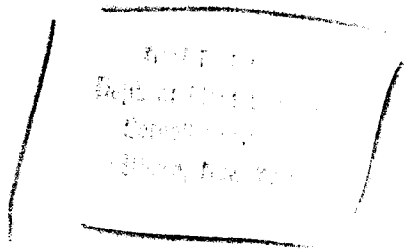

1952

NATIONAL OAT NEWSLETTER

Vol. III

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February 1, 1953

Sponsored by the National Oat Conference

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NATIONAL OAT NEWSLETTER

Vol. 3

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February 1, 1953

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CONTENTS

I. THE NATIONAL OAT CONFERENCE

Secretary's Report National Oat Conference Committee
Feb. 1, 1952 to Feb. 1, 1953

The committee met once during the year. This meeting was held just prior to the National Oat Conference at the Netherlands-Plaza Hotel in Cincinnati, Ohio, November 20, 1952. Those present were Neal F. Jensen (chairman) and Lincoln H. Taylor, Northeast Region; H. L. Shands, H. C. Murphy and J. M. Poehlman, North Central Region; I. M. Atkins and Darrell Morey, Southern Region; H. A. Rodenhiser, U.S.D.A. Cereal Division representative, and Franklin A. Coffman, secretary to the committee. Those present expressed regrets that no representatives of the Western Region were present. D. W. Robertson is the only member from that region.

It was recommended that the National Oat Conference hold its next meeting at the time of the American Society of Agronomy Meetings in Milwaukee, Wisconsin, in 1954. The subject of added representation on the committee from the Western Region was discussed, and it was agreed that the matter of their representation should be decided by those in that region. Jensen was nominated by Shands and unanimously elected to serve another year as Committee Chairman for 1953.

During the year Volume II of National Oat Newsletter was published under the sponsorship of the National Oat Conference. Neal F. Jensen again acted as editor, and a very creditable publication of much interest to oat breeders and others resulted. The cost of the publication was very generously borne by the Quaker Oats Company of Chicago, Illinois.

One Regional Conference was held during the year. Those of the Southern Region met at Gainesville, Florida, late in February. Some 30-40 attended, and all states in the region were represented at this interesting meeting.

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Minutes of Meeting of
The National Oat Conference
Held at Netherlands-Plaza Hotel
November 20, 1952

The meeting was called to order at 7:15 p.m. by Neal F. Jensen, chairman of the National Oat Conference. K. S. Quisenberry was called upon by the chairman to present for discussion the matter of a monograph on oats. The chairman then asked what those present thought of the idea of a monograph. E. G. Heyne suggested that the Conference go on record in favor of such a monograph.

H. L. Shands asked when the monograph should be ready for the publishers. Quisenberry stated that he understood the matter was entirely up to the oat group, but that when ready the manuscript would be published by the Academic Press. H. C. Murphy asked how the matter had been handled in other crops. K. S. Quisenberry stated a committee had been appointed to prepare an outline, and following its preparation and acceptance, work on the manuscript was started. Heyne made a motion that a committee be appointed by the chairman to explore the possibility of preparing an oat monograph. The motion was seconded by H. L. Shands and on a voice vote carried unanimously.

F. A. Coffman was called on by the chairman to present a summary of outstanding results obtained from the 1951-52 cooperative uniform regional oat nurseries. He mentioned the highlights of the year's results and distributed mimeographed copies of preliminary reports on the seven uniform nurseries grown to the east of the Rocky Mountains in 1951-52. The main points covered are presented elsewhere in this publication.

Verne Finkner inquired about the method used in calculating lodging in entries in these nurseries. Coffman stated that lodging was figured on the basis of average data recorded on stations reporting lodging whose reports showed lodging of a differential nature had been observed.

H. C. Murphy was next called on by the chairman to discuss the oat disease situation in 1951-52. He discussed data obtained from (1) the uniform smut nursery, (2) the uniform crown rust nursery, and (3) the uniform stem rust nursery grown in the U. S. in 1952. He distributed mimeographed copies of data on all of these nurseries. He mentioned that possibly a new gene for stem rust resistance in oats had been found in the variety Ukraine. With the aid of slides, he discussed the disease problems in oats and the trends in the prevalence of diseases in the U. S. during recent years. He stated that septoria, first found in Iowa in 1948 or 1949, has had a marked buildup but that apparently this was not related to any of the new varieties. He stated that septoria had been "around for a long time," but only recently had it become important. Murphy announced, with regard to new varieties, that seed of two oats was available at Ames for any station wishing it. These varieties were Clinton x Marion, C.I. 5647, and Sac x (Hajira-Joanette), C.I. 5927.

Lincoln Taylor from Maine was called on and reported for the Northeast Region. He stated that Jensen had indicated that Craig was the highest yielding oat in the 1952 New York and Pennsylvania tests. He reported that Bryner had stated that the Clinton x Marion oats C.I. Numbers 5441 and 5647 yielded well in Pennsylvania. He added that oat yields were reduced by some 30% by drought in Pennsylvania and that droughty conditions, though

present in Maine, were not so severe. He stressed that Rothget and Snell considered that more winter-hardy oats were needed for Maryland and New Jersey. He also reported the presence of more stem rust than usual in Maine in 1952 and the presence of "lots of red leaf" there. He also mentioned Maine's interest in the Clinton x Marion oat, C.I. 5647, seed of which was available in Iowa.

I. M. Atkins was called on to report on oats in the Southwestern Area. He stressed the value of oats as pasture in the South. Most oats in Texas are fall sown, and winterkilling is a problem. He mentioned that four oat meetings have been held recently in the area. He stated that west of the Mississippi the new oats were Wintok in Oklahoma; that Louisiana had put out no new oats in the last year or so; that in Texas, Mustang had become very popular; and that C.I. 6571 would be increased because of its exceptional record in 1952. He stated that Texas had about 100 bushels of the oat C.I. 5371, (Victoria x Hajira-Banner) x (Fulghum x Victoria), a sister of C.I. 6719, for seeding in 1953.

Darrell Morey was asked by Atkins to report on the Southeastern Area. He stated that Starling had indicated that in Virginia, Atlantic, Arlington, and Forkedeer were considered best for fall seeding and that Andrew was recommended for spring seeding. He reported that Middleton in North Carolina considered Arlington, Victorgrain 48-93, and Fulgrain the leading oats, whereas Gore in Georgia had stated that Arlington, Atlantic, Victorgrain 48-93, and Fulgrain were recommended. Southland is recommended for the coastal area of Georgia. He pointed out that Earhart had found culm rot and crown rust the primary disease problems in oats in Florida. He mentioned that Floriland, C.I. 6588, from the cross Florida 167 x Landhafer, is a new oat being developed by Chapman in Florida, that it is ten days earlier than Southland, has poor grain and lacks resistance to stem rust, but is a good pasture prospect, highly resistant to crown rust. Alabama, according to Morey, is especially interested in oats for pasturage and that Hancock states that Forkedeer and LeConte are now the recommended varieties in Tennessee, where hardiness and weak straw are problems. Morey stated that in South Carolina, Victorgrain 48-93 is the leading oat, and in Kentucky, Reid recommends Atlantic for fall seeding and Andrew for spring seeding.

D. W. Robertson was called on by the chairman to report on the western region. Robertson had assembled material from the agronomists of the Western States Region; and, following a few remarks on Colorado, he, being obliged to leave the meeting, asked the secretary to read the reports from other stations in the Northwest. Robertson stated that two types of oats--midseason white and early red oats--were adapted to Colorado. He explained that this resulted from the fact that part of Colorado was above the 65° F. line of temperatures in June and part, below it. Cody and Overland are at present of interest at the cooler and higher altitudes,

Overland holding first place in the state, whereas Brunker leads in northeast Colorado. It is an early red oat. Robertson stated that the very low test weights of oats at Akron in 1952 indicated much with regard to varietal adaptation in that area.

The chairman asked if any others were present from the Northwest Region, would they please report.

C. R. Rohde of Wyoming then reported that Cody had been increased at Laramie, Wyoming, and that they were "head rowing" a number of other varieties to obtain pure seed.

Frank C. Petr of Bozeman, Montana, stated that in Montana, Markton, Bridger, and Mission were being grown on irrigated land but that Gopher still led on dry land. He mentioned the fact that Robert Eslick of Montana had received 22 oat selections from Aberdeen, Idaho, in 1946, among which was the backcross Clinton x Overland^2, C.I. 6611, which had been outstanding in that state. He stated that C.I. 6611 had been "head rowed" and increased so that some 3,000 pounds of seed would be turned over to cooperators for growing in 1953.

Fred Elliott of Pullman, Washington, stated that Cody and Shasta yield well in eastern Washington. Shasta yields well on dry land, and Cody, in irrigated areas. He stated that C.I. 6611 looked good in Washington in 1952. West of the Cascades he stated that Victory remains a leading variety.

The secretary read statements received by Robertson on oats being grown in California and Utah.

C. A. Suneson of the California station sent a report on the yellow-dwarf virus disease described by Oswald and Houston in California. He stated that the disease caused more damage in 1952 than all other diseases combined. It is a stunting disease, further characterized in oats by red leaf pigmentation. It attacks barley, wheat, and range and pasture grasses in addition to oats. Kanota has shown more resistance to the disease than other varieties tested, which include Texas Red, Coast Black, and such widely used parents as Victoria and Bond. Seedling infections in Texas Red are generally lethal, whereas in Kanota they cut yields 60-70 per cent. Five species of aphids are known to be persistent vectors.

R. W. Woodward, reporting on oats in Utah, stated that Overland now is the leading oat in Utah. Its disease resistance, stiff straw, and high yielding ability have made it a favorite on the fertile irrigated lands of the state. He presented a five-year summary of data from Logan, Utah, showing Overland has outyielded Uton, previously the leading oat in the state. The average yields were 124.2 bushels and 106.8 bushels, respectively.

No reports were received from Oregon, Arizona, Nevada, New Mexico, or Idaho.

The chairman then called on those present from the North Central Area; and, as was to have been expected at a meeting in Ohio, most of those conducting oat work in the north central states were present. As a result, reports were made by nearly all states in the area.

Verne Finkner from Ohio reported that Mo. 0-205 was being released in that state. He stated that oat quality was good in Ohio in 1952, even though yields were poor because of dry weather.

R. M. Caldwell of Indiana stated that the highlights from his state had been given by others in the program presented at the afternoon meeting and in information recently sent out on Clintland and that there was nothing more to be added at this time.

W. O. Scott of Illinois stated that LaSalle was being released in Illinois in 1953 and that some Clintafe would be released. He stated that some Mo. 0-205 had been released in 1952 but that its straw was not very stiff.

J. M. Poehlman of Missouri stated that the state produced some 85,000 to 90,000 bushels of Mo. 0-205 in 1952. He indicated that there was a strong demand for seed. He stated that the Missouri Columbia x Marion strain was not being distributed but was being held for the present. Poehlman stated that present breeding work in Missouri was being concentrated on breeding for better straw in Mo. 0-205.

E. G. Heyne of Kansas announced that Kansas recommends or has listed Mo. 0-205. He reported Kanota was the top yielder in 1952 and expressed the hope that Kansas could get back to a Kanota-type oat again, even though it would be necessary to obtain crown rust resistance from Landhafer, Santa Fe, and Ukraine and stem rust resistance from Hajira-Joanette, sources far different in plant type from Kanota.

L. P. Reitz of Nebraska stated that Nebraska has some 5,000 bushels of Mo. 0-205 for distributing in 1953 and that the state also will distribute a little Clintland oats. He stated that Kanota was again a top yielder in Nebraska in 1952.

H. C. Murphy of Iowa distributed mimeographed reports on the 1952 oat crop in Iowa. These showed Mo. 0-205 was the highest-yielding oat in the state, followed by Clintafe and Shelby. He stated that Clintafe was not outstanding as yet, nor was its record inferior, but that the oat might well be considered a "stop gap" at present. He suggested that new oats of different types be sent to him for including in nurseries to be grown in South America.

Dr. Worzella of South Dakota read a report prepared by Victor Dirks. The South Dakota average yield of oats in 1952 was

27 bushels per acre. Brookings yields were very good, and Mo. 0-205 was the top-yielding variety there. Clintafe was good in eastern South Dakota but not so good in the western part of the state. In that area C.I. 4672, (Anthony-Bond) x (Richland-Fulghum), continues to be a good variety.

W. M. Myers of Minnesota reported that Dr. Koo was at present assisting him on the oat project. He stated that Mo. 0-205 had not been a superior oat in Minnesota; that they were increasing Clintafe in the state; and that it had yielded well in 1952. Also he explained that they had not as yet considered increasing Clintland. He outlined present oat breeding work in Minnesota and stated that it includes selecting in the F_4 in greenhouse and field cultures among progeny of crosses having Hajira-Joanette and Landhafer among their parents.

Kenneth Frey of Michigan stated that Michigan will increase Craig and also Clinton x Marion, C.I. 5441, which he said had been an excellent oat in Michigan. He reported that "plenty" of seed of Canadian oat varieties as well as seed of oats from other states are shipped into Michigan each year and that Michigan seems a ready market for new oats. He reported on the results obtained by him from use of the X-ray treatment of oat seed (9% moisture content) in Michigan. He stated that in 1,000 rows of Huron and Eaton sown, Eaton showed no mutations, whereas Huron populations showed 20% of off types. There were no chlorophyll mutations but many fatuoids, dwarfs, or oats showing virus-like troubles. He reported that the tall, weak straw of Huron was reduced 8 inches in height in many lines by the X-ray treatment. Frey also reported on nutrition studies in oats in Michigan in which analyses were being made of B_1 vitamins, niacin, riboflavon, etc. He reported analyses were made of 500 lines and that they were increasing the supply of the high-level strains and will conduct feeding experiments with hogs.

J. G. C. Fraser from Canada was introduced to the group by Dr. H. L. Shands of Wisconsin. Fraser made a few statements of interest to U. S. oat workers on cereal work now under way in Canada.

H. L. Shands of Wisconsin stated that in 1952 weather in that area became hot early in the season, or in late May. He reported the presence of some crown and stem rust and septoria in the state. He explained that oat yields in Wisconsin were down 9% in 1952. He also reported that some Branch oats were grown in 1952; that some seed increase had been made; and that Branch would be grown in 1953. Shands reported that they had applied some sprays to oats for the control of weeds, and indications were that some controlling of weeds in oats may be done by sprays. He reported that they had on hand some 200 bushels of a new oat, Wisconsin X345-1, C.I. 5946, (Forward x Victoria-Richland) x Andrew, and that it seems to have a "medium type" of crown rust resistance.

He mentioned the fact that the oat had been omitted from the 1952 regional nurseries. (This resulted from a misunderstanding--sorry. F. A. Coffman.) Shands also reported that Wisconsin's selection X436-2 may be a rival of Bond.

The chairman, Neal Jensen, then announced that he was appointing the following committee to consider the question of whether or not an oat monograph should be prepared:

J. M. Poehlman of Missouri, Chairman ("Man of the year in oats")
Kenneth Frey, Michigan
H. L. Shands, Wisconsin
T. R. Stanton, Maryland

He announced that the National Oat Conference committee had met that evening and that it suggested that an oat conference be held at Milwaukee, Wisconsin, in 1954. This was briefly discussed and tacit approval given by the Conference. He also announced that in January the call would go out for items to be included in the National Oat Newsletter III, and he further stated that the Quaker Oats Company had again very generously agreed to take care of the expense of preparing this publication. It was moved, seconded, and carried unanimously that a vote of thanks be given Dallas Western and the Quaker Oats Company for their generosity in taking care of the expense of publishing the Newsletter. The chairman then announced that I. M. Atkins would show pictures of nursery equipment in operation at Denton, Texas, immediately following adjournment of the conference meeting. The meeting adjourned about 10:15 p.m.

Probably more than 100 attended the conference. The group included representatives from each of at least 29 state experiment stations, several from the U. S. Department of Agriculture, several from seed companies and other commercial firms, and, in addition, a few cereal scientists from other countries.

One announcement that should have been made but was overlooked by the chairman was that in the committee meeting held previous to the conference itself the National Oat Conference Committee had unanimously elected Neal F. Jensen of Cornell University, Ithaca, New York, to serve as National Oat Conference Committee chairman for 1953.

Signed: Franklin A. Coffman, Secretary

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Oat Monograph

As indicated by Mr. Coffman in the Secretary's report, a committee has been formed to make a study of the matter of preparing an oat monograph for the Agronomy Monograph Series. This followed action of the Conference favorable to the idea. Members of the committee are J. M. Poehlman Chairman, K. J. Frey, H. L. Shands and T. R. Stanton. Dr. Poehlman has recently indicated that the Committee is now working and that the completed project will likely require two to three years time. Needless to say, the efforts of many persons will be required to make this project a success. --------Editor.

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II. CONTRIBUTIONS - SPECIAL ARTICLES

JOHN MILTON POEHLMAN
"Oat Man of the Year"
By T. R. Stanton

The undersigned wishes to nominate Dr. Poehlman, Agronomist, University of Missouri as "Oat Man of the Year" for 1952, on the basis of his development of Mo. 0-205, an oat of outstanding performance.

In spite of a rather generally unfavorable season for oats in 1952 Mo. 0-205 outyielded most other promising new varieties in widely distributed tests in the southern and central Corn Belt areas. In common parlance it surely "went to town" and its performance was one of the chief topics of interest and discussion at the meeting of the National Oat Conference held at Cincinnati, Ohio, last November.

Mo. 0-205 was released in 1951, and, according to Dr. Poehlman, some 45,000 acres will be sown to it in Missouri and 15,000 acres or more in other states in 1953.

Mo. 0-205 originated from a cross of Columbia x a Victoria-Richland selection made at Columbia, Mo., by the late B. M. King in 1936. Subsequent selection and testing, including the final selection later named Mo. 0-205, were made by Dr. Poehlman. Consequently, he is the individual primarily responsible for its development.

The outstanding characteristics of Mo. 0-205 are high yield and test weight, strong straw with a vigorous and well developed root system, and resistance to Victoria blight, smuts and rusts.

Mo. 0-205 appears to be best adapted to the area where Columbia has long been a leading variety and where it apparently will replace Columbia. Indications are that Mo. 0-205 will be grown much more extensively farther north in the Corn Belt than has Columbia.

Dr. Poehlman was born at Macon, Mo., May 9, 1910, and was granted the B.S.A. degree in 1931 from the University of Missouri and a Ph.D. degree in Botany in 1936 from the same institution. Beginning 1934, he has been an instructor, Assistant Professor, Associate Professor and since 1950 Professor of Field Crops at his Alma Mater. His chief lines of work have involved breeding and physiology of wheat, oats, and barley, and smut resistance in winter barley. Dr. Poehlman's principal plant-breeding productions other than Mo. 0-205 oats have been Mo. 0-200 oats released in 1949, and Mo. B-400 winter barley, released in 1950. This new winter barley will be grown on about 80% of the 1953 Missouri acreage.

During World War II, Dr. Poehlman was stationed at the Belle Glade (Florida) Experiment Station from October 15, 1943 to April 15, 1944 where he was engaged in a special war emergency breeding project on the rubber dandelion (Taraxacum Kok-Saghys) as an Associate Agronomist, in the Division of Rubber Plant Investigations, B.P.I.S.A.E., U. S. Department of Agriculture. From June 5 to August 8, 1950 he traveled in Europe and visited plant-breeding stations and other research institutions in France, Belgium, The Netherlands, Denmark, Sweden, England, Scotland and Wales. While in Europe he attended the 7th International Botanical Congress at Stockholm, Sweden where he read a paper on "Breeding Winter Barley for Hardiness and Disease Resistance" before the section on Agronomic Botany.

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Some Observations on Oats in 1952

By Franklin A. Coffman 1/

During the crop year 1952 the writer visited stations in four states to the west of the Mississippi River--Missouri, Kansas, Nebraska, and Iowa--and stations in all states to the east of it except Michigan, Wisconsin, Illinois, Indiana, and Tennessee. The following conditions were observed:

1. The winter of 1951-52 was a mild one in most places visited, and winterkilling in oats was not especially severe; however, stands were reduced in some nurseries.

1/ The data on the spring-sown nurseries grown to the west of the Rockies was compiled and summarized by Harland Stevens.

2. The season was a little backward and a dry one in many areas, especially where oats are spring sown. As a result, the oat crop suffered from lack of moisture. The drought was especially severe in Missouri and Kansas and in the New England States.

3. Infection by the rusts was not especially heavy in 1952, although there was evidence of the presence of both crown and stem rust in many widely scattered areas.

4. The yields of oats in most areas visited were not up to average.

5. At some stations near failures resulted. It was observed that there is a growing interest in oats for pasture purposes and especially in fall-sown oats for pasturing.

6. Data now summarized indicate the top-yielding oats in the uniform nurseries conducted in 1951 were as follows:

Data now summarized indicate the records of the top-yielding oats included in those uniform regional nurseries conducted in 1951-52 were as follows:

(1) SPRING SOWN NURSERIES GROWN EAST OF THE ROCKIES

Yield Rank	Variety or C.I. No.	Yield (bu)	Test (lbs)	Height (Ins.)	Lodging %	Date Headed
Northeastern States Nursery (8 Stations) 2/						
1	Beaver	60.8	30.7	36.0	9.0	6/26
2	6641 3/	58.9	32.0	32.1	11.3	27
3	Fortune	58.3	30.3	33.6	17.5	28
4	6613	57.6	30.6	30.9	3.0	30
5	5347	57.4	30.5	31.3	3.3	29
Midseason Nursery (12 Stations)						
1	Shelby	68.0	33.6	35.1	25.8	6/21
2	Ajax	66.6	32.0	36.4	25.9	21
3	6643	65.4	31.2	32.5	16.5	19
4	5441	64.7	34.3	34.9	27.4	20
5-6	6611	63.8	30.6	34.2	17.1	23
5-6	6612	63.8	31.8	31.7	22.6	20
Early Maturing Nursery (18 Stations)						
1	4988	61.0	33.7	33.4	22.2	6/14
2	5967	58.8	31.7	31.0	16.5	15
3	5636	58.7	30.9	32.0	19.0	15
4	5648	57.0	34.0	33.4	20.5	16
5	5441	56.4	34.0	34.1	18.0	17

Yield Rank	Variety or C.I. No.	Yield (bu)	Test (lbs)	Height (Ins.)	Lodging %	Date Headed
Spring Sown Red Oat Nursery (11 Eastern Stations)						
1	6619	59.2	29.1	32.4	10.4	6/9
2	6623	57.8	30.6	34.4	11.9	10
3-4	6617	56.9	29.1	32.2	27.3	10
3-4	5323	56.9	32.7	35.4	10.4	10
5	Mo. 0-200 3/	56.5	33.6	35.0	27.7	8
Spring Sown Red Oat Nursery (6 Western Stations)						
1	6623	47.9	27.6	32.8	37.3	5/30
2	4988	46.3	28.6	32.8	12.3	31
3	6621	45.6	27.7	31.2	14.0	30
4	Andrew	44.6	29.7	33.4	6.0	30
5	6622	44.0	27.8	32.0	38.3	30

See footnotes at end of manuscript.

(2) SPRING SOWN NURSERIES GROWN IN NORTHWESTERN STATES

Yield Rank	Variety or C.I. No.	Yield (bu)	Test (lbs)	Height (Ins.)	Lodging %
Northwest Irrigated and Humid Nursery (11 Stations)					
1	6611	119.4	38.2	37.6	13.6
2	Bannock	115.0	37.9	41.5	21.6
3	6613	112.6	37.7	38.6	19.2
4	4267	111.5	36.8	41.6	24.6
5	5933	110.9	38.3	37.2	16.8
Northwest Dry Land Nursery (5 Stations)					
1	3865	90.2	37.1	33.0	
2	Cody	90.2	37.6	31.5	
3	6611	86.4	38.4	33.0	
4	5347	84.5	38.1	35.0	
5	Overland	83.7	38.2	31.7	

(3) FALL SOWN NURSERIES YIELD, ETC.

Yield Rank	Variety or C.I. No.	Yield (bu)	Test (lbs)	Height (Ins.)	Lodging %	Date Headed
Special Winter Oat Nursery (18 Stations)						
1	6571	66.0	34.1	34.0	18.3	May 22
2	Forkedeer	62.7	35.7	37.0	33.4	" 20
3	5106	60.6	33.1	31.5	31.0	" 14
4	Dubois	60.2	36.0	33.4	16.5	" 20
5	5118	60.1	36.8	34.3	19.9	" 19
Fall Sown Nursery (13 More Northern Stations)						
1	6571	88.9	32.6	44.3	37.9	May 3
2	6583	80.5	33.9	47.9	43.1	" 2
3	Arlington	79.7	33.6	50.3	33.1	Apr 28
4	6575	77.6	32.5	47.9	37.7	May 2
5	Atlantic	76.5	33.4	49.3	38.9	Apr 27
Fall Sown Nursery (10 More Southern Stations)						
1	Victorgrain	62.8	32.3	48.6	32.0	Apr 7
2	5371	59.2	33.5	48.0	35.0	Mch 30
3	DeSoto	57.7	27.0	46.0	13.5	Apr 12
4	Fulgrain	54.8	31.8	45.0	32.8	Mch 30
5	Fulwood	54.5	31.8	41.8	28.5	Apr 1
Florida-Gulf Coast Nursery (11 Stations)						
1	Victorgrain	67.1[4/]	32.5	44.5	95.0	Apr 5
2	6604	60.1	29.8	48.5	88.5	" 10
3	Southland	58.5[4/]	30.3	44.8	26.0	" 5
4	6605	55.5	31.5	50.3	93.5	" 11
5	6603	54.5	31.7	49.7	85.2	" 3

See footnotes at end of manuscript.

(4) FALL SOWN NURSERIES FORAGE, ETC.

Yield Rank	Variety or C.I. No.	Winter Survival	Forage 5/ Fall	Forage 5/ Spring	Type Early Growth 6/ D	I	U
Special Winter Oat Nursery							
1	6571	65.1	98.0	87.2			
2	Forkedeer	60.8	90.2	92.7			
3	5106	59.4	104.7	103.5			
4	Dubois	72.6	98.5	98.8			
5	5118	66.9	103.7	112.8			
Fall Sown Nursery (Northern Stations)							
1	6571	86.3	100.5	104.0	10	0	0
2	6583	76.2	108.2	109.6	6	4	0
3	Arlington	77.1	103.0	107.2	5	5	0
4	6575	76.3	108.8	106.5	2	8	0
5	Atlantic	81.1	106.7	119.6	8	2	0
Fall Sown Nurseries (Southern Stations)							
1	Victorgrain	76.5	95.6	99.4	5	5	0
2	5371	55.0	106.3	109.3	1	3	6
3	DeSoto	73.0	97.0	103.0	5	5	0
4	Fulgrain	71.5	106.7	108.6	0	6	4
5	Fulwood	72.2	96.6	100.8	3	7	0
Florida-Gulf Coast Nursery							
1	Victorgrain		101.5	107.7	2	0	0
2	6604		110.0	115.0	0	2	0
3	Southland		111.5	119.0	0	0	2
4	6605		111.0	116.3	1	1	0
5	6603		107.5	113.3	1	1	0

7. For the benefit of those desiring to make oat crosses in 1953, the data for 1952 apparently indicate:

a. Spring Oats

(1) That among midseason spring oats the best sources for genes for yield likely are Beaver, Ajax, Shelby, Cody; and among early spring oats Mo. 0-205, C.I. 4988, and the Clinton x Andrew and Clinton x Marion strains lead. For areas farther south Andrew and certain Andrew x Landhafer strains have been high yielders.

(2) In test weight Shelby, Overland, C.I, Numbers 6611 and 6641, the Clinton x Marion strains, and Mo. 0-205 probably are the best sources.

(3) For straw strength C.I. 5440, a Clinton x Marion strain, and the Clinton strains remain good sources for the eastern states, whereas C.I. 6611, (Clinton x Overland[2]), and Overland itself are among the best for the western areas.

(4) For earliness Andrew, Cherokee, and Fulton continue among our earliest oats for spring seeding.

b. Winter Oats

(1) In more northern areas Forkedeer and the new oat C.I. 6571 appear to lead in yield. In the Piedmont area Arlington is apparently in a class by itself, and farther south Victorgrain is outstanding for yield. No new oats appear sufficiently better than these to be named.

(2) In test weight in the more northern areas Forkedeer and C.I. 5118 and Dubois have given the best test weights, whereas Arlington and Atlantic are best in the Piedmont. Victorgrain and the new oat C.I. 5371 are better farther south.

(3) In straw strength Dubois and C.I. Numbers 5106 and 6571 appear best among the more hardy oats, and DeSoto and Victorgrain are the stiffest strawed among those that are less hardy.

(4) Earliness is a special requirement for an oat for fall seeding, especially in the Deep South. In the South Floriland, Delair and C.I. 5106 are the earliest oats.

(5) Hardiness is a prime requisite for an oat from the Piedmont northward. Wintok, of course, remains our most hardy oat, but it lacks most other desirable qualities. Forkedeer, C.I. 6571, and Dubois should be mentioned as hardy oats.

(6) In the South oats are fall sown for the pasturage they afford. The varieties that rank high in forage production vary with the section where grown. Hardiness is a potent influence on the forage growth provided. Data available indicate C.I. Numbers 6571, 5118, and 5106 are the most productive of the more hardy oats; Arlington and Atlantic are among the best for forage in the Piedmont area, whereas the new rust-resistant strains such as Floriland and C.I. 5371 and the Atlantic x (Clinton[2] x Santa Fe) strains appear best in the Deep South.

FOOTNOTES

2/ Number of stations shown indicates the greatest number reporting on the experiment. Except for yield usually fewer reported.

3/ Key to parents of strains designated only by C.I. Number: 6641, Clinton x (Boone-Cartier); 5347, 6613, (Bond-Anthony) x Overland; 6643, Clinton^2 x Ark. 674; 5441, 5648, Clinton x Marion; 5933, 6611, Clinton x Overland^2; 6612, (Bond x Anthony) x (Iogold x Victoria-Richland); 4988, 5323, Mo. 0-205 both on (Columbia x Victoria-Richland); 5636, 5967, Andrew x Clinton; 6617, 6619, 6621, 6622, 6623, Andrew x Landhafer; 4267, Anthony x Morota; 3865, (Victoria-Richland) x Bannock; Mo. 0-200 is a Columbia x Bond-Iogold strain
Key to parents of fall sown strains designated only by C.I. Number: 6571, Fulwin x (Lee-Victoria); 5106, Woodward Selection; 5118, Colo x Wintok; 6571, Fulwin x (Lee-Victoria); 6575, 6583, (C.I. 4658:Sib. of Arlington)x(Clinton^2 x Santa Fe) 5355, Victorgrain; 5371, (Victoria x Hajira-Banner) x (Fulghum x Victoria); 6603, 6604, 6605, Atlantic x (Clinton^2 x Santa Fe)

4/ At at least one station this entry was grown on the edge of the experiment without benefit of a border row.

5/ Based on check = 100 per cent: In Special nursery Lee was used as check, whereas Appler was used as the check in the other two fall-sown nurseries.

6/ D--Decumbent; I--Intermediate; U--Upright

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Commercial Uses and Factors Affecting Milling Quality in Oats

By D. E. Western

While grandpappy put up with his horse and buggy, he undoubtedly wasn't very well satisfied with it. He quickly discarded the horse-drawn vehicles and farm implements for automobiles and tractors once they were developed.

Farmers in the past were not too happy with the type of oats they were raising and quickly changed to the new disease-resistant varieties as soon as they were produced. As proof of this, farmers in less than 10 years have twice made a nearly complete switch in foundation varieties. Furthermore, the stage is all set for another change before 1955.

Today, "Old Dobbin" is gone and even though oats are not consumed by automobiles and tractors, oats still rank as a major crop.

The reason why oats continue to be raised on such a large acreage is due to the increased popularity of oats as feed to types

of livestock other than horses, and more particularly to poultry. Then too, the superior new disease-resistant varieties produced by the hard-working research scientists at our experiment stations throughout the country have added much to the popularity of this crop.

The general yields per acre, the quality and test weight of these new varieties are "head and shoulders" above those raised previously to 1942. Their feeding and milling values have never before been equaled.

Research in livestock nutrition and the great expansion in the commercial feed business have been big factors in popularizing oats for feed. For instance, oat hulls in the diet of poultry were found to prevent slip tendons, check cannibalism and feather picking, and also to develop proper feathering. Due to these factors and the balanced nutritive value of the groats, we find feed experts recommending up to one-half of the chickens' total ration be made up of oats. In the light of this and the tremendous increase in poultry numbers, it is little wonder that poultry today consume as many oats as did horses and mules in the height of the horse and buggy days. A large percentage of oats is now recommended in the rations, also for dairy and beef cattle, pigs and sows. Farmers and feed manufacturers are not only using increased amounts of oats in their livestock ration, but find it takes less of the new varieties of oats to make a pound of gain.

The ever increasing demand on oats for livestock and poultry feed after horses left the stables, has made it just as difficult for the oat millers to keep their bins filled. Fortunately for the oat miller, a good 85% of the oats coming to market today grade either No. 1, No. 1 heavy, or No. 1 extra heavy in contrast to 12 years ago, when 85% of them graded No. 3, or worse.

Milling Yield Factors

The oat miller is interested in the number of pounds of oats (in the condition they come to the mill) that it takes to make 100 pounds of groats suitable to be made into rolled oats. This is known as the milling yield. It may be interesting to know that today it takes approximately 25 pounds less of the new Bond crosses to make 100 pounds of groats than it did with the old varieties grown 12 years ago.

The factors which affect the milling yield other than weed seeds, stems, nuts and bolts, and so forth, are not too many. Hull percentage should be given strongest consideration followed by percentage of bosom kernels, in measuring milling quality in oats. It has been found that kernel size and weight, ratio of primary to secondary kernels and bushel weight are also indicators

of quality. R. E. Atkins, Iowa State College; J. M. Peek and J. M. Poehlman, University of Missouri; and B. G. Bartley and M. G. Weiss, Iowa State College, have made studies of the factors affecting milling quality in oats. Reprints of these publications may be obtained from Dr.'s Atkins, Poehlman and Weiss.

At our mills and oat milling research laboratory, we have found wide differences between varieties as to their milling quality. Most of the Bond cross varieties have been outstanding. Markton-Rainbow and Markton-Victory strains have also given excellent results. Practically all of this material has had low hull percentage, practically free of bosom kernels, and has been of high bushel weight.

In our nutritional studies, we have found very little differences between varieties grown in the Middle West and North Central States. Our tests have covered fat, protein, vitamins, and the amino acids and have been made only of the oat groats. We have sometimes found wide nutritional differences for the same variety grown at various locations in the same year and also from one year to another at the same location; but we have found no significant difference between varieties grown at the same location in the same year. Climatic conditions seem to be the determining factor. Dr. K. J. Frey at Michigan State College has obtained significant nutritional differences between varieties, using the whole oat kernel.

There are apparently wide nutritional differences between different varieties of winter oats grown in the Southern states and in all types grown West of the Continental Divide during the same year and at the same station. We have not, however, done enough testing of varieties from these areas to as yet draw any definite conclusions.

Uses for Oats

As to the uses for oats, a good 93% of the crop is fed to livestock either on the farm where grown or in commercial feeds. We, as humans, consume approximately 4% of the crop as oatmeal either in the form of rolled oats or steel-cut oats.

Oat Flour contains an antioxidant that is used to preserve the quality by delaying the development of rancidity in fat-containing foods. An oat gum, a fraction of the oat grain, is used as a stabilizer in ice cream. A refined oat meal is used separately and with soap for reducing skin blemishes and alleviating rashes and sunburns.

Oat hulls were first used in the making of furfural. Since furfural became prominent in the making of nylon, synthetic rubber, plastics, for oil refining, and many other minor uses, a

new source of raw material had to be found other than oat hulls. Today a good 95% of all the furfural is obtained from corncobs.

A much more complete resumé of the uses of oats may be obtained by reading "New Products from an Old Crop" by Dr. T. R. Stanton in the 1950-1951 yearbook of agriculture.

We all anticipate the appearance of the new car models each year. Believe it or not, farmers today are just as anxious to see and obtain a new variety of oats which has just been released from an Experiment Station.

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The Adaptation of Oat Varieties
By T. R. Stanton

Limited travel in the interest of oat improvement in 1952 afforded the writer an opportunity to make some observations on the adaptation and growth of oat varieties that may be of interest to the readers of the 1952 National Oat Newsletter.

The old problem of red oats vs., common (white) oats remains unsolved and is of special interest not only to growers of fall-sown oats, but to farmers in the Southwestern Spring-sown Red Oat Region.

During my travels in the North Central States in July with representatives of the Quaker Oats Company it was of interest to note the extensive culture and marked popularity of Cherokee oats in Northwestern Iowa and Southeastern South Dakota. Here perhaps adaptation vs., farmer acceptance of a variety considered as a relatively low yielder, was the chief point of interest. Factors that usually determine adaptation, are satisfactory disease resistance, yield and grain quality.

Red Oats vs., Common Oats: During May, 1952 the writer observed the development, during heading and ripening, of varieties and selections of fall-sown oats in the extensive breeding and yield-test nurseries of the Coker's Pedigreed Seed Company at Hartsville, S. C. Some varieties and selections of red oats headed and matured much more normally than others. This indicates that there is a marked differential in the ability to develop and mature good quality grain under rather unfavorable environments among oats that were very similar in morphological characters and disease reactions.

Most of the common winter oat varieties, such as Winter Turf, Hairy Culberson, Tech and Wintok, obviously suffered greatly owing to being decidedly out of their proper range of adaptation.

Certain improved disease-resistant varieties carrying many red oat genes, although usually classified as common oats, reacted rather favorably to the warm climate and matured fairly normally owing to apparent adaptation and protection from certain diseases, especially crown rust.

The original Fulgrain oat with resistance to smut only in seasons in which very little crown rust is prevalent is superior in plant vigor and yield to the crown rust-resistant strains derived from the crosses on the South American Victoria oat. It thus appears that the addition of Victoria genes to the original Fulgrain depressed yields of the rust-resistant strains somewhat. On the average, however, these crown rust-resistant oats outyield the old Fulgrain because they are more productive in seasons in which oats are seriously damaged by crown rust. Adaptation and ability to withstand the unfavorable conditions incident to a warm and rather moist climate at Hartsville in 1952 undoubtedly furnishes a clue to the high productiveness of Victorgrain 48-93 throughout much of the old Cotton Belt area of the South. As previously indicated, Victorgrain 48-93 is more distinctly a red oat than are the crown rust-resistant strains of Victorgrain distributed by the Coker Company in earlier years. It originated as a selection from Victorgrain, but the line from which it was isolated apparently resulted from a field hybrid between Victorgrain and Fulgrain Strain 3. Victorgrain 48-93 is definitely intermediate between the two varietal types having the large, plump grains of both parents but the more reddish grain that rather distinctly characterizes Fulgrain. It also is a little later and taller than previous Victorgrain strains. It is unfortunate that Victorgrain 48-93 was not renamed before its release for commercial production. This would have contributed greatly to its prestige because it is different from but superior to the original Victorgrain oat.

The winter common varieties previously mentioned, suffered from the effects of heat, and as the heat increased, deterioration increased, ripening was hastened and low yields of poor quality grain produced. It has been known for a long time that winter common oats, although more hardy than red oats, are poorly adapted to the warm climate of the lower and middle South.

So far the new crown rust-resistant varieties, such as Arlington and Atlantic, have shown good adaptation to conditions at Hartsville, although their best range of adaptation is north of Hartsville in North Carolina and Virginia where Arlington, particularly, has made record yields in widely distributed experimental tests and on farms. These varieties usually are not classified as red oats but are more or less intermediate in plant and grain characters between red and common oats. They evidently carry many red oat genes transmitted from the parental varieties.

Arlington and Victorgrain 48-93 were grown in adjacent plots in several of the yield-test nurseries at Hartsville and were definitely outstanding in appearance in 1952. This superiority was noted by many visitors to the nurseries and there was much speculation regarding which one would produce the higher yield. In less favorable seasons, it is possible that Victorgrain 48-93, may be superior in the Hartsville area being a rather distinct red oat and not so tall as Arlington. It is the writer's opinion that a close approach to the ideal red oat for the South would be attained if somewhat greater hardiness and more complete resistance to most races of the oat rusts can be added to Victorgrain 48-93.

The adaptation of Southland, a new variety now extensively grown in North Florida, is of considerable interest. This variety on the basis of performance, apparently is well adapted to North Florida and the Southern parts of Georgia and Alabama but has performed less satisfactory at Hartsville, S. C. Varieties such as Quincy Red, Quincy Gray and Florilee, other varieties previously developed and distributed in Florida, likewise showed this somewhat circumscribed adaptation.

When these Florida-developed varieties are moved even 150 miles farther north they develop rather poorly and cannot be recommended for farm production. Alber, Berger and Camellia, other varieties grown to some extent in the Gulf Coast region, also appear to fall in this narrow adaptation range. It is difficult to explain this narrow range of adaptation unless it is due to the warmer and more favorable conditions for almost continuous winter growth in Florida. Undoubtedly an environmental reaction is involved that has not received much attention experimentally.

Better Disease-Resistant Varieties of Spring Red Oats Needed: Apparently most oat breeders agree that improved varieties such as Cherokee and Nemaha are not the best type of oats for growing in the Southwestern Spring Red Oat region, which includes parts of Missouri, Nebraska, Arkansas, Oklahoma and Kansas. These varieties, however, have yielded well in many sections but the idea persists that the ideal variety for the region in general should be a red oat. Hence, it appears that Cherokee and Nemaha as well as Clinton, all Bond derivatives, should be replaced at an early date by more typical red oat varieties with satisfactory disease resistance. As an ideal to work toward, one breeder recently informed me that what is needed is an early, disease-resistant, productive spring red oat with many of the better morphological and agronomic characters of the old Fulghum (Kanota) variety. This belief is supported by the fact that the region in which Fulghum or Kanota had a long run in farm production, is intermediate in climatic conditions between the southern winter oat belt and the great spring common oat region of the north.

Many crosses have been made on the original Fulghum oat but as yet no widely grown, early disease-resistant variety with satisfactory agronomic characters has been evolved. The exceedingly variable genetic constitution of Fulghum is well known and has been the subject of considerable research. Likewise, the difficulty of selecting true-breeding lines from hybrid material involving the variety has been rather discouraging to breeders. Nevertheless, further extensive crossing on Fulghum and a persistent and grand exploitation of resulting progenies may possibly result in the development of a Fulghum type oat with protective resistance to the smuts and rusts and also with almost complete freedom from fatuoid and other aberrant types. These occur in such high frequencies in the original Fulghum as well as in hybrid populations involving the variety that they are most difficult to eliminate. Fulton is the one best and most uniform spring red oat resulting from crossing on Fulghum but its lack of resistance to the rusts has greatly reduced its economic importance, especially in Kansas where it has primarily been grown.

It is possible that the new productive, disease-resistant Mo. 0-205 variety may partly meet the demand for a more satisfactory oat for certain areas of the spring red oat region.

High Yield Not Necessary For Farmer Acceptance of a Variety: Factors or characteristics other than yield sometimes determine farmer acceptance of a new variety. Cherokee, an Iowa D69 x Bond derivative, is an excellent example of a variety becoming rather extensively grown in areas in which its productiveness as determined by extensive experimental tests has been relatively low.

The unnamed selection, C.I. 3846, later named Cherokee by the Kansas, Iowa and Nebraska Agricultural Experiment Stations, cooperatively, incidently was distributed to a few farmers in Northwestern Iowa in the early forties. Here it became known as Ames No. 2, McCarty and by other names. Its culture spread into southeastern South Dakota where it is grown even more extensively than in Iowa.

Numerous fields of Cherokee were inspected while making a survey of oat production prospects in these areas in July, 1952, with D. E. Western of the Quaker Oats Company. Growers of Cherokee who were interviewed were 100 percent sold on the variety. The question arose: Why do so many farmers prefer to grow a variety that on the basis of results from experimental tests is markedly lower in yielding power than other commonly grown varieties such as Clinton, Marion, Ajax and Shelby? Briefly they liked the variety because of its rather short straw, earliness, excellent grain quality, suitability for combining and as a companion crop for seedings of clover and grass. They also claimed that the large, plump, thin-hulled grains made Cherokee the most valuable feeding oat they ever grew. Apparently these Iowa and South

Dakota farmers were not worrying much about its lower-yielding capacity. Here was an oat that had not been officially or formally named until it proved of special promise for Kansas, making good on its merits without special publicity or recommendation by an Agricultural Experiment Station or other seed-distribution agency. The large acreage devoted to Cherokee in these areas of Iowa and South Dakota came as a big surprise to the writer, demonstrating that farmer acceptance of a new crop variety may occasionally be much more of a deciding factor than commonly realized by many agronomists and breeders.

While the writer was a graduate student at Cornell University in July 1928, the late R. A. Emerson, then head of the Plant Breeding Department and at the time conducting an extensive bean-breeding project, told him that if a new variety showed real merit or superiority, sooner or later it would find its place and become popular with farmers without special publicity or propaganda. This seems to have been true of Cherokee in Iowa and South Dakota.

At present, however, improved oat varieties are coming off the production line so rapidly, that special campaigns of seed distribution are necessary for a new variety to play an important role before it is replaced by another.

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History of the Cooperative Coordinated Oat Breeding Nursery Program

By Franklin A. Coffman

The Cooperative Coordinated Oat Breeding Program has now been under way for 30 years. Starting with six stations in six states in 1924, this program has expanded through the years until now more than 100 stations and experimental farms in 44 states are cooperating in growing one or more nurseries. This program, now nation-wide in scope, is an outgrowth of a study of the variability in the Burt oat started in 1918 at Akron, Colorado. Study of Burt was begun following suggestions received from the late C. W. Warburton and from T. R. Stanton and later from John H. Parker. The chain of results which followed was entirely unforseen by anyone at the time the study was started. Three developments are of particular interest.

On the more technical side, the Burt study supplied information on the variability in Burt, added information on the histology of oats and correlations in kernel characters, and disolosed the occurrence in Burt of four types of aberrants. This study prompted the recommendation that the name Avena byzantina C. Koch, apparently not previously used in the English language, be adopted for designating the cultivated derivatives of Avena sterilis, a recommendation now generally accepted. Out of the Burt study and

the regional nurseries that followed it came much of the information used recently in a summation paper which set forth a new theory for a step-by-step transition of oat types from the wild to the cultivated and including an entirely new theory for the Origin of Our Cultivated Oats.

Among the more practical results were the two oats Brunker, selected from among progeny of Burt, sent to Akron for study by T. R. Stanton, and Trojan, a progeny line evolved in the course of the Burt study, which was conducted jointly with John H. Parker and K. S. Quisenberry. After more than 25 years both varieties are still grown to some extent in the High Plains area. The third result of the Burt study is the Cooperative Coordinated Oat Breeding Nursery Program. Before leaving Akron, some selections of Burt oats were distributed, but the number was small. Transferring to Washington late in 1923, seed of numerous Burt and Kherson selections was taken along. Seed of these was divided in 1924 and sent to the following:

L. C. Burnett, Ames, Iowa	D. W. Robertson, Akron, Colorado
L. L. Zook, N. Platte, Nebr.	Ralph Smith, Dickinson, North Dakota
A. F. Swanson, Hays, Kansas	Ralph May, Moccasin, Montana

Yield data from all these points were assembled, and a compilation of the data received was made available to those cooperating. That was the start of the program.

During the 17 years from 1924 to 1940 no attempts were made to grow all these as uniform nurseries other than that groups of selections were grown as uniform tests. In 1940-41, following the idea of J. Allen Clark, who pioneered the uniform regional cereal yield nursery test, a Uniform Fall Sown Oat Nursery was started; and the next year, 1942, five nurseries were added. These were the Midseason Oat Nursery, the Early Maturing Oat Nursery, the Spring Sown Red Oat Nursery, the Uniform Oat Nursery on Dry Land Stations, and the Uniform Oat Nursery on Irrigated and Humid Stations. Since 1942, the Special Winter Oat Nursery was added in 1947; the Florida-Gulf Coast Experiment was started in 1951; and in 1952 the New England Nursery, started several years earlier by T. R. Stanton, was expanded into the Northeastern Experiment, making a total of nine uniform yield nurseries included in the program in 1952.

In addition to the yield nurseries started in 1924, a hardiness nursery was started in the fall of 1926. That type of nursery had also been pioneered by the wheat men. In the fall of 1926, oat seed was sent to the following:

T. K. Wolf, Blacksburg, Virginia
T. S. Buie, Clemson, South Carolina
R. R. Childs, Athens, Georgia
R. P. Bledsoe, Experiment, Georgia
J. Fred O'Kelly, State College, Mississippi
C. K. McCelland, Fayetteville, Arkansas
John W. Taylor, Arlington, Virginia

Starting with those seven points in five states, that nursery, too, has expanded through the years until now it is grown at some 40 to 45 points in 20 states each year. Although many of the 40-odd stations cooperating in the hardiness nursery also cooperate in yield programs, many others do not; however, in this, the 30th year of this nursery program, uniform nurseries will be seeded at some 110 points in 44 states and probably one or two in Alaska.

The total number of nurseries grown during the first 20 years of this program was revealed as some 1,800 in 1943. In the ten years since, data on some 900-1,000 additional yield and from more than 400 hardiness nurseries have been compiled. As a result, the oat men of the country and their predecessors have grown some 3,000 of these cooperative nurseries in the 30-year period. Data from these nurseries have been compiled each year and made available to cooperators. The total number of individuals who have contributed to this effort during the three decades, 1924 to 1953, is not known, but is probably not less than some 500 to 600. Certainly almost all the present "small grain men" of the country have had a part in this program.

Since 1946, Harland Stevens has compiled the data from the two nurseries grown in the Northwest. The data from the others have been compiled by the writer throughout the period.

The results of the program are too numerous to enumerate here. One of its primary objectives from the start has been to supply information to oat breeders of use to them in making decisions on prospective new varieties in their states. Another was to locate sources of genes for use in crossing for oat improvement. A list of the entries that later became varieties would be too long for including here. Certainly close to 100 oat varieties prior to being named were grown in these nurseries during the 30 years. During the past ten years, comparatively few oats have been increased and distributed to farmers that had never been included in one or another of these nurseries.

The mass of data assembled over the years have never been adequately analyzed. That will take considerable time and effort. Some of the indications on varietal adaptation are of special interest, however. Just one might be mentioned here; that is the fact that although winter temperatures are potent limitations in the varietal adaptation of fall-sown oats, spring temperatures appear to be almost equally potent influences in the adaptation of spring-sown varieties differing in heading date.

The old observations still hold, however. Midseason oats with the heading range of Ajax to Victory are most productive in the northern part of the country; early oats, heading with Andrew to Clinton, lead in the Corn Belt; the especially early red oats such as those heading with Fulton to as late as Cherokee and Andrew appear most productive in the Southwest and in the lower Corn Belt area, whereas the most winterhardy oats such as Forkedeer, Fulwin, and Wintok are best suited in the upper South; less hardy but nevertheless hardy winter oats such as Arlington and Atlantic do best in the Piedmont; oats of the Fulghum, Red Rustproof, and derived types such as Victorgrain yield best in the Cotton Belt; and the earliest of the fall-sown varieties such as Floriland and Delair are best for Florida and similar areas in the lower South.

III. CONTRIBUTIONS FROM CANADA

Cereal Division
Central Experimental Farm
Ottawa, Canada

By R. A. Derick

The oat crop in Eastern Canada in 1952 was, in general, poorer than in 1951. No single factor was apparently responsible for the lower average yields, in fact in some areas, the crop was better than average. Excessive moisture and low temperatures in the early part of the season were the cause of lowered yields in some areas while in others, poor harvest conditions were responsible. Rust damage was confined largely to local areas where the alternate host plants were prevalent. Leaf blotch or culm rot was present in damaging proportions in many areas of Eastern Canada. This disease is causing considerable alarm and a concentrated effort is being made by plant breeders and pathologists to develop a technique for establishing artificial infections.

Two main oat breeding problems are receiving particular attention at Ottawa. The more urgent of these is the developing of greater disease resistance in such varieties as Beaver, Abegweit and Eagle. Back-crossing has been used in this project. The development of varieties having a greater degree of combined crown rust and lodging resistance is also being given considerable attention. The varieties Santa Fe, Klein, Landhafer and Mutica Ukraine have been used in crosses with Garry in obtaining a greater range of crown rust resistance. Material from these crosses has been used in building up greater lodging resistance, making use of strains from the cross Beacon x Laurel as the lodging resistant parent. Strains from the latter cross are not only highly resistant to lodging but are also high yielding.

The popularity of Lanark, particularly in the Ottawa Valley is on the increase. Growers favor this variety because of its high quality, lodging and shattering resistance when over-ripe and its suitability in mixture with barley. A new strain of Abegweit released in 1952 to elite seed growers will supply the needs of registered growers of this variety as soon as seed stocks have been built up. Beaver continues to be the most widely grown variety in Ontario. Clinton is on the increase, particularly in southwestern Ontario.

A study of the rate of growth of panicle primordia in oat varieties has been completed. One observation made in this study was that the maturity of a variety is not always a good criterion of the rate of panicle elongation, e.g. Lanark and Ajax mature at approximately the same time but the data show that with Lanark, the elongation is consistently more rapid throughout the growing period regardless of date of seeding. This difference in favor of Lanark widens out as the growth period progresses.

In a study of varietal resistance to fall frosts, there appears to be good evidence that the varieties Ajax and Beaver are much better able to withstand frost damage (8° frost), in the early stages of maturity, e.g. late milk to early dough, than Exeter, Lorain or Victory.

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Laboratory of Cereal Breeding, Winnipeg, Canada
By J.N. Welsh, T. Johnson, and B. Peturson

The oat crop in Western Canada was little affected by either crown rust or stem rust in 1952. Fifteen races of crown rust and ten races of stem rust were isolated from rust cultures obtained from both the eastern and western parts of the country. The crown rust races identified are as follows, with the numbers in brackets referring to the old identification number: 201 (34), 202 (45), 203 (45a), 209 (1948.1), 210 (1947.1), 211 (34a), 228 (2a), 229 (2b), 231 (3a), 232 (3b), 234 (2c), 235 (3c), 237 (1), 239 (2), and 240 (3). Races 239 and 240 predominated in Eastern Canada and races 201 and 202 in Western Canada. The stem rust races identified were 1, 2, 5, 6, 7, 8, 10, 11, 12, and 13. Of this, numbers 8, 10, and 11 were the more prevalent ones in Eastern Canada and race 7 in Western Canada.

A new race of stem, tentatively designated as race 7A, was found at Winnipeg last summer. Among the varieties susceptible to this race are some that previously had been found to be resistant to all known races such as Canuck, R.L. 1942, R.L. 524 and their derivatives. R.L. 524 gives a segregating reaction, with less than two per cent of the plants showing resistance.

Garry, which derives its resistance from R.L. 524, is resistant to race 7A. On the other hand, varieties from the cross R.L. 1574 x Roxton which also derive their resistance from R.L. 524 give diverse reactions. For example, R.L. 2105 and R.L. 2114 are resistant and R.L. 2115 and R.L. 2116 are susceptible, while R.L. 2123 gives a segregating reaction, with approximately three per cent of the plants resistant.

Other varieties resistant to this race are Ajax, Abegweit, Beaver, Exeter, Fortune, Vanguard, Andrew, Branch, Eaton, Marion, Rainbow, Rusota, and Richland as well as other varieties with the Richland resistance.

A strain of Garry, R.L. 1692.27 (C.I. 6662), has been released as Foundation Stock of that variety to members of the Canadian Seed Growers' Association. It is similar to the original Garry in appearance but is superior to it in yield and in its resistance to Victoria blight. It has the smut and stem rust resistance of Garry but is not resistant to as many races of crown rust. So far it has been inoculated with the following 12 races: 201, 202, 209, 210, 211, 228, 229, 231, 235, 237, 239, and 240 and was found to be susceptible to races 211, 231, and 235, only. Under rust nursery conditions at Winnipeg it has never carried more than 15 per cent crown rust infection as compared with 80 per cent for varieties with the Bond type of resistance.

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Department of Field Husbandry
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Saskatoon
By L. H. Shebeski

A new variety of hulless oats called Torch has been licensed for sale in Canada. It is a result of some ten years' work by Dr. J. B. Harrington and associates of the Field Husbandry Department, University of Saskatchewan. Torch results from the cross Nakota x (Hajira x Joanette). It is resistant to the smuts and to the prevailing stem rust races. It yields as well or better than Brighton, which is the only hulless oat recommended for Western Canada. Torch has strong, medium length straw and is medium late in maturity.

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IV. CONTRIBUTIONS FROM STATES AND USDA

ARKANSAS

By H. R. Rosen (Fayetteville).

A series of unfavorable fall planting seasons plus an exceptionally low yielding state average in 1951, largely due to a combination of a severe fall epidemic of crown rust plus an exceptionally cold winter (described in the 1951 National Oat Newsletter) reduced oat acreage in 1952 to the lowest in the last decade. But despite this reduced acreage, the total production of grain was considerably above that of the previous year and this seemingly was due to the relative freedom from parasitic diseases plus favorable growing conditions. The extreme drought which lasted from June to late November over most of the state in 1952, hardly affected winter oats at all although late planted spring oats, corn, and practically all pasture and meadow crops were very seriously affected. The state average yield of oats of 32.5 bushels per acre in 1952, is the highest on record.

Notwithstanding this relatively high state average yield and relative freedom from parasitic diseases, including freedom from crown rust, Helminthosporium blight, and anthracnose, there were a few diseases which were responsible for considerable damage in more or less localized areas. Among these, probably the most important in Arkansas in 1952, were the virus diseases, yellow dwarf and red spot mosaic (see Plant Disease Reporter 36: 315-318, 1952). Perhaps next in importance was Helminthosporium leaf spot, followed by smut and by downy mildew.

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CALIFORNIA

By C. A. Suneson and C. W. Schaller (Davis).

The 1951 and 1952 California oat crops (both hay and grain) were damaged more by the yellow-dwarf virus disease, recently described by Oswald and Houston, than by all other diseases combined. Barley, wheat, and numerous range and irrigated pasture grasses also host this virus. It is a stunting disease, further characterized in oats by red leaf pigmentation. Five species of aphids are known to be persistent vectors. The disease has not been transmitted mechanically, nor through seed.

Varieties differ markedly in resistance. The more susceptible include Texas Red, Coast Black, and such widely used parents as Victoria and Bonda. Kanota has shown the most resistance among varieties tested. Progressively less total injury results from infections occurring at successive stages of plant growth. Seedling infections in Texas Red are generally lethal while in Kanota they cut yields 60-70 per cent.

A narrowed planting season to escape autumn aphid flights and to have plants fully headed when heavy spring flights occur, as well as breeding programs to utilize genetic resistance, seem necessary to meet this problem.

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FLORIDA

By D. D. Morey and R. W. Earhart; Florida Agricultural Experiment Stations, Gainesville, Florida, and the U. S. Dept. of Agriculture, Division of Cereal Crops and Diseases.

BREEDING AND TESTING OATS AT GAINESVILLE

In Florida, major emphasis has been focused on breeding oat varieties for resistance to the major diseases of the area. Much new material now under selection has crown rust resistance derived from Santa Fe, Landhafer, Ukraine, Trispernia and combinations of these resistant varieties. Stem rust resistance is now being added from Canuck and other sources. Some promising lines with combined resistance to crown rust and stem rust are now in the F_4 and F_5 generations.

The Helminthosporium diseases of oats offer a challenge to breeders and pathologists and are probably the next diseases to merit concentrated attention in Florida. Some preliminary "spade work" has been done with Culm Rot and the leaf spot (*H. avenae*) organisms. It is probable that even better techniques and higher types of resistance will be necessary before a genuine breeding program will be successful.

Since most Florida oats will be grazed, an abundance of green forage from late November until March is the most desirable agronomic character. Spring or intermediate type oats such as Southland furnish the most early forage, but are sometimes damaged by cold weather. More work is planned to evaluate new lines of oats for forage production. Grain production, strong straw, early maturity and other agronomic characters likewise are being tested on the promising disease resistant oat selections.

To secure the types of disease resistance necessary for successful oat production in Florida a disease testing program has been developed. Modifications are constantly being made to eliminate weak points and keep it abreast of the current disease problems. In this way major assistance can be made to oat improvement in Florida and the Southeastern United States.

I. Field Tests: Maximum use is made of the agronomic nurseries for evaluating disease reactions. When applicable, added amounts and kinds of diseases are released and encouraged in the breeding nurseries. However, when not practical to use agronomic nurseries, separate disease nurseries are grown under irrigation.

Crown rust, leaf spot, smuts, red leaf, bacterial diseases, and in some years stem rust lend themselves well to field testing in Florida. During the 1951-52 season 1300 rows were grown, while during the current year 3090 rows are included in the oat disease nursery.

II. Laboratory Tests: Mass testing, not practical in field trials, is done in the laboratory. In Florida, where small grains can be grown out-of-doors all of the year, this laboratory includes a greenhouse and an un-glassed area equipped with greenhouse benches. From February to November, this latter area is the most satisfactory because of the lower day-time temperatures. But during the rest of the year, some diseases requiring higher temperatures, such as culm rot and stem rust can be handled easier in the greenhouse. In either case, testing methods are the same: Plants are grown in flats with inoculations made either to foliage, seeds, or soil with disease incubation provided in moist chambers.

1. F_2 and F_3 progenies: All F_1 plants are grown at Aberdeen, Idaho and returned in time for F_2 testing in the fall. When practical, all early generation hybrids are tested prior to being planted in the field. In this test a representative bulk of F_2, about 20 seeds, are space-planted at the rate of 100 seeds per flat. Upon establishment of diseases, relative resistance and maximum segregations are reported to the breeder; if he wishes, the resistant plants are saved for further testing or seed production. By this method considerable field testing is eliminated since homozygous susceptible lines need never be planted. During the summer of 1952, 615 such F_2 lines were tested.

2. Varieties and later generation hybrids: Material of this type is planted with 50 varieties of 5 seeds each per flat. Only 2 replicates are grown, but if material or diseases warrant, 4 replicates can be handled. In this program, 773 lines were tested to Victoria blight, culm rot, and stem rust races 7 and 8 during the 1951-52 season; while currently 1046 lines are being tested to these diseases.

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By W. H. Chapman, North Florida Experiment Station (Quincy).

RECORD OAT CROP

Oats are becoming increasingly important as a source of grain and winter grazing in Florida. This is shown by the increase in production from 288,000 bushels in 1950 to an indicated production of 1,080,000 bushels in 1952. The average yield per acre increased from 18 to 30 bushels per acre. Although no data are available, a similar increase in grazing value is apparent. This is of tremendous value since only approximately 20 per cent of the acreage planted is harvested for grain.

FLORILAND, NEW OAT VARIETY RELEASED

During the period 1947-1950 most of the damage from crown rust was caused by races 45 and 57 and similar races. In 1950, Southland was released and at that time was resistant to the prevalent races of crown rust. As a result of the wide-spread acceptance of this variety, a large majority of the oat acreage in Florida is planted in Southland. This possibly explains the fact that 35 per cent of the rust collections from Florida in 1951 was race 101 to which Southland is susceptible.

The potential damage caused by this continual change in races of crown rust can be minimized by growing several commercial varieties having different sources of resistance. Additional varieties will tend to reduce the large proportion of oat acreage planted to Southland. In view of this situation, approximately 2,000 bushels of Floriland, C.I. 6588, a new variety which incorporates the Landhafer type of crown rust resistance into an adapted variety, was released.

Floriland was developed from a cross between Florida 167 and Landhafer which was made by F. A. Coffman of the U.S.D.A. Approximately twenty-five F_5 lines which showed low leaf spot infection were bulked and planted in a 1/10 acre increase plot at Aberdeen, Idaho, during the summer of 1950.

A summary of 15 tests in 1951 and 1952 shows Floriland to be equal to Southland in grain production. Preliminary clipping tests indicate that the variety will not produce forage as early as Southland but will produce considerable green forage during the period from November through February which is the critical period for green grazing.

Floriland has an intermediate to upright habit of growth and tillers profusely. It is approximately 10 days earlier than Southland and three weeks earlier than Rustproof No. 14. The kernels have numerous non-twisted awns and abundant basal hairs of medium length. At maturity the variety is slightly taller and more uniform in appearance than Southland.

The variety is highly resistant to crown rust but is susceptible to stem rust and leaf spot. It's earliness is of considerable importance when grown under severe stem rust infection. Floriland has a 3 reading for culm rot as compared to 4+ for Southland. This seems a rather small difference but is of considerable value under field conditions.

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GEORGIA

By U. R. Gore, H. B. Harris, E. S. Luttrell (Experiment, Blairsville, and Tifton).

The acreage of oats for grain, grazing and hay was 764,000 in Georgia for 1952. The Georgia acreage for grain was 471,000 with an all-time record per acre yield of 30 bushels.

Fundamental studies on morphology of strains of H. victoriae and H. sativum on oats have been made by Dr. A. R. Brown and Dr. Miller at Athens. Also, Dr. E. S. Luttrell of Experiment. In testing oats in the greenhouse for H. victoriae a number of isolates known to kill Victorgrain and Earhart's "culm rot" fungus are used. While Victoria blight has not caused widespread damage in Georgia recently, all new hybrids are being tested.

The presence of soil-borne virus mosaic on oats was noted in the nursery plots at Experiment as early as 1944. It is also present in the nursery plots at Athens. Mosaic has been found to a limited extent outside of the nursery plots. Landhafer is resistant while Bond and Victoria are very susceptible. A special mosaic nursery of 360 entries is grown at Experiment, Georgia.

The presence of race 101 and 55 crown rust in Florida this past season means that it will spread to Georgia sooner or later. The alarming feature of this race is that it attacks the Victoria oat derivatives as well as the Red Rustproof oats and Southland. Since these varieties make up the entire oat acreage in Georgia, one can readily forsee possible disaster to the oat crop should these races come into Georgia.

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By A. R. Brown (Athens).

1952 was an exceptionally good oat year in northeast Georgia. Farmers' oat yields as well as nursery oat yields were very good. Yields in the Uniform Fall Sown Oat Nursery ranged 59 bushels per acre for C.I. 6581 up to 142 bushels for C.I. 6571.

Twenty out of the 33 entries made better than 100 bushels per acre. The 6 top yielding varieties and their yields were as follows:

C.I. 6571	142 bu.
Desoto	129 bu.
C.I. 6583	126 bu.
Mustang	121 bu.
Woods Fulwood	120.4 bu.
Arkwin	120.2 bu.

Arlington, Atlantic and Terruf oats yielded 95, 90 and 95 bushels, respectively, failing to make the top 15 varieties.

Very little disease of any kind occurred on any of the varieties. There was a trace of crown rust on Delair but it appeared very late so caused no damage.

Selections for stiff straw were made in Sel. 506-2 and Sel. 170-6-4 from the Uniform Winterhardiness Oat Nursery and were head rowed this past fall. If any of these selections show promise, I will be glad to furnish seed to those persons who are interested.

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IDAHO

By Harland Stevens (Aberdeen).

The yields of oats grown in Uniform nurseries at most stations in the Pacific Northwest were above average in 1952.

A few of the Clinton-Overland backcrosses have very strong straw, produce high yields and have good quality white kernels. One selection from this backcross is being considered for naming and release by a Pacific Northwest State.

The selections from the crosses Andrew x Clinton have in most tests produced larger yields than those from Clinton x Marion. All selections from Andrew x Clinton have low bushel weights and Clinton x Marions relatively weak straw. A large number of these have not been tested nor have they been grown a sufficient number of years to form a definite conclusion.

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ILLINOIS

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

Variety Increases

Three new varieties of oats were increased in Illinois in 1952. The greatest increase was for Mo. 0-205, next for LaSalle:

and a small increase of Clintafe was grown. The yield of Mo. 0-205 was good in all parts of the state. LaSalle yielded well in the southern and central parts of the state but poorly in northern Illinois, where it has done best in past years. Clintafe yielded best in northern Illinois, average in central Illinois, and very poorly in southern Illinois.

Disease Situation

The disease situation was variable. Black stem (Septoria avenae) did more damage than any other oat disease in 1952, being more prevalent than in any previous year. In some areas kernels were discolored from septoria infection. Crown rust Race 45 was not a factor in oat production. Stem rust occurred in some areas. One planting of Clintafe was badly infected with stem rust.

Equipment

A portable mowing machine, a "Scythette," manufactured by Hoff Co., Richmond, Indiana was used to harvest rod-row nurseries and trim nursery plots. Limited experience with this machine indicates that it is a useful tool.

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INDIANA

By Purdue University Agricultural Experiment Station[1/]

Highlights of the Breeding Program

Two groups of spring oat breeding material appear to be especially interesting at this time for their crown and stem rust resistance and stiff straw. Selections from the hybrid Nemaha x Clinton-Boone-Cartier have combined crown rust resistance from both parents giving field reactions as low as 10 per cent in 1952. These lines provide a choice of the White Tartar (race 8) or Richland (race 7) resistance to stem rust. They have superior straw stiffness as recorded for C.I. 6642 in the preliminary report of the Cooperative Uniform Early Maturing Oat Experiment for 1952 compiled by F. A. Coffman.

Selections from the hybrid Clinton[2] x Arkansas 674 also have combined crown rust resistance from both parents giving field reactions as low as 10 per cent in 1952. This material has com-

[1/] Department of Agronomy, Department of Botany and Plant Pathology and the U. S. Department of Agriculture cooperating in oat improvement at Purdue. Persons contributing to this report include: K. E. Beeson, R. M. Caldwell, L. E. Compton, R. R. Mulvey, J. E. Newman, F. L. Patterson, J. F. Schafer and G. P. Walker.

bined stem rust resistance to collections of races 2, 6, 7, and 8. These lines appear to have straw stiffness superior to that of Clinton as recorded for C.I. 6643 and C.I. 6644 in the preliminary report of the Cooperative Uniform Midseason Oat Experiment for 1952.

1952 Oat Performance

Temperatures for June and the fore part of July were above normal with 100° readings common the last week in June. The State average acre yield of oats was above the 10 year average but slightly below 1951.

Spring oat varieties and selections were tested in replicated drill strips at six locations, with 15 or more entries at each location. C.I. 6641, a selection of Clinton x Boone-Cartier, was the most consistently high yielding entry at all locations, ranking first at three location, second at two locations, and third at one location. C.I. 5940, of the same breeding, and 436A1-13-5 (Nemaha x Clinton-Boone-Cartier) ranked second and third in average yield for all locations. Branch and Ajax were the highest yielding named varieties. Mo. 0-205 was the highest yielding named variety in the southern Indiana test. Selection 436A1-13-5 approached Clinton in strength of straw while the straw of the other varieties was much weaker. Varieties making a poor showing were Columbia and Craig. Other named varieties included at all locations were Benton, Clinton 59, Clintafe and LaSalle.

Oat variety demonstrations were conducted by extension agronomists, county agents and their farmer cooperators at 45 locations of which 40 were harvested for yield. Clinton 59 and Branch were the highest yielding varieties in the northern half of the state, closely followed by LaSalle. Mo. 0-205 lead in the southern half of the state. Varieties making a poor showing included Columbia, Abegweit, Roxton and Exeter.

Winter oat varieties were tested in replicated drill strips at one location in Gibson County. Dubois C.I. 6572 (Clinton x Forkedeer) yielded 67.2 bushels per acre as compared to 53.9 for Forkedeer. In this test Forkedeer lodged 86 per cent as compared to 30 per cent for Dubois.

Varietal Recommendations

Purdue University Experiment Station small grain recommendations for 1953 seeding have been prepared by the Small Grain Improvement Coordinating Committee as Experiment Station Circular 391, Small Grain Varieties for Indiana (in press). Benton and Clinton 59 are recommended for the northern half of Indiana. Mo. 0-205 is recommended and Benton and Clinton 59 are acceptible for southern Indiana. Dubois and Forkedeer winter oats are recommended for the southern one-fourth of Indiana.

Certification

The Seed Certification Service inspected 14,398 acres of oats, 88 per cent of which was of Clinton 59. Other varieties were Benton, Mo. 0-205 and Forkedeer. The average test weight is lower but the germination is higher than seed produced in 1951.

New Varieties

Dubois C.I. 6572, a new winter oat variety, has been released by the Purdue University Agricultural Experiment Station and recommended for planting in southern Indiana in 1953. It was tested as selection 4011-4-92 from the cross Clinton x Forkedeer. It is high yielding, winter hardy, stiff-strawed and resistant to smut.

Selection B4916A3-4 C.I. 6701 (Clinton 59^4 x Landhafer) has been named Clintland and proposed for release in 1954. Seed for increase and testing has been furnished to Experiment Stations in the North Central Region requesting it. Clintland will be nominated for entry into one of the Uniform Oat Nurseries in 1953. News releases or other publicity are not planned for Clintland until the fall of 1953.

Clintafe C.I. 5869, developed by the Iowa Agricultural Experiment Station, is being increased for possible distribution to farmers in 1954.

Disease Notes

Crown rust occurred throughout the state but was sparce and late causing only slight damage. However, the potential capacity of existing races to damage the susceptible varieties now being grown was indicated. Damage by stem rust was negligible, but one very late planted field of Clintland had severe infection with race 7. This field showed less damage than would have been expected had Clintland been fully susceptible to that race. This suggests that varieties possessing the White Tartar type of resistance to race 8 may also have a limited but valuable protection from race 7.

Septoria leaf spot occurred frequently over the state, but the black stem phase was not severe and the damage was slight. This situation may corroborate the reports of resistance in Clinton to the Black Stem disease, since the bulk of Indiana oat acreage is sown to that variety.

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IOWA

By R. E. Atkins (Ames).

Iowa regained its position as the leading oat producing state in 1952, after surrendering that distinction to Minnesota in

1951. A total of 6,182,000 acres were sown and an average yield of 35.0 bushels per acre obtained, resulting in a production of 216,370,000 bushels of grain. The average yield was slightly better than last years poor crop, but still below the past 10 year average. Oats were sown moderately early in most parts of the state with good stands generally obtained and early season growing conditions good. However, excessive heat at stooling and at flowering time reduced the early prospects considerably and only a fair crop with much light weight grain was harvested.

Crown rust did not cause extensive damage in 1952, but Septoria black stem infection was wide spread. Heaviest infection of black stem was observed in the northern sections, with the experimental plots at Kanawha showing particularly heavy infection. Readings for culm blackening were obtained at several stages of growth for all entries tested at Kanawha. Branch, Clintafe and Shelby were among the most resistant of the named varieties tested, but from 5 to 20 per cent readings for culm infection generally were recorded on the most resistant varieties.

Yield trials with 16 named varieties and 2 un-named selections were continued at 11 Iowa locations in 1952. The top yielding varieties in 1952 and for the past 3 year period were Mo. 0-205, Ajax, Branch, Clintafe and Shelby. Mo. 0-205 again was outstanding in the southern and central sections but not in northern Iowa. Ajax and Clintafe have given their best performance at the northern testing stations. The following oat varieties will be recommended to Iowa growers for 1953 and be eligible for certification (alphabetical order): Ajax, Andrew, Benton, Bonham, Cherokee, Reselect Clinton, Clintafe, Mo. 0-205, Nemaha and Shelby.

Seed of the new Clintafe oat was increased in 5 fields in Iowa in 1952, producing approximately 12,000 bushels for distribution in 1953. All of this seed has been allocated and will be grown under contract in 1953 in nearly every county. Seed thus produced must be sold to other growers in the county, so there will not be unrestricted sale of Clintafe in Iowa until after the 1954 crop.

Approximately 500 acres of Cherokee (C.I. 5444), more uniform for height and maturity than the original Cherokee (C.I. 3846) was grown for certification in Iowa in 1952. Only Cherokee that traces to this purified source and Nemaha grown only from Nebraska purified seed will be eligible for certification in 1953. Foundation seed increases of Reselect Clinton (C.I. 4969) and Nemaha will be grown under the supervision of the Iowa Crop Improvement Association in 1953.

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By M. D. Simons (U.S.D.A. - Ames).

Use of the New Revised Set of Differential Varieties of Oats for Identifying Physiologic Races of Crown Rust

Collections of crown rust made in 1951 were identified on the basis of the reactions of both the old standard set of 13 differential varieties of oats and of the new revised set of ten varieties. The results showed that the new set was much more efficient in differentiating races than was the old set. The new set also contained varieties representing the more important of the newer sources of resistance to crown rust. With these considerations in mind, the use of the old set was discontinued at the end of 1951, and collections of crown rust obtained in 1952 were identified solely on the basis of the reactions of the varieties in the new set. The selection of the varieties in the new set and the numbering of races identified by them were discussed by Dr. H. C. Murphy in the National Oat Newsletter, 2:30-32, 1951.

The new set of differentials has also been used by Dr. Peturson in Canada and by Dr. Silva in Brazil. When races identified by these two investigators were combined with those described by the writer, 59 separate races could be distinguished.

Prevalence of Physiologic Races of Crown Rust in 1952.

A total of 449 collections of crown rust, well distributed throughout the oat growing regions of the United States, were obtained in 1952. At this writing, 317 isolates from these collections have been identified. Relative prevalence of the 13 races represented is shown below:

Race	No. of Isolates	% of Total
201	21	6.6
202	148	46.7
203	51	16.1
205	5	1.6
211	13	4.1
212	1	.3
241	6	1.9
251	4	1.3
213	45	14.2
216	13	4.1
258	3	.9
226	1	.3
237	6	1.9

The most common race, race 202, attacked only three varieties (Anthony, Appler, and Bond) of the new set. Race 203 was similar except for its ability to parasitize Ukraine. Race 213, third in order of prevalence, was parasitic on Victoria. When

grouped together, isolates of races attacking Bond constituted about 97 per cent of the total. Approximately one-fifth of the isolates representing these races also attacked Victoria. Race 258 was of some interest as it readily parasitized Victoria, but did not induce symptoms on Bond, thus resembling the old race 56. The varieties Landhafer, Santa Fe, Trispernia, and Bondvic have been resistant to all 1952 collections tested up to the time of this writing.

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By H. C. Murphy (USDA, Ames).

South American Oat Rust Nurseries

Races of crown rust are known to be present in South America which severely attack Landhafer, Santa Fe, Victoria and Bond. Varieties only moderately resistant, or even susceptible, to our North American races might be highly resistant to the South American races. It does not seem advisable to bring these virulent South American races into North America in an attempt to develop resistance to them. Therefore, selected groups of North American varieties are being cooperatively tested at different locations in South America for reaction to crown and stem rust.

Approximately 100 grams of seed is needed for growing an entry in the 1953 nursery. It will be helpful if each Experiment Station in the United States and Canada will immediately supply H. C. Murphy, Agronomy Building, Ames Iowa, with a list (including parentage) of the varieties and selections they can supply for planting in South America in 1953. Selections apparently possessing new or combinations of known sources of resistance to crown rust should be particularly suitable for these tests. After these lists have been received, requests will be sent out to each station for seed of a specific number of entries. A report on the rust reactions of all entries will be supplied to each cooperating station.

Reaction of Oat Varieties to Crown Rust in the 1952 Uniform Rust Nurseries

Crown rust infection was sufficiently heavy at 29 locations in the United States where uniform oat nurseries were grown in 1952 to obtain crown rust readings. The average reactions to crown rust of the 30 varieties and selections included in the nurseries are presented in the accompanying table.

Landhafer was outstanding for resistance at all locations with a maximum coefficient of 6 at Kanawha, Iowa, and Ledyard, N. Y. Bondvic was equally resistant, except at Blacksburg, Va., where a coefficient of 16 was recorded. Ukraine, the two Landhafer derivatives (Floriland and C.I. 6574), and Victoria were about equally

resistant with maximum infection coefficients of 12, 24, 24 and 12, respectively. C.I. No. 6574 was also highly resistant to stem rust at all locations. The maximum coefficients recorded on C.I. Nos. 6593 and 6592 were 16 and 50, respectively.

Santa Fe was equal to Landhafer for resistance except at Baton Rouge, La., and Blacksburg, Va., were coefficients of 48 and 24, respectively, were recorded. Clintafe was not quite equal to Santa Fe for average resistance, although maximum coefficient recorded for Clintafe was only 32 at Ledyard, N.Y.

The unexpected resistance to crown rust and susceptibility to stem rust of Sac x Hajira-Joanette, C.I. No. 5927, would indicate there may have been an error and that seed of a Santa Fe derivative may have been inadvertently used.

Alamo, Clintafe, Trispernia and Clinton x Ukraine were about equal for average resistance to crown rust. Alamo is a selection from the cross (Victoria x Hajira-Banner, C.I. No. 4019) x (Fulghum-Victoria, C.I. No. 3528). It is susceptible to Helminthosporium victoriae. Both Alamo and Clinton x Ukraine were also resistant to stem rust at all locations. Clinton x Ukraine, C.I. 5871, has been outstanding for resistance to both crown and stem rust among the entries tested in uniform rust nurseries in South America.

Reaction of Oat Varieties in the 1952 North Central States Uniform Oat Smut Nursery

A cooperative uniform oat smut nursery consisting of 40 varieties and selection inoculated with local smut collections was grown at 8 locations in the North Central Region in 1952. Canadian, Anthony, Victory, Black Diamond, Gothland and Monarch were the most susceptible with average infection percentages of 77, 61, 21, 20, 14 and 11, respectively. Clinton^2 x Ark. 674 (C.I. 5845), Fulghum, Clintafe and Clinton^2 x Ark. 674 (C.I. 6669) were about equal for moderate resistance with average infection percentages of 7.7, 7.6, 7.3 and 5.0, respectively. The remaining 30 entries were relatively resistant at all locations.

Victoria, Cherokee, Branch, Mo. 0-205, Clinton x Marion (C.I. Nos. 5646 and 5647), and Anthony-Bond x Richland-Fulghum (C.I. No. 4672) were highly resistant with an average infection percentage below 0.1. Apparently immune entries with no evidence of infection were Navarro, Trispernia, Bondvic and Nemaha x (Clinton x Boone-Cartier) C.I. 5642. Among the 30 resistant entries were such widely grown varieties as Clinton, Cherokee, Mindo, and Marion. None of the susceptible varieties is grown on any appreciable acreage. These data would indicate that oats breeders have been highly successful in breeding for resistance to the now prevalent races of both smuts.

Average Severity of Crown Rust Infection on
Oat Varieties Grown in 1952 Uniform Rust Nurseries

Variety or Selection	C.I. No.	Average Crown Rust Coefficient
Landhafer	3522	0.7
Bondvic	5401	1.4
Ukraine	3259	2.0
Floriland	6588	2.0
(H.-J.)x(Fulw. x [L.V.])(B.A.) x Land.	6574	2.1
Victoria	2401	2.3
Clinton^2 x Ark. 674	6593	2.9
Clinton^2 x Ark. 674	6592	3.9
Santa Fe	4518	4.1
Sac x (H.-J.)	5927	4.5
Alamo	5371	4.7
Clintafe	5869	4.8
Trispernia	4009	4.8
Clinton x Ukraine	5871	4.8
Craig	5332	9.4
Ajax	4157	10.5
Appler	1815	11.5
Southland	5207	11.9
Gold. x Victa - Rainbow	6590	14.2
Cornell x Garry Sel. 5	6589	14.6
Bond - Fulg. x Victorgrain	6577	14.7
Sauk	5946	16.7
Bonda x (Victa. x [Haj.-Ban.])	6586	17.9
(Bond-Rain) x (Haj.-Joanette)	6587	18.8
Rainbow	2345	22.9
Bond	2733	29.3
Minrus	2144	29.5
Canuck	4024	34.3
Richland	787	48.4
Markton	2053	54.4

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KANSAS

By E. G. Heyne, D. E. Weibel, C.O. Johnston, and E. D. Hansing

Mo. 0-205 was added to the list of recommended varieties of oats for Kansas in 1953. Other varieties recommended include Nemaha, Cherokee, Clinton, Kanota, and Neosho (where blight is not a problem). 1952 was the first dry oat growing season for a number of years and in the absences of rusts and rank growth, Kanota was the highest yielding variety in out-state tests. This suggests that more of the older type red oat varieties should be used in the Kansas breeding program.

Rusts and smuts of oats were of minor importance in 1952. A little crown and stem rust appeared late in the season but was too late to do any damage. Black stem was present in Kansas, but apparently did not cause much damage.

Very few of the new strains being tested in advanced rod row trials equal Nemaha or Cherokee in test weight but a number of them exceed these two varieties in yield per acre. Selections from the cross Andrew x Landhafer have given good yield records the past several years, including the dry hot season of 1952.

Crosses being studied include sources of crown rust resistance (Landhafer, Santa Fe, Ukraine, Trispernia, Bondvic), and stem rust resistance (Hajira-Joanette) to prevalent races in crosses with Cherokee, Nemaha and Anthony-Bond x Richland-Fulghum selections. Satisfactory resistance to smuts are present in all these crosses.

Application of urea as a spray at the rate of 50 pounds N per acre on the oat plant at the heading stage increased the percentage of protein from 12.0% to 13.3%.

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By W. M. Ross (Ft. Hays).

The Oat Situation in Western Kansas in 1952

The 1952 season was not a particularly good one for oat production in Kansas. Only 18 million bushels were produced in the state with an average yield of 20.5 bushels per acre. This is well below the 1941-1950 average production of 32 million bushels and is somewhat under the average yield of 22.7 bushels per acre.

Though Western Kansas is a marginal oat-producing area, performance at the Ft. Hays Station in 1952 was fairly typical of the entire state. Variety plantings were made March 27 in soil

well-supplied with moisture. Emergence and early growth were rapid, but dry weather and hot winds during the heading and filling periods seriously decreased yields and test weights.

Variety yields averaged 24.3 bushels per acre and ranged from 11.5 for James to 33.4 for Kanota. Other varieties containing Fulghum germ plasm - Fulton, Mo. 0-205 (C.I. 4988), and Neosho - were also among the highest yielders. Cherokee and Andrew were the best Bond types while Clinton and Mindo were the poorest of this group in performance. In the spring red oat uniform nursery several Andrew-Landhafer lines showed promise, having both yielding ability and earliness.

Diseases were virtually non-existent in 1952. Little crown and stem rust and no Helminthosporium blight were found. Lodging caused by high winds was the only serious handicap to harvesting.

One variety, Mo 0-205 (C.I. 4988), was released for certification in the state in 1952. Though primarily recommended for Eastern Kansas, it will probably find its way westward where it has had a good record in the testing program.

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MAINE

By L. H. Taylor (Orono).

The 1952 season, in which a cold, wet spring was followed by a prolonged and severe summer drought in most of the state, was not favorable for oats in Maine. A reduced acreage of oats was planted, some of this acreage was not harvested, and yields per acre were well below average. As a result, 1952 oat production in Maine was less than one-half of that in 1951. Oat yields in the variety trials were fair at Orono and very poor at Presque Isle.

There was more stem rust on oats in Maine in 1952 than there has been for a number of years. Although not a major problem, it caused some damage to late planted oats. More stem rust was found in northern Maine than in central Maine. As no barberries have been reported in northern Maine, this may indicate that stem rust moves into Maine from Quebec or New Brunswick.

Foundation seed of Clinton x Marion, C.I. 5647, a new variety that will soon have a name, is to be increased in Maine in 1953. We plan to make seed available to our Certified seed growers in 1954 and to have seed available for Maine and other states that might desire seed by 1955. We are a bit inexperienced in this as no oat variety has been increased and released in Maine since Maine 340 was distributed to farmers in 1916.

Maine can take no credit for the breeding, or even for the evaluation of C.I. 5647. It resulted from a cross made by Dr. Coffman, and he and his colleagues in the U.S.D.A. did the subsequent selection work. Most of the data on evaluation are from the regional tests. Iowa made a preliminary increase, but decided not to release the variety, so seed was offered to the other stations on a take-it-now-for-seed-or-it-will-soon-be-feed basis. Maine took as much as it could handle in its program.

Our evaluation of C.I. 5647 is not as complete as we would like, but here are some of the things we do know about the variety. In tests in the Northeast Region, it has averaged about 4 or 5 bushels per acre higher in yield than Clinton, the variety it may replace on some of the acreage in the region. It does not differ greatly from Clinton in test weight or date of maturity, but is an inch or two taller. Clinton has set us a standard for straw strength. Of the three Clinton x Marion lines that have had outstanding yields in regional tests, only C.I. 5647 has equaled or surpassed Clinton in straw strength as indicated by reports of lodging percentages. C.I. 5647 is resistant to race 7 and susceptible to race 8 of stem rust, while Clinton has the opposite reaction to these two races. Indications are that C.I. 5647 may have some tolerance to races of crown rust to which Clinton is very susceptible. C.I. 5647 has good smut resistance. It is also very susceptible to Septoria. While this has not been a serious disease with us, it could become so if we begin to grow a susceptible variety on a considerable acreage.

Further evaluation is needed and we hope to secure considerable data on the performance of C.I. 5647 during the 1953 growing season. We should be able to make a few pounds of seed available to any station that is interested in including this variety in its trials.

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MICHIGAN

By K. J. Frey (East Lansing).

The Michigan Experiment Station in cooperation with the Bureau of Plant Industry is going to release the oat strain C.I. 5441 for use by farmers in Michigan. This oat strain was developed from the cross, Clinton x Marion. At present we have about ten bushels of seed most of which will be planted for increase in 1953.

The oat disease research work being conducted in Michigan follows along two lines: (1) The development of oat varieties with good stem and crown rust resistance; (2) a search for oat strains which possess resistance to Septoria disease. Hajira-Joanette is

being used as the source of stem rust resistance in the oat breeding program, while crown rust resistance has been obtained from Landhafer and Trispernia. Since none of these sources of rust resistance in agronomically adapted in Michigan the backcross breeding system is being used. In the search for Septoria resistance 2400 strains from the oat world collection have been tested under natural epidemic conditions. The varieties which have shown considerable resistance to Septoria are Sixty-Day, Hvitling, Old's White Kherson, Kherson, Kherson Original, Welcome Vicks, President, Schoeman, Minn. No. 26, Corn, Setosa, Nishnijanchick, Ling Tai Mai, and two number strains (unnamed) 789 and 878. All of these oat strains show some infection with Septoria but the prevalence and severity are much less pronounced than in the commercially grown varieties. Sixty-Day had only ten per cent of infected plants while the commercial varieties ranged from 50 to 90 per cent.

In a yield test designed to measure the effects of stem rust on oat yields, it was found that stem rust readings from 10/100 to 60/100 on the susceptible varieties caused a reduction of 25% in yield and 10% in test weight.

In 1950, Huron and Eaton varieties of oats were subjected to 25,000 r units of x-ray for the purpose of artificially inducing mutations. This treatment lowered the germination percentage from the original of 95 down to 45. Among the aberrant oat types which appeared in the x_2 and x_3 generations of the Huron material were a number of lines which were six inches shorter than Huron. Invariably the short strawed lines had stiffer straw than Huron. Date of maturity was not correlated with height of straw. An aspect of this x-ray material which has theoretical interest is the contrast between the high frequency of offtypes in the Huron derived material and the low frequency in that derived from Eaton.

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MINNESOTA

By Francis K. S. Koo, S. Goto, W. M. Myers and M. B. Moore (St. Paul).

Among the crosses made in Minnesota involving the White Russian type of stem rust resistance or the Rainbow type or both types in addition to the Canadian type in the parentage, two crosses--[Landhafer x (Mindo x Hajira-Joanette)] x Andrew and [Landhafer x (Bond-Rainbow x Hajira-Joanette)] x Clinton--are of great interest and will be described in some detail here.

The plant selections of these two crosses made in F_3 on the basis of their resistance to races 7 and 8 of stem rust, and races 45, 57 and others of crown rust, and smuts in the field in 1951 were tested as F_4 lines in the seedling stages in the greenhouse in 1951-52 winter for the reaction at high temperatures (80°-85° F.) to races 7 and 8. With the knowledge that the Canadian type of

resistance breaks down at high temperatures and the White Russian type or the Rainbow type do not, one can test the field-selected material which carries the Canadian factor to races 7 and 8 at high temperatures and select the lines which also carry the White Russian factor or the Rainbow factor. In these tests some unexpected results were obtained. Two F_4 lines from the cross [Landhafer x (Mindo x Hajira-Joanette)] x Andrew were found to be resistant to both races 7 and 8 at high temperatures and a great number of F_4 lines from the same cross and the cross [Landhafer x (Bond-Rainbow x Hajira-Joanette)] x Clinton were found to be resistant to one race and segregating for the other. Many of these lines were advanced one or two generations in the greenhouse in 1951-52 winter. In the field 1952, all selections from these two crosses were grown and new selections were made from the F_4, F_5 and F_6 lines on the basis of their disease resistance. The homozygous resistant lines with uniform good agronomic characters will be tested in the rod rows this coming spring. The progenies of the lines which were found to be resistant to one race and segregating for the other are being tested to both races 7 and 8 at high temperature this winter in an attempt to pick out additional homozygous lines which possess resistance to both races at high temperature in addition to the Canadian type. In testing these progenies to race 7, quite a few lines were found to be highly resistant or immune. These results may indicate that the White Russian and Rainbow factors are not allelic, as previous results indicated, and that they are instead independent or that crossovers between them have been recovered. The proportion of lines homozygous for resistant to one race and segregating for resistance to the other is large enough to cause some doubt that closely linked genes are involved. Another explanation may be that another gene for resistance to either race 7 or 8 at high temperature has been picked up in the crosses. These alternative explanations are being investigated in further crosses made last summer using the two resistant lines obtained last winter on one side and three varieties--Andrew, Clinton and Gopher--on the other side. These crosses are being advanced two generations in the greenhouse this winter. Among others, these two resistant lines are being used to make new crosses with the highyielding varieties.

In view of the possible breakdown of the Canadian type of resistance in the field due to a prolonged high temperature as the one encountered in 1948 in St. Paul, we believe it is desirable to have all three types of stem rust resistance in the new varieties.

The oat improvement work in Minnesota is carried on jointly by the Department of Agronomy and Plant Genetics and the Department of Plant Pathology and Agricultural Botany. Francis K. S. Koo and W. M. Myers represent the Department of Agronomy and Plant Genetics and M. B. Moore and S. Goto represent the Department of Plant Pathology and Agricultural Botany.

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By M. B. Moore (St. Paul).

Red Leaf

Leaf reddening has frequently been observed in oats and would seem to have a number of causes. General reddening of all of the plants in a field may possibly be due to soil factors. However, the reddish or orange discoloration which is found on indifidual plants scattered here and there in the field has been determined by experiments during the past year at the Minnesota Experiment Station to be due to a virus which is transmitted by the English grain aphid (Macrosiphum granarium) and the apple grain aphid (Rhopalosiphum prunifoliae). Aphids of these two species which had fed on red leaf plants readily transmitted the disease when they were transferred to healthy plants, both in the greenhouse and in the field. Aphids which had been reared continuously on healthy oat plants did not cause any disease symptoms when transferred to parallel series of plants in the greenhouse and in the field.

In the greenhouse, symptoms first appeared about 14 days after viruliferous aphids were placed on healthy seedling plants, while in the field only 9 days elapsed before the first appearance of symptoms. A dull orange to reddish color appears on the leaves, at first as blotches but later it involves the entire leaf progressively from the tip downward. Plants may be stunted and usually die prematurely. Root development of affected plants is greatly reduced.

It seems probable that this particular red leaf disease is identical with that which was spoken of as the "new oat disease" in 1949. However, red leaf is not new to Minnesota, since it has been observed commonly each year since the early 1930's.

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By S. Goto and R. E. Atkinson (St. Paul).

Western Wheat Mosaic on Oats

No immunity to western wheat mosaic was found in ninety-eight oat varieties and selections tested at the Minnesota station. Wheat and durums were susceptible but rye and several species of grasses were not affected. Seedling plants were inoculated with western wheat mosaic virus by rubbing with 400 mesh carborundum and expressed juice from infected oat plants. Eight to fourteen days after inoculation, small, round, light colored mottles to short, yellow streaks appeared. After seventy days, the varieties had a wide range of symptoms, including long to coalesced streaks, interveinal orange-grey spots, blotchy mottling, stunting, spikelet deformation, "onion flag leaf" and bright red coloration of the leaves.

The virus was not transmitted through soil, or by seed or debris from infected plants. The symptoms of the "red leaf disorder" widespread at St. Paul in 1950 and 1952 were distinctly different from the greenhouse symptoms of western wheat mosaic.

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MISSISSIPPI

By D. H. Bowman (Stoneville).

The 1952 season was quite favorable for the production of small grains in the Mississippi Delta. Oat yields of 90 to 110 bushels per acre were not infrequent. Rust and other diseases were not important, although in a few scattered fields small losses in yield resulted from outbreaks of downy mildew, Sclerospora macrospora.

Although the overall losses from stem rust were negligible, its' occurrence was a matter of some concern. All commercially grown varieties were attacked in the nursery at Stoneville, with severity of infection ranging up to 80 per cent on the late maturing varieties. Only certain selections with Clinton-Santa Fe in their parentage were resistant. Severity of infection in several commercial plantings around Stoneville ranged up to 20 per cent. Race eight appeared to be the most prevalent race.

Delair, C.I. 4653, (Bond x Fulghum) has been accepted for certification by the Mississippi Crop Improvement Association. This variety was first distributed by the Delta Branch Experiment Station in 1949. It is widely grown in many of the Delta counties where its early maturity permits it to be followed successfully with soybeans.

Most of the small grain plantings in the fall of 1952 were made in dust or delayed until after mid-November rains. Emergence did not take place until late in November. Fortunately, the winter has been relatively mild and at mid-January most grain fields are in good condition, although probably not hardened enough to stand a sudden, severe drop in temperatures.

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By S. S. Ivanoff (State College).

Performance of P.I. 174513 and P.I. 174544 In South Mississippi

Of the two foreign introduction oat strains found free from crown rust in the 1950-1951 field tests at McNeil, Mississippi, one of them, P.I. 174513 remained again unaffected in the 1951-

1952 tests at the same location. On the other hand, P.I. 174544 (C.I. 6665) showed moderate susceptibility. The prevalent crown-rust races included No. 45. Both strains proved resistant to Helminthosporium blight by laboratory tests.

Seed of both strains is available to plant breeders.

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By C. W. Manning (Stoneville Pedigreed Seed Company).

The Stoneville Pedigreed Seed Company does not carry on an extended program of oat research as our primary objective is to maintain a source of good Red Rustproof oats. We do participate in the Southern Regional Uniform Fall Sown Test and of course grow a Variety Test each year.

The oat yields last year were somewhat above average even though some winter killing was noted. The area again escaped the ravages of rust and harvest was made under excellent conditions.

The planting of the 1953 nursery as well as the general crop in this area was considerably delayed because of the lack of adequate moisture. There hasn't been any severely cold weather since planting which has permitted the plants to become well established.

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MISSOURI

By J. M. Poehlman (Columbia).

The Mo. 0-205 variety of oats was first distributed to Missouri farmers in 1951. In 1952 about 90,000 bushels of Certified seed of this variety were produced in Missouri. Approximately 15,000 bushels of this seed were sold by the grower before harvest to out-of-state seedsmen. The growers of 0-205 are widely distributed over Missouri. All report a strong local demand and it appears that the bulk of this seed will be sold locally. Prospects are that in 1954 there will be sufficient seed to meet this demand in Missouri.

The 0-205 in Missouri is about equally divided between strains C.I. 4988 and C.I. 5323. These strains have produced identical yields in Missouri tests. Strain C.I. 4988 is being purified and will be designated as the Foundation seed stock for 0-205 in the future. Within 2-3 years all Missouri Certified seed growers will be growing only the C.I. 4988 strain .

In addition to O-205, O-200 and Andrew are recommended varieties in Missouri. Clinton and Mindo have been dropped from the recommended list.

A small increase of C.I. 4986, Columbia x Marion is being held in reserve for possible use should it be needed. C.I. 4986 has a yield record in Missouri almost equal to O-205 but has different sources of rust and smut resistance.

Breeding work for the future is being concentrated on (1) the addition of the Hajira-Joanette stem rust resistance to O-205 by backcrossing, and (2) shortening and stiffening the straw of O-205.

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MONTANA

By F. C. Petr (Bozeman).

Annually about 500,000 acres of oats are grown in Montana. Most of this acreage is confined to irrigated areas of the state, however, in the dryland areas of central and eastern Montana oats are often grown for hay. Bridger and Mission, both of Markton x Victory parentage, are recommended for production under irrigation. Gopher and Mission are recommended for dryland production in all parts of the state.

During the 1952 crop season Clinton x Overland^2 (C.I. 6611) has been increased and is being released to Certified growers in 1953. This oat variety is made-to-order for production under irrigation. It has short stiff straw of uniform height which facilitates combine harvesting. C.I. 6611 also has short plump white kernels of excellent quality. Since its initial yield test in 1947, it has been producing high yields consistently. It has a high degree of resistance to smut, which is the only important oat disease in the state. Under Montana conditions C.I. 6611 is mid-late in maturity (about 3 days earlier than Bridger and Victory).

Dryland yield nurseries are grown by the branch stations located at Creston, Havre, Huntley, Moccasin, and Sidney. Irrigated nurseries are grown at Bozeman, Creston, Huntley, and Sidney. In 1952 late varieties generally yielded best at all irrigated locations with early varieties yielding highest at dryland locations. Moisture conditions were critical throughout the season at Sidney while hot dry weather at heading caused severe damage to the dryland oat nursery at Huntley.

Some of the objectives of Montana's oat improvement program are:

1. To develop varieties with greater shatter resistance.

2. To develop varieties with straw that ripens simultaneously with the grain to facilitate combine harvest under irrigated conditions.

3. To develop oats with sufficient dormancy to prevent sprouting in windrows during wet harvest seasons.

4. To develop higher yielding oats of better quality for irrigated and dryland production.

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NEBRASKA

By L. P. Reitz (Lincoln).

Studies in 1952 on oats in Nebraska included the usual variety tests and disease observations at the main stations and on farms. Three uniform nurseries were grown at Lincoln.

Increase of oats included mainly the production of 4,500 bushels of Mo. 0-205 (C.I. 4988) currently being allocated to farmers. Foundation seed of Cherokee and of Nemaha was further propagated. A small increase of Anthony-Bond x Richland-Fulghum (C.I. 4672) failed owing to the combined effects of drought and 2, 4-D.

New breeding materials of local interest were the crosses (Bonda x Santa Fe) x Osage, and Andrew x Bonda-Santa Fe supplied by F. A. Coffman and Clinton x R.L. 1692. The latter cross showed excellent resistance to stem rust. Surviving populations of both crosses were screened in the greenhouse for victoria blight resistance.

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NEW HAMPSHIRE

By Leroy J. Higgins (Durham).

The 1952 uniform variety oat trials were confined to Durham due to limited personnel of the Department of Agronomy at the University of New Hampshire during the spring and summer months.

The yields for both forage and grain averaged lower than those of recent preceding years, due to soil conditions and the prevalence of disease. At the time Dr. F. A. Coffman inspected the trials, he stated that he had not seen so much evidence of disease anywhere during his current trip. C.I. #5927 (Sac x Hajira-Joanette) seemed to be most free of disease.

Garry Sel, Roxton, Clinton x (Boone x Cartier), Ajax, Beaver and Anthony x Morata were among the first eight as regards yield both for forage and grain. Garry Sel was especially high. The Clinton x Marion crosses performed considerably better than Clinton. The Santa Fe crosses gave the lowest yields.

The 1952 season showed that Ajax and Clinton were continuing to be the leading oat varieties in New Hampshire.

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NEW JERSEY

By R. S. Snell (New Brunswick).

Le Conte winter oats is being recommended for areas in New Jersey where the crop can be grown successfully. Seed is being produced for Certification at several points in the state.

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NEW YORK

By N. F. Jensen, R. B. Musgrave, A. A. Johnson, L. J. Tyler (Ithaca).

The estimated harvested acreage of oats in New York State for 1952 was 770,000 acres -- up 15,000 acres from 1951. Yields were below those of 1951, however, due to unfavorable weather. The average State yield was 37 bushels per acre and 28.5 million bushels were produced compared to 48 bushels per acre and 36 million bushels in 1951.

In test nurseries at 12 locations, including Ithaca, Craig was the highest yielding of fourteen selected entries. The performance of 6 varieties in these nurseries was as follows:

	Yield (bu/acre)	Test weight (lbs/bu)
Craig	67.7	34.5
Branch	62.6	34.0
Goldwin	61.9	31.5
Ajax	61.7	32.9
Mohawk	56.3	35.8
Advance	54.0	36.8

From a test with a wider group of entries of current interest the following results were obtained:

	Yield bu/acre	Maturity	Crown rust * %	Stem rust* %	Test Weight lbs/bu.
Roxton	104.1	V. late	40	tr	31.5
Craig	99.9	Mid	27	25	33.3
Beaver	90.9	Mid	75	3	34.2
Mo-205	89.6	Mid	10	38	35.8
Clintafe	85.9	Early	22	49	34.0
C.I. 5647	85.9	Mid	82	45	36.7
C.I. 6611	86.1	Mid	60	20	34.2
Mohawk (new)	84.5	Early	82	47	36.0
Ajax	79.4	Mid	60	13	33.3
C.I. 5441	78.6	Mid	82	12	35.5
Goldwin	72.4	Late	60	20	30.3
Clinton	70.6	Early	82	60	36.3
Branch	69.3	Late	22	5	32.2
Advance	67.0	Early	57	49	36.5

* From special tests -- does not represent damage.

It should be pointed out that these data are from a single nursery of 5 replicates split between two locations. The data for the 12-test comparisons, on the other hand, include more than 100 replicates.

From 21 acres sown with Breeder's seed in 1951 and further production in 1952, enough seed of Craig is available to sow perhaps 7,000 acres in 1953. In addition to blight and loose smut resistance Craig will offer considerable protection against crown rust race 45. In special rust nurseries from 1948 to date Craig has averaged 13% infection as against 76% for Mohawk and Clinton.

All space-planted F_2 material at the Ithaca Station in 1952 was sown in self-sealing paper tape with gratifying results and a considerable saving of planting time and labor. (See Papers Section.)

A mimeographed booklet on the history of and procedures used in the cereal breeding project at Cornell is available on request.

Nitrogen Fertilization of Oat Varieties (Musgrave)

Nitrogen fertilization of Mohawk and Goldwin varieties was continued in 1952 on Mardin and Honeoye soils. Rates of 0, 20, 40 and 60 pounds/acre were compared. Also compared in the same tests were 20, 40 and 60 pound rates on Craig and Ajax varieties. Goldwin continued to out-perform Mohawk without additional nitrogen. The nitrogen response was poor this year presumably

because of lower than normal rainfall. Mohawk was the only variety to yield a profitable response to nitrogen and this was limited to the 20 pound rate. However, unlike previous years, Mohawk failed to yield more than Goldwin when fertilized with nitrogen. Craig was the outstanding variety at all rates of nitrogen tested, excelling the others by an average of about 12 bushels per acre. The Ajax variety tended to yield more than Goldwin and Mohawk. At the Mardin soil site wind caused considerable shattering of all varieties. Mohawk being earlier may have suffered most. Wind and disease caused considerable straw breakage at the Honeoye site but this was not severe enough to hamper combine harvesting.

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NORTH CAROLINA

By J. G. Moseman, G. K. Middleton and T. T. Hebert (Raleigh).

In 1951-52 the 814 entries in the World Collection of oats maintained by the Division of Cereal Crops and Diseases in cooperation with the Division of Plant Exploration and Introduction of the U.S.D.A. not tested in 1950-51 were grown in the mosaic nursery at Statesville. Included in this nursery were 275 new introductions, and 289 entries from the World Collection that were resistant to mosaic and survived the winter weather in 1950-51. The entries in the three Uniform Winter Oat Nurseries and advanced lines from the breeding programs of F. A. Coffman, Beltsville, Dave Reid, Kentucky and S. J. Hadden, Hartsville, S. C. were also tested for their reaction to the soil borne viruses. Over 200 entries from the World Collection that were resistant to mosaic are now being tested for other agronomic characters and reactions to other diseases.

It is estimated that diseases reduced the potential yield of oats in North Carolina by only 6%. According to the U.S.D.A., Bureau of Agricultural Economics, the average yield of oats in North Carolina was 34 in 1952. This is 6.4 bu. per acre more than the average yield for the 10-year period 1941-50. This high yield was made possible by the low incidence of disease and the increase in acreage of the varieties Arlington and Victorgrain 48-93.

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OHIO

By Verne C. Finkner (Columbus).

Oat production in Ohio in 1952 was approximately equal to that of the 10-year average, over 1,000,000 acres being harvested. The season turned hot and dry early and yields were

very low on late planted oats. Quality of the crop was surprisingly good. For all practical purposes the entire oat acreage is spring planted oats.

Mo. 0-205 was added to our list of recommended varieties for the 1953 plantings. Other recommended varieties are Ajax, Andrew, Clinton 59, Mindo and Shelby. Mo. 0-205, Ajax and an old variety, Wayne, have been outstanding yielders the last two years.

Oat diseases have played only minor roles the last few years. Most serious in 1952 was "red leaf" later turning to "grey spot".

The oat program in Ohio is primarily a testing program of strains supplied by the USDA and other states.

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OKLAHOMA

By A. M. Schlehuber, R. M. Oswalt, T. H. Johnston and B. R. Jackson (Stillwater).

Variety x Date-of-Seeding Test

In the 1951 National Oat Newsletter, it was stated that in a "Variety x Date-of-Seeding Test" started in 1948 the data indicated that the seeding of certain winter-type oats in late winter and/or early spring is more certain and produces as good or better yields than do spring oats seeded at the normal time. This new "wrinkle" was demonstrated on a farm basis in 1952. Approximately 500 acres of Tennex and Wintok winter oats were seeded in mid-January in Kay County, Oklahoma. Excellent yields (about 68 bu./A) and test weights (38-40 lbs.) were produced. Both yields and test weights exceeded those of spring oats (Cherokee and Fultex) seeded in mid-February. In addition, the straw was short and lended itself well for combining. Indications now (January 21) are that more of this will be practiced on farms in 1953.

New Strains

The new Oklahoma winter oat, C.I. 5106, a mass selection made at the Woodward, Oklahoma Experiment Station, produced good to excellent yields in 1952. At Cherokee it ranked first out of 15 varieties with a yield of 98.9 bushels, at Stillwater it ranked third out of 13 varieties with 86.2 bushels and at Woodward it produced 75.0 bushels and ranked sixth out of 15 varieties. Approximately 100 bushels of Breeder's seed was released to the Oklahoma Foundation Seed Stocks organization for increase under contract with approved Certified seed growers. However, due to the prolonged summer and fall drought, very little had been seeded

by December 1, 1952. Whether or not C.I. 5106 will be released will depend on its future performance both in variety tests and in increase fields.

A few selections of C.I. 5106 x Traveler and C.I. 5106 x Stanton Strain 1, now in the sixth generation, appear very promising from the standpoint of early vigor and heavy foliage, earliness, and fair to good straw. A number of these have been advanced to the Stillwater Triplicated Yield Nursery.

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PENNSYLVANIA

By Clarence S. Bryner (State College).

The 1952 spring oat season was dry in most sections of the state reducing oat yields approximately 30% under those obtained in 1951. Average yields this year reported by the Federal-Pennsylvania Crop Reporting Service were 29.0 bushels as compared to the 1941-50 average of 31.4 bushels. Total production was 2,600,000 bushels under the 1941-50 average due to less acreage and lower yields.

Clinton 59, Clinton 11 and Clinton accounted for 78% of the certified oats grown for seed in the state. Clinton (original) will not be certified in 1953.

Pennsylvania Rod-Row Trial Results 1950-52

Variety or C.I. No.	Average Yields 1950 6 trials	1951 4 trials	1952 4 trials	Average 1950-1952 14 trials	Average Bu. Wt. 1950-1952 14 trials
Craig	74.6	74.8	59.1	69.5	30.8
Ajax 1/	73.9	74.7	58.0	68.9	30.0
Zephyr 1/	68.5	69.4	59.0	65.6	29.6
Shelby	64.7	70.4	56.2	63.8	31.8
Canadian Beaver	66.6	69.0	54.8	63.5	29.0
C.I. 5646	66.5	66.9	51.3	61.6	31.3
C.I. 5647	63.6	62.6	57.2	61.1	31.6
Mohawk 1/	62.8	67.6	52.9	61.1	31.7
Clinton 1/	66.0	66.5	50.4	61.0	32.0
Andrew	65.6	63.7	52.2	60.5	30.6
Clinton 59 1/	63.2	64.0	53.1	60.1	31.9
Mo. 0-205	63.7	63.5	51.1	59.4	32.7
Patterson	60.4	63.6	49.5	57.8	28.7
C.I. 5441		67.7	57.4		
C.I. 5648		66.6	54.3		

1/ Varieties certified in 1952. Clinton 11 is also certified al-

Winter Oats

There is very little acreage of winter oats seeded although there has been some increase in the southern and southeastern counties where spring oats generally do poorly. Research trials have been in progress since 1948 and yields have been relatively high when winter survival is good. LeConte and Lee (Coldproof) are the varieties grown. LeConte is being certified until more hardy varieties are available.

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TENNESSEE

By N. I. Hancock (Knoxville).

A Disease Nursery of winter oats, wheat and barley was seeded this past fall on Cherokee farm. This nursery, as the name indicates, will be used only for study of diseases; no yield data will be taken. Cherokee farm is located along the bend of the Tennessee River and is utilized primarily for horticultural and livestock studies. Hence, this nursery is well isolated, and supplied with moisture from fogs of the river which it adjoins.

Early fall seedings on August 10 resulted in heavy natural infections of leaf rusts on oats and wheat. A number of these selections showed a fair resistance, and some degree of elimination could be applied before the regular fall seedings in October. Barley was infected heavily with H. sativum. Inoculum of this disease was distributed uniformly by scattering old barley straw over the young seedling plants. Not one of the 300 selections showed appreciable resistance to H. sativum.

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TEXAS

By I. M. Atkins (Denton).

Yields and quality of the oat crop in Texas were more satisfactory in 1952 than for many years. Although drought in the western part of the state prevented seeding of spring oats; and drought during the winter months in the central area caused abandonment of much acreage, the surviving acreage produced high yields of excellent quality grain. The total harvested acreage was only 896,000 acres, which is less than one-third normal but production was 22,000,000 bushels, which is more than half the normal production. Diseases were unimportant in production of the commercial crop, a situation which is most unusual.

The new winter hardy variety, Mustang, distributed in 1950, performed exceptionally well in commercial production this season. A record yield of 142 bushels was reported by one farmer and several fields of 10 to 30 acres each are known to have exceeded 100 bushels per acre. It is estimated that perhaps as much as 125,000 acres may be seeded to this new variety in 1953. A sister strain of Mustang, C.I. 6571, having light red seed, has produced unusually high yields the past two seasons. It ranked first in the Texas Intra-State Nursery in 1951 and second in 1952. In 1952 it ranked first in the U.S.D.A. Fall-Sown Red Oat Nursery grown throughout the Southern States, averaging 8.4 bushels higher than the second ranking strain at the more northern stations.

A new variety, Alamo, will be released to certified growers in 1953. This new variety will be used for spring seeding as a companion variety for Mustang, used for fall seeding in north Texas. It will be recommended for fall-seeding only in the area south of Temple, Texas. Alamo, C.I. 5371, is a selection from the cross Victoria-Hajira-Banner x Fulghum-Victoria and combines resistance to all the prevalent races of leaf and stem rust. It has beautiful, plump, red grain which weighed more than 40 pounds per bushel at several locations in 1952 and has a short, strong straw.

In the breeding program, we are attempting to combine the desirable characteristics obtained in our new varieties Mustang, C.I. 6571, Alamo and others with still greater disease resistance found in some of the spring-type oats. The strains Bondvic, Sac x Hajira-Joanette, Santa Fe x Clinton and others have been used in crosses. Disease resistant selections from crosses of Bonda x Hajira-Joanette, Mindo-Hajira-Joanette x Landhafer and Bond-Rainbow-Hajira-Joanette x Landhafer obtained from Minnesota in 1950 were used extensively. The F_4 disease resistant lines from these crosses are now growing in South Texas and the fifth generation will be grown at Aberdeen, Idaho this summer.

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UTAH

By R. W. Woodward (Logan).

Oat growing in Utah seems to have reached an equilibrium while increases are taking place in both spring wheat and barley. Overland is the most commonly grown variety since it has shown no rust or smut in this area and is one of the highest yielding varieties yet tested.

No oat crosses are being made at Logan, but 25 to 30 varieties and hybrids are annually tested for yield, disease resistance, and other desirable agronomic qualities.

Frost damage was noticeable at heading time. C.I. 6611 showed no damage to frost, while Shelby was badly damaged in all

WISCONSIN

By H. L. Shands (Madison).

Wisconsin oat yields averaged 45 bushels per acre in 1952. Yields were reduced by unseasonably warm and dry early season weeks in late April and early May. Septoria reduced yields also. Crown rust was spotty, being damaging in some fields in southwestern Wisconsin. Stem rust infected many of the "Bond" varieties. Large lesions were observed. Army worms raided a few fields in southern Wisconsin about July 16.

Septoria was widely distributed in Wisconsin. In addition to the "dark stem" phase (previously reported by Shands and Arny in Wisconsin Circulars 309 and 418) the disease expressed itself as (1) large lesions on the leaf blades, and to a lesser extent on the sheaths, and discoloring lesions on (2) glumes, (3) panicle branches, (4) lemmas, (5) paleas, and (6) groats. Test weight per bushel and yields were reduced in susceptible selections such as C.I. 5927.

Branch, first distributed in 1951, performed very well on about 75,000 acres in Wisconsin in 1952 and probably will materially expand its acres in Wisconsin to be planted in 1953. Branch seems to have a working resistance to the Septoria dark stem disease. However, there are lesions on flower-fruit parts and leaves.

A limited experiment has been in progress two seasons for the control of oat rusts by spraying plants with chemical compounds. At present it appears hopeful that the rusts can be held to low infection.

A new selection of oats from the cross (Forward x Victoria-Richland) x Andrew, C.I. 5946 has been named Sauk. The Wisconsin Agricultural Experiment Station plans to distribute it to growers of certified seed in 1954. This variety was in Mr. Coffman's midseason nursery in 1951 and was tested 5 years at 7 locations in Wisconsin. It placed from 5th to 8th in the latter tests. Sauk has test weight a little lower than that of Branch; is medium to tall in straw with moderately good strength; and is midseason in maturity. This variety is intermediate in response to crown rust and Septoria; it is moderately resistant to smut and stem rust; and is resistant to H. victoriae.

Others helping in the oat improvement program at Wisconsin are D. C. Arny, Steve Lund, Charles M. Brown and Robert Forsberg.

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LOUISIANA

By John G. Atkins* (Baton Rouge).

Oat Diseases in Louisiana in 1952

Heavy stem rust infection on many varieties and selections in nurseries at Baton Rouge and Crowley reversed the picture as regards the "disease resistance" of many strains which had shown promise in previous years with little or no stem rust. One would almost be inclined to say that only limited progress had been made in that many selections which had shown good "disease resistance" in previous years with heavy crown rust and Helminthosporium (victoriae) blight on known susceptible varieties were far from "disease resistant" with stem rust present. For example, Southland could not be considered as "disease resistant" in 1952, from the standpoint of the farmer, due to its susceptibility to stem rust. The situation in 1952 again emphasized the desirability of incorporating resistance to Helminthosporium blight, crown rust and stem rust -- the three really economic diseases of oats in Louisiana -- into new varieties, along with tolerance of low temperatures. However, we must not forget that oats are planted in Louisiana primarily as a forage or grazing crop with grain yields of secondary or equal importance. From that standpoint it becomes obvious that the agronomic characteristics or genetic factors which render a given variety promising from the forage viewpoint in Louisiana cannot be overlooked for resistance to the diseases which primarily reduce grain yields as a result of their attack a few weeks prior to harvest.

As usual crown rust was present and was heavy on susceptible varieties even though overshadowed by stem rust. Diseases were light in north Louisiana as contrasted with the relative infection of stem rust, crown rust and Helminthosporium blight in south Louisiana. Careful nursery readings indicated that some of the newerselections with good crown rust resistance, such as the Fla. 167 - Landhafer selections, were definitely more susceptible to Helminthosporium avenae than the older varieties. The fruiting of the pathogen on the culms was so abundant that the presence of H. victoriae was suspected rather than H. avenae but such was not the case as shown by microscopic examination in the laboratory.

* Dr. Atkins writes from Mt. Pleasant, Texas that he is now in the automobile business. By mistake his news item from Louisiana was placed out of proper order.
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Brookhaven National Laboratory

By C. F. Konzak *

A Somatic Mutation Conference was held at Brookhaven National Laboratory, December 19, 1952. At this conference, members of the staff of the Biology Department and representatives of a number of nearby experiment stations discussed the use of radiations as a means for experimental modification of heredity in plants. As a consequence of the active interest in the subject by those attending the conference, Brookhaven will cooperate with a number of experiment stations by exposing plant materials to radiation. Proposed experiments involve irradiation of fruit trees, ornamentals and crop plants.

The Brookhaven radiation facilities include a G.E. Maxitron 250 X-ray apparatus, kilocurie gamma radiation sources, a thermal neutron column in the Laboratory Nuclear Reactor and a 2,000 curie Cobalt ^{60} gamma radiation source. This latter facility merits further elucidation. The Cobalt^{60} source is located in the center of an isolated 10-acre field. Plants are grown in arcs of concentric circles at varying distances from the source. During the coming season, plant materials will be exposed to radiation for 20 hours each day throughout their growing period.

Research on cereals being carried on at Brookhaven includes a study on the relation of chromosome number to the frequency of mutation in oats induced by thermal neutrons. This study should be completed at the close of this coming season, and should shed some light on the types of seedling and mature plant mutations induced in the Mohawk variety of oats.

Encouraging results have been obtained in a study of the frequency of somatic mutations induced in the first generation of barley plants exposed continuously to gamma radiation during their life cycle. This latter experiment will be continued during the present season to determine the frequency and types of mature plant mutations induced. And, since the sexual stage in plant development appears to be most sensitive to radiation effects, the plants will be harvested and progeny tested for mutations induced during this stage. Large populations of Vulgare and Durum wheat, barley and oats will be grown in the continuous gamma radiation field during the coming season to more firmly establish the effectiveness of this facility for inducing mutations in cereals.

* Arrived too late for inclusion in special article section.

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V. NEW OAT VARIETIES*

* Actual or prospective. Developed cooperately with U.S.D.A. in most cases.

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VII. EDITORIAL COMMENT

In closing Volume III I am sure that I speak for all in expressing thanks to Dallas Western and The Quaker Oats Company for their financial support. Also appreciated is the excellent cooperation of all who sent articles and news items. Not a single re-write was necessary.

Two new sections have been added to the Newsletter, one on new varieties and the other on publications dealing with oats. This latter section could develop into a valuable source of reference, particularly if each makes an effort to send in references not only to his own papers but also to others he has seen. In this way, adequate coverage might be obtained without the compilation becoming a burden to any one person.

The mailing list for Vol. III gained 13 names and lost 41 for a net loss of 28. I do not believe we have actually "lost" all of these 41 since it is likely that pressure of business, absence from the country or other reasons will account for many. The matter of keeping a current mailing list has been one of concern to the Editor in order to strike a happy balance between the widest proper distribution and the preparation of an economical number of copies. While it seems harsh to prune the mailing list annually it also seems undesirable and uneconomical to mail out a large number of unwanted copies. Needless to say, copies are available for those who missed theirs on the regular mailing. It might be said that the subscription price of the Newsletter is a news item or a 2-cent postal card.

In this connection, there is mimeographed each year an approximate 25% over-run in the number of copies. There was a feeling that these would be particularly useful to the new men who enter the field of oat improvement and wish to obtain a complete file of the Newsletter. Accordingly, back copies of Volumes I and II will be furnished on request as long as the supply lasts.

If you like the "Special Articles" section, perhaps you will give thought to writing an article for next year. Or, send in the name of a subject you are interested in and a suggested author and we will follow it up.

Finally, if I may be permitted a comment on one of the articles, I was particularly pleased and impressed by the point of view expressed by Dr. Stanton on page 21 under the sub-heading "High yield not necessary for farmer acceptance of a variety". This is a view seldom expressed yet one which is basic to a proper interpretation of yield results of present-day oat varieties. In New York, for example, we have experienced this exact situation,

where, in any ranking of oat varieties by yield the varieties Mohawk and Clinton will almost always be found in the lower part of the ranking. Yet they remain very popular with farmers. We have found also that this relatively low comparative performance is not truly representative of their actual performance under farm conditions. Average acre yields in New York have risen with the widespread use of these varieties and the reason for this apparent anomaly appears to be simply that under the most favorable conditions for oat production Mohawk and Clinton will remain standing until harvest while other potentially higher-yielding varieties frequently will lodge. The farmer bins more oats with Mohawk and Clinton. Comparative yields, thus, sometimes present a misleading picture as to a variety's true worth. Incidentally, Dr. Stanton, last fall I visited my brothers' farms in North Dakota. All three were growing Cherokee.

Dr. D. A. Reid (Kentucky) writes that the Southern State Grain Breeders recently elected Dr. A. M. Schlehuber as representative to the National Oat Conference Committee to succeed Dr. I. M. Atkins whose 2-year term expired this year.

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