest of research workers has been aroused and has resulted in wider participation by these research men in developing the valuable potentials that are to be found in these introduced plant materials.

5. WORK PLANNED FOR NEXT YEAR:

Dr. W. H. Skrdla will assume duties as Coordinator for the North Central Regional Project NC-7 on March 1, 1957.

The production program for 1957 as indicated in the statistical summary of Appendix A will include the 1244 items now on hand and this will be augmented by new introductions received by the Regional Station prior to the time of planting next spring and also by the increase of accessions now on the Regional Seed List for which additional reserve seed for storage is needed. It is estimated therefore that the 1957 production program will total more than 2000 items and represent about the same volume of field production that has been grown for the past several years.

It is anticipated that increased attention will be given to research concerned with the development of plant materials for industrial use. This may also require the propagation of a given accession in greater volume of seed or plant material than that normally grown at the Regional Station in order to provide sufficient material for chemical analysis.

The Regional Station will encourage the initiation of contributing projects by research project leaders and will supply the plant materials for these research studies. We consider the development of research interest in the available materials to be very important and every encouragement will be given to this phase of Regional Project work.

6. PUBLICATIONS ISSUED OR MANUSCRIPTS PREPARED DURING THE YEAR:

North Central Regional Bulletin entitled "Preliminary Evaluation of New and Uncommon Pear Varieties" by Freeman S. Howlett, and Thomas E. Fowler of the Ohio Agricultural Experiment Station has been completed during the past year.

The Regional Plant Introduction mimeographed seed list containing agronomic and horticultural descriptions of more than 6000 items on the seed inventory of the Regional Station was distributed February 1, 1957.

Several articles for Press, Radio and Technical Journals have been prepared by cooperating research workers that reflect the use of plant introductions in current plant improvement and plant breeding programs.

7. APPROVED:

January 30, 1957
Date

L. J. Johnson
Chairman, Technical Committee

January 30, 1957
Date

C. F. Frolik
Regional Administrative Adviser

Table 1.
Genera and species, cumulative total of accessions received, accessions on the 1956 seed list, accessions to be grown 1957 and number of accessions distributed during 1956.

Genera	Cumulative total of accessions Received	Seed list 1956	To be grown 1957	Distributed 1956
Group I. Grasses and field crops				
Aegilops	103	101	2	7
Agropyron	143	72	71	83
Agrostis	44	34	10	10
Alopecurus	13	4	9	4
Apera	4	3	1	
Arrhenathrum	3	2	1	11
Bouteloua	1		1	1
Brachypodium	20	8	12	
Bromus	229	111	118	247
Calamagrostis	7		7	
Cynosurus	1	1		
Dactylis	173	112	61	424
Danthonia	2		2	
Echinochloa	12	6	6	
Elymus	3	1	2	
Enneapogon	1	1		
Eremopoa	1		1	
Euchlenea	1	1		8
Festuca	66	31	35	79
Helianthus	144	143	1	188
Helictotrichon	4		4	4
Henrardia	1		1	
Hordeum	5	3	2	4
Koeleria	1		1	
Lolium	81	43	38	45
Melica	2	2		
Millets (Panicum, Setaria)	190	172	18	610
Phalaris	55	46	9	34
Phacelarus	1	1		
Phleum	37	18	19	19
Poa	43	20	23	19
Sitanion	1		1	1
Sorghum	11	11		38
Zea	1258	1251	7	2226
Totals Genera 34	2661	2198	463	4065

Table 1 continued

Genera	Cumulative total of accessions Received	Seed list 1956	To be grown 1957	Distributed 1956
Group I. Legumes				
Astragalus	21	7	14	21
Cornilla	9	3	6	
Dalea	1	1		4
Glycine	1		1	
Hedysarum	1		1	
Lathyrus	74	61	13	114
Lotus	54	31	23	148
Medicago	291	238	53	980
Melilotus	140	86	54	314
Onobrychis	22	12	10	27
Scorpiurus	2	1	1	2
Trifolium	151	77	74	134
Trigonella	105	74	31	138
Totals Genera 13	872	591	281	1883
Group II. Fruits and Vegetables				
Allium	177	47	130	320
Apium	54	25	29	34
Asparagus	9	6	3	10
Beta	242	131	111	61
Cucumis	340	310	30	390
Cucurbita	473	438	35	221
Daucus	173	101	72	279
Fragaria	2		2	
Lactuca	149	132	17	339
Lycopersicon	1315	1301	14	260
Malus	5		5	
Phaseolus				283
Pisum	654	646	8	328
Prumus	4		4	
Pyrus	4		4	
Rubus	20			1
Spinacea	154	150	4	4
Totals Genera 17	3775	3287	488	2530
Group III. Ornamental, Oil and Special Crops				
Helianthus	1	1		
Mentha	15	8	7	
Rheum	6	1	5	
Rosa	1	1		
Totals Genera 4	23	11	12	0

Appendix A

Table 1. Summary

Group	Genera	Cumulative total of accessions Received	Seed list 1956	To be grown 1957	Distributed 1956
I Grasses & Field Crops	34	2661	2198	463	4065
I Legumes	13	872	591	281	1883
II Fruits & Vegetables	17	3775	3287	488	2530
III Ornamental, Oil & Special Crops	4	23	11	12	0
Totals	68	7331	6087	1244	8478