1950

NATIONAL OAT NEWSLETTER

Vol. I

February 1, 1951

Sponsored by the National Oat Conference

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Mimeographed and edited in the Department of Plant Breeding, Cornell University, Ithaca, New York.

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I. THE NATIONAL OAT CONFERENCE

A Message from K. S. Quisenberry, Head Agronomist in Charge of the Division of Cereal Crops and Diseases

It is most gratifying to me to see the National Oat Conference take the initiative in starting an oat newsletter. The generosity of Cornell University and the hearty cooperation of Neal Jensen in putting out the first number is greatly appreciated.

Progress in oat breeding has been most rapid during the past few years. A tremendous amount of work has been done and much material exchanged. Through the various uniform nursery reports, most workers have been informed as to the performance of various strains. A newsletter should supplement these reports and, in addition, carry worth-while information not found in the reports. ----- Its success will depend on the cooperation of all workers.

I am a bit concerned about some of the trends in oat breeding. For one thing, some varieties have become so widely grown that when a defect shows up it becomes a major menace to the crop. The greater the acreage of a single sort, the greater these dangers become. To avoid this, it would seem to me one of two things must happen, either we must broaden the germ plasm base for disease resistance or we must get more genes for resistance into existing varieties. The first seems the easiest to accomplish. There is a need for more than one variety in a state and, if possible, these varieties should not be closely related.

Emergencies have risen so fast in oats that the breeders have been forced to keep an anxious eye on the next crop. It has been a battle to "hold the line" against Helminthosporium, race 45 of crown rust, and races 8 and 10 of stem rust, and now stem rust race 7 is appearing as another threat. Let's raise our sights and aim at the crop 10 or 20 years from now. To do this, let us devote a little more of our time to fundamental research so vital to any intelligent breeding program. I am sure all of the men know this better than I do.

Another suggestion I wish to make is that plans be developed for a workers' conference in the north central region. I would like to see the oat breeders, agronomists, and plant pathologists get together for a full discussion of mutual problems. The Southern workers have had such a meeting and the other crop groups have been together. Much could be accomplished by such a gathering and I believe administrative approval could be obtained.

May I extend my sincere wishes for the success of the Newsletter ?

A Statement on The National Oat Conference
by the Chairman, H. L. Shands

The National Oat Conference was organized in a preliminary way at the Agronomy meetings in Milwaukee in 1949. The men named below have functioned for the year 1950, as members of the National Oat Conference Committee:

R. M. Caldwell,	Lafayette, Indiana
F. A. Coffman,	Beltsville, Maryland
N. F. Jensen,	Ithaca, New York
H. C. Murphy,	Ames, Iowa
K. S. Quisenberry,	Beltsville, Maryland
David A. Reid,	Lexington, Kentucky
D. W. Robertson,	Fort Collins, Colorado
H. L. Shands,	Madison, Wisconsin
T. R. Stanton,	Beltsville, Maryland.

The purpose of the National Conference may be outlined below:

To advance oat improvement on a national basis by
(a) discussing matters of national concern
(b) exchanging breeding materials
(c) planning nurseries having various objectives
(d) integrating regional work
(e) unifying note taking
(f) determining races of inoculum in breeding for disease resistance
(g) getting adequate funds for oat research
(h) advising on increasing new selections
(i) any other matters that may properly come before the conference.

The organization is made up of workers active in oat improvement. At present the National Committee is attempting to serve as a clearinghouse in advancing oat improvement. One suggestion to come from the Committee is that regional conferences should be formed to help solve breeding problems within regions. The Southern workers have a small grain technical committee that acts essentially in this capacity. Other conferences may form in the future to take care of their problems. By action at the Cincinnati meetings the National Committee representation will be as follows:

Region	Number of men
South	2
Northeast	2
West	2
North Central	3
U.S.D.A. Cereal Division	2 or 3 .

Committee members are expected to serve two or three years at a time. A region has the responsibility of choosing its representatives, while the National Committee has the responsibility of choosing its chairman on an annual basis. H. L. Shands served as chairman for 1950 and F. A. Coffman was appointed secretary to serve an indefinite period of time.

Notes on the National Oat Conference at Cincinnati, Ohio

A meeting of the National Oat Conference, called by Chairman H. L. Shands (University of Wisconsin), at the Netherlands Plaza Hotel on November 2, 1950, was attended by some 40 agronomists including representatives of 18 states, Alaska, the U. S. Department of Agriculture, and commercial interests. At the request of the Chairman, each representative reported on the oat situation in his state or region in 1950. Discussion which followed indicated that most of those present favored a greater diversity among future oat varieties to avoid widespread disasters resulting from disease epidemics when too large an acreage is seeded to a single sort.

The activities of the National Oat Conference Committee, since its organization at the Milwaukee meeting in 1949, were described by the Chairman and recommendations agreed to by the Committee were read by the Conference Secretary.

D. W. Robertson of Colorado, a member of the National Seed Stocks Committee, discussed the storage of oat stocks and suggested that the National Conference Committee should take the lead in this project for oats. The Chairman expressed, for the Committee, its willingness to assume this responsibility. No objections to this were expressed and matters of procedure were left for further discussion by the Committee.

The Chairman then called upon Neal Jensen of Cornell University to outline his idea for an oat newsletter to be published once a year on the results obtained and observations made by oat breeders of the country. Dr. Jensen stated that Cornell University would agree to prepare the first issue at University expense. A motion was made and passed, accepting with thanks the generous offer of Doctors Atwood and Jensen.

The Chairman then stated that there appeared to be no need for another National Oat Conference in the next year or two but suggested that the Conference Committee carry on much as constituted. No objections were raised. The meeting adjourned at 10 p.m.

Signed: Franklin A. Coffman, Secretary

National Seed Storage

The Standing Committee on the National Seed Storage Facility would like to bring to the attention of oat breeders the resolution passed by the Crops Division of the A.S.A. regarding the organizing of groups interested in particular crops, i.e., the oat breeders, suggesting that they make an inventory of the germ plasm material which should be put in National Storage and the appointing of a committee to make the final selection of the stocks.

The National Seed Storage Facility is for the preservation of valuable germ plasm and would be a reservoir only to be used when all other available stocks are exhausted.

The duty of the National Seed Storage Facility would be to catalogue and keep viable all seed stocks. Small samples of stocks would be sent to breeders when the available stocks at Experiment Stations and other research centers are exhausted. It would be a central storage whose duty would be to keep all stocks entrusted to it by the various crop groups. This would place the responsibility in one place and should aid materially in preserving stocks which may be lost through the lack of authorized responsibility from the national standpoint.

Another factor which may arise from the national emergency is that Station and Government workers may be called to military service and the responsibility of keeping their collections may be neglected because of lack of personnel and in this way valuable material may be lost. A central storage facility would be of sufficient national importance to prevent such loss.

Signed: David W. Robertson

II. CONTRIBUTIONS

U.S.D.A., BELTSVILLE, MD.

Two Pioneer Oat Agronomists Pass Away

By T. R. Stanton

In 1950 two well-known pioneer oat breeders were called to their reward, namely, C. W. Warburton of Washington, D. C., on September 22, and L. C. Burnett of Ames, Iowa, on November 11. Both made substantial and outstanding contributions to oat improvement in their day and more complete biographical sketches of them will appear elsewhere. However, a brief statement on some of their achievements in oat breeding should be of interest to those who will receive the newsletter.

Dr. Warburton was in charge of oat investigations of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, from 1907 to 1921, except for a year and a half (1911-1912), when he served as an Associate Editor of The Farmer published at St. Paul, Minnesota.

During his tenure of service he organized and supervised numerous cooperative oat experiments with the state agricultural experiment stations and was the author of a number of Department Bulletins and Circulars, as well as popular articles on oats. Some of his pioneer publications from the Department included Farmers' Bulletins as follows:

395, Sixty-day and Kherson Oats (1910)
420, Oats: Distribution and Uses (1910)
424, Oats: Growing the Crop (1910)
435, Winter Oats for the South (1911).

These are of special interest because they constitute the first set of Farmers' Bulletins that appeared on oats from the Department of Agriculture. Furthermore, one of the earliest United States Department of Agriculture publications on cereal nursery technique was his article entitled: "Improvement of the Oat Crop", which appeared as Circular 30.

Dr. Warburton had a part in the selection, testing, and distribution of numerous oat varieties, some of which became of great economic importance. A partial list of the winter oat varieties would include Red Rustproof Selection (C. I. No. 518-3), Winter Turf Selection (C. I. No. 3296), Hairy Culberson, Aurora, Custis, Lee, Winter Fulghum Selections C. I. Nos. 2498, 2499, and 2500; a partial list of spring oat varieties would include Richland (Iowa No. 105), Albion, Iowar, Iogold, Iogren, Iomine, Iowa No. D67, Iowa No. D69, Iowa No. 444, Hawkeye, Idamine, Cornellian, Empire, Standwell, Ithacan, Upright, Kanota, Markton, Trojan, and Brunker.

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Professor L. C. Burnett was a joint member of the Iowa Agricultural Experiment Station and the Division of Cereal Crops and Diseases, Bureau of Plant Industry from 1906 to 1948. He did outstanding work in selecting and testing varieties and strains of oats for Iowa, several of which also became standard in many other states, and of national importance. He developed and distributed some of the best known and most widely grown oat varieties that have been grown in the Corn Belt, such as Richland (Iowa No. 105), Iogold, Albion, and Iowar. He also selected Iogren, Iomine, and Iowa No. 444. In addition he had some part in the breeding of Hawkeye, Iowa No. D67, Iowa No. D69, as well as in the more recent epoch-making varieties as Boone, Cedar, Control, Tama, Vikota, Hancock, Marion, Advance, Bonham, Eaton, Clinton, Benton, Cherokee, Kent, Nemaha, Mohawk, and Shelby.

Professor Burnett also conducted and reported the results from many cultural experiments with oats. He was one of the first experimental agronomists to organize and conduct a complete and extensive uniform series of community yield-test nurseries for the evaluation of oat varieties for different sections of a particular state. He is the author or joint author of a number of bulletins published by the Iowa Agricultural Experiment Station in cooperation with the United States Department of Agriculture. He was well known to hundreds of Iowa farmers by whom he was held in high esteem. They were always eager for his advice and practical suggestions relative to the best varieties and cultural methods for oats and the other small grains for Iowa. It should be said of him, that he was an acknowledged authority on Iowa field crop production.

Professor Burnett was an exponent of improvement by pure-line selection and was not sold on the possibilities of hybridization until he grew relatively large increase plots of the selections from the Victoria-Richland and other crosses later named Boone, Control, Cedar and Marion on the Agronomy Farm at Ames in the late 1930s.

There is no question that his greatest contribution to national oat improvement was the selection and development of the Richland and Iogold varieties with high resistance to many races of stem rust. Paradoxically, it is interesting to record that this resistance was not recognized until these selections had proved superior on the basis of performance in acre yield. The resistance to stem rust of Iowa Nos. 105 and 109 Selections provided the major contributing factor to their outstanding performance, the cause of which had not yet been discovered as breeding for resistance to the rusts was still in its infancy at that time. The type of stem rust resistance found in these oats has contributed much to the value of the present day widely grown varieties such as Clinton, Benton and Cherokee as well as to nearly all current oat breeding projects in numerous states.

In retrospect, those who have been closely associated with Professor Burnett through the years in oat investigations at Ames will often wonder whether Iowa State College will be quite the same without "L. C." as he was affectionately known to his many friends.

Arlington Farm, Rosslyn, Virginia - The Birthplace of Many Oat Varieties

By T. R. Stanton

For some reason or other, historically, the reporting of achievements in oat breeding at the former experimental farm of the United States Department of Agriculture, Arlington Farm, Rosslyn, Virginia, has been neglected. This also seems to apply to the other small grains, as well as to other epochal advances in plant science that were made there - figuratively speaking almost in the shadow of the Washington Monument.

Relative to winter oats the contributions have been considerable from the improvement work that was conducted at Arlington Farm from 1908 to about 1943. During the earlier years the pure-line selection method of oat breeding was mainly followed. As a result, many foreign and domestic varieties were collected and hundreds of selections were made and tested, some of which were later named and distributed for fall seeding in the South. These included Aurora, Bicknell, Culred, Hairy Culberson, Hatchett, the Winter Fulghum Selections (C. I. Nos. 2498, 2499 and 2500), Red Rustproof Selection (C. I. No. 518-3), and Winter Turf Selection (C. I. No. 3296).

Many winter oat hybrids were made at Arlington Farm both in the field and in the greenhouse from which numerous new varieties were developed, either wholly or in part. Of the older varieties, Lee and Wintok have attained the most economic importance. The sibs of Lee, namely, Custis, Jackson and Randolph have not become commercially important.

The comparatively newer varieties with resistance to many races of crown rust and the oat smuts that have or have had some economic importance include Camellia, Delair, DeSoto, Florilee, Fultex, Letoria, Stanton, Taggart, Ranger, Rustler, Quincy Red, and Winter Fulghum Selection (C. I. No. 2500). Other named winter oat varieties developed in part at Arlington Farm which never advanced much beyond the "experimental strain" stage include Lega, Lelate, Lelina, Lenoir, Levic, Pioneer, and Rangler, although distributed to some extent for farm production. To this list should be added a group of varieties that were originated at Arlington Farm but not named until after being tested for a few years at Beltsville, Maryland. This group includes Bristol, Boliver, Botler, Calvert, Hobson, Nelson, Olney, Radford, and Raleigh. These have been

distributed to a very limited extent but have not attained any commercial importance owing primarily to lack of satisfactory disease resistance, although several have been nearly as hardy as Wintok at Arlington and Beltsville.

The most recent group of promising new varieties which were in process of development before moving to Beltsville, include Atlantic, Arlington, Coy, and Mustang which are now just getting into production.

The varieties with special plant breeding value include Hairy Culberson and Winter Fulghum Selection (C. I. No. 2499). From the latter selection the Forkedeer, Fulwin, and Tennex varieties which constitute an important group of winter-hardy red oats, were developed as reselections by the Tennessee Agricultural Experiment Station.

In the case of spring oats the hybrids giving rise to Boone, Cedar, Control, Tama, Vicland, Vikota, Hancock, and Marion were made and tested in one or more generations for rust and smut resistance in the greenhouse at Arlington Farm.

Selections from many other spring oat hybrids made elsewhere also have been tested in one or more generations in the greenhouse for disease reaction at Arlington Farm. Some of these are Carleton, Neosho, Osage, Ventura, Cody, and Overland. In addition many other hybrids have been effected at Arlington and elsewhere, from which thousands of selections have been tested primarily in the greenhouse at that station but never named --- the byproduct of any plant breeding program.

Some Observations on Oats in 1950

By F. A. Coffman

In 1950 the writer visited the State Experiment Stations in all states west of the Hudson and east of the Rockies except North Dakota and Delaware. Oat experiments were observed at some 55 points in 30 states during the season. The following conditions were observed:

(1) Crown rust (presumably races 45 and 57 or some similar races) was present almost everywhere. Commercial varieties having some resistance or tolerance to these rust races and also to H. victoriae include Marion, Cherokee, and Benton.

(2) Stem rust was present over a wider area than the writer had seen in any of the previous 26 years on the oat project. Stem rust was observed in Florida, Louisiana, Texas, Kansas, Nebraska, Iowa, South Dakota, Minnesota, Wisconsin, Michigan, New York, and Pennsylvania. Presumably this was largely stem rust race 7, although some may have been race 8. Commercial varieties having at least some resistance to stem rust race 7 include Ajax, Andrew, Marion, Rainbow, Beaver, and others.

(3) The so-called "red leaf" trouble or condition of oats did not seem so prevalent in 1950 as in 1949, and as previously reported the manifestation of "red leaf" seems to depend in part at least on genetic factors. The progenies of some crosses contained much more "red leaf" than those of others.

(4) Among winter oat varieties Taggart and Delair appeared to show this trouble most frequently, whereas Arlington appeared especially free of "red leaf" at points visited. In the spring oat area Cherokee and Nemaha were among the varieties most frequently affected, whereas Ajax, C. I. No. 4988 and some of the Clinton x Marion strains appeared entirely free or much less frequently affected.

(5) Oats were later and lodged more than usual in 1950. Lodging in fields and in experimental plantings in some areas was so common as to emphasize the need for greater straw strength in future oat varieties.

(6) Mildew and also mosaic were present on oats at some stations and they damaged the plants.

(7) Data now summarized show that the top-yielding oats east of the Rocky Mountains in 1950 were as follows:

	Yield Rank	Variety or Entry	Yield Bu.	Test Lbs.
Midseason Nursery (15 Stations)	1	Ajax	79.3	32.0
	2	C. I. 5013 1/	76.4	32.5
	3	C. I. 5441 2/	74.4	34.8
Early Maturing Nursery (18 Stations)	1	C. I. 5648 2/	71.7	34.0
	2	C. I. 4988 3/	71.5	33.4
	3	C. I. 4672 4/	68.0	31.4
Spring Red Oat Nursery (8 East Stations)	1	C. I. 4988 3/	63.8	31.3
	2	C. I. 5297 3/	62.0	31.6
	3	C. I. 4674 4/	61.3	28.6
Spring Red Oat Nursery (4 West Stations)	1	C. I. 5318 5/	40.0	30.4
	2	C. I. 4988 3/	39.1	31.3
	3	C. I. 5017 5/	39.0	30.8
Special Winter Oat (8 Stations)	1	Coy	55.7	30.8
	2	Atlantic	55.5	33.4
	3	Fulwin	55.4	31.3
Uniform Fall Sown Nursery (12 North Stations)	1	Arlington	73.8	30.1
	2	Atlantic	63.5	30.1
	3	Stanton 1	62.1	30.3
Uniform Fall Sown Nursery (8 South Stations)	1-2	Fulgrain(50BFS)	51.0	31.8
	1-2	Fultex	51.0	31.8
	3	Southland	50.3	30.0

Key to C. I. Numbers:	Selected by:
1/ (Forward x Victoria-Richland) x Forward	Wisconsin Experiment Station
2/ Clinton x Marion	U.S.D.A. at Aberdeen, Idaho
3/ Columbia x (Victoria-Richland)	Missouri Experiment Station
4/ (Anthony-Bond) x (Richland-Fulghum)	Kansas Experiment Station
5/ Fulton x Clinton	U.S.D.A. at Aberdeen, Idaho

(8) For the benefit of those wishing to make oat crosses the 1950 data indicate that:

(A) In addition to the highest yielding oats in 1950 in eastern United States listed above; Andrew, which ranked 4 in the Early and 5 in the Spring Sown Red Oat Nursery, is noteworthy.

(B) The highest test weights in 1950 were recorded for C. I. Nos. 5298 and 5652 in the Midseason; C. I. Nos. 5648, 5018, and Purdue Clinton Reselection #17 in the Early; and C. I. Nos. 5297 and 5320 in the Red Oat Nursery. In the Special Winter Oat Nursery C. I. Nos. 5118, and 5368 tested most, whereas in the Uniform Fall Sown Nursery C. I. Nos. 5352, 5371, 3531, and 5356 tested best.

(C) For straw strength, based on 1950 records, C. I. No. 5440 appeared in a class by itself among spring oat entries, and C. I. Nos. 5116 and 5356 were the stiffest strawed among the entries in the Uniform Fall Sown Experiment.

(D) In earliness of heading Delair was in a class by itself among fall-sown oats, whereas C. I. Nos. 5017, 5016, 5631, and the varieties Andrew and Mohawk were first to head among spring-sown oats.

(F) Data from the 1949-50 Uniform Winter Hardiness Experiment indicate the hardiest entries were Wintok and the two Indiana entries C. I. Nos. 5368 and 5369.

World Collection of Oats

By D. J. Ward

The world collection of oats maintained by the Division of Cereal Crops and Diseases now includes more than 4,000 viable samples, a remarkable conservation of germ plasm considering that the C. I. accession records are only in the low 5,900's. Plant exploration expeditions and international seed exchange in the last 50 years have resulted in the accumulation of strains from more than 52 countries or provinces. No doubt early collections made in this country represent varieties introduced from abroad by the colonists. More than 700 new introductions have been received since 1947 through the Division of Plant Exploration and Introduction.

This past summer the greater portion of the entries in the oat collection were increased at the Branch Experiment Station, Aberdeen, Idaho. Seed stocks now on hand at Beltsville, Maryland, should be adequate to meet requests for samples for observation and preliminary disease tests for several years.

An effort is being made to distribute seed from the collection to all experiment stations where oat workers are searching for useful characters such as disease resistance.

During 1948 and 1949 more than 7,500 packets of seed were sent out for testing in observational rows. This number includes plantings of 2,470 entries from the collection which were grown at Gainesville and Quincy, Florida, in 1949 under severe crown rust epidemics, plus smaller shipments of new introductions that were sent to 20 locations over the two-year period.

Early in 1950 a set of oats comparable to those sent to Florida for field planting in the fall of 1949 was forwarded to Ames, Iowa, for greenhouse testing to race 45 of crown rust and race 8 of stem rust. In addition small groups of new introductions were sent to 10 locations in the spring oat area.

This past fall a set of 300 new introductions was sent to 13 locations. In addition, more than 2,200 entries from the collections were sent to Raleigh, North Carolina. The first 1,200 entries in the collection are being grown at Lexington, Kentucky, and at Fayetteville, Arkansas, and another set will be planted at Denton, Texas, in January. To complete their observations of the collection, plantings have been made by the scientists at Gainesville and Quincy including all the entries not included in the 1949 planting. Seed has been sent to Ames, Iowa, for the same purpose.

Considerable data have been obtained from these many plantings. Certain data sheets returned to Beltsville have been photostated for distribution in an effort to devise some effective way to quickly disseminate the information gathered to all who might be interested. Continued attention is being given to devising the most satisfactory procedure for obtaining and disseminating the accumulated data. A real effort is being made to organize the data from the large Florida and Iowa tests for general distribution.

While it would be facetious to suggest that any dramatic or far-reaching results have been attained recently in the testing of the world collection germ plasm, it seems clear that plant breeders must turn to diverse and exotic parental stocks with which to strengthen currently adapted types if an equilibrium with the forces of nature is to be maintained. An extensive cataloguing of available germ plasm and a continued search for new useful characters will go a long way toward strengthening the hand of the plant breeder.

III. CONTRIBUTIONS - STATES

CONNECTICUT

By B. A. Brown (Storrs).

Oats for Fall Pasture

Oats and barley are used as supplemental fall pasture crops in Connecticut. For this purpose, they are seeded in early August and grazed in September and October. In 1945 and 1946 quite extensive comparisons of the two crops were made at two rates of seeding, each with three nitrogen treatments. A summary of the results may be of interest to oats specialists.

1. Yields of Dry Matter.

The yields of dry matter were determined twice each year by mowing, weighing and sampling the green forage at the grazing stage -- 8 to 12 inches high. In 1945 "selected" forage oats yielded slightly less than barley when both were seeded at one and one-half

bushels, but more than barley at the three-bushel rate of seeding. In 1946, with much more rainfall in August, the same kind of oats produced about 15 per cent more dry matter at the two-bushel seeding and nearly 25 per cent more when seeded at three bushels.

2. Responses to Nitrogen.

Oats responded more to nitrogen than barley. Thus, in both years and at either rate of seeding, oats produced less dry matter where 40 rather than 80 pounds per acre of nitrogen were applied. Barley yielded fully as well at the lower rate of nitrogen.

3. Recovery After First Cutting.

It was noted that with either oats or barley, the heavier the seeding the poorer the recovery after the first cutting. In several instances, the ratios of second cutting to first cutting yields were approximately half as large for the three bushel seedings as for the lighter rates of planting. It should be added that oats usually produced more dry matter in the second cutting than in the first, while the reverse was true of barley.

4. Rust Resistant Varieties.

Because of the prevalence of rust on oats during humid weather, it is important that a rust resistant variety be planted in Connecticut for fall pasture.

FLORIDA

By D. D. Morey (Gainesville).

The oat nursery at Gainesville is recovering from the late November cold spell. We have made some observations on the reaction of Coastal Plain oat varieties to cold (low of 18°). The check varieties are Southland, Camellia and Red Rustproof No. 14, and they withstood the November cold in the order named. Some Red Rustproof types (including Appler) were killed 15 to 20 per cent and their recovery is slow, while plots of Camellia suffered only about 10 per cent loss of stand, and Southland is recovering rapidly to nearly a full stand except in some low ground locations.

Some of the best looking oat varieties in the nursery are new selections from Tennessee and North Carolina. Arlington and Atlantic are making excellent growth and were hardly halted in their growth by the cold. Fulgrain, Victorgrain and several Texas selections recovered quickly from the cold and are making good growth.

A few pustules of crown rust and considerable Helminthosporium avenae was present in the Gainesville nursery in early January.

Moisture conditons are good and diseases should soon start to eliminate our head rows of oats.

The oat workers in Florida wish to express thanks and appreciation to the many U.S.D.A. and Experiment Station workers for assistance with the Florida oat program. We could mention many names, but this time our special bouquet of roses goes to Mr. Harland Stevens and his co-workers of Aberdeen, Idaho, for their excellent work in increasing our hybrid oats and other valuable material.

By W. H. Chapman (Quincy).

The Increase and Release of Southland Oats

Oats fill a definite need in the agricultural program as a source of grain and winter grazing to meet the needs of increased livestock production in Florida. The severe epidemic of Victoria blight in 1946 and 1947, and crown rust (race 45 and similar races) in 1948 probably explains the decrease in production volume of oats from 900,000 bushels in 1945 to 288,000 bushels in 1949. Since oats fill such a definite need in the agricultural program of Florida, every effort was made to develop and increase a variety superior to those now being grown.

Southland originated as a selection by the North Florida Experiment Station from a cross between D69 x Bond (C. I. No. 3841) and Fultex (C. I. No. 3531) made in 1941 by H. C. Murphy of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, and the Iowa Agricultural Experiment Station. In May 1948 one-half pound of seed was sent to the Agricultural Experiment Substation at Aberdeen, Idaho. Twelve pounds of seed were received from the summer planting which not only supplied seed for increase but made it possible for the selection to be tested throughout Northwest Florida during the 1948-49 season. An increase plot seeded at the rate of 17 pounds per acre produced approximately 16 bushels, of which 15 bushels were returned to Idaho in May 1949 and grown under contract on four and one-half acres. The 349 bushels from this increase were planted on Florida Station Farms at Gainesville, Milton and Quincy. About 9,500 bushels were harvested in the spring of 1950 for release to the Florida farmers. Approximately 1,000 bushels were returned to the western states by commercial seedsmen and the harvest from this increase helped bolster the seed supplies for fall planting.

Since the demand for seed was so heavy every effort was made to release the supply as equitably as possible. Farmers requested seed through the local county agent and these requests were made by counties to the Extension Agronomist who in turn made the final allotment based on the oat acreage of the county for previous years.

Distribution within the county was made by the county agent and a local committee. In addition to the 9,500 bushels released in this manner, the various commercial seedsmen sold approximately 20,000 bushels to farmers in the Gulf coast region.

A complete description of this variety is given in Circular S-18 of the University of Florida, Agricultural Experiment Stations, dated September 1950.

GEORGIA

By A. R. Brown (Athens).

The big oats news story in Georgia is that the fall-sown oats were almost completely killed by low temperatures and high winds which we experienced on November 25 and 26, 1950. Killing was thought to have been due to freezing as well as desiccation. The temperature recorded here at Athens on November 25, 1950 was the lowest (5° C) ever recorded for the month of November. Official weather records have been kept here at Athens since 1850. It was the coldest day recorded in the past ten years.

Both the Georgia and U.S.D.A. Fall Sown Oat Nurseries are a total loss. We intend to make a spring planting of some of the entries in Mr. Coffman's nursery.

The following entries from the Fall Sown Oat Nursery (Athens) had a low percentage of survivals. All other entries had zero survivals.

Variety or Selection	% Survival Ave. 3 Replications
Fultex	1
Letoria	1
Arlington	1
Coy	7
Atlantic	13
Mustang	7
C. I. No. 5875	1
C. I. No. 5874	4
C. I. No. 5850	2
Ga. H 842	6

The lowest temperature before November 25 was about 20° F. We had several killing frosts so the plants did have a short hardening period.

By U. R. Gore (Experiment).

A three-degree freeze on November 25, 1950 severely damaged the fall-sown oat crop in Georgia.

The new Arlington and Atlantic oats came through best of any of the commercial varieties. Oats that were seeded early and in a deep furrow, came through with little damage. The few farmers who have deep-furrow grain drills, failed to use them this season. There will be some spring-sown oats and considerable replanting. There is need for more winter-hardy oats for fall seeding.

The Small Grain Breeding Work in Georgia is being expanded to develop varieties adapted to the Mountain region, Piedmont, and Coastal Plain areas.

ILLINOIS

By O. T. Bonnett, W. M. Bever, and J. W. Pendleton (Urbana).

The spring oat crop was seeded approximately three weeks late in Illinois in 1950. However, growing conditions were such that the average state-wide yield was three bushels above the previous 10-year average. A common expression heard among farmers in northern Illinois was that 1950 was the first season they could remember seeding oats in May and obtaining high yields and test weights of 36 to 40 pounds. The number of rejects and the quality of seed samples submitted to meet laboratory certification standards was about average, according to records of the Illinois Crop Improvement Association.

For the first time since the introduction of the Bond type oats into Illinois, race 45 of crown rust caused an estimable amount of loss to the oat crop. The amount of infection (from field to field) varied considerably, but the over-all loss as estimated by Mr. G. H. Boewe of the Natural History Survey, was 10 per cent. Only a trace of stem rust (mostly race 7) was observed. "Grey-spot" (cause unknown) was in evidence, but not nearly so prevalent as in 1949. Very little Septoria culm rot, anthracnose and other of the so-called minor diseases was observed.

LaSalle, C. I. No. 5628 (Illinois 43-262) a new spring oat variety selected from a cross of Marion x Clinton has been approved for release by the Agronomy Department of the University of Illinois. A limited quantity of seed will be available in 1952. This variety in four years of testing has been higher in yield and earlier than Clinton. However, it is not as stiff strawed nor as high in test weight per bushel as Clinton. It carries a high grade of tolerance to crown rust race 45.

A hand stripper made of wood modeled after a bluegrass stripper was used this year to harvest head hills and short rows of oats. Quantities of 25 to 30 pounds of seed were also stripped from plots of hybrid populations thus eliminating the need to harvest the entire plot. Stripped grain was placed in cloth sacks to dry and later threshed on a "Vogel" nursery thresher.

INDIANA

By R. M. Caldwell, G. H. Cutler, L. E. Compton, F. L. Patterson, R. R. Mulvey, J. E. Newman and J. F. Schafer (Lafayette).

1. Highlights of the Breeding Program.*

The most pressing immediate aim in the oats breeding work at the Purdue Station is the incorporation of resistance to the Bond-attacking races of crown rust into varieties as desirable agronomically as Clinton. The most promising advanced lines under test at the present time are selections of Clinton x Boone-Cartier and Clinton^2 x Arkansas 674. Many lines of the former cross, resistant to Victoria blight, give an "0" to "1" reaction to crown rust race 45 and a "4" reaction to race 57 in the greenhouse, but show a considerable degree of crown rust resistance in the field under conditions of artificial epidemic of both races. A number of these selections outyield Clinton and are stiff-strawed white oats. Many lines of the latter cross, also Victoria blight resistant, give an "0" reaction on the first leaf and a "3" reaction on later leaves to crown rust race 45 and a "3" reaction to race 57 in the greenhouse, but are highly resistant in the field to an artificial epidemic of both races. The crown rust resistance of both Landhafer and Santa Fe is also being brought into the breeding material, with the F_2 of Clinton^6 x Landhafer now available for crown rust testing. Stem rust resistance derived from Hajira-Joanette and Hajira-Banner is now being woven into the program using parents obtained from the Dominion Rust Laboratory at Winnipeg and the Minnesota Agricultural Experiment Station.

White oat color and low hull percentage are among the agronomic characters receiving attention in selection.

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* The Departments of Agronomy and Botany and Plant Pathology and the U. S. Department of Agriculture cooperate in oat improvement at Purdue. J. F. Schafer, Pathologist, and F. L. Patterson, Agronomist, are recent additions to the staff devoting part time to oat breeding. J. E. Newman, another recent addition to the Agronomy staff, conducts the outstate oat performance tests. G. H. Cutler, R. M. Caldwell and L. E. Compton are continuing in oat breeding and R. R. Mulvey is continuing the drill plot performance test at Lafayette.

2. Disease Notes.

Crown rust came in only sparsely and too late to cause great damage in Indiana this past season. The damage due to stem rust was probably negligible. The "red leaf - gray patch" condition was less prevalent than in 1949 but was again conspicuous in the north-central part of the State. Septoria avenae blight of spring oats was severe in the same area causing damaging defoliation and stem blackening. In the winter oats portion of the State considerable patchy stunting associated with abundant development of Helminthosporium avenae was observed. The smuts were rare except in occasional fields of winter oats.

3. Testing.

The summer of 1950 was relatively mild for Indiana and mid-season to late varieties of oats outyielded earlier varieties in the central and northern part of the State. C. I. No. 5013, Forward x (Victoria-Richland) x Forward, led in yield at each of the four locations in the above area. C. I. No. 5297, Columbia x Victoria-Richland, not only produced the highest yield but also the highest test weight in the Southern Indiana test. C. I. No. 5298, Bond x Anthony produced grain of the highest average test weight at the other locations.

Oat variety demonstration plantings conducted by county agents and farmers cooperating with the Agronomy Extension Division were made at 50 locations in the State. Based on the results of 31 of the above plantings which were harvested for yield, Columbia, Cherokee and Nemaha were in the lowest yielding bracket.

4. Certification.

The Seed Certification Service received applications for certification of 13,537 acres of oats of which 91.6 per cent was for the Clinton 59 variety. Other varieties were Mohawk, Benton, Nemaha and Cherokee. The latter two varieties were too high in mixture to pass certification and 10 per cent of the remaining failed to pass due to low germination. Test weight of the samples submitted for certification are from two to three pounds heavier than they were in 1949.

IOWA

By H. C. Murphy (Ames).

Thirty oat varieties were included in cooperative U.S.D.A. Uniform Oat Rust Nurseries grown at 40 locations in 1950. Crown rust infection amounted to only a trace, or was entirely absent, at six of the locations. Landhafer, Ukraine, Victoria, Trispernia and Santa Fe were the most resistant varieties among the perpetuable series, with average crown rust infection coefficients of 1.3, 3.9, 5.9, 8.0 and 8.2 per cent, respectively, while Markton, Richland and Bond were the most susceptible, with average coefficients of 55.2, 50.5 and 42.3 per cent, respectively. Anthony-Bond x Boone (C. I. No. 5401), Santa Fe x Clinton (C. I. No. 5400), Cedar, Hawkeye x Victoria (C. I. No. 5012), Arlington, and Southland were the most resistant in the alterable series, with average infection coefficients of 2.8, 5.5, 13.6, 14.3, 15.8 and 19.3 per cent, respectively. Selections exhibiting some tolerance, or at least only moderate susceptibility, were Ithacan x Victoria (C. I. No. 5332), Forward x (Victoria-Richland) x Forward (C. I. No. 5013), and Columbia x Victoria-Richland (C. I. No. 5297) with infection coefficients of 25.2, 26.0 and 32.1, respectively. LeConte, Clinton, Bond x Anthony (C. I. No. 5298), Shelby, Nemaha, Andrew, Cherokee, and Columbia x Marion (C. I. No. 4986) were all more or less susceptible, with average infection coefficients of 60.3, 53.2 47.6 44.6, 41.2, 40.6, 39.8 and 38.0 per cent, respectively.

The average coefficients of infection for all entries in the Western, North Central, Northeastern and Southern Regions were 0.0, 16.6, 48.8 and 36.7, respectively. Crown rust infection was absent in the Western Region and relatively light in the North Central Region, with heaviest infection recorded at Urbana, Illinois; Morris, Minnesota; Ames, Iowa, and Manhattan, Kansas. Nurseries were grown only at Ithaca and Lawton, New York, in the Northeastern Region, and heavy infection was recorded at both of these locations. Heavy infection was the rule rather than the exception in the Southern Region, with unusually heavy infection being recorded at Homer, Baton Rouge, St. Joseph and Crowley, Louisiana; Poplarville, Mississippi, and Fayetteville, Arkansas.

Approximately 400 collections of crown rust, well distributed throughout the oat growing regions of the United States, were obtained in 1950. A total of 184 of these collections have been identified to date. Race 45 was the most prevalent, making up 81.6 per cent of the 184 collections identified. Races 1, 95, 88 and 91 were the next most prevalent, making up 5.6, 3.2, 2.4 and 1.6 per cent, respectively. Races 45, 68, 88, 89, 91 and 95, to which Bond and most of its derivatives are susceptible, made up 92.8 per cent of the collections identified, while races 1, 78 and 82, which do not attack Bond and most of its derivatives, made up only 7.2 per cent. It is likely the 1950

collections yet to be identified will raise the percentage for the races attacking Bond, because most of these remaining collections are from the northern states where races 1, 78, 82, etc., apparently were screened out by the large acreage of Clinton and other resistant Bond derivatives.

Race 45 and similar races of crown rust caused considerable damage to oats in Iowa in 1950, with unofficial loss estimates of 15 to 20 per cent of the total crop. Infection was much heavier in the southern part of the state than it was in the northwestern cash-grain area. Race 7 of oat stem rust appeared to be the most common race present in Iowa in 1950, although race 8 was also widely prevalent. The unofficial estimate of loss attributed to stem rust of oats in Iowa in 1950 is 2 per cent. Red leaf of oats caused only a trace of loss in 1950 compared with an estimated loss of 15 per cent in 1949. Losses from other oat diseases in Iowa in 1950 were negligible.

Selections from crosses of Santa Fe x Clinton, Anthony-Bond x Boone, and Mindo x Landhafer were outstanding for resistance to infection with race 45 and similar races of crown rust under field conditions in Iowa in 1950. The Anthony-Bond x Boone selections appear to possess a combination of the Trispernia gene and an allele of the Victoria gene for resistance to race 45 and similar races of crown rust. The allele of the Victoria gene does not bring in susceptibility to Helminthosporium victoriae. Selections from Sac x Hajira-Joanette and other Hajira x Joanette derivatives were highly resistant to infection caused by races 7 and 8 of stem rust. Marion, Andrew, Eaton, Rainbow, Ajax, Beaver, Vicland, Tama, etc., appear to be resistant to race 7 but susceptible to 8, while Clinton, Benton and other named northern Bond derivatives were resistant to race 8 but susceptible to race 7. With the exception of the Victoria blight-susceptible Vicland, Tama, Osage, and other Victoria derivatives, none of the commercial oat varieties was highly resistant under field conditions to the prevalent races of crown rust. Marion was outstanding for moderate resistance among the varieties now being grown in the Corn Belt, with Cherokee, Nemaha, Ajax, Colo, Beaver, Andrew, Shelby, Benton and some other varieties showing varying degrees of moderate field resistance or tolerance.

KANSAS

By C. O. Johnston (Manhattan).

The "Red Leaf" Disease of Oats Still a Mystery in Kansas

Agronomists and pathologists in Kansas still are puzzled and concerned about a disease of oats that has tentatively been called "red leaf", for want of a better name. Despite the fact that it has

no generally accepted name and its cause is unknown, the disease is deadly. In Kansas it usually begins appearing when the plants are about a foot tall, the first symptoms being a reddening of the leaves. Such leaves quickly turn gray and the plants soon die, often having a scalded appearance toward the end of the season. There seems to be no definite pattern of development of the disease in the field; infected plants usually appearing singly and at random in certain varieties and hybrid populations. Infected plants have the characteristics of plants attacked by an organism but thus far no definite causal organism has been isolated in the limited tests made. Unfortunately Nemaha and Cherokee, the two oat varieties most recently distributed in Kansas, are susceptible to this mysterious disease. It is therefore a matter of considerable concern not only in Kansas but also in the spring-sown red oat area of the western Mississippi Valley. It apparently is most severe in varieties and hybrids with Bond in the parentage. There, therefore, is an urgent need for studies on the identity and control of this new menace to oat breeding and production.

By A. F. Swanson (Hays).

The Oats Situation in Western Kansas in 1950

Oats was a mystery crop over much of Western Kansas, and at the Fort Hays Experiment Station, in that it vanished almost to a failure, in view of the fact that there was an abundance of stored moisture in the subsoil. Under similar planting conditions in 1947 the yield of oats ranged from 74.0 to 107.0 bushels per acre. In 1948 the range was from 37.9 to 76.3 bushels and much the same for 1949.

Oats was planted at the Hays Station on March 17 and emerged to a good stand on April 4. The rainfall was deficient during March and April, the weather cold and growth of the crop slow. The rainfall was excessive in May but highly deficient in June, yet the June deficiency did not seem to be the contributing factor to low yields.

A minimum temperature of 16° F occurred on April 13 after the crop had more or less advanced beyond the seedling stage. While the plants were not killed outright the vigor was greatly reduced for some period of time. Severe soil erosion also occurred on three different occasions during this period. May followed with a heavy epidemic of green aphids which further severely weakened the plants. Also in May for the first time at Hays a disease, identified by C. O. Johnston, Pathologist at Manhattan, as bacterial stripe blight, severely attacked such varieties as Osage and Cherokee but was noted to some degree on all of the varieties. At the end of the season it appeared that most of the original tillers had disintegrated and a few secondary tillers produced whatever grain was made. However, after the usual cleaning over a Clipper fanning mill the test weight ranged

from 33 to 36 pounds per bushel. The old standard varieties Kanota and Fulton averaged 14.5 and 10.6 bushels respectively per acre, while Clinton and Cherokee averaged 3.6 and 4.3 bushels per acre. It is therefore difficult to separate the factors that were responsible for the near failure of oats in Western Kansas, except to say that the season and the crop did not nick well in 1950. The farm yields were no better than the Station yields.

By D. E. Weibel (Manhattan).

The oat season in Kansas was a peculiar one. Our sowing was done quite early. Cold weather followed, delaying germination, and no doubt injuring sprouting seeds somewhat. Drought and high winds resulted in blowing soil and loss of stands in many areas in the State. Lack of rain caused considerable stress on the oat plants during much of the growing season.

The Columbia derivatives (Columbia x Victoria-Richland) and Columbia itself seemed to bear up under this remarkably well, at least, at Manhattan and at Mound Valley in Southeast Kansas.

No yields were obtained at Manhattan due to a vicious hail storm on 1 July 1950. The breeding material was quite well salvaged.

Rust was not serious. Red Leaf was present. Victoria blight was not evident until late in the season.

KENTUCKY

By D. A. Reid and L. M. Josephson (Lexington).

"Plastic Coat" for Record Books and Nursery Labels

A plastic material recently found on the local market known by the trade name "Plastic Coat" has been found to have at least two uses in local plant breeding programs. It has been used with considerable satisfaction as a waterproof coating for field record books, particularly when they have been labeled on the outside. After a season of carrying field books in sweaty pockets and hands in both the small grain and corn nurseries, covers of books treated with this material and the lettering on them are exceedingly well preserved in contrast to the appearance of record books in previous seasons.

Plastic Coat has also been used on nursery stakes to cover the labeling. During the past summer it prevented fading of the lettering which had given trouble previously. We are watching with interest stakes set in the field last fall using three kinds of heavy weatherproof pencils which were both sprayed and unsprayed. If it proves successful over the winters it will save relabeling many stakes each spring.

This material is packed in 12 ounce cans under pressure and applied as a fine spray directly from the can in the same way as the well-known fly sprays. It dries in two or three minutes. The type we have used is manufactured by the Bridgeport Brass Co., Bridgeport, Connecticut, and was purchased locally from a wholesale drug company for about $1.25 per can in dozen can lots. We covered the printing on three to four thousand stakes this year with about six cans.

Disease Notes on Oats in Kentucky

Anthracnose (Colletotrichum graminicolum) was found on fall-sown oats in Kentucky for the first time in late May, 1949. As reported (Pl. Dis. Reptr. 34:26, Jan. 15, 1950) the disease was especially severe on the variety Sturdy (C. I. No. 5117) and fairly heavy on Anderson 1 (C. I. No. 4651) in the Uniform Fall Sown Nursery in Todd County in Southwestern Kentucky. Practically all the leaves on Sturdy were killed while the oats were still green. A small amount was also found in a commercial oat field near Bardstown, Kentucky, the same year.

This year the fungus was again found in Todd County on Woodward Selection (C. I. No. 5106). Neither of the other two varieties were planted at that location in 1950.

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It is of interest that Helminthosporium victoriae which was extremely destructive in Kentucky in 1946-1948 on susceptible spring varieties has not been found to date on susceptible varieties of fall-sown oats. Even in the extremely mild winter of 1949-1950, no Victoria blight was found. This is of considerable interest in Kentucky since some of the (Lee-Victoria) x Fulwin derivatives, particularly Atlantic and Mustang, are promising from other standpoints.

LOUISIANA

By J. G. Atkins (Baton Rouge).

Oat Diseases in Louisiana

Conditions prevailing in south Louisiana, such as the Baton Rouge Station, provide excellent opportunities for testing oat varieties and selections under epiphytotic conditions for resistance to crown rust, Puccinia coronata, and Helminthosporium blight, H. victoriae. Information as to H. victoriae resistance of new strains or varieties of oats can be obtained by field (nursery) observations without resorting to greenhouse inoculations unless such controlled tests are desired for some reason. In both 1949 and 1950 such known susceptible varieties as Fulgrain, Victorgrain, Letoria and DeSoto were susceptible and varieties known to be resistant, such as Nortex 107, Camellia, Clinton and Appler, remained free of the disease. In view of the consistent reaction of known resistant and susceptible varieties to Helminthosporium blight, newer varieties or strains such as Fulbright, Arlington and Mustang may be placed in the susceptible group. Similarly, varieties or strains remaining free of the disease may be classified as resistant with confidence.

Crown rust was exceptionally heavy at Baton Rouge in 1949 and 1950. The more susceptible varieties, such as LaConte and Richland, were essentially killed prior to heading. A number of varieties produced for use in states not too far distant from Louisiana, such as Delair and Taggart, performed very poorly at Baton Rouge as a result of severe crown rust. Apparently due to the presence of race 45 or similar races the Bond varieties, such as Clinton and Camellia, were consistently classed in the susceptible group. Although the Red Rustproof varieties, such as Nortex 107, have always given high rust readings in nursery and variety plantings, they are capable of producing fairly satisfactory yields in spite of crown rust. Alber and Dr. John Gray's Alber selections are among the most promising of the older oat varieties for further planting in Louisiana. Landhafer crosses comprise the most promising material for selection work.

It is hoped that these notes and illustrations will convey the idea that crown rust and Helminthosporium blight are consistently of such severity under field conditions at Baton Rouge as to readily classify the various varieties and selections. In other words, they can be given the "acid test". At three branch stations in north Louisiana erratic readings are frequently obtained for these two diseases. At the same time, it should be pointed out that, from a practical standpoint, these two diseases are more severe at Baton Rouge and varieties classified as rather susceptible at Baton Rouge often produce satisfactory growth and yields in north Louisiana.

Although stem rust is considered as an important oat disease in Louisiana, stem rust has been light the past two years. Actually the prevalence was so low in nursery plantings that no stem rust readings could be made. Helminthosporium leaf blotch, H. avenae, must be considered as a rather important leaf disease but has been "overshadowed" by severe crown rust on most varieties. The relative importance of anthracnose is rather difficult to establish.

Maggots or larvae have been found in the necrotic growing point of oats, particularly La. 42-48. Affected plants show poor vigor, reddish and chlorotic leaves and a failure to head. Preliminary studies and observations have been made with Dr. L. D. Newsom, Research Entomology Dept., L.S.U. The insect has been identified as Cerodonta denticornis but has not yet been proven to cause the "disease" symptoms. Although several maggots may be found in the growing point region, they are easily overlooked due to their lack of color.

H. victoriae must be added to the list of pathogens causing local leaf spots of oats. Leaf spots must also be considered a field symptom of Helminthosporium blight. The spots are gray to brown, oval to elongate and up to 1 x 3 cm. in size. Conidia taken from leaf spots are somewhat atypical for H. victoriae. An article with pictures is in press.

By John Gray (Baton Rouge).

Oat Research, Baton Rouge, Louisiana

Oat research at the Baton Rouge station has been primarily a breeding project involving the development and observation of new materials and selections within the newer strains over a period of several years. At the present time disease threatens to be the greatest hazard to oat production in Louisiana. The presence of Helminthosporium blight in Louisiana during the past few years suggested a shift in the varieties being grown commercially from those of Victoria parentage. This disease practically eliminated susceptible strains at Baton Rouge in recent years, while yields in north Louisiana were not as severely affected.

Outstanding among the blight-resistant oat varieties of Bond parentage were the Camellia, Benton and Clinton. The Camellia was developed by the Louisiana Experiment Station and released to farmers in 1942. It is a selection from a cross of the Bond and Alber varieties. A Louisiana selection of Alber was released previously and is one of the best red rustproof types for south Louisiana. The Benton and Clinton varieties do not appear to be adapted to Louisiana conditions. Seed yields were materially reduced at Baton Rouge in 1950 on oat varieties of Bond parentage including Camellia and other Louisiana material as a result of injury from crown rust, reported to be race 45 or similar races.

MINNESOTA

By H. K. Hayes (St. Paul).

Current Information Regarding Oat Improvement Studies at Minnesota

The oat improvement work at Minnesota is under the joint direction of the writer and Mr. M. B. Moore in Plant Pathology. Assistants who devote approximately half time to the work include R. D. Osler in Agronomy & Plant Genetics and S. Goto in Plant Pathology & Botany.

Four separate rust epidemic nurseries were grown in 1950 for special disease studies. All material in these nurseries was inoculated with prevalent races of smuts. Varieties and selections now under study in yield trials and hybrid material were grown in these nurseries. One of these nurseries consisted of a rather large number of advanced crosses of Santa Fe received from F. A. Coffman of the U. S. Department of Agriculture. Excellent notes were obtained on plant diseases. This field work is being supplemented by basic and practical studies in the greenhouse to individual races of stem and crown rust.

Yield trials are conducted at the branch stations at Waseca, Morris, Crookston, Grand Rapids and Duluth, and in Southwestern Minnesota and extreme North Central Minnesota in cooperation with county organizations. As the material in these yield trials consisted of some varieties with the Richland-Iogold-Rainbow type of resistance to stem rust races 1, 2, 3, 5 and 7 and other varieties with the White Russian type of resistance to races 1, 2, 5, 8, 9 and 10, it was possible in the state to determine the prevalence of races which attack both of these groups as Andrew with the Rainbow type of stem rust resistance and Bonda and White Russian type of resistance both showed considerable infection with stem rust. All varieties late in the season were susceptible to prevalent races of crown rust. These included the varieties Cherokee, Nemaha and Colo which in Iowa are said to have tolerance to race 45 as well as the new variety C. I. No. 5013 from Wisconsin which has been recently named Branch by that station. From these results, and from studies made in Minnesota of derivatives of the Canadian selection Victoria-Hajira-Banner in crosses with Minnesota varieties carrying the Bond type of resistance to crown rust, it is evident that Victoria carries a genetic factor for resistance to race 45 and some other races which is not closely linked with the factor for susceptibility to Helminthosporium victoriae. That is of some interest from the standpoint of Minnesota studies as D. C. Smith many years ago concluded that the inheritance of Victoria type of resistance to crown rust was not on a simple monohybrid basis.

From studies to date, it seems probable that a single genetic factor from Landhafer conditions reaction to crown rust races 45, 57 and several other races including some races to which Bond is resistant. In similar studies with Santa Fe crosses there is evidence of two or three factor pairs which condition the Santa Fe type of resistance to crown rust. The Canadian type of resistance to stem rust from the Canadian selections Hajira-Joanette and Victoria-Hajira-Banner gave complete resistance in rod-row trials carried on at University Farm, Waseca, Morris and Crookston during 1950. While resistance of this type is known to be affected by high temperatures, it seems probable that in most seasons this factor will condition resistance to most and perhaps all races of stem rust. This type of resistance, however, while entirely satisfactory in most years, may occasionally partially break down due probably to unusually high temperatures. Considerable progress has been made in combining the Canadian type of resistance to stem rust with either the Richland-Iogold-Rainbow type or the White Russian type, and also with the crown rust resistance of Santa Fe or Landhafer. Minnesota selections from these crosses have not been in yield trials yet. A considerable collection of material with the Canadian type of resistance to many, and perhaps all, races of stem rust and the Bond type of resistance to crown rust was grown in rod-row trials at four stations in 1950. Some of these selections looked very promising.

By E. C. Stakman and W. Q. Loegering (St. Paul).

Race 7 of Oat Stem Rust

Race 7 of oat stem rust became widespread and prevalent on oats in 1950 for the first time in recorded history. Varieties which derived their stem rust resistance from the White Tartar variety, such as Clinton, Mindo and Bonda, were damaged in localities where weather conditions were favorable. This race comprised about 45 per cent of all isolates obtained from rusted oats in 1950 and was found in the following 15 states: Florida, Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Nebraska, New York, North Dakota, Ohio, Oklahoma, South Dakota, Texas, Wisconsin.

The first report of race 7 in North America was made in Canada in 1928, when it was collected in small quantities. The first isolate obtained in the United States came from barberries at Presque Isle, Maine, in 1933. Race 7 was not isolated again until 1938, when three collections were obtained from uredial material in Pennsylvania. Again in 1939 it was found in Pennsylvania, but only one uredial collection was obtained; and from 1940 to 1943, inclusive, it was not found at all in the United States. From 1944 to 1949, race 7 was found each year in the immediate vicinity of barberry bushes in New York and occasionally elsewhere. In 1949 it was found not only in the vicinity of barberry in New York but was isolated twice from uredial material in Michigan and once from a collection of rusted oats made in Kansas in October.

Race 12, which differs only in minor characters from race 7 and which is not distinguishable from it under all conditions, was not identified frequently in 1950.

Whether race 7, which was blown southward this fall, will be able to maintain itself in the uredial stage on oats in southern United States or on wild oats in Mexico will not be known until next spring. Varieties of oats that are resistant to races 2, 7 and 8 - all of which were prevalent in 1950 - are being developed. Most of these, however, are susceptible to race 6 at high temperatures, and this race was found on oats to which rust had spread from rusted barberry in New York in 1950. There is no was of knowing whether it may follow the pattern set by races 8 and 7.

MISSISSIPPI

By J. W. Neely (Stoneville).

Oat Breeding Project of the Stoneville Pedigreed Seed Company

The current oat nursery of the Stoneville Pedigreed Seed Company consists of 13,120 rod rows and 14,450 head rows. Most of the work is devoted to the improvement of Red Rustproof strains. Considerable work, however, is being done with new hybrids, particularly Lee-Victoria x Fulwin crosses, and Bond derivatives. High yields, grain quality, rust resistance and adaptation to grazing are receiving special attention.

During the past season Nortex 107 was distributed. It will be replaced by a new Nortex selection for 1951 farmer plantings.

Promising new strains are a selection from Red Rustproof and a selection from a cross, made by Mr. F. A. Coffman, which had Victoria-Richland, Red Rustproof, and Trelle Dwarf for its parents.

MISSOURI

By J. M. Poehlman (Columbia).

Two strains of oats, C. I. No. 4988 and C. I. No. 5323, from the cross Columbia x Victoria-Richland, are being distributed this spring to Missouri certified seed growers under the name Mo. 0-205.

Outstanding features of this new Columbia-type variety are high yield, heavy test weight, earliness, strong straw, and a

fortunate combination of genes for disease resistance. In addition to smut and Victoria blight, it has good resistance to crown rust, including the new race 45, and to races 2 and 5, and apparently the new race 7 of stem rust. (See Agron. Jour. 42: 498-502. 1950).

The two strains going into the O-205 variety are sister selections made in the F_8 generation and have been indistinguishable in the field. Both were included in the U.S.D.A. cooperative red oats nurseries in 1949 and 1950, and C. I. No 4988 was included in the early oats nursery in the same years.

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An initial field increase of C. I. No. 4986, Columbia x Marion, will be made by the Missouri Station in 1951. C. I. No. 4986 does not appear to have the wide adaptation of the Columbia x Victoria-Richland strains, but in Missouri it has been only slightly inferior to them in yield, straw strength and crown rust resistance, and has superior seed quality. If eventually distributed, it would give us for Missouri, along with O-200 and O-205, three early, Columbia-type varieties, each with a different source of smut, crown rust and stem rust resistance. A limited amount of seed of C. I. No 4986 can be supplied for plot testing in 1951 to interested workers.

NEBRASKA

By T. A. Kiesselbach and W. E. Lyness (Lincoln).

Effective breeding has not only increased the yield and quality of oats, but the stronger straw of new varieties make them distinctly more suitable for use as a companion crop. In the spring of 1950, Nemaha oats were drilled in 7-inch rows at the rate of 8 pecks, and in 14-inch rows at both 8 and 4 pecks per acre. An accompanying seeding of Madrid sweet clover at the rate of 12 pounds per acre resulted in post-harvest legume stands of 16, 20 and 23 plants per square foot for the respective spacings. Corresponding grain yields of the oats were 62, 55 and 50 bushels. Such tests will be continued for both sweet clover and red clover, including observations as to weed competition. Weeds were not a factor in 1950.

The current recommendation for use as a companion crop is solid drilling of the oats at three-quarters the normal rate. In 17 years of testing, solid drilling at 6 and 8 pecks has given respective yields of 47.8 and 48.3 bushels per acre.

By L. P. Reitz (Lincoln).

Victoria blight has been identified on oats in all parts of Nebraska including the far western counties of Scotts Bluff and Sheridan. However, damage has not been heavy in the western half of the State when yield per acre is taken as the basis for determining loss, since Osage, Neosho and Cedar on dry land and Overland under irrigation are among the varieties with the highest average production in the varietal tests of recent years. Reduced productivity of susceptible varieties has been appreciable in eastern Nebraska. In all parts of the State noticeable lodging has been caused by the blight.

Estimates have been made on the relative importance of different oat varieties in Nebraska. The following table indicates the percentage of the acreage occupied by groups of varieties in the last two years:

Variety or group of varieties	Percentage of the acreage in 1949	1950
Clinton type 1/	27	23
Nemaha and Cherokee	8	22
Marion	16	20
Cedar-Tama-Osage type	20	8
Brunker	10	7
Other varieties	19	20

1/ Small amount of Benton and Mohawk included.

The trend indicated for Nemaha and Cherokee is expected to continue into 1951. The sale of seed of these varieties has been brisk.

NEW HAMPSHIRE

By Leroy J. Higgins (Durham).

Oats in New Hampshire

The Agronomy Department of the University of New Hampshire Agricultural Experiment Station started the uniform oat variety trials in cooperation with the U. S. Department of Agriculture in 1943. Since 1945, there has been a rather complete turn-over of oat varieties in New Hampshire due to recommendations resulting from these annual trials.

Previous to the establishment of the variety trials, oat yields in New Hampshire could not be relied upon because of the

fluctuations from year to year due to prevalence of diseases in some years. Good yields were much more uncertain in southern New Hampshire than in the northern areas of the State.

About the first new variety accepted by the farmers was Vicland, which had to be given up after two or three seasons. Then Ajax and Clinton came along and, at present, are very popular in the State. Mohawk and Advance are gaining ground each season. Such varieties as Beaver, Goldwin and Victory can be counted upon to give better returns every year in the northern counties than in the southern areas.

In the trials on the University farm at Durham, on the Jones Brothers farm at Claremont Junction, on the Connecticut River terraces, and on the Don McGoff farm in northern Coos County, Shelby, Zephyr, Bonda, Benton, Andrew, and other new varieties are giving excellent yields.

Indications are strong that some of the new varieties under trial now will, in a few years, replace Clinton and Ajax. The introduction of the disease-resistant oat varieties into New Hampshire has caused many farmers to renew their faith in oats and either to start growing them again or to increase their acreages.

NEW JERSEY

By Robert S. Snell (New Brunswick).

An all time record high yield of 39.0 bushels per acre was recorded in New Jersey in 1950, despite the relatively late date of planting. This was five bushels per acre higher than reported in 1949 and nine bushels higher than the average for the 10-year period 1939-1948.

NEW YORK

By N. F. Jensen, G. C. Kent and C. F. Konzak (Ithaca).

The 1950 season in New York was an excellent one for spring grains. Estimated oat production from 787,000 harvested acres was 33,841,000 bushels or an average of 43.0 bushels per acre. The 1939-1948 average figures for comparison are 730,000 harvested acres and 23,966,000 bushels for an average yield of 32.8 bushels to the acre. Principal varieties are Mohawk, Advance, Clinton (including Clinton 11 and Clinton 59), Ajax, Lenroc and Goldwin.

Stem rust was widespread in 1950 but damage appeared to be slight. Dr. E. C. Stakman identified races 6 and 7 from a sample from Otsego County and race 2 from Tompkins County. From the reaction of varieties at different locations it is believed that much of the rust observed was race 7. Among varieties which showed good resistance to stem rust were Ajax, Beaver, Eaton, Andrew, Fortune, Marion, Vicland, Boone, Richland, Abegweit and Overland. At one location (Cayuga County) Ajax showed high susceptibility but no rust collection was made. The prevalence of stem rust in the breeding and testing plots made possible the selection of several hundred resistant lines from the third, fourth and fifth generations of certain crosses.

Among varieties which showed satisfactory resistance to crown rust in 1950 were Ajax, Cherokee and Ithacan x Victoria C. I. No. 5332. The State has experienced no significant damage from crown rust since 1945.

A rubber-tired, single-wheel tractor known as the Choremaster has proven useful and efficient for cultivating between rod rows where hand and wheel hoes were formerly used. The tractor and operator will do the work of about six men with hand hoes. While the cultivation job is not so thorough, one passage with the tractor has been sufficient to control weeds.

Four-pound lots consisting of mixed remnant seed from approximately 1300 fourth generation lines selected from different crosses in 1950 will be sent upon request to anyone wishing to grow a selection plot.

NORTH CAROLINA

By G. K. Middleton, T. T. Hebert and W. P. Byrd (Raleigh).

Arlington Oats in North Carolina

As an average of 20 tests conducted in North Carolina during the four-year period, 1947-1950, Arlington produced 96.2 bushels per acre as compared with 87.3 for Atlantic, 71.3 for Lee and 67.4 for Fulgrain.

This new variety has proven itself to be a very vigorous grower and heavy producer both of grain and hay. It is some taller than farmers prefer and does not thresh as clean as most of the standard varieties. Still the demand far exceeded the 20,000 bushels of certified seed produced in 1950 and it is anticipated that there will be a big acreage in the winter of 1951-1952.

A circular, giving the details of its performance within the State will be available in the spring. For the history of Arlington see the article by Coffman, Rodenhiser and Taylor in Agronomy Journal 41: 551-554. 1949.

Protein Studies

During the present winter the North Carolina Station is analyzing 15 varieties from the Uniform Fall Sown Nursery for protein. Cooperators from 15 southern stations have submitted samples for the study.

OHIO

By V. C. Finkner (Columbus).

As Dr. C. A. Lamb has assumed additional administrative duty, the oat improvement work in Ohio formerly done by Dr. Lamb is now being carried on by Dr. V. C. Finkner.

We have available a very good kodachrome slide of oat crown rust infection types. If workers are interested in this visual aid, duplicates will be supplied at cost.

OKLAHOMA

By A. M. Schlehuber (Stillwater).

Greenbug Tests

Sixty oat varieties were tested for greenbug resistance under greenhouse conditions in cooperation with Dr. R. G. Dahms of the Entomology Department. No strains were found to be resistant or with any appreciable tolerance. Three strains - C. I. Nos. 5113, 5371 and Winter Fulghum Stillwater Sel. 462522 - lived only four days longer than Wintok, a rather susceptible variety. Wintok survived 12 days after infestation; the best strains 16 days.

Under field conditions, 33 strains of spring and winter types were rated for percentage of leaf injury. The range of leaf injury was from 22.7% (average of 3 four-row 10-ft. plots) for Andrew to 37.3% for Lelina. Cherokee showed 26.0%, Nemaha 29.3% and Mo. 0-200 33.7% leaf injury.

Winter Hardiness

In the crop year 1949-1950, 144 foreign oat introductions (received from D. J. Ward of the Division of Cereal Crops and Diseases) were evaluated for winter hardiness as well as for other characters. Fourteen countries were represented among these 144 strains. The three strains - C. I. Nos. 5239, 5248 and 5251, all byzantina types - that survived the winter 100% were of Turkish origin.

In the fall of 1950, an additional 300 oat strains of foreign origin were seeded at Stillwater. In addition to winter hardiness, the surviving strains will be evaluated for disease reactions (rusts, smuts and anthracnose) and certain agronomic characteristics.

These tests of foreign oat introductions are part of a cooperative undertaking (with other states) of "screening" the entire World Oat Collection.

OREGON

By W. H. Foote (Corvallis).

Early Support Oat

Letoria C. I. No. 3392, an early, short, stiff-strawed, white winter oat variety has shown considerable promise as a support crop for vetch and peas in trials at Corvallis, Oregon.

Shasta Oats

Shasta C. I. No. 3976 (Markton x Victory) is showing promise as a spring oat variety in the irrigated areas of Klamath Falls and Central Oregon. Shasta is a tall-growing, heavy-yielding, late-maturing oat. It has been damaged some by late spring frosts in the Klamath area.

SOUTH CAROLINA

By W. R. Paden (Clemson).

The oats situation in South Carolina is in a serious condition due to the prolonged fall drouth which was followed by an unpredicted early freeze. This will provide an excellent opportunity to determine winter hardiness of many new strains.

By S. J. Hadden (Hartsville).

Growing Extra Generation of Oats Speeds Hartsville Breeding Program

Thanks to the splendid cooperation of Mr. Stevens and Mr. Knight at Aberdeen, Idaho, we expect to greatly speed up oat breeding work by growing an extra generation at Aberdeen. Progress in breeding winter oats in the South has been painfully slow with only one generation annually. Moreover, in this section, where summer temperatures range so high, it has been impractical to even conduct greenhouse tests in summer on oat lines for disease reaction. Workers with spring oats have had the advantage of being able to conduct such tests on segregating progenies between the time of harvest in autumn and seeding time in spring. Our greenhouse testing work can be done only during the months while the fall-sown crop is growing in the nursery.

A special disease test nursery is being grown in the southern-most tip of South Carolina, where the season is some ten days earlier than at Hartsville. This arrangement will allow early harvest of material to be sent to Idaho. Henceforth, most of our oat crossings will be done in the lower-state nursery to assure early harvest of hybrid seeds.

Two selections from the cross, Bond-Fulghum x Victorgrain, have shown high resistance to Helminthosporium victoriae, and possess a type of rust resistance which appears to be the same as that recently reported by Poehlman and Kingsolver in their Columbia x Victoria-Richland selections. Coker 51-1 and Coker 51-2 (Bond-Fulghum x Victorgrain) were increased at Aberdeen in the summer of 1950, and will be further increased next summer. These are very promising, early, disease-resistant oats of the Victorgrain and Fulgrain type.

A principle handicap in the breeding of oats for the fall-sown belt has been a lack of cold hardiness in available breeding stocks. In view of this problem, the hybrid material distributed by Mr. Coffman in the fall of 1948 appears to offer special promise.

This will surely prove to be some of the most valuable breeding material ever made available to southern oat breeders. Selections from those crosses which involve the newer disease-resistant spring oats in combination with hardy oats such as Atlantic, Wintok and Winter Fulghum should be especially valuable to breeders of fall-sown oats.

TENNESSEE

By N. I. Hancock (Knoxville).

Enclosed is a picture of a small self-propelled combine which we used very satisfactorily on our small grains plots this past year. This combine is constructed from an old Allis Chalmers No. 40; in other words, it cuts and threshes a plot three feet wide. It can be reversed in gear so that any length plot as short as 30 feet can be cut and threshed. An air compressor is attached so that the machine can be thoroughly cleaned between varieties. The threshing mechanism is run by supplementary motor which you can observe on the side of the machine. The traction of the machine is pulled by motor on top where operator sits and guides the machine from a cable attached to the back wheel.

Maybe some of the breeders in small grains would be interested in this type of machine for harvesting large plots. We do not have any cuts and this small photograph is the only type of picture we have at hand.

(Ed. note: We are unable to reproduce the photograph but interested readers may write directly to Dr. Hancock for a print.)

TEXAS

By I. M. Atkins (Denton).

One of the most severe droughts in the history of the State grips almost the entire State of Texas in its grasp. No appreciable precipitation has been received for three months, October, November and December. This has caused the killing of the small acreage that emerged and has prevented the majority of fall-sown oats from emerging. In the southern part of the State, this deficiency of rainfall dates back more than a year to December of 1949. Oats are sown to a large extent for pasture, in the southern part of the State almost exclusively for pasture, and this has caused great loss in revenue

from pastures, has caused the early marketing of cattle, and reduced the prospect for a grain crop throughout the State.

Texas' new cold resistant variety, Mustang oats, produced outstanding results at all stations in 1950. As an average of nine locations, Mustang averaged 63.8 bushels per acre compared with 47.6 bushels for New Nortex, the most widely grown variety at present. Over a six-year period, Mustang has averaged approximately 20 per cent more hardy than New Nortex (a Red Rustproof strain). The severe drought of the present fall is endangering much of the 6,000 bushels of seed of Mustang distributed to farmers in 1950.

The severe drought in Texas may have one thing in its favor. It has so completely destroyed the fall-sown crop over the entire State that fall infection and possible survival of race 7 of stem rust of oats and 15 B of stem rust of wheat may be largely eliminated or at least reduced. It probably will reduce the early development and spread of the common races as well.

Mustang Oats

A new winter hardy oat variety will be available to Texas farmers with the 1950 harvest. This new variety, named Mustang, was developed in the cooperative small grain improvement program of the Texas Agricultural Experiment Station and the United States Department of Agriculture. The cross of Fulwin x Lee-Victoria and first selections from which Mustang was developed were made by Mr. F. A. Coffman, Senior Agronomist of the U. S. Department of Agriculture, Washington, D. C. The reselection which was named Mustang (Selection 3770-9, C. I. No. 4660) was made at the Denton Substation after the severe winter of 1942-1943 by the writer. Workers at other substations have contributed in the testing of this strain and the establishment of its merits. Mustang is recommended for the North-central and Rolling Plains areas of the State where winterkilling frequently occurs.

Mustang is resistant to crown (leaf) rust, is early maturing, has short strong straw and stands well for combine harvesting. It tillers well and has the capacity for high yields. It produces less fall pasture than the Red Rustproof strains but more in midwinter and early spring. According to regional tests conducted in the Southern States by the U. S. Department of Agriculture, it is approximately 20 per cent more winter hardy than Appler, a strain of Red Rustproof, yet it has also produced well from midwinter seeding at the Denton Substation. Mustang survived the severe winters of 1943, 1947 and 1948 at Denton when nearly all other varieties were winterkilled or seriously injured by the low temperatures. Mustang is susceptible to stem rust. The seed is gray in color. Approximately 150 acres have been sown for seed increase in 1950.

By G. W. Rivers (College Station).

We have a severe drought which has not permitted emergence of our nursery (planted in November) at this date.

Crown rust (race 45), stem rust (probably race 7 and others) and Helminthosporium blight are the limiting factors for oat production in this State. The above diseases are listed in the order of importance. Crown rust and stem rust caused serious losses last season and though Helminthosporium took a back seat to previous years, we still suffered considerable losses from this disease.

The new Southland oat (Iowa D69-Bond) x Fultex C. I. No. 5207 proved completely susceptible to stem rust under field conditions at this station last season, indicating the presence of race 7.

We do not have any advanced selections with resistance to the big three oat diseases; however we do have some that are resistant to both the rusts and possess other good agronomic characters.

Mustang (a new oat variety released two years ago by this State) is meeting with favor from our farmers both for grazing and grain production.

We have a breeding program underway in this State to combat the big three oat diseases and, provided the pathologists don't discover new races, we have hopes to produce a new variety of oats that will be worth recommending.

UTAH

By R. W. Woodward (Logan).

Oat production in Utah seems to have reached an equilibrum at about 40-45,000 acres. No changes can be observed during the past 25 years. It is considered a special addition to the diet of animals and often demands a slight premium in price over other feeds. Practically all oats are grown under irrigation with average yields, 36 bushels for 1930-1940, and 44 bushels per acre for 1941-1950.

Uton and Overland now comprise the bulk of the oat acreage giving excellent yields on high fertility soils. Cody shows much promise to replace Uton when seed is available. Other than smut, no serious oats diseases have been observed.

WISCONSIN

By H. L. Shands (Madison).

Oat yields for Wisconsin farmers in 1950 exceeded previous averages, but were not higher than in 1945. Crown rust was in evidence over most of the State and damaged yields in some areas. The rust that attacked "Bond" varieties was probably race 45 or 57. Stem rust was observed in many fields, but was less damaging. Presumably race 7 was involved.

The Wisconsin Agricultural Experiment Station will distribute seed of C. I. No. 5013 for certified seed production for the first time in 1951. The variety is from the cross Forward x (Forward x Victoria-Richland) and has been named Branch. The variety is tall, midseason to late in heading and ripening, and is resistant to smut and Helminthosporium victoriae. It is intermediate in response to crown rust and is probably resistant to some races of stem rust.

In 1949 three introductions provided by David J. Ward had populations that appeared to be mixed for leaf rust response. Leaf rust-free plants were selected and were grown in 1950. All of the plant rows appeared leaf rust resistant. The selections from C. I. No. 4763 seemed susceptible to stem rust while those from C. I. No. 4766 intermediate and both were susceptible to smut. Selections from C. I. No. 4795 were stem rust resistant in 1950. All selections were quite late in heading and tall.

Early Generation Material Available
(F_1 except where noted)

	Parents			Number grams of seed
	Male		Female	
1949	Spooner	x	Clinton	58
	Ajax	x	Hawkeye-Victoria Sel. Resistant to H. victoriae	31
	Forvic	x	Hawkeye-Victoria Sel. Resistant to H. victoriae	41
	Clinton SF (BC)	x	Woodon	50
1948	C. I. No. 4271	x	C. I. No. 3991	52
	C. I. No. 5013	x	Vicland	14
	Forvic	x	C. I. No. 3254	16
	Vanguard	x	Vicland	17
F_2	XB119-1	x	Rosens 674	Several lines
F_2	Rosens 674	x	C. I. No. 3843	" "
1946	R. L. 1273	x	Forward-Vicland Sel.	59
	Vicland	x	C. I. No. 3843	40
	Richland-Bond*	x	Royal Scot	15

* Susceptible to H. victoriae

IV. CONTRIBUTIONS - TERRITORIES

ALASKA

By S. C. Litzenberger (Palmer).

Edda Barley and Golden Rain Oats, Two New Varieties for Alaska

The Alaska Agricultural Experiment Station in cooperation with the United States Department of Agriculture has developed and is releasing for production in Alaska two new superior cereal crop varieties, Edda barley and Golden Rain* oats. These two cereals will be recommended for growing throughout the Territory in 1951. Application for supplies of these varieties for seed increase purposes should be made through the Extension Service Offices at Palmer or College. Through the cooperative efforts of the Montana and Idaho Agricultural Experiment Stations and two seedgrowers at Aberdeen, Idaho, the Alaska Station has increased the seed supply of these two varieties to more than 20 tons. Approximately 17,500 pounds of seed of Golden Rain is to be made available to Alaska growers for the 1951 crop season.

For the 1951 season we will then be recommending Golden Rain, Gopher, Climax and Victory for Alaska. The latter two varieties are primarily recommended for silage and hay when seeded with peas. As you will thereby note, disease resistance has not caught up with us yet.

Golden Rain Oats

Golden Rain is a midseason to early maturing variety, a few days earlier than Climax (Swedish Select), stiff-strawed and high yielding. The panicles are equilateral and the kernels are thin-hulled, plump and yellow. Its superior characters are stiffer straw, increased earliness, high test weight, and high-yielding ability. It is being generally recommended for growing in Alaska in 1951. Although recommended primarily for seed production purposes, it is also satisfactory for hay or silage whenever such a variety is desired. In nursery trials at the Matanuska and Fairbanks Experiment Stations during the period 1945 to 1950 and throughout the Territory in 1950, Golden Rain appeared to be well adapted to Alaskan soils and climatic conditions. Grain yields for the station at Palmer for the 1946-1950 period show the following results: Golden Rain, 71.9; Climax, 73.3; and Gopher, 65.2 bushels per acre. For the six-year period (1945-1950) at the Fairbanks Station Golden Rain yielded 76.2

*Golden Rain oats has been listed as Siberian 3 in previous reports from the Alaska Agricultural Experiment Station. Hereafter, reference to this variety will be made only as Golden Rain.

bushels per acre. No comparative data are available for Climax and Gopher for the six years, however, for the period 1948-1950 Golden Rain averaged 77.4 and Gopher and Climax averaged 73.2 and 70.8 bushels per acre, respectively.

Golden Rain is of Swedish origin and, according to their reports, is a sister selection of Victory. These varieties were selected out of Milton which, in turn, is an old mixed variety of Probstier type. Although Golden Rain had been tested in Alaska prior to the present introduction and found very productive, it was not released for commercial consumption. The current seed increase traces to an introduction from the Yakutsk Experiment Station located in eastern Siberia in 1944 by the then Vice President Henry A. Wallace. The seed he introduced into Alaska was left with Dr. B. M. Bensin, Agronomist, Fairbanks Experiment Station, for testing when Mr. Wallace returned from Siberia.

V. EDITORIAL COMMENT

By N. F. Jensen (Ithaca).

So ends Volume I, the initial issue of the National Oat Newsletter. Contributions were received, either directly or indirectly, from 57 of the 138 persons on the mailing list. It is hoped that this number can be increased for future issues. It was particularly gratifying to have so many of the articles arrive in finished form so that very little editing was necessary. Letters of acknowledgment but without contributions for this issue were received also from W. G. Colby, Amherst, Massachusetts, O. J. Webster, Lincoln, Nebraska and M. M. Oveson, Pendleton, Oregon. Information was received from Dr. Rodenhiser's office to the effect that Dr. Rodenhiser was traveling in South America.

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