Crop Varieties and Corn Hybrids

for Ohio in 1960

Agricultural Extension Service
The Ohio State University

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Recommended

Crop Varieties and Corn Hybrids

for Ohio in 1960

By

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The recommendations in this bulletin were made by the Committee on Crop Variety Release and Distribution.

This committee is composed of the plant breeders, the chairman and associate chairman of the Department of Agonomy, Extension personnel and representatives of the fields of Plant Pathology and Entomology of the Ohio State University and the Ohio Agricultural Experiment Station, and the presidents of the Ohio Seed Improvement Association, the Ohio Hybrid Seed Corn Producers Association, and the Ohio Seed Dealers Associaton.

The committee carefully considers the data provided by the Ohio Agricultural Experiment Station. New hybrids and crop varieties are evaluated for resistance to diseases and insects as well as agronomic characteristics such as yield, lodging resistance, and quality of grain. As soon as a variety is adequately tested by the Ohio Agricultural Experiment Station, these data are presented to the Committee on Crop Variety Release and Distribution for its decision.

"Adequate testing" implies that data are obtained over a period of at least three years and from a total of at least six locations during these three years.

This committee places on the recommended list only those crop varieties and hybrids that will give the farmer maximum return. Regions of adaptation or special use of each recommended variety of hybrid are indicated. Recommendations given in this bulletin are general. The Ohio Agricultural Extension Service will provide, on request, special recommendations to fit specific conditions.

These recommendations should be considered for the present and are subject to change as experimental evidence warrants.

Considerable information is provided in this publication on the characteristics of the varieties and hybrids recommended for use in Ohio. The reasons for not recommending certain varieties are also given.

These recommended crop varieties and hybrids will produce maximum return only if their use is accompanied by approved cultural practices, such as good soil management, proper rate and date of planting, use of lime and fertilizer as indicated by soil tests and proper harvesting and storage.

* The author wishes to express his appreciation to the committee and others who provided information and helpful suggestions in the preparation of this bulletin.

Seed

The quality of the seed you plant is most important. Good seed should be true to type for the variety or hybrid selected, high in germination, free from insect or disease damage, free of weed seeds, and in general, should be of high quality. Buying or using poor quality seed can be and usually is expensive. Seed sold in Ohio must be tagged. READ the tag BEFORE you buy the seed. The information on the tag will give you some indication of the quality of seed contained therein.

Purchase your seed from a reliable dealer. He is interested in your welfare. Remember "Good Seed Doesn't COST, it PAYS."

Corn

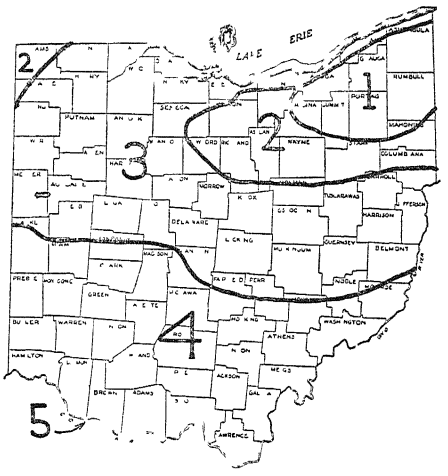
Regions of Adaptation

The map showing the different zones was designed for use with corn hybrids. In this respect, it serves a good purpose. These zones will be used only in making recommendations for corn hybrids. Other crops will be recommended on different regions of adaption.

Hybrids

Since soil productivity, seasonal conditions and management practices influence the time required for any hybrid to reach maturity, the terms "short-season," "mid-season," and "full-season" apply to good corn land in an average season. Earlier or later hybrids than those recommended may be desired for special conditions.

The relative length of growing season is indicated by the letters in the hybrid name, M, K, W, C, L, from earliest to latest. The difference between each letter group is 3 to 4 days. That is, M hybrids reach maturity about a week earlier than W hybrids grown under the same conditions.



The hybrids best adapted in the numbered areas of this map are listed opposite the corresponding number in the Table of Recommendations on page 5.

The agricultural experiment stations have adopted a uniform system of numbers to designate the relative maturity of new corn hybrids when they are released on a regional basis. These are termed AES numbers. The series 500 through 800 are the same total range of maturity as the five Ohio series M through L.

"Type" hybrids in the AES series are:

500 Ohio M15
600 Ohio K24
700 Iowa 4297
800 U.S. 13

If the recommended hybrids were to be reclassified into the AES series they would be arranged somewhat as follows:

The AES 500 Maturity series includes.
Ohio M15, Ohio M53

The AES 600 Maturity series includes:
Ohio K24, Ohio K35, Ohio K 62, Ind. 252A

The AES 700 Maturity series includes:
Ohio hybrids W10, W45, W49, W64, C54, C38
Iowa hybrids 4297, 4059

Corn Hybrids Recommended in Ohio

Corn Hybrids Are Listed Numerically

Area Number (See Map Page 4)	Corn (for grain)		
	Short-Season	Mid-Season	Full-Season
1		Ohio M15[1,4] Ohio M53	Ohio K24[3] Ohio K35 Ohio K62[2,3,4] Ind. 252A[1]
2	Ohio M15[1,4] Ohio M53	Ohio K24[3] Ohio K35 Ohio K62[2,3,4] Ind. 252A[1]	Ohio W10[1,2] Ohio W45 Ohio W49[1] Ohio W64[2,3,4] Iowa 4297[1]
3	Ohio M53 Ohio K24[3] Ohio K35[5] Ohio K62[2,3,4] Ind. 252A[1]	Ohio W10[1] Ohio W45 Ohio W49[1] Ohio W64[2,3,4] Iowa 4297[1] Ohio C38	Ohio C47[3] Ohio C54[2,3,4] Ohio L41[3] Ohio L51[2,3] AES 805[3] U.S. 13[1]
4	Ohio W10[1,3] Ohio W45 Ohio W64[2,3,4]	Ohio C38 Ohio C47[3] Ohio C54[2,3,4] AES 805[3]	Ohio L41[3] Ohio L51[2,3] U.S. 13[1]
5	Ohio L41[3] Ohio L51[2] AES 805[3] U.S. 13[1]	Ind 750B (White)	Ind. 750B (White)

Corn for Silage: Use a high yielding grain hybrid 10 days to two weeks later in maturity than the hybrids recommended for grain. Ohio L94, U.S. 13, and Indiana 750B are good silage hybrids.

1. Stalks and husks dry fast after grain filling. Good where mechanical harvest soon after maturity is demanded.
2. Stalks and husks usually remain green relatively long favoring complete grain filling and strong stalks. Preferred for delayed harvest.
3. Resistant to aphids and early borer infestation. Use where corn borer is a serious hazard.
4. Resistant to leaf blights.
5. Eastern half of state only.

Comparison of Ohio Certified Hybrids

Hybrid	Aphid Resistance	Resistance to Important Leaf and Stalk Troubles: Stalk Rot	Leaf Blight	Smut	Corn Borer: First Brood	Corn Borer: Tolerance	Suitability for Mechanical Culture and Harvest: Strength: Root	Strength: Stalk	Strength: Shank	Husking Ease
Ohio M15	MP	P	MG	MG	G	MP	M	MP	G	G
Ohio M53	G	G	MP	G	MP	M	MG	G	G	G
Ohio K62	Ex	G	G	MG	Ex	G	M	Ex	Ex	MP
Ind. 252A	P	MP	MG	G	MP	MP	G	MG	G	Ex
Ohio K24	G	MG	M	MG	G	MG	MG	G	G	MP
Ohio K35	MP	MG	MG	M	P	G	MG	G	G	MP
Ohio W49	MP	M	M	G	M	M	G	G	G	G
Ohio W64	Ex	Ex	G	G	G	G	Ex	Ex	Ex	P
Ohio W45	MP	M	M	G	M	MP	G	M	G	G
Ohio W10	MP	G	M	G	MG	M	GM	M	G	G
Iowa 4297	P	M	MP	G	M	MP	G	G	G	G
Ohio C54	Ex	Ex	G	MG	G	G	Ex	Ex	Ex	MP
Ohio C38	M	M	M	G	M	M	M	G	G	M
Ohio C47	M	M	M	G	G	M	M	M	G	G
Ohio L41	G	MG	M	G	G	MG	MG	G	G	M
Ohio L94	M	M	P	M	M	M	MP	For silage only		
U. S. 13	P	M	MP	MG	MG	MP	MG	MP	MP	Ex
AES 805	G	G	MG	MG	MG	G	Ex	G	G	G
Ohio L51	G	Ex	MG	G	G	Ex	Ex	Ex	G	MP

Ex = excellent, G = good, M = medium, P = poor.

The AES 800 Maturity series includes: **Ohio hybrids C47, L41, L51, L94, US13, AES 805**

Stalk rot, corn borers, aphids, and leaf blights constitute hazards that may reduce greatly the quantity and quality of the harvestable corn corp in any future season. No hybrids are immune to these troubles, but measurable degrees of resistance to all four are found in Ohio K62, Ohio W64, Ohio C54, Ohio L51, and AES 805. In general, stalkrot infections will increase as stands are heavier.

At present closed-pedigree corn hybrids are not tested by the Ohio Agriculutral Experiment Station. Therefore, only open-pedigree hybrids of outstanding qualities are recommended for use in Ohio.

Wheat

Ohio has developed an outstanding reputation in the production of high quality soft red winter wheat. This wheat is used in the production of pastry flour. If soft red winter wheat is contaminated with other classes of wheat, such as white or hard red winter, its value in the production of pastry flour is decreased. For this reason it would be beneficial to select varieties of soft red winter wheat for production in Ohio.

All the recommended varieties of wheat are classed as soft red winter wheat.

The **Butler, Dual, LaPorte, Lucas, Seneca, Thorne,** and **Vermillion** varieties are recommended for production in the entire state. However, if conditions are favorable to a high infection of scab, the varieties of **Seneca** and **Thorne** should be avoided.

Recommended Varieties

Butler, introduced in 1947, is the only bearded variety recommended. It is high yielding, stiff strawed, has excellent winter-hardness, good bushel weight, and satisfactory milling and baking qualities. It is white chaffed with red grain.

Dual was developed by the Indiana Experiment Station. It has considerable reristance to Hessian fly. The Hessian fly lays eggs on the plants and the eggs will hatch, but most of the maggots soon die.

LaPorte, developed by the Purdue Agricultura Experiment Station, was released in 1957. It is a medium early, high-yielding variety resistant to loose smut and to powdery mildew. It is a winter-hardy, medium stiff, medium tall, beardless and white-chaffed variety. It produces grain of good test weight and good soft wheat quality. It is resistant to mosaic and moderately resistant to leaf rust. It is susceptible to stem rust and to Hessian fly.

Lucas was developed by Dr. Lamb of the Ohio Agricultural Experiment Station. It was selected from the cross OSU 101-3X Thorne. Both parents came from Portage X Fulcaster. It was selected from the bulk hybrid at Wooster in 1943, and was released in 1957. The variety is stiff strawed, white-chaffed, beardless, high yielding, with exceptional high bushel weight. Quality is good but not outstanding. It has outyielded the standard varieties by a small margin.

Seneca was introduced in 1950 and is now the leading variety in Ohio. It has replaced much of the Thorne and should replace nearly all of it. Seneca is high yielding, stiff strawed, has moderately good winter hardness, good bushel weight and excellent milling and baking characteristics. It is beardless, with brown chaff and red grain.

Thorne was introduced in 1937, and is very closely related to Seneca. The varieties are very much alike, the principal difference is a lower bushel weight for the Thorne. Seneca should replace almost all the Thorne.

Vermillion, developed by the Purdue Agricultural Experiment Station, was released in 1956. It is a moderately stiff-strawed, medium short, high yielding, beardless, white-chaffed variety, producing grain of good test weight and excellent soft-wheat quality. It is highly resistant to leaf rust in the mature plant stage;

Comparison of Wheat Varities

Variety	Winter Hardiness	Straw Strength	Chaff Color	Test Weight	Loose Smut	Milling Quality
Butler	G	G	White	High	Resistant to races known in Ohio	F
Dual	G	F	White	Low	Resistant to some races, susceptible to others	G
LaPorte	G	F	White	High	Resistant to loose smut	G
Lucas	G	G	White	High	Moderately susceptible	G
Seneca	F	G	Brown	High	Resistant to some races, susceptible to others	G
Thorne	F	G	Brown	Low	Resistant to some races, susceptible to others	G
Vermillion	G	G	White	High	Resistant to many races	G

G = good, F = fair, P = poor Yielding Ability—All recommended varieties are high yielding.

resistant to soil-borne mosaic and many races of loose smut; susceptible to powdery mildew, stem rust, leaf blotch and Hessian fly.

Varieties Not Recommended

Genessee is a white wheat from New York. It has not outyielded Seneca and Butler. Bushel weight is low. White wheats grown in Ohio are higher in protein than when grown in Michigan or New York, and undesirable for the trade for this reason. Ohio should grow only soft red winter wheat.

Knox is a more recent Indiana variety. In Ohio tests over the yast 3 years it has been very erratic in yield. On the average it has not yielded as well as Seneca or Butler. Sometimes it does not stand well, and other times appears very stiff. Milling and baking characteristics are good. Not recommended because of erratic performance.

Pennoll is a Pennsylvania variety introduced a few years ago. It is very tall, stiff, and satisfactory in quality. It has not stood as well as Seneca and Butler, nor has it yielded as much.

Todd, a new wheat variety developed in Kentucky, has not performed very well in Ohio. Its milling quality is questionable.

Vigo is an Indiana variety released in 1947. It yields well is western Ohio, but is not satisfactory in the eastern part of the state. Vigo has stiff straw, is rather tall, is winter hardy, has good bushel weight and grain quality is good. The variety does not stand well after it is ripe and tends to shatter. It is beardless, white chaffed and has red grain.

New Varieties

Monon is a new soft red winter wheat developed by Purdue University Agricultural Experiment Station, and the United States Department of Agriculture. This is a very winterhardy variety 2 or 3 inches shorter than Knox, but does have superior straw strength. It is Hessian fly, soil-borne Mosaic, and leaf rust resistant. However, the new variety is susceptible to stem rust, but due to its early maturity, it may escape severe damage. It is a beardless white chaff variety about a day earlier than Knox.

Soybeans

There are many soybean varieties grown in Ohio. Since maturity is very important in soybean varieties, care should be taken in selecting a variety that is neither too late nor too early for conditions involved. As a general rule, the early maturing varieties will not yield as well as late maturing varieties, if they mature before frost.

On very rich soils, varieties need excellent lodging resistance to permit satisfactory combining. The ten recommended soybean varieties cover most conditions in Ohio rather satisfactorily. Only two of the recommended varieties are resistant to Phytophthora root rot, e.g.: Monroe and Blackhawk.

Recommended Varieties

Blackhawk was developed by the Iowa Experiment Station, in cooperation with the U. S. Regional Soybean laboratory, from the cross Mukden x Richland. It should be confined to northern and central Ohio as an early variety to precede wheat. Blackhawk has gray pubescence on stems and pods, white flowers, and yellow seeds with light brown hilum. Blackhawk is resistant to Phytophthora root rot and moderately resistant to stem canker.

Chippewa was developed by the Illinois Agricultural Experiment Station in cooperation with the U. S. Regional Soybean Laboratory from the backcross of Lincoln x (Lincoln x Richland). It should be

Areas of Adaptation of Recommended Soybean Varieties

To Precede Winter Wheat	Full Season
(Northern Ohio)	
Blackhawk	Harosoy
Chippewa	Hawkeye
Monroe	Lindarin
(Central Ohio)	
Blackhawk	Ford
Harosoy	Harosoy
Hawkeye	Hawkeye
Lindarin	Lincoln
Monroe	Lindarin
	Shelby
(Southern Ohio)	
Ford	Clark
Harosoy	Ford
Hawkeye	Harosoy
Lincoln	Hawkeye
Lindarin	Lincoln
Shelby	Lindarin
	Shelby

confined to northern Ohio as an early variety to precede wheat. Chippewa has brown pubescence on stems and pods, purple flowers, and yellow seeds with a black hilum. Chippewa is susceptible to Phytophthora root rot.

Clark was developed by the Illinois Agricultural Experiment Station in cooperation with the U. S. Regional Soybean Laboratory from the backcross of Lincoln x (Lincoln x Richland). Clark is recommended for southern Ohio as a full season crop. It has brown pubescence on stems and pods, purple flowers, and yellow seeds with a black hilum. Clark is susceptible to Phytophthora root rot.

Ford was developed by the Iowa Agricultural Experiment Station in cooperation with the U. S. Regional Soybean Laboratory from the backcross of Lincoln x (Lincoln x Richland). Ford is best adapted to central and southern Ohio. It has brown pubescence on stems and pods, white flowers, and yellow seeds with a black hilum. Ford is susceptible to Phytophthora root rot.

Harosoy was developed by the Dominion Experimental Station, Harrow, Ontario, Canada, from the backcross Mandarin x (Mandarin x A. K.). Harosoy can successfully be grown in any part of the soybean growing area of Ohio. It has gray pubescence on stems and pods, purple flowers, and yellow seeds with a yellow hilum. Harosoy is susceptible to Phytophthora root rot but moderately resistant to stem canker.

Hawkeye was developed by the Iowa Experiment Station, in cooperation with the U. S. Regional Soybean laboratory, from the cross Mukden x Richland. It can be successfully grown in any part of the soybean growing area of Ohio. Hawkeye has gray pubescence on stems and pods, purple flowers, and yellow seeds with a black hilum with brown outer ring. Hawkeye is susceptible to both Phytophthora root rot and stem canker.

Lincoln was developed by the Illinois Experiment Station, in cooperation with the U. S. Regional Soybean laboratory, from the cross Mandarin x Manchu. It should be confined to the central and southern part of Ohio. Lincoln has brown pubescence on stems and pods, white flowers, and yellow seeds with black

Comparison of Soybean Varieties

Variety	Zones Where Adapted	Yield	Maturity	Plant Height	Resist-ance to Lodging	Seed Size	Oil Content
Recommended							
Chippewa	North and Central to precede wheat	High	Very Early	Short	Good	Small	High
Monroe	North and Central to precede wheat	High	Early	Tall	Med.	Med.	Med.
Blackhawk	North and Central to precede wheat	High	Med. Early	Short	Good	Med.	High
Lindarin	All Regions	High	Med.	Short	Good	Med.	High
Harosoy	All Regions	High	Med.	Tall	Med.	Large	High
Hawkeye	All Regions	High	Med.	Med.	Good	Large	High
Lincoln	Central and Southern	High	Late	Tall	Med.	Small	High
Ford	Central and Southern	High	Late	Tall	Med.	Med	High
Shelby	Central and Southern	High	Late	Tall	Med.	Med	High
Clark	Southern	High	Very Late	Tall	Good	Large	High
Acceptable							
Adams		High	Late	Med.	Med.	Med	High
Varieties—Not Recommended							
Bavender					Very Poor		Very Low
Hill			Too Late				
Hood			Too Late				
Manchu		Varies			Poor		Low
Mandell					Poor		Low
Scott			Too Late				

Med. = Medium

hilum. Lincoln is susceptible to Phytophthora root rot and slightly susceptible to stem canker.

Lindarin was developed by the Purdue Agricultural Experiment Station in cooperation with the U. S. Regional Soybean Laboratory from the cross Mandarin (Ott). x Lincoln. Lindarin can be successfully grown in any part of the soybean growing area of Ohio. It has gray pubescense on stems and pods, purple flowers, and yellow seeds with a buff hilum. Lindarin is susceptible to Phytophthora root rot.

Monroe was developed by the Ohio Experiment Station, in cooperation with the U. S. Regional Soybean laboratory, from the cross Mukden x Mandarin. It should be confined to northern and central Ohio as an early variety to precede wheat. Monroe has gray pubescence on stems and pods, white flowers and yellow seeds with a yellow hilum. It is resistant to Phythopthora root rot, and only slightly susceptible to stem canker.

Shelby was developed by the Illinois Agricultural Experiment Station in cooperation with the U. S. Regional Soybean Laboratory from the backcross of Lincoln x (Lincoln x Richland). Shelby should be grown only in central and southern Ohio. It has brown pubescense on stems and pods, purple flowers, and yellow seeds with a black hilum. Shelby is susceptible to Phytophthora root rot.

New Varieties—Not Recommended

Hill was released for production in Delaware, Maryland, Virginia, North Carolina, Missouri, Arkansas, Mississippi,

Average of Several Agronomic Characters of the Recommended Soybean Varieties* in Ohio

Variety	Yield Bu./Acre	Date of Maturity	Plant Ht. (Inches)	Lodging** Index	Percent*** Oil
Northern Ohio, 1956-58					
Chippewa	30.4	Sept. 13	28	1.3	20.7
Monroe	27.5	Sept. 16	35	1.5	20.0
Blackhawk	31.4	Sept. 20	32	1.1	20.8
Lindarin	31.1	Sept. 23	30	1.3	20.5
Harosoy	33.9	Sept. 25	35	1.4	20.4
Hawkeye	32.1	Sept. 27	33	1.4	20.8
Central and Southern Ohio, 1956-58					
Lindarin	39.0	Sept. 20	33	1.3	21.0
Harosoy	37.7	Sept. 22	36	1.3	20.7
Hawkeye	35.1	Sept. 24	34	1.3	21.1
Ford	41.3	Sept. 30	36	1.3	20.5
Lincoln	37.5	Sept. 30	37	1.3	20.9
Shelby	39.6	Oct. 1	36	1.4	21.0
Clark	44.3	Oct. 6	36	1.1	20.7

* Within each group the varieties are listed in order of maturity, the earliest first.

** Lodging notes are taken at maturity and recorded on a scale of 1 to 5 according to the following degrees of lodging:

1. Almost all plants erect.
2. Either all plants leaning slightly or a few plants down.
3. Either all plants leaning moderately, or 25% to 50% of the plants down.
4. Either all plants leaning considerabl,y or 50% to 80% of the plants down.
5. Almost all plants down.

*** On moisture free basis.

Texas, and New Mexico and is not adapted to any region in Ohio.

Hood was released for production in Delaware, Maryland, Virginia, North Carolina, Kentucky, Missouri, Arkansas, and Oklahoma and is too late in maturity for successful production in Ohio.

Scott was released by the Missouri Agricultural Experiment Station for production in southeast Missouri and is not adapted to any region of Ohio.

Vegetable Soybeans

The chief difference between vegetable type soybeans and commercial type soybeans is that the vegetable type is more palatable.

Two new and improved vegetable soybean varieties have been developed and tested by the Iowa Experiment Station and the U.S.D.A. The names of the new varieties are **Kim** and **Kanrich.** Both of these varieties have excellent shattering resistance, satisfactory yields, medium plant height, lodging resistance, high palatibility scores, and about the same maturity as Hawkeye.

Spring Oats

The recommended spring oat varieties have proved to be consistent in producing high yields combined with acceptable bushel weight, straw strength, disease resistance and grain quality. The many new oat varieties must be carefully evaluated for adaptation and superiority in performance under growing conditions in Ohio.

The use of high quality seed of a recommended variety, attention to the use of adequate fertilization, careful preparation of a weed-free seedbed and seeding as early in the spring as weather permits are essential in successful production of spring oats.

Recommended Varieties

Clarion is widely adapted in Ohio and produces high yields of heavy, plump, yellow kernels. Somewhat tolerant to oat diseases, Clarion exhibits good straw strength for combining.

Clintland is the most resistant of the recommended oat varieties to the races of crown rust occurring in Ohio. Medium-early in maturity, Clintland has stiff straw and produces high quality yellow kernels of excellent bushel weight.

Rodney oats matures about one week later than Clintland and provides high yields of large, white kernels and tall, stiff straw.

Acceptable Varieties

Garry is a late- maturing white oat variety which is somewhat light in kernel weight. Best yield performance has been obtained in northern Ohio.

Minhafer is a medium-early yellow oat with excellent crown rust resistance and wide adaptation but not outstanding for yield.

Newton oats is widely adapted and medium-early in maturity. This yellow oat is satisfactory in yield performance but has a tendency for lodging on fertile soils.

Non-Recommended Varieties

Andrew lacks straw stiffness and is erratic in yield performance.

Bentland oats grows tall and is acceptable for silage but lodges badly and is not satisfactory in grain yield.

Burnet and **Craig** have weak straw and are unsatisfactory for yield.

Mo. 0-205 is an early red oat with inadequate disease resistance and poor straw strength.

Putnam is an early yellow oat that is unsatisfactory for yield.

Recommended Spring Oat Varieties
(1955-59 Data at Columbus and Wooster)

Variety	Bu./Acre	Lbs./Bu.	Height Inches	Lodging Pecent	Date Headed	Grain Color
Clarion	71.8	35.0	42	3	June 16	yellow
Clintland	67.4	33.8	40	14	June 16	yellow
Rodney	72.8	32 5	44	4	June 24	white

Disease Reaction of Recommended Spring Oat Varieties

Variety	H Vict.	Stem Rust R.7	Stem Rust R.7A	Stem Rust R.8	Smuts	Crown Rust
Clarion	R	R	R	S	R	S
Clintland	R	S	S	R	R	R
Rodney	R	R	S	R	R	S

R = resistant, S = susceptible.

Sank and **Simcoe** are late-maturing varieties which lack stiffness of straw.

Many older varieties, including **Ajax, Clinton 59, Columbia, Kanota, Miami, Nemaha** and **Tama,** lack straw-stiffness and disease resistance and are inferior to recommended varieties for grain yield.

New Varieties

Clintland 60, developed by the Indiana Agricultural Experiment Station, is very similar to Clintland in appearance and performance in early test in Ohio and provides a wider range of resistance to oat stem rust.

Goodfield is a medium-early variety with short, stiff straw and excellent resistance to the oat rusts. Preliminary data on this Wisconsin release show only fair yield performance.

Macon, a new variety developed by Missouri workers, appears to be an early red oat with straw-stiffness and disease resistance superior to Missouri O-205.

Nehawka oats is a new release from Nebraska which is relatively early in maturity and produces high quality grain but may lack straw stiffness under Ohio conditions.

Winter Oats

When winter conditions are not severe, excellent yields of winter oats with high quality grain have been produced in central and southern Ohio. Least winterhardy of the fall-sown small grains in Ohio, winter oats are subject to considerable risk in production.

Acceptable Varieties

Dubois appears to be the best available variety for yield, grain quality and disease resistance in Ohio. Good survival can be expected only when relatively wild winters occur.

Non-Recommended Varieties

Wintok and **Forkedeer** are winterhardy but low yielding and lack disease resistance.

Tennessee Winter, LeConte, Coy and **Lee** lack sufficient winterhardiness for production in Ohio.

Winter Barley

Winter barley production in Ohio has increased considerably in the last five years. Some of the winter wheat acreage has been diverted to winter barley in

Recommended Winter Barley Varieties

(1955-59 Data from 18 Tests at 5 Locations in Ohio)

Variety	Bu./Acre	Lb./Bu.	Percent Lodging	Height (Inches)	Date Headed
Dayton	54.3	43 0	5	32	May 14
Kenbar	51 7	43 1	19	32	May 14

accordance with federal crop programs. New varieties with added winterhardiness and disease resistance have been released, and improved planting and fertility practices have aided in stabilizing barley grain yields. Recommended winter barley varieties are high yielding and excellent for livestock feed.

For successful production, winter barley varieties should be planted early in September on well-drained soil that has been limed and fertilized according to recommendations.

Recommended Varieties

Dayton was developed by the Ohio Experiment Station, and seed became available in 1955. Dayton is medium in height, has good standing ability and has been the most consistent high-yielding variety in Ohio.

Kenbar winter barley is also widely adapted in Ohio, with good winterhardiness and straw-strength. Kenbar often heads and matures a few days after Dayton but provides high yields of grain of excellent quality. Both Dayton and Kenbar are semi-smooth owned varieties with resistance to the prevalent diseases of winter barley.

Acceptable Varieties

Hudson is excellent in bushel weight and winterhardiness and following severe winter conditions gives acceptable yield performance in comparison with less hardy varieties. Lodging and loose smut infection often reduce its yield.

Non-Recommended Varieties

Ohio No. 1 and Wong are inferior for yield and straw-strength and lack the disease resistance of the recommended varieties.

New Varieties

Decatur, a new variety developed by the Indiana Agricultural Experiment Station, is promising for straw strength, disease resistance and winterhardiness but has given only medium performance for yield in preliminary tests.

Spring Barley

The acreage seeded to spring barley in Ohio has been limited by the lack of consistent yield performance following occasional cool, wet growing conditions after seeding. With proper seeding, adequate fertilization, and good growing conditions in the spring, high yields of spring barley have been obtained in Ohio.

The spring barley variety, **Moore**, has proven to be best adapted to Ohio conditions. Smooth-awned, and medium in height, Moore has produced satisfactory yields of feed barley.

Grain Sorghum

In recent years there has been considerable interest in grain sorghums as a livestock feed. Grain sorghums have about 95 percent the feeding value of corn with several classes of livestock. In Ohio it is questionable whether grain sorghums will become an economic crop.

Hybrid grain sorghums have been developed that are in general superior to the open pollinated varieties. The limited tests conducted in Ohio indicate that the best adapted grain sorghum hybrids do not yield as much grain per acre as do the adapted corn hybrids.

Insufficient information is available to place any varieties or hybrids on the recommended list. However, if one wants to grow grain sorghum, some of the better varieties and hybrids are **Martin, Midland, Redbine 60, RS501** and **RS610.**

Grasses

Bromegrass. The southern bromegrass strains are higher yielding in Ohio than northern strains. There are no important differences among the southern strains which include **Lincoln, Elsberry, Achenbach, Fischer** and others.

Orchardgrass. Common orchardgrass (not a variety) is early maturing. It may be used for early grazing, early silage or hay harvest. Also available, are later maturing strains, such as **S-37,** which bloom a week to 14 days later than common, are more leafy and have finer stems.

Sudangrass. Piper is more vigorous than commercial types and is more resistant to certain diseases . It has a lower level of hydrocyanic acid (HCN) potential. HCN is the glucoside which causes poisoning in livestock. Caution should still be exercised in grazing sudan plants under 18 inches in height.

Timothy. Common timothy (not a variety) is the only source of seed currently available. **Climax** timothy (very limited seed supply) matures about a week later and is leafier than common timothy.

Birdsfoot Trefoil

Used principally as a permanent pasture legume, birdsfoot trefoil may also be used as hay, silage or dual-purpose meadow. Within birdsfoot trefoil there are two types, the broadleaf and narrowleaf. The broadleaf is the only type that should be used in Ohio.

Empire is recommended for pasture. It has proven more persistent under continuous grazing than upright types.

Viking, an upright birdsfoot, is recommended for dual-purpose meadow where the first cutting is taken as hay or silage and later harvests are either clipped or grazed. Viking and other upright types will not withstand continuous grazing.

Other Varieties

Cascade, Mansfield and **Granger** are upright types selected from European seed sources. They are similar in growth to Viking but have been inferior in hay production in Ohio tests.

Imported birdsfoot seed (not a variety) is commonly available and is similar to other upright strains. Imported commonly contains a mixture of types, both broadleaf and narrowleaf.

Alfalfa

Resistance to bacterial wilt is an important factor in choosing alfalfa varieties if the field is to be left down 3 years or more.

Certified seed of Buffalo, Ranger or Atlantic is satisfactorily winterhardy in Ohio regardless of the state in which the Certified seed is produced.

Recommended Varieties

Atlantic is a vigorous growing, high yielding, variegated alfalfa which outyields most strains during the first and second years. It is not satisfactorily resistant to bacterial wilt although it will last longer on wilt-infested soils than Grimm or Kansas Common. It is recommended for 1 or 2 year meadows over all of the state.

Buffalo is a wilt-resistant selection from Kansas Common, which it resembles in

growth characteristics and yield. Buffalo is more desirable than Ranger in the southern third of the state. They are about equal in the central third.

Ranger is a high-yielding, wilt-resistant, winter hardy alfalfa. It has consistently yielded well in northern Ohio.

Vernal is a new variety developed at Wisconsin. It is resistant to bacterial wilt and has considerable cold resistance. It has performed equal or superior to Ranger in northern Ohio where both varieties have been under test.

Acceptable Alfalfa

Du Puits is a French variety, early in flowering and rapid in regrowth after cutting. On a three-cut hay schedule it tends to become coarse and stemmy, therefore, four cuttings are recommended. It is well suited for short rotations where alfalfa is to be left down two years or less. Because it is very susceptible to bacterial wilt, it should not be used in long term stands.

Other Varieties

Narragansett, developed in Rhode Island appears to be better adapted to conditions further east.

Rhizoma, Nomad and **Rambler,** varieties possessing either a low-crown or creeping root growth habit, also have been tested. At present, none of these appears to be equal to Vernal, Ranger or Buffalo for Ohio farmers.

Teton is a new variety bred and released by the South Dakota Experiment Station. Because of its low wide crown and resistance to bacterial wilt, Teton may prove to be of value for pasturing. It has had only limited testing in Ohio.

Common alfalfas described by the state of production such as **Kansas Common, Utah Common, Idaho Common,** etc. are usually shorter lived than the recommended varieties and are not superior in yield.

The recommended improved varieties of alfalfa for Ohio are **Vernal, Ranger, Buffalo** and **Atlantic.**

Red Clover

Disease resistance is also important with red clover. Southern anthracnose, a common disease in southern Ohio, often causes serious reduction in first-year stands and second cutting yields in susceptible red clover varieties. A different disease, northern anthracnose, occasionally affects clover yields in northern Ohio.

Recommended Varieties

Kenland is a red clover variety developed at the Kentucky Experiment Station and is especially adapted in southern Ohio. Kenland is resistant to southern anthracnose.

Pennscott, developed in Pennsylvania, is a vigorous growing red clover variety that has shown yield performance equal to Kenland in northern Ohio. It is reported to have resistance to certain disease organisms such as Fusarium and Sclerotinia. Pennscott is more vigorous than Kenland in the seeding year and therefore easy to establish.

Dollard red clover comes from Quebec, Canada. It is less vigorous than Kenland in the seeding year but has equaled Kenland in northern Ohio. It was observed to be more resistant to northern anthracnose than other leading varieties in Ohio in 1955. It is adapted in the northern one-third of the state.

New Varieties

Lakeland red clover, developed in Wisconsin, is highly resistant to powdery mildew and northern anthracnose. It is expected that Lakeland will be superior to Dollard in Ohio. Seed is not yet available.