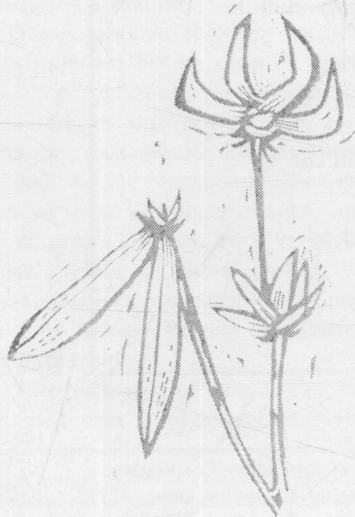




CROP VARIETIES and CORN HYBRIDS for OHIO - 1965

COOPERATIVE EXTENSION SERVICE

THE OHIO STATE UNIVERSITY



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Principal Changes for 1965

Dropped from Recommended List

Corn—Ohio M15	Wheat—Lucas
Corn—Ohio K24	Soybeans—Chippewa
Corn—Ohio K35	Soybeans—Henry
Corn—Ind. 252A	Oats—Clarion
Corn—Ohio W45	Barley—Kenbar
Corn—Ohio W49	Alfalfa—Atlantic
Corn—Iowa 4297	Alfalfa—Buffalo
Corn—Ohio C47	
Corn—Ohio L41	
Corn—Ohio L51	

Added to Recommended List

Wheat—Fulton
Soybeans—Chippewa 64
Oats—Garland
Barley—Harrison

Recommended

CROP VARIETIES AND CORN HYBRIDS

for Ohio in 1965

By

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Extension Agronomist, The Ohio State University

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

The committee is composed of the plant breeders; the chairman and associate chairman of the Department of Agronomy; 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 secretaries of the Ohio Seed Improvement Association; the Ohio Foundation Seeds, Incorporated; and a representative of the Ohio Seed Dealers Association.

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

"Adequate testing" means 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 should give the farmer maximum net return. Regions of adaptation or special use of each recommended variety or hybrid are indicated. Recommendations given in this bulletin are general. The Ohio Cooperative 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 net returns 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. All seed sold in Ohio must be labelled as germi-

nation, weed content (if any), purity, etc.

READ the tag or label BEFORE you buy the seed. The information on the tag or label 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

Principal Changes for 1965

Dropped from Recommended List

Ohio M15	Ohio W49
Ohio K24	Iowa 4297
Ohio K35	Ohio C47
Ind. 252A	Ohio L41
Ohio W45	Ohio L51

Added to Recommended List

None

Hybrids

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

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 agricultural experiment stations in the United States have adopted a uniform system of numbers to designate the relative maturity of corn hybrids. The ma-

Open Pedigree Corn Hybrids Recommended in Ohio

Corn Hybrids Are Listed Numerically

Area Number (See Map, Page 6)	Corn (for grain)		
	Short-Season	Mid-Season	Full-Season
1	Ohio 401 ¹	Ohio 524 ^{1,3,4} Ohio M53 ⁵	Pa. 555 ^{1,4} Ohio 710 ^{1,4} Ohio K62 ^{2,4}
	2	Ohio 524 ^{1,3,4} Ohio M53 ⁵	Pa. 555 ^{1,4} Ohio 710 ^{1,4} Ohio K62 ^{2,3,4}
3		Pa. 555 ^{1,4} Ohio 524 ^{1,3,4} Ohio M53 ⁷ Ohio K62 ^{2,1,4}	Ohio 708 ^{3,4} Ohio 710 ^{1,4} Ohio W64 ^{2,3,4} Ohio C38
	4	Ohio 708 ^{3,4} Ohio W64 ^{2,3,4}	Ohio 760 ^{1,4} Ohio C38 Ohio C54 ^{2,3,4} AES 805 ²
5		Ohio 823 ^{1,4} AES 805 ¹ U.S. 13 ¹	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 Good under conditions of extreme drought.

turity of new Ohio hybrids is indicated by number designations which are in accord with the agricultural experiment station (AES) series.

The relative maturity of the new hybrids is indicated by the numbers in the hybrid designation, 400, 500, 600, 700, 800, from earliest to latest. The difference between each series number is 3 to 4 days. That is, the 500 maturity hybrids reach maturity about a week earlier than the 700 hybrids. As a point of reference for comparison of the hybrid maturity with the length of the growing season, an 800 maturity hybrid would be considered a 120-day hybrid under average growing conditions.

The 400 maturity series includes: Ohio 401

The 500 maturity series includes: Ohio 524, Ohio M53

The 600 maturity series includes: Ohio K62, Pa. 555

The 700 maturity series includes: Ohio 710, Ohio 708, Ohio W64, Ohio 760, Ohio C54, Ohio C38

The 800 maturity series includes: Ohio 823, AES 805, US13, Ohio L94

Stalk rot, corn borers, aphids, and leaf blights constitute hazards that may reduce greatly the quantity and quality of the harvestable corn crop in any future season. No hybrids are immune to those troubles, but considerable degrees of resistance to all four may be found in Ohio 524, Pa. 555, Ohio 708, Ohio 710, Ohio W64, Ohio 760, Ohio C54, Ohio 823, and AES 805. In general, stalk rot infections will increase as stands are higher and as corn follows corn.

Hybrids including Ohio 401, Ohio 524, Pa. 555, Ohio 708, Ohio 710, and Ohio 823 are recommended for and perform best at plant populations of 18,000 to 22,000 plants per acre.

Comparison of Ohio Certified Hybrids

Hybrid	Resistance to Important Leaf and Stalk Troubles						Suitability for Mechanical Culture and Harvest				Suitability for High Plant Population*
	Aphid Resistance	Stalk Rot	Leaf Blight	Smut	Corn Borer		Strength			Husking Ease	
					First Brood	Tolerance	Root	Stalk	Shank		
Ohio 401	G	G	MG	MG	G	G	MG	M	G	Ex	Ex
Ohio 524	G	G	G	G	Ex	G	G	Ex	G	Ex	Ex
Ohio M53	G	G	MP	G	MP	M	MG	G	G	G	G
Ohio K62	Ex	G	G	MG	Ex	G	M	Ex	Ex	MP	G
Pa. 555	G	G	Ex	G	Ex	G	Ex	Ex	G	G	Ex
Ohio 710	Ex	G	Ex	MG	Ex	G	MG	Ex	Ex	G	Ex
Ohio 708	Ex	Ex	Ex	G	G	G	Ex	Ex	Ex	G	Ex
Ohio W64	Ex	Ex	G	G	G	G	Ex	Ex	Ex	P	G
Ohio 760	Ex	Ex	G	G	G	G	Ex	Ex	Ex	G	Ex
Ohio C54	Ex	Ex	G	MG	G	G	Ex	Ex	Ex	MP	G
Ohio C38	M	M	M	G	M	M	M	G	G	M	P
Ohio L94	M	M	P	M	M	M	MP	For silage only			M
U. S. 13	P	M	MP	MG	MG	MP	MG	MP	MP	Ex	M
Ohio 823	G	Ex	G	G	G	Ex	Ex	Ex	G	G	Ex
AES 805	G	G	MG	MG	MG	G	Ex	G	G	G	G

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

* 18,000 to 22,000 plants per acre at harvest.

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 adaptation.

The hybrids best adapted to the numbered areas of this map are listed opposite the corresponding number in the Table of Recommendations on page 4.



Wheat

Principal Changes for 1965

Dropped from Recommended List
Lucas

Added to Recommended List
Fulton

Ohio has an outstanding reputation for its high quality soft red winter wheat. Flour from this wheat is superior for cakes and crackers. The flour is better used alone than if mixed with that of other classes, such as hard red winter or white wheat. For this reason, it is strongly recommended that only soft red varieties be grown in the state. All recommended varieties fall in this class.

Fulton, LaPorte, Monon, Redcoat, Reed, Seneca, and Vermillion are recommended for all sections of the state.

Recommended Varieties

Fulton is a new Ohio variety with very good resistance to loose smut. It is rather tall, but has stiff straw and stands well. Fulton originated in the cross Butler X Thorne and has no particular disease resistance except to loose smut. It is prob-

ably more liable to damage from scab than any of the other recommended varieties. Yield has been very good, quality excellent, and bushel weight intermediate. In height, maturity, and bushel weight, it is similar to Seneca. Limited seed will be available for planting in the fall of 1965.

LaPorte is a high-yielding variety with more resistance to loose smut than most. It is rather tall and tends to lean or lodge more readily than others on the recommended list. The grain is of good quality. LaPorte was developed at the Purdue University Agricultural Experiment Station.

Monon is the earliest and shortest strawed of the recommended varieties. It is suggested for areas where diseases are serious, because it carries good resistance and usually matures before too much damage can be done. This is especially important in hot, humid areas, such as the Scioto River Valley. It is also useful on farms with large wheat acreages, to spread the harvest season over a longer period, or under any conditions where an early variety is desired. It does not have

quite as good a yield record as most of the other recommended varieties. It was developed at the Purdue Agricultural Experiment Station.

Redcoat is a disease-resistant variety with excellent winter hardiness, stiff straw, good yield, and good bushel weight. It is not as satisfactory as some other varieties in milling characteristics. It shatters rather badly some seasons. It was developed at the Purdue Agricultural Experiment Station.

Reed continues to have an excellent record in Ohio. It has essentially replaced Dual in Indiana, and probably also in Ohio. It is one of the best of the mid-season recommended varieties. It was developed at the Purdue Agricultural Experiment Station.

Seneca was developed at the Ohio Agricultural Experiment Station. It was the leading variety in the state until recently. It is now decreasing in acreage rather rapidly. It is an excellent quality wheat, especially for cake flours. Seneca is susceptible to scab and should not be grown where this disease is prevalent.

Vermillion is very winter hardy, and has excellent soft wheat quality. It is moderately early and medium height. It has resistance to several diseases, but is susceptible to Hessian fly and mildew. It is a sister line to Knox, but has been much more consistent in yield. It was developed at the Purdue Agricultural Experiment Station.

Varieties Not Recommended

Genesee and **Avon** are white wheats, lower in bushel weight, and with no yield advantage over the recommended soft red wheats. They are higher in protein when grown in Ohio than in Michigan, Ontario, or New York. For this reason they are less desirable in the market. Mixtures of red and white wheat are not favored in trade channels, and white varieties should not be grown in Ohio.

Comparison of Recommended Wheat Varieties*

Variety	Winter Hardiness	Straw Strength	Chaff Color	Bushel Weight	Height	Maturity	Leaf Rust	Powdery Mildew	Mosaic	Loose Smut	Hessian Fly
FULTON	Good	Good	White	Medium	Medium	Mid-season	Susceptible	Susceptible	Resistant	Resistant	Susceptible
LAPORTE	Good	Fair	White	High	Tall	Mid-season	Resistant	Resistant	Resistant	Mod. Resis.	Susceptible
MONON	Good	Good	White	Medium	Short	Early	Highly Resis.	Mod. Resis.	Resistant	Susceptible	Resistant
REDCOAT	Good	Very Good	White	High	Med. Short	Med. Early	Resistant	Resistant	Resistant	Mod. Susc.	Resistant
REED	Good	Good	White	High	Medium	Mid-season	Resistant	Mod. Susc.	Resistant	Mod. Susc.	Resistant
SENECA	Mod. Good	Good	Brown	Medium	Medium	Mid-season	Susceptible	Susceptible	Resistant	Mod. Susc.	Susceptible
VERMILLION	Good	Good	White	High	Med. Short	Med. Early	Resistant	Mod. Susc.	Resistant	Susceptible	Susceptible

* All varieties are beardless, and all have acceptable milling and baking characteristics.

Yields and Bushel Weights of Recommended Wheat Varieties Drilled Tests in Ohio

		1959	1960	1961	1962	1963	1964	Average
		11 tests	13 tests	14 tests	14 tests	14 tests	13 tests	(Adjusted)*
FULTON	Bu./Ac.	30.3	47.7	42.1	41.6	48.1	38.7	41.4
	Lb./Bu.	58.2	59.3	57.3	58.7	60.3	57.3	58.5
LAPORTE	Bu./Ac.	31.2	46.0	42.2	41.4	43.8		40.6
	Lb./Bu.	59.1	60.2	58.7	59.4	61.0		59.7
MONON	Bu./Ac.	27.3	38.6	45.0	39.9	44.7	38.7	39.0
	Lb./Bu.	58.6	59.4	56.9	59.2	59.7	59.0	58.8
REDCOAT	Bu./Ac.			47.0	41.3	41.4	41.6	41.4
	Lb./Bu.			60.2	59.7	60.1	58.9	59.7
REED	Bu./Ac.				42.1	44.0	40.6	41.2
	Lb./Bu.				59.4	60.5	59.0	59.6
SENECA	Bu./Ac.	27.8	45.8	40.2	36.9	43.4	37.2	38.6
	Lb./Bu.	58.5	59.6	57.3	58.7	60.2	57.6	58.7
VERMILLION	Bu./Ac.	30.9	43.2	37.9	32.7	47.6		38.1
	Lb./Bu.	59.4	60.4	58.7	58.4	60.8		59.5

Adjusted where not grown in all tests.

Knox 62 is similar to **Knox** which has been very erratic in yield in Ohio. **Knox 62** is resistant to Hessian fly, and possibly is less susceptible to loose smut than **Knox**. It has exceptionally high bushel weight.

Pennoll from Pennsylvania does quite well in Northeastern Ohio, but is not recommended. It is tall with coarse straw and has lodged rather badly in several tests.

Hard red winter varieties have not yielded as well as the soft wheats in Ohio, and when grown under our climatic conditions are not satisfactory in quality for any bakery products. They should not be grown under any circumstances.

Average yields and bushel weights of the recommended varieties at several locations in Ohio over the past six years are presented in the table. Note that there is less than one bushel difference in the yields of four of these varieties. This is less than the error of the tests, so it may be said they are essentially equal. In any given year, one or another may be ahead. This means it doesn't matter which of these varieties one grows over a 5- or 6-year period, and the choice should be made on considerations other than yield. It is also evident that one year's performance can be actually misleading.

Rye

Principal Changes for 1965

None

Winter rye is the most winter-hardy of small grains. It is especially adapted to sandy or muck soil.

Rye is used mainly for cover crops, late fall and early pastures or for a green manure crop in Ohio. The demand for

varietal evaluation of this crop has not been sufficient to warrant extensive testing. With inadequate data available it is not possible to place any variety on the recommended list.

Varieties in Use

Balbo is an early, high-yielding variety which makes excellent and rapid fall and

early spring growth. For this reason, it is preferred over other varieties. It is rather winter-hardy. Dairy researchers report that the Balbo variety gives less undesirable flavor to milk than the other rye varieties.

Tetra Petkus was introduced from Ger-

many into the United States in about 1951. The seeds are large and blue-green in color. The straw is stiff and coarse. It is slower than Balbo to start growth in the fall and early spring. Mixtures with other ryes will reduce grain yield.

Soybeans

Principal Changes for 1965

Dropped from Recommended List

Chippewa
Henry

Added to Recommended List

Chippewa 64

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, at the same location, late maturing varieties will yield more than early maturing varieties, if both mature before frost.

On very rich soils, varieties need excellent lodging resistance to permit satisfactory combining. The 9 recommended soybean varieties cover most conditions in

Ohio rather satisfactorily. Seven of the recommended varieties are resistant to Phytophthora root rot, viz: Blackhawk, Chippewa 64, Clark 63, Harosoy 63, Lindarin 63, Monroe, and Ross.

Recommended Varieties

Blackhawk was developed at 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.

Chippewa 64 was developed at the Illinois Agricultural Experiment Station in cooperation with the U. S. Regional Soybean Laboratory from the backcross of Chippewa x (Chippewa x Blackhawk). It should be confined to northern Ohio as an early variety to precede wheat.

Soybean Varietal Characteristics*

Variety	Pubescence Color	Flower Color	Hilum Color	Disease Rating ⁽¹⁾				
				Bacterial Blight	Downy Mildew	Brown Spot	Phytophthora Root Rot	Stem Canker
CHIPPEWA 64	Brown	Purple	Black	MS	MS	VS	MS	SS
MONROE	Gray	White	Yellow	VS	MS	MS	R	SS
BLACKHAWK	Gray	White	Light Brown	MS	VS	MS	R	MS
LINDARIN 63	Gray	Purple	Buff	MS	SS	MS	R	SS
HAROSOY 63	Gray	Purple	Yellow	MS	SS	MS	R	R
FORD	Brown	White	Black	SS	MS	MS	MS	MS
ROSS	Brown	White	Black	VS	MS	MS	R	SS
SHELBY	Brown	Purple	Black	MS	MS	VS	MS	MS
CLARK 63	Brown	Purple	Black	MS	MS	MS	R	MS

* All varieties produce seed with yellow seed coat.

⁽¹⁾ VS = Very susceptible, MS = Moderately susceptible, SS = Slightly susceptible, and R = Resistant.

Clark 63 was developed by the U. S. Regional Soybean Laboratory in cooperation with the North Central State agricultural experiment stations from the backcross of (Clark (4) x S54 - 1714) x (Clark (5) x Blackhawk). It is resistant to Phytophthora root rot and bacterial pustule. Clark 63 is recommended for southern Ohio as a full season crop.

Ford was developed at 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.

Harosoy 63 was developed by the U. S. Regional Soybean Laboratory in cooperation with the North Central State agricultural experiment stations from the backcross of Harosoy x (Harosoy x Blackhawk) and is resistant to Phytophthora root rot. Harosoy 63 can successfully be grown in any part of the soybean growing area of Ohio.

Lindarin 63 was developed by the U. S. Regional Soybean Laboratory in cooperation with the North Central State agricultural experiment stations from the backcross of Lindarin x (Lindarin x Mukden) and is resistant to Phytophthora root rot. Lindarin 63 is recommended throughout the state. It has excellent lodging resistance.



Areas of Adaptation of Recommended Soybean Varieties*

To Precede Winter Wheat (Northern Ohio)	Full Season
Chippewa 64	Lindarin 63
Monroe	Harosoy 63
Blackhawk	
(Central Ohio)	
Monroe	Lindarin 63
Blackhawk	Harosoy 63
Lindarin 63	Ross
Harosoy 63	Ford
	Shelby
(Southern Ohio)	
Lindarin 63	Lindarin 63
Harosoy 63	Harosoy 63
Ross	Ross
Ford	Ford
Shelby	Shelby
	Clark 63

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

Comparison of the Recommended Soybean Varieties

Variety	Relative Number of Days to Maturity	Plant Height	Resistance to Lodging*	Seeds Per Pound**	
				Range	Average
CHIPPEWA 64	110	Short	Excellent	2563-3572	3076
MONROE	113	Tall	Medium	2684-3335	3032
BLACKHAWK	117	Short	Excellent	2479-3311	2848
LINDARIN 63	120	Short	Excellent	2362-3872	2912
HAROSOY 63	122	Tall	Medium	2245-3128	2624
FORD	131	Tall	Good	2191-3335	2652
ROSS	131	Tall	Medium	2534-3877	3032
SHELBY	132	Tall	Medium	2375-3629	2799
CLARK 63	138	Tall	Good	2291-3544	2711

* Lodging—Excellent, good, medium in that order.

** Calculated from data at 3 locations for a period of 5 years.

Oil Content of each of the above varieties is satisfactory to the soybean processors.

Monroe was developed at 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.

Ross was developed at the Ohio Agricultural Experiment Station, in cooperation with the U. S. Regional Soybean Laboratory, from the cross Monroe x Lincoln. It should be confined to the central and southern part of Ohio. **The greatest advantage from the use of this variety will be in areas where root rot can be a serious problem.**

Shelby was developed at 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.

Varieties Not Recommended

Kent is adapted for growing in Delaware, Eastern and Central Maryland, Southwestern Indiana, Southern Illinois and Southeastern Kansas. It matures about 9 days later than Clark 63 and is, therefore, not recommended in Ohio.

VEGETABLE SOYBEANS

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

Two vegetable soybean varieties have been developed at the Iowa Experiment Station in cooperation with the U. S. Regional Soybean Laboratory. The names are **Kim** and **Kanrich**. Both of these varieties have excellent shattering resistance, satisfactory yields, medium plant height, lodging resistance, high palatability scores, and about the same maturity as Hawkeye.

Oats

Principal Changes for 1965

Dropped from Recommended List
Clarion

Added to Recommended List
Garland

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

Clintland 60 is resistant to the common races of crown and stem rust and is medium-early in maturity. It has stiff straw and produces excellent yields with high bushel weight.

Dodge is medium early, has medium straw-strength and produces good yields of grain with high test weight. Dodge is resistant to the oat smuts and crown and stem rusts.

Garland is highly resistant to the common races of crown and stem rusts and oat smuts. It produces high yields of high test weight grain, has stiff straw, and is medium early in maturity.

Goodfield is short, stiff-strawed, medium-early in maturity and has resistance

Recommended Spring Oat Varieties

Averages of Data from 16 tests at 7 locations in Ohio for 3 years, 1962-64

Variety	Yield Bu./Acre	Test Weight Lb./Bu.	Height Inches	Lodging Percent	Relative Maturity (days later than Clintland 60)	Grain Color
CLINTLAND 60	73.8	34.6	37	18	0	Yellow
DODGE	76.2	35.3	38	19	1	Yellow
GARLAND	80.6	35.2	34	15	1	Yellow
GOODFIELD	74.6	36.6	33	8	1	Yellow
PUTNAM 61	74.0	35.4	37	18	0	Yellow
RODNEY	87.1	34.0	41	33	7	White

Disease Reaction of Recommended Spring Oat Varieties

Variety	Crown Rust	Barley Yellow Dwarf	Stem Rust			
			R.7	R.7A	R.8	R.8A
CLINTLAND 60	MR	S	R	S	R	R
DODGE	R	S	R	R	R	S
GARLAND	R	S	R	R	R	S
GOODFIELD	MR	S	R	R	R	S
PUTNAM 61	MR	R	R	R	R	R
RODNEY	S	S	R	S	R	S

R = Resistant; MR = Moderately Resistant; S = Susceptible.

All recommended varieties are resistant to the oat smuts and to Victoria blight.

to crown and stem rusts. Goodfield has specific adaptation to high-fertility soils.

Putnam 61 has good straw-strength and is very early in heading and medium early in maturity. Putnam 61 has excellent resistance to the oat smuts and crown and stem rusts and is highly tolerant of yellow dwarf.

Rodney is particularly suited for silage and green-chop purposes. Rodney is tall, late and high yielding.

New Varieties

AuSable, from the Michigan Agricultural Experiment Station, is tall and late maturing and has produced high yields of large kernels.

Brave, developed by Illinois Agricultural Experiment Station workers, has produced high yields of heavy kernels and

is resistant to the barley yellow dwarf virus.

Clintland 64, released by the Purdue Agricultural Experiment Station, is identical to Clintland and Clintland 60 in plant type and has added resistance to crown and stem rusts.

Coachman is a recent release from the Michigan Agricultural Experiment Station. It is medium early and has produced good yields with good test weight but is susceptible to loose smut and only moderately resistant to the common crown rust races.

Lodi, released by Wisconsin Station workers, is a tall, late variety with stiff straw, a good yield record, and resistance to the oat rusts.

Tioga, a recent New York Station release, is tall and late but produces good yields of medium bushel weight.

Tippecanoe, a new release from the Purdue Agricultural Experiment Station, is a medium-short, stiff-strawed variety with good yields of heavy kernels.

Non-Recommended Varieties

Andrew lacks straw stiffness, crown rust resistance, and consistent yield performance.

Garry is medium late with only fair straw strength and is susceptible to crown rust.

Minhafer is unsatisfactory for straw strength and yield performance.

Newton is lacking in the straw strength and resistance to crown rust available in more recent releases.

Niagara and **Oneida** are tall, late varieties with only fair bushel weight and straw strength.

Older varieties, such as **Clinton 59**, **Clintland**, **Columbia** and **Nemaha**, are inferior to the recommended varieties for disease resistance and straw strength.

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 winter-hardy of the fall-sown small grains in Ohio, winter oats are subject to considerable risk in production.

Acceptable Varieties

Dubois, **Norline** and **Bronco** appear to be the best available varieties for yield, grain quality and disease resistance in Ohio. Good survival can be expected only when relatively mild 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.

Barley

Principal Changes for 1965

Dropped from Recommended List
Kenbar

Added to Recommended List
Harrison

WINTER BARLEY

Although less winterhardy than wheat, recommended winter barley varieties are high yielding and are excellent for livestock feed. Release of varieties with improved straw-strength and disease-resistance has stimulated increased production of winter barley in Ohio. Grain yields have been improved by attention to recommended planting and fertility practices.

Successful production of winter barley is dependent on the selection of an adapt-

ed variety, securing high quality, pure seed and planting in early September on well-drained soil that has been limed and fertilized according to recommendation.

Recommended Varieties

Dayton, developed and released by the Ohio Agricultural Experiment Station, is moderately winterhardy and has good straw strength. Early in maturity and medium in height, Dayton has been the most consistent high-yielding variety in Ohio.

Harrison is a winterhardy, stiff-strawed variety released by the Purdue Agricultural Experiment Station. With high yields and excellent bushel weight, Harrison is an awned variety with maturity 3 to 5 days later than Dayton and with resistance to leaf rust, powdery mildew, scald, and net blotch diseases.

Recommended Winter Barley Varieties

Averages of Date from 11 Tests in Ohio for 4 years, 1961-64

Variety	Yield Bu./Acre	Test Weight Lb./Bu.	Survival Percent	Lodging Percent	Height Inches	Date Headed
DAYTON	60.2	45.0	85	21	39	May 13
HARRISON	58.2	47.6	91	5	39	May 19

New Varieties

Chase, a new Nebraska release, is medium in height and is winterhardy but shows a tendency to lodge in Ohio tests.

Dover, developed by workers at the Pennsylvania Agricultural Experiment Station, is short, stiff-strawed and is early in maturity and moderate in winterhardness.

Pennrad, an awnless variety developed at the Pennsylvania Agricultural Experiment Station, has good winterhardness, straw strength and resistance to scald and powdery mildew but has been relatively low in kernel weight.

Will, a new release by Oklahoma breeders, is awned, stiff-strawed, medium in height and maturity, and resistant to powdery mildew.

Non-Recommended Varieties

Besbar lacks winterhardness and straw strength and has low bushel weight.

Decatur often lodges and is very susceptible to powdery mildew.

Dutchess is very late and erratic in yield performance.

Hudson lacks straw strength and is very susceptible to loose smut.

Kenate and **Kenbar** have only fair winterhardness and often lodge severely.

Wong and **Ohio No. 1** are inferior to recommended varieties for yield, straw strength and disease resistance.

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

Principal Changes for 1965

None

In recent years there has been considerable interest in grain sorghums as a live-stock feed. Grain sorghums have about 95 per cent 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.

Grasses

Principal Changes for 1965

None

Smooth Bromegrass. The strains of southern origin are higher yielding in Ohio than are the northern types. In a 3-year test at Wooster average yields for **Achenbach, Lancaster, Lincoln, Saratoga** and **Southland** did not differ significantly.

Orchardgrass. One of the most productive perennial forage grasses adapted to Ohio. Common and **Potomac** mature earlier than other forage species ordinarily associated with orchardgrass. Potomac is an improved high yielding variety. **Pennlate** and **S-37** mature 7 to 14 days later than common orchardgrass and are more leafy and finer-stemmed than common. Pennlate is higher yielding than S-37.

Sudangrass. A summer annual grass used for grazing and green chop. Three open-pedigree varieties are recommended. **Piper** is consistently high yielding, disease resistant, low in hydrocyanic acid (HCN) potential, fine stemmed, prolific in recovery capacity, and has vigorous seedlings. **Greenleaf** and **Lahoma** are later maturing varieties, broader leaved, and slightly coarser stemmed than Piper. Sudan-grass-sorghum crosses, produced by several seed companies, are closed pedigree varieties of which all have expressed similar plant characteristics. They are heavy

stalked, broad leaved, high in hydrocyanic (prussic) acid potential, and tiller less profusely than sudangrass varieties as Piper. Yields of sudangrass-sorghum crosses have been comparable to Piper. The following table shows the yields obtained from varieties tested in Ohio.

Yield of Sudangrass Varieties in Ohio

No. of Harvests	Tons/Acre of Dry Matter		
	1961 3	1962 2	1963 3 and 4 ¹
PIPER	5.65	3.58	3.72
GREENLEAF	4.72	3.86	2.74
LAHOMA	4.00	3.46	
SWEET SIOUX		4.89	3.48
MOR SU			3.46
SU 1			3.24
SORDAN			3.18
SUDAX (SX-11)	5.03	4.66	3.16
TRUDAN			3.10
HIDAN 37	5.52		2.99
77 F			2.94
LSD			

¹ Average of two locations, 3 replications each, 3 harvests at one location, 4 harvests at the other.

Timothy. Common timothy (not a variety) is the only seed source readily available. **Clair** timothy is a very early maturing strain, relatively coarse, with good aftermath. **Climax** timothy matures 7 to 10 days later than common. It is tall, fine stemmed and quite leafy. **Essex** is a late flowering, very leafy variety.

Legumes

Principal Changes for 1965

Dropped from Recommended List

Alfalfa—Atlantic
Alfalfa—Buffalo

Added to Recommended List

None

ALFALFA

Resistance to bacterial wilt is an important factor in choosing alfalfa varieties, if the field is to be left down three years or more. Certified seed of recommended varieties is satisfactory in Ohio regardless of the state in which the seed is produced.

Recommended Varieties

Vernal, a Wisconsin variety with good winter hardiness, wilt resistance, high yield, fine stems and dark green color, has an excellent yield record for the past 10 years in Ohio. It is first choice for fields intended for production for 2 years or more.

Culver shows marked resistance to meadow spittlebug, is resistant to wilt and is winterhardy. Although it may be infested with spittlebug infestation, Culver alfalfa can be expected to perform well without the use of insecticides. In areas of heavy infestation Culver will probably benefit from spraying. It is recommended in Central Ohio or in those areas where spittlebug infestation is most severe.

Acceptable Alfalfa

The Flemish alfalfas are acceptable in Ohio. These varieties include Alfa, Du Puits, FD-100, Orchies, Tuna, and others. Du Puits is the only one of this group that has been extensively tested in Ohio. It recovers rapidly after cutting, appears to be widely adapted, but lacks wilt resistance. It has been less winterhardy than Atlantic in Ohio. The Flemish strains are earlier than the other recommended varieties and, therefore, lend themselves to early harvest.

Ohio Data on Alfalfa Varieties

Alfalfa is an important crop in Ohio. New and established varieties are constantly being evaluated by our research staff. The 1964 results of these evaluations at Wooster, Ohio, are given in the table below.

Data in table shows first-hay-year yield comparisons. It should be noted that most varieties do well the first year. By the second hay year, less hardy strains may decline, and in following seasons only the wilt-resistant types remain. Results of one year's testing should be interpreted and applied with caution.

Relative Hay Yields of Leading Alfalfa Varieties at Wooster, Ohio, Based on Percent of Vernal

(1963 yields, 3 cuts)*

Variety	Relative Yield
VERNAL**	100
FD 100	99
WARRIER	99
NARRAGANSETT	98
CARDINAL	96
EUROPE	96
DU PUIITS	95
525	94
HAYMOR	93
ATLANTIC	92
CULVER**	92
ORCHIES	88
RANGER	88
BUFFALO	83
WILLIAMSBURG	83
LSD 5%	6

* Variety performance cannot be predicted from one year's data.

** Recommended for long-lay meadows.

Other Varieties

Cayuga, released by Cornell, is wilt-resistant and winterhardy. It has not been tested in Ohio. It is expected to perform well in northeastern Ohio.

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

Ranger, in Ohio trials, is surpassed in performance by one or more of the other varieties. It is wilt-resistant and winterhardy.

Atlantic has been removed from the recommended list because of inadequate seed supply and lack of superior yields over Vernal and Culver. Atlantic has moderate resistance to bacterial wilt.

Buffalo has been removed from the recommended list because its yield has not been superior to Vernal and Culver. Buffalo is not as winterhardy as Vernal but has good resistance to bacterial wilt.

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 and Culver.

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.

CROWNVETCH

Crownvetch (*Coronilla varia L.*) is a perennial legume that spreads by rootstock, giving rise to daughter plants by the spreading underground rootstock, and by seed. This legume has been used for stabilization of slopes, particularly road-

side cuts. Strip mine spoils have been satisfactorily covered and erosion stopped by crownvetch. Interest for using this legume for grazing is increasing. Research is in progress studying the performance of animals and persistence of crownvetch under grazing.

Three varieties of importance are recognized in Ohio. **Penngift**, the first variety to be registered, was selected in Pennsylvania. It has finer stems and leaves and is shorter than the other two varieties. **Chemung** was developed by the Soil Conservation Service in New York and is reported to have more seedling vigor and recovers more quickly after cutting than the other varieties. **Emerald** was developed by the Soil Conservation Service in Iowa and is similar to Chemung.

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. It is especially adapted in southern Ohio. Kenland is resistant to southern anthracnose.

Lakeland red clover, developed in Wisconsin, is highly resistant to powdery mildew and northern anthracnose. It is recommended for northern Ohio.

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*.

Other Varieties

Chesapeake, a red clover variety released by Maryland, is high yielding in

Ohio. It has good seedling vigor and carries some resistance to southern anthracnose. Seed supplies are limited.

Burley Tobacco

Principal Changes for 1965

None

A varietal test program for burley tobacco was initiated at the Southern Substation in 1957. Certain varieties have proven to be superior on the basis of yield. Differences between varieties in the quality of leaf which is produced and the market price of the leaf have generally not been large enough to affect the acre value of the varieties. The testing has been carried out only at the Southern Substation, but weather conditions are similar at that location to the conditions in the Ohio burley growing area. It should be kept in mind that local conditions and cultural practices could influence varietal performance.

Recommended Varieties

Burley 21 is a very popular variety in southern Ohio. It is an upright-leaved variety producing high yields of excellent quality. It is highly resistant to wildfire and mosaic. It is also moderately resistant to black root rot.

Kentucky 10 is also a popular variety with growth and quality characteristics similar to Burley 21. Yield is somewhat higher than for Burley 21. This variety is not resistant to wildfire and should not be grown in areas where wildfire has been a problem.

Other Varieties

Kentucky 9, another popular variety, is similar to Burley 21 in growth and quality. Yield is comparable to Kentucky 10.

Acre Value of Burley Tobacco Varieties Tested at the Southern Substation

Variety	1957	1958	1959 dollars/acre*	1960	1961	1962	1963	Avg.
KY. 10	1663	1435	1324	1444	1262	1669	1701	1498
KY. 9	1571	1399	1039	1529	1243	1509		1382
KY. 12					1174	1499	1486	1386
BURLEY 21	1434	1289	1070	1386	1120	1469	1533	1329
KY. 16	1445	1263	935	1385	1190	1462	1504	1312
BURLEY 37				1329	987	1314		1210
KY. 58	1412	1153	973	1325	1138			1200
KY. 35	1355	1149	852	1281	1075			1142
KY. 26		1091	849	1293	1118			1098
HYBRIDS:								
BURLEY 21 x KY. 10							1721	
BURLEY 21 x KY. 12							1614	
BURLEY 21 x KY. 9							1572	

* Data are reported in dollars per acre to take into account both yield and quality factors.

This variety is not resistant to wildfire and has a greater tendency to blow down than do other varieties.

Burley 37 is highly resistant to black shank and should be grown when the soil is infested with this disease and more suitable areas are not available. On disease-free soil, the yield would be less than the recommended varieties.

In addition, several other varieties are available which may give satisfactory results. It has been observed at the Southern

Substation that the yield of other varieties which have been tested is likely to be lower than that of the recommended varieties.

Hybrids. Several Burley tobacco hybrids are being included in the varietal testing program. Only one year's results are available at this time so it is difficult to evaluate the potential of these hybrids. Finding whether or not they will be more desirable than the recommended varieties will require further testing.

Other Information You May Want

The Cooperative Extension Service has many other bulletins and leaflets on various phases of crop culture. You may secure copies of these by contacting your county Extension office. Among the available publications are:

Extension Bulletins and Leaflets

- 368—Understanding Ohio Soils—Reprint 1962
- 380—Meadow and Pasture Seedings—Reprint 1964
- 395—Soil Fertility and Fertilizers for Ohio Farms—Reprint 1962
- 401—Birdsfoot Trefol—1960
- 406—Crops for Soil Cover and Improvement—Printed 1960
- L-79—Meadow, Pasture and Cover Crop Seeding Mixture—Rev 1964

USDA Publications

- Agricultural Handbook 238—Summer Annual Grasses in the United States—1963

Publications for Sale ONLY

- Illinois Natural History Survey Circular No. 48—"Diseases of Wheat, Oats, Barley, and Rye"—1960
- Illinois Natural History Survey—Natural Resources Building, Urbana, Illinois
- 1961 Yearbook of Agriculture on "Seeds"—Superintendent of Documents, Washington 25, D. C.
- Weeds of the North Central States—Revised 1960—Available at county Extension office.

Suggested Rates* and Date of Seeding Important Ohio Crops

Crop	Pounds of Seed per Bushel	Rate to Plant per Acre (Lbs.)	DATE TO PLANT	
			In Northern Ohio	In Southern Ohio
Alfalfa ^c	60	10-12	Mar. 10-Apr. 20 or July 1-Aug. 15	Mar. 1-Apr. 15 or July 1-Sept. 1
Barley, Winter	48	80-100	Sept. 15-25	Sept. 15-Oct. 5
Birdsfoot Trefoil	60	4-6	Mar. 10-Apr. 20	Mar. 1-Apr. 15
Bromegrass*	14	6	Aug. 1-Sept. 15 or March-April	Aug. 1-Sept. 30 or March-April
Corn, dent	56	10-15	May 10-June 5	May 1-May 31
Corn, sweet	45	8-12	May 1-June 25	Apr. 20-June 25
Corn, pop	56	4-6	May 10-June 5	May 1-May 31
Clover, alsike ^c	60	4-5	March-April or July 15-Aug. 15	March or August
Clover, medium* or mammoth red	60	8-10	March-April or July 15-Aug. 15	March or August
Clover, ladino	60	1-2	March-April	March or August
Fescue, tall		8-10	March-April or August-Sept.	March-April or August-Sept.
Lespedeza, Korean	40-45	6-12	Do not use	Feb. 15-Mar. 31
Oats, spring	32	50-80	Mar. 15-Apr. 20	Mar. 1-Apr. 15
Orchardgrass*	14	5	Mar. 15-Apr. 30 or August	March-April or August-Sept.
Rye	56	84-112	Sept. 1-Oct. 15	Sept. 10-Oct. 20
Ryegrass		15-20	June 15-Aug. 15 or March-April	June 15-Oct. 1 or March-April
Sorghum	50	5-8	June 1-20	May 20-June 30
Soybeans	60	30-60 in rows 90-120 drilled solid	May 10-31 May 20-June 15	May 1-June 10 May 15-June 20
Sweetclover, scarified	60	10-12	Mar. 15-Apr. 30 (Yellow also in June-July)	Mar. 15-Apr. 15 (Yellow also in June-July)
Sudangrass		25	June 1-20	May 20-June 30
Timothy*	45	5 (fall), or 10 (spring)	August-Sept. or March-April	August-Oct. 15 or March-April
Wheat	60	90-120	Sept. 22-Oct. 10	Sept. 28-Oct. 15

* The rates for these forage crops when seeded alone are higher than those recommended in meadow crops mixtures. For detailed information on seeding rates in mixtures consult Extension Bulletin 380 "Meadow and Pasture Seedings." Reprinted, 1959.