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EXTENSION FOLDER 22

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1956 VARIETIES of FARM CROPS

"RECOMMENDED"

"NOT ADEQUATELY TESTED"

"NOT RECOMMENDED"

Crop Varieties

Tested by Minnesota

Agricultural Experiment Station

UNIVERSITY OF MINNESOTA



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UNIVERSITY OF MINNESOTA
Agricultural Extension Service
U. S. DEPARTMENT OF AGRICULTURE

Varieties

of Farm Crops

THE CHIEF characteristics of the more important and more commonly encountered varieties of farm crops grown in Minnesota are presented in tables in this folder. The varieties are included in three classes, i.e., (1) recommended for Minnesota, (2) not adequately tested in Minnesota, and (3) not recommended for Minnesota.

Recommended Varieties

Recommended varieties have been proved superior to other varieties in carefully conducted comparative tests. Trial plots are grown at the central station, at the branch experiment stations, in individual farmer's fields and in cooperation with county organizations in southwestern and in extreme north central Minnesota. In addition, the varieties are tested for disease resistance in the greenhouse and in special disease nurseries at St. Paul. Varieties of wheat, barley, flax, and soybeans are tested also in the laboratory for acceptability for industrial uses.

Except in unusual circumstances, a variety must have been tested in Minnesota for a minimum of three years before it is considered for recommendation. New varieties that were developed in other states or in Canada may be brought into the state for seed production and for use on farms before the three years of tests can be completed. Such varieties are listed as "not adequately tested." Information now available regarding these varieties is presented but no conclusions are drawn regarding their suitability under Minnesota conditions.

The list of recommended varieties is determined each year at the Experiment Station Crops Conference. Participating in this conference are: staff members of the Departments of Agronomy and Plant Genetics, Plant Pathology and Botany, Agricultural Biochemistry, Entomology and Economic Zoology, and Soils; representatives of Agricultural Extension; the superintendents and agronomists of the branch experiment stations at Waseca, Morris, Crookston, Grand Rapids, Duluth, and Rosemount; and representatives of the Minnesota Crop Improvement Association.

between the southern region and a line drawn through Mille Lacs and Detroit Lakes. The northwestern region lies north of the central region and west of a line drawn from Baudette to Detroit Lakes. The cutover region lies north of the central region and east of the northwestern region.

The corn-growing area of Minnesota has been divided into six maturity zones (see figure 2). Days to maturity for corn refers to the approximate number of days of growing season that may be expected, on the average, from emergence of the seedlings to that stage when the moisture in the ears on the standing plants is about 40 per cent. At this time the kernels are well dented.

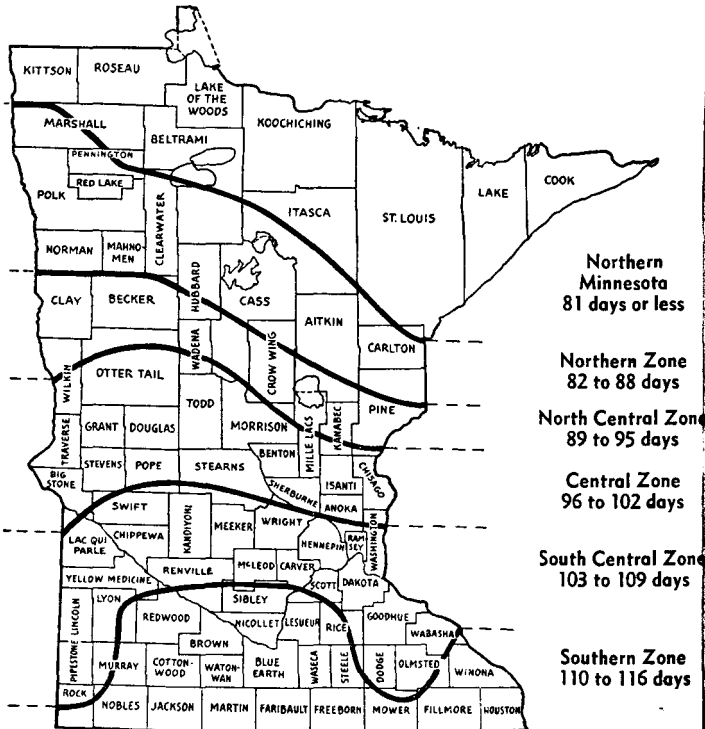


Fig. 2. Corn maturity zones in Minnesota

In the following tables, recommended varieties are suitable for all areas of the state where the crop is grown and for all purposes for which the crop is used, except where it is stated otherwise.

Disease Resistance

The following symbols are used to indicate degrees of resistance or susceptibility to disease: I = immune; R = resistant; MR = moderately resistant; MS = moderately susceptible; S = susceptible.

Barley

All varieties listed are susceptible to leaf rust. Those indicated as resistant to stem rust have had very little rust in the field, although known to be susceptible to certain races. Those listed as resistant to loose smut are known to be quite susceptible

to certain of its less-prevalent races. The spot blotch reactions, though averages of several years, are subject to change with shifts in the prevalence of physiologic races. Of the varieties listed only Moore is definitely susceptible to net blotch.

Barley . . .

| Name | Section where recommended | Yield | Plant height | Maturity | Resistance to lodging | Seed size | Bushel weight | Malting quality | Disease reaction | | |
|----------------------------------|---------------------------|-----------|--------------|----------|-----------------------|-----------|---------------|-----------------|------------------|-------------|------------|
| | | | | | | | | | Stem rust | Spot blotch | Loose smut |
| Varieties recommended | | | | | | | | | | | |
| Kindred (L) | All | High | Medium | Early | Very poor | Medium | Medium | Very good | R | MS | S |
| Montcalm | 3 and 4 | High | Tall | Late | Poor | Medium | Medium | Very good | VS | S | S |
| Peatland | 4 | Medium | Tall | Late | Good | Small | High | Poor | R | MS | MS |
| Vantage | All | Very high | Medium | Medium | Good | Medium | Medium | Poor | R | VS | S |
| Fox* | All | High | Medium | Late | Good | Medium | Medium | ..... | R | MS | S |
| Varieties not recommended | | | | | | | | | | | |
| Barbless | ..... | Medium | Tall | Late† | Poor | Medium | Medium | Medium | S | S | S |
| Feebar | ..... | Very high | Short | Medium | Very good | Large | Low | Very poor | R | MS | S |
| Manchuria | ..... | Low | Medium | Medium | Poor | Medium | Medium | Good | S | MS | MS |
| Mars | ..... | Medium | Short | Early | Very good | Small | High | Poor | R | S | S |
| Moore‡ | ..... | Medium | Medium | Late | Good | Medium | Low | Poor | R | MS | S |
| O.A.C. 21 | ..... | Medium | Tall | Medium | Medium | Medium | Medium | Good | S | MS | MS |
| Plains | ..... | High | Short | Early | Good | Medium | Medium | Poor | R | MS | S |
| Tregal | ..... | High | Short | Medium | Medium | Medium | Medium | Poor | S | S | R |

* Malting quality not yet established.

† Characteristics in bold type indicate important shortcomings of variety.

‡ Very susceptible to net blotch.

Oats

All varieties are recommended for all areas of the state where oats are grown.

Among recommended varieties, Garry (Improved) is resistant to all known races of stem rust, while Minland and Rodney are resistant to all except 7A. Other varieties are resistant either to race 7 (indicated in the table as R7) or race 8 (R8) of stem rust. Varieties resistant to race 7 are also resistant to races 1, 2,

3, 5, 7A, and 12. Varieties resistant to race 8 are also resistant to races 1, 2, 5, 9, 10, and 11.

All recommended varieties—except Minland, which is resistant to all prevalent North American races of crown rust—are resistant only to certain races of crown rust while being susceptible to other common races. Bentland, Clintland, and Clintafe are also resistant to all prevalent North American races.

Oats . . .

| Variety | Yield | Plant height | Maturity | Lodging resistance | Seed color | Seed size | Bushel weight | Per cent hull | Disease resistance | | |
|--|--------|--------------|----------|--------------------|--------------|-----------|---------------|---------------|--------------------|------------|------|
| | | | | | | | | | Stem rust | Crown rust | Smut |
| Varieties recommended | | | | | | | | | | | |
| Ajax | High | Tall | Medium | Medium | White | Medium | Medium | Medium | R7 | S | S |
| Andrew | Medium | Medium | Early | Good | Yellow | Large | Medium | Low | R7 | S | R |
| Branch | High | Tall | Late | Medium | White | Medium | Medium | High | R7 | S | R |
| Garry (Improved) | High | Tall | Late | Good | Yellow-white | Large | Medium | ..... | R | S | R |
| Minland | Medium | Medium | Early | Good | Light-brown | Medium | Low | Low | R | R | R |
| Mo-0-205 | High | Medium | Medium | Good | Red-yellow | Small | High | Low | R7 | S | R |
| Rodney | High | Tall | Late | Good | Yellow-white | Large | High | High | R | S | R |
| Sauk | High | Tall | Late | Medium | Yellow | Large | Medium | Medium | R7 | S | R |
| Varieties not adequately tested | | | | | | | | | | | |
| Abeqweit | Medium | Tall | Late | Poor | White | Large | Low | ..... | R7 | S | S |
| Bentland | Medium | Tall | Medium | Good | Yellow | Medium | Medium | ..... | R8 | R | R |

| Variety | Yield | Plant height | Maturity | Lodging resistance | Seed color | Seed size | Bushel weight | Per cent hull | Disease resistance | | | |
|--|---------------|--------------|---------------|--------------------|---------------|---------------|---------------|---------------|--------------------|------------|----------|--|
| | | | | | | | | | Stem rust | Crown rust | Smut | |
| Varieties not adequately tested | | | | | | | | | | | | |
| Clarion | Medium | Medium | Medium | Medium | Yellow | Large | High | ..... | R7 | S | R | |
| Jackson | Medium | Medium | Medium | Good | Yellow | Medium | Medium | ..... | R7 | S | R | |
| Newton | Medium | Short | Medium | Good | Brown-yellow | Large | Medium | ..... | R7 | S | R | |
| Simcoe | Good | Tall | Medium | Medium | Yellow-white | Large | Medium | ..... | R7 | S | S | |
| Varieties not recommended | | | | | | | | | | | | |
| Benton | Low* | Tall | Medium | Medium | Yellow | Medium | Medium | Low | R8 | S | R | |
| Bonda | Low | Medium | Medium | Good | Yellow-white | Large | High | Medium | R8 | S | R | |
| Bonham | Low | Medium | Early | Medium | Yellow-white | Large | Medium | ..... | R8 | S | R | |
| Cherokee | Low | Short | Early | Good | Yellow | Large | Medium | Medium | R8 | S | R | |
| ↳ Colo | Low | Medium | Medium | Medium | Yellow-white | Large | Medium | Low | R8 | S | R | |
| Clintafe | Low | Medium | Medium | Good | Yellow | Small | Medium | Medium | R8 | R | R | |
| Clintland | Medium | Medium | Medium | Good | Yellow | Medium | High | Low | R8 | R | R | |
| Clinton | Low | Medium | Medium | Good | Yellow | Medium | Medium | Low | R8 | S | R | |
| Craig | Low | Medium | Late | Good | White | Large | Medium | ..... | S | S | R | |
| Gopher | Medium | Medium | Medium | Medium | White | Small | Medium | Medium | S | S | S | |
| James | Low | Medium | Medium | Good | Brown-white | Small | High | Hull-less | R8 | S | R | |
| Larain | Low | Tall | Medium | Poor | Yellow-white | Large | Medium | ..... | S | S | S | |
| La Salle | Low | Medium | Early | Medium | Yellow-white | Medium | Medium | ..... | R8 | S | R | |
| Marion | Low | Medium | Medium | Medium | Yellow | Medium | Medium | ..... | R7 | S | R | |
| Mindo | Low | Short | Early | Good | Yellow | Medium | Medium | Medium | R8 | S | R | |
| Nemaha | Low | Short | Early | Good | Yellow | Large | Medium | Medium | R8 | S | R | |
| Shelby | Medium | Medium | Late | Medium | Yellow-white | Large | High | Medium | R8 | S | R | |
| Waubay† | Medium | Medium | Medium | Good | Yellow | Large | High | Medium | R7 | S | R | |

* Characteristics in bold type indicate important shortcomings of variety.

† Waubay, resistant to race 7, has been lower in yield than recommended varieties with resistance to race 7.

Rye

| Variety | Yield | Winter hardiness | Maturity | Height | Lodging resistance | Seed size | Bushel weight | Forage growth | |
|--|-----------------|---------------------|-------------|--------|-----------------------|--------------|------------------|---------------|--------------|
| | | | | | | | | Fall | Early spring |
| Varieties recommended | | | | | | | | | |
| Adams | High | Good | Medium | Tall | Medium | Medium | High | Medium | High |
| Caribou | High | Very good | Medium | Tall | Medium | Small | High | Low | High |
| Varieties not adequately tested | | | | | | | | | |
| German | Medium | Good | Medium | Tall | Good | Medium | Medium | Low | High |
| Von Rumker | High | Fair† | Late | Tall | Very good | Medium | Low | Medium | High |
| Varieties not recommended | | | | | | | | | |
| Antelope‡ | High | Very good | Medium | Tall | Medium | Small | High | Low | High |
| Balbo | Low | Poor | Early | Tall | Good | Small | Medium | High | Low |
| Common rye | Low | Good | Medium | Tall | Medium | Small | Medium | Medium | High |
| Dakold | Low | Very good | Medium | Tall | Medium | Small | High | Low | High |
| Dakold 23 | Medium | Very good | Medium | Tall | Medium | Small | High | Low | High |
| Emerald | Medium | Very good | Medium | Tall | Poor | Small | Medium | Medium | High |
| Horton | Low | Good | Early | Tall | Medium | Small | High | High | High |
| Imperial | Medium | Good | Medium | Tall | Medium | Medium | Medium | Medium | High |
| Pierre | Medium | Very good | Early | Tall | Good | Small | High | Low | High |
| Prolific Spring | Very low | ..... | Late | Short | Good | Small | Low | ..... | Low |
| Tetra Petkus | Medium* | Poor† | Late | Tall | Very good | Large | Low | Medium | Low |
| White Soviet | Low | Good | Medium | Tall | Medium | Medium | Medium | Low | High |

* Yields of Tetra Petkus are adversely affected by pollen from other rye varieties and vice versa. Therefore fields should be at least 100 feet from other rye varieties to get maximum yields. Isolation of large fields is not so important as it is for small plots. For seed certification, fields must be at least 660 feet from any other rye variety.

† Characteristics in bold type indicate important shortcomings of variety.

‡ Antelope cannot be distinguished from Caribou, except that in Minnesota trials it has yielded slightly less.

Flax

| Variety | Yield | Maturity | Plant height | Seed size | Color | | Oil | | Diseases | | |
|--|------------|-------------|--------------|-----------|--------|--------|-------------|------------|----------|-----------|-----------|
| | | | | | Seed | Flower | Content | Quality | Rust* | Wilt | Psamo |
| Varieties recommended | | | | | | | | | | | |
| B5128 | High | Late | Medium | Medium | Brown | Blue | Medium | Low | I | MR | S |
| Marine | Medium | Early | Medium | Small | Brown | Blue | Medium | High | I | R | MS |
| Redwood | High | Late | Medium | Medium | Brown | Blue | Medium | Medium | I | R | S |
| Varieties not adequately tested | | | | | | | | | | | |
| Raja | | Early | Medium | Medium | Brown | Blue | Low† | Low | R | R | S |
| Varieties not recommended | | | | | | | | | | | |
| Bison | Medium | Medium | Medium | Medium | Brown | Blue | Medium | Low | S | R | S |
| B. Golden | Medium | Medium | Short | Medium | Yellow | Pink | Medium | Medium | I | MS | VS |
| Crystal | Medium | Medium | Medium | Medium | Yellow | White | Medium | Medium | I | MS | MS |
| Dakota | Low | Medium | Medium | Medium | Brown | Blue | Low | Medium | S | R | S |
| De Oro (C.I.977) | Medium | Late | Medium | Medium | Yellow | Pink | Medium | Low | I | MR | VS |
| Koto | Medium | Medium | Medium | Medium | Brown | Blue | Medium | Medium | S | R | S |
| Linda | Medium | Medium | Medium | Large | Brown | Blue | Medium | Low | R | R | S |
| Minerva | Medium | Late | Medium | Medium | Yellow | Blue | High | Medium | R | MR | MS |
| Norland | High | Late | Medium | Large | Brown | White | Medium | Medium | R | MS | S |
| Redwing | Medium | Early | Medium | Small | Brown | Blue | Low | High | S | R | S |
| Rocket | Medium | Medium | Medium | Medium | Brown | Blue | Medium | Medium | R | R | S |
| Royal | Medium | Medium | Medium | Medium | Brown | Blue | Medium | Low | MR | MS | S |
| Sheyenne | Low | Early | Short | Small | Brown | Blue | Medium | Medium | I | R | MS |
| Victory | Medium | Medium | Medium | Large | Brown | White | Medium | Medium | MR | MS | VS |
| Viking | Medium | Medium | Medium | Medium | Yellow | Pink | Medium | Medium | I | MS | VS |

* Varieties marked I are immune to all races of rust found in Minnesota.

† Characteristics in bold type indicate important shortcomings of variety.

Spring Wheat

| Variety | Regions | Yield | Date mature | Plant height | Resistance to lodging | Awn type | Bushel weight | Quality | Stem rust | Leaf rust | Bunt | Loose smut | Scab |
|--|---------|--------|-------------|--------------|-----------------------|-----------|---------------|----------------|-----------|-----------|-------|------------|-------|
| Varieties recommended | | | | | | | | | | | | | |
| BREAD WHEATS | | | | | | | | | | | | | |
| Lee | All | Medium | Early | Short | Medium | Bearded | High | Satisfactory | S | R | S | S | S |
| Selkirk | All | High | Medium | Medium | Medium | Beardless | Medium | Satisfactory | MR | MR | R | R | S |
| DURUMS* | | | | | | | | | | | | | |
| Langdon | 2,3 | High | Early | Medium | Medium | Bearded | High | Satisfactory | R | R | R | ..... | ..... |
| Ramsey | 2,3 | Medium | Medium | Medium | Poor | Bearded | Medium | Satisfactory | R | R | R | ..... | ..... |
| Sentry† | 2,3 | Medium | Early | Short | Medium | Bearded | High | Satisfactory | MS | R | R | R | ..... |
| Varieties not adequately tested | | | | | | | | | | | | | |
| DURUMS | | | | | | | | | | | | | |
| Towner ..... | ..... | Medium | Late | Tall | Poor | Bearded | High | Satisfactory | R | R | R | R | MS |
| Yuma ..... | ..... | Low | Medium | Short | Medium | Bearded | Medium | Satisfactory | R | R | R | R | S |
| Varieties not recommended | | | | | | | | | | | | | |
| BREAD WHEATS | | | | | | | | | | | | | |
| Apex ..... | ..... | Low‡ | Medium | Short | Medium | Beardless | Low | Unsatisfactory | S | S | ..... | ..... | ..... |
| Cadet ..... | ..... | Low | Late | Medium | Medium | Beardless | Low | Satisfactory | S | S | ..... | ..... | ..... |
| Ceres ..... | ..... | Low | Medium | Tall | Poor | Bearded | Low | Satisfactory | S | S | S | S | ..... |
| Henry ..... | ..... | Medium | Medium | Tall | Medium | Bearded | Medium | Unsatisfactory | S | MS | MS | S | S |
| Mida | 2,3 | Low | Medium | Tall | Medium | Bearded | High | Satisfactory | S | S | MS | S | S |
| Newthatch ..... | ..... | Low | Medium | Medium | Medium | Beardless | Low | Satisfactory | S | S | ..... | ..... | S |

Spring Wheat (continued) . . .

| Variety | Regions | Yield | Date mature | Plant height | Resistance to lodging | Awn type | Bushel weight | Quality | Stem rust | Leaf rust | Bunt | Loose smut | Scab |
|--|---------|------------|-------------|--------------|-----------------------|-----------|---------------|-----------------------|-----------|-----------|------|------------|------|
| Varieties not recommended (continued) | | | | | | | | | | | | | |
| Pilot | | Low | Medium | Tall | Poor | Bearded | Low | Satisfactory | \$ | \$ | | | |
| Premier | | Low | Medium | Medium | Medium | Bearded | Low | Unsatisfactory | \$ | \$ | MR | S | S |
| Redman | | Low | Early | Medium | Medium | Beardless | Low | Satisfactory | \$ | \$ | | | S |
| Regent | | Low | Early | Medium | Medium | Beardless | Low | Satisfactory | \$ | \$ | | | S |
| Rescue | | Low | Medium | Medium | Poor | Beardless | Low | Unsatisfactory | \$ | \$ | | | |
| Rival | | Low | Medium | Tall | Poor | Bearded | Low | Satisfactory | \$ | \$ | | | MS |
| Rushmore | | Low | Early | Medium | Medium | Beardless | High | Satisfactory | \$ | \$ | MR | MR | S |
| Spinkota | | Low | Medium | Tall | Poor | Bearded | High | Unsatisfactory | \$ | \$ | S | | S |
| Thatcher | | Low | Medium | Medium | Medium | Beardless | Low | Satisfactory | \$ | \$ | | R | S |
| DURUMS | | | | | | | | | | | | | |
| Carleton | | Low | Late | Tall | Medium | Bearded | Medium | Satisfactory | \$ | R | MS | MS | S |
| Mindum | | Low | Medium | Tall | Poor | Bearded | High | Satisfactory | \$ | R | R | R | S |
| Nugget | | Low | Early | Short | Medium | Bearded | Low | Satisfactory | \$ | R | MS | | S |
| Stewart | | Low | Medium | Tall | Poor | Bearded | High | Satisfactory | \$ | R | R | R | S |
| Vernum | | Low | Early | Tall | Poor | Bearded | Low | Satisfactory | \$ | R | | | S |

* The durumms were considered as a group when rated. The earliest short durumms are taller and later than bread wheats.

† Sentry is recommended for growing in 1956 because of its superiority in performance to Carleton, Stewart, and Mindum—but should be replaced by the other new durum varieties being released as soon as seed of the latter is available. Sentry has shown considerable tolerance to stem rust, but does not have the high type of resistance of Langdon, Ramsey, Towner, or Yuma.

‡ Characteristics in bold type indicate important shortcomings of variety.

Seeding Tables

| Crop | Bushel weight (in lb.) | Seeding rate* (seeding per acre) | Date of seeding | Remarks |
|--|------------------------|----------------------------------|--|---|
| BARLEY† | 48 | 2 bu. (96 lb.) | Seed as early as possible | Treat seed and plow stubble if following corn |
| CORN† | 56 | 8-14 lb. | Early May | Select proper planter plates, 12,000 plants in light soil; 16,000 in heavy soil |
| FLAX† | 56 | ¾-1 bu. | After danger of heavy frost is past | Sow on clean land, firm seedbed |
| FORAGE GRASSES (perennial) | | | | |
| Brome grass (with legumes) | 14 | 5-8 lb. | Early spring or fall | Upland grasses should always be sown in mixture with legumes, except for seed |
| Meadow fescue (in mixture with brome and legume) | 14-24 | 3-4 lb. | Early spring or fall | |
| Timothy (with legumes) | 45 | 4-6 lb. | Early spring or fall | |
| In mixture with brome and legume or reed canary | | 2-4 lb. | | |
| Reed canary | 44-48 | | | |
| Alone or with timothy | | 6-8 lb. | Early spring or fall; after freeze-up | |
| FORAGE LEGUMES (biennial or perennial) | | | | |
| Alfalfa | 60 | | With companion grain or flax, early spring; or alone before August 10 | Always inoculate |
| Alone | | 8-12 lb. | | |
| With grasses | | 5-8 lb. | | |
| Birdsfoot trefoil | 60 | 3-6 lb. | Seed as early as possible | Not generally recommended. Use in simple mixtures only. Does not tolerate competition. Always inoculate |
| Clover | 60 | | Seed as early as possible | Always inoculate. Use clovers in mixture with grass and/or other legumes. |
| Red (in mixture) | | 4-8 lb. | | |
| Alsike (in mixture) | | 2-4 lb. | | |
| Ladino (in mixture) | | ½-1 lb. | | Seed Ladino 2-3 lb. for hog or poultry pasture |
| Sweet clover | 60 | | | Always inoculate |
| Alone | | 10-12 lb. | | |
| In mixture | | 2-4 lb. | | |
| OATS† | 32 | 2-2½ bu.‡ (64-80 lb.) | Early spring | Reduce oat seeding when underseeded with legume or grass |
| RYE | 56 | 1¼-2 bu.‡ (70-112 lb.) | August 1 to October 1 | Increase seeding rate for large-seeded varieties |
| SORGHUM† | 50 | | In warm soil, May to July | Use in S, SC, C§ corn zones. Drill in 6-inch rows |
| Corn planter rows | | 4-8 lb. | | |
| "Solid" drilled | | 25-30 lb. | | |
| With 1½ bu. soybeans | | 15 lb. | | |
| SUDANGRASS | 40 | | In warm soil, May to July | Use in S, SC, C§ corn zones. Use as forage drilled in 6-inch rows |
| Alone | | 25-30 lb. | | |
| With 1½ bu. of soybeans | | 10 lb. | | |
| SOYBEANS† | 60 | | S, SC, C§ zones, May 10; N, NC§ zones, June 10. In warm soil, May 15 to 30 | Always inoculate just before planting. Decrease seeding rate for small-seeded varieties |
| "Solid" drilled | | 120 lb. | | |
| 40-inch rows | | 60 lb. | | |
| 20-inch rows | | 90-100 lb. | | |
| WHEAT† | 60 | | Early spring on bread and durum wheats | Treat seed and plow stubble if following corn |
| Bread and durum | | 1-1½ bu. (60-90 lb.) | | |
| Winter | | 1-2 bu. (60-120 lb.) | August 1 to October 1 | Not adapted to all of Minnesota |
| MISCELLANEOUS CROPS | | | | |
| Field peas† | 60 | | Early spring | Resistance to spring frost |
| Alone | | 120-150 lb. | | |
| With 1-2 bu. of oats | | 30-90 lb. | | |
| Sunflowers | | 4-8 lb. | May 10-25 | Find market before growing |
| Millet | 48 | 25-35 lb. | May and June | Use in N, NC§ corn zones. |
| Rape | 50 | 4-6 lb. | Early spring | Poultry and hog pasture |
| Buckwheat | 50 | 5 lb. | Midseason | Supplemental or emergency crop |

* High-quality seed; good bushel weight and high germination; if poor quality seed, increase seeding rate. Recommendations are based on medium seed size and average seedbed preparation. † Use fungicide seed treatment. ‡ When sown for pasture, use the higher seed rate.

§ N—Northern Zone; NC—North Central Zone; C—Central Zone; SC—South Central Zone; S—Southern Zone. (Refer to the map, figure 2.)

Winter Wheat

| Variety | Yield | Date mature | Plant height | Resistance to lodging | Winter hardiness | Awn type | Bushel weight | Quality | Stem rust* | Leaf rust |
|----------------------------------|------------|-------------|--------------|-----------------------|------------------|-----------|---------------|-----------------------|------------|-----------|
| Varieties recommended | | | | | | | | | | |
| Minter | High | Early | Medium | Medium | High | Bearded | High | Satisfactory | S | S |
| Minturki | Medium | Early | Medium | Medium | High | Bearded | Medium | Satisfactory | S | S |
| Varieties not recommended | | | | | | | | | | |
| Blackhawk | Medium | Medium | Tall | Medium | Medium† | Bearded | Medium | Satisfactory | S | R |
| Iobred | Low | ..... | ..... | ..... | Low | ..... | ..... | ..... | S | S |
| Iohardi | Low | Early | Medium | Medium | Medium | Bearded | High | Satisfactory | S | S |
| Iowin ..... | ..... | ..... | ..... | ..... | Low | ..... | ..... | ..... | S | S |
| Kanred ..... | ..... | ..... | ..... | Poor | Low | Bearded | ..... | ..... | S | S |
| Marmin | Medium | Medium | Medium | Medium | Medium | Bearded | Medium | Unsatisfactory | S | S |
| Minhardi | Low | Medium | Medium | Medium | High | Beardless | Medium | Satisfactory | S | S |

* All varieties are susceptible to stem rust race 15B.

† Characteristics in bold type indicate important shortcomings of variety.

Soybeans

The map of corn maturity zones is used to indicate the areas of adaptation for the soybean varieties. Obviously certain varieties have wider adaptation than others, although a variety which is early in the southernmost zone indicated will probably be relatively late in the northernmost zone indicated.

Evaluations in the table for yield are relative and should be

interpreted in terms of the maturity zones where best adapted. The maturity zones listed for each variety are in order of what is considered to be the best adaptation of the variety. Thus Blackhawk can be produced successfully in both the Southern and South Central Zones but is probably best adapted to the Southern Zone.

Soybeans . . .

| Variety | Zone(s)* where adapted | Yield | Maturity | Plant height | Resistance to lodging | Seed size | Oil content |
|--|---------------------------|---------------|------------------|-----------------|--------------------------|-------------------|----------------|
| Varieties recommended | | | | | | | |
| Acme | N, NM | Medium | Very early | Short | Good | Medium | Medium |
| Blackhawk | S and SC | High | Medium | Tall | Good | Medium | High |
| Capital | SC, C, S, NC | High | Early | Medium | Medium | Small | High |
| Chippewa | SC, S, C | High | Medium early | Tall | Very good | Medium | High |
| Flambeau | C, NC, N | Medium | Very early | Short | Medium | Medium | Medium |
| Grant | C, SC, S, NC | High | Early | Medium | Good | Medium | High |
| Harosoy | S | High | Medium-late | Tall | Medium | Large | Medium |
| Norchief | NC, C, N | High | Early | Short | Good | Medium | High |
| Ottawa Mandarin | C, SC, S, NC | High | Early | Short | Very good | Large | Medium |
| Renville | SC, S, C | High | Medium early | Medium | Very good | Medium | Very high |
| Varieties not adequately tested | | | | | | | |
| Comet | | | Early | Medium | Good | Medium | Medium |
| Varieties not recommended | | | | | | | |
| Bavender Special | | Low† | Very late | Very tall | Very poor | Medium | Low |
| Earlyana | | Medium | Medium | Tall | Poor | Medium | Medium |
| Harbaro | | High | Medium | Medium | Medium | Large | Low |
| Hardome | | Medium | Early | Tall | Poor | Medium | Medium |
| Harman | | Medium | Late | Tall | Poor | Medium | Low |
| Hawkeye | | Medium | Late | Tall | Good | Medium | High |
| Korean | | High | Medium-late | Tall | Poor | Very large | Medium |
| Lincoln | | Low | Very late | Tall | Medium | Medium | High |
| Manchu, Wis. 606 | | High | Medium | Medium | Poor | Medium | High |
| Mandarin, Wis. 507 | | Low | Early | Medium | Medium | Medium | Low |
| Monroe | | Low | Medium early | Very tall | Medium | Small | Medium |
| Pridesoy 57 | | Medium | Very early | Short | Good | Medium | Low |

* See map of corn maturity zones, figure 2.

† Characteristics in bold type indicate important shortcomings of variety.

Field Corn

Only open-pedigree hybrids have been tested for overall performance and considered for recommendation. Both open-pedigree and closed-pedigree hybrids offered for sale in Minne-

sota have been compared for ear moisture, and given maturity ratings which appear in Miscellaneous Report 20.

Open-Pedigree Corn Varieties . . .

| Hybrid | Maturity | | Yield | Height | | Shank length | Resistance to | | Appearance | | |
|------------------------------|----------|----------|-------|--------|--------|--------------|---------------|----------------|------------|--------|--|
| | Zone | Days | | Plant | Ear | | Root lodging | Stalk breakage | Plant | Ear | |
| Varieties recommended | | | | | | | | | | | |
| Minhybrid 408 | S | 113-117 | High | Medium | Medium | Medium | High | High | Good | Good | |
| Minhybrid 409 | S | 108-112 | High | Medium | Medium | Medium | Medium | High | Good | Good | |
| Minhybrid 411* | S | 112-116 | High | Medium | Medium | Medium | High | High | Good | Good | |
| Minhybrid 412* | S | 112-116 | High | Medium | Medium | Medium | Medium | High | Good | Good | |
| Minhybrid 414* | S | 110-114† | High | Medium | Medium | Medium | Medium | High | Good | Good | |
| A.E.S. 610 | S | 112-116 | High | Medium | Low | Medium | High | High | Good | Good | |
| Minhybrid 503 | SC | 107-111 | High | Medium | Medium | Medium | High | High | Good | Good | |
| Minhybrid 507 | SC | 103-107 | High | Tall | Medium | Medium | High | Medium | Good | Good | |
| Minhybrid 508 | SC | 107-111 | High | Short | Low | Medium | High | High | Good | Good | |
| Minhybrid 509* | SC | 107-111† | High | Medium | Medium | Medium | Medium | High | Good | Medium | |
| Minhybrid 511* | SC | 107-111† | High | Medium | Medium | Medium | Medium | High | Good | Good | |
| Wisconsin 464A | SC | 103-107 | High | Medium | Medium | Medium | Low | High | Medium | Good | |

* More resistant to the first brood of the corn borer than other recommended hybrids.

† Tentative maturity rating.

Open-Pedigree Corn Varieties (continued) . . .

| Hybrid | Maturity | | Yield | Height | | Shank length | Resistance to | | Appearance | |
|--|----------|---------|--------|--------|--------|--------------|---------------|----------------|------------|--------|
| | Zone | Days | | Plant | Ear | | Root lodging | Stalk breakage | Plant | Ear |
| Varieties recommended (continued) | | | | | | | | | | |
| Minhybrid 608 | C | 99-103 | Medium | Medium | High | Medium | High | Medium | Good | Good |
| Minhybrid 609 | C | 96-100 | Medium | Medium | Medium | Medium | High | High | Good | Good |
| Minhybrid 706 (white hybrid) | NC | 90-94 | High | Medium | Medium | Medium | Medium | High | Good | Good |
| Minhybrid 707 | NC | 89-93 | High | Medium | Medium | Medium | High | Medium | Good | Good |
| Minhybrid 711 | NC | 93-97 | High | Medium | Medium | Medium | High | Medium | Good | Good |
| Nodak 301 | N | 84-88 | High | High | Medium | Medium | High | Medium | Medium | Good |
| Wisconsin 240 (flint-dent) | N | 82-86 | Medium | Medium | Low | Long | Medium | Low | Medium | Good |
| Wisconsin 255 | N | 82-86 | Medium | Medium | Medium | Medium | Medium | High | Medium | Medium |
| Wisconsin 279 | N | 86-90 | High | High | Medium | Medium | Medium | High | Good | Good |
| Morden 77 | NM | 78-82 | High | Medium | Low | Medium | High | Medium | Good | Medium |
| Varieties not adequately tested | | | | | | | | | | |
| Iowa 4417 | SC | 107-111 | High | Medium | Low | Medium | Medium | Medium | Medium | Medium |
| Sokota 400 | SC | 105-109 | High | ..... | Low | ..... | Medium | Medium | Medium | Good |
| Wisconsin 416A | SC | 101-105 | Medium | Medium | Medium | Medium | Low | High | ..... | ..... |
| Wisconsin 435 (Red) | SC | 103-107 | High | Medium | Medium | ..... | Medium | Medium | Medium | Medium |
| Wisconsin 513 | SC | 107-111 | High | Medium | Medium | ..... | High | High | Good | Good |

Open-Pedigree Corn Varieties (continued) . . .

| Hybrid | Maturity | | Yield | Height | | Shank length | Resistance to | | Appearance | | |
|--|----------|---------|---------------|--------------|------------|--------------|---------------|----------------|-------------|--------|--|
| | Zone | Days | | Plant | Ear | | Root lodging | Stalk breakage | Plant | Ear | |
| Varieties not adequately tested (continued) | | | | | | | | | | | |
| Wisconsin 335A (Red) | C | 98-102 | High | Medium | Medium | Medium | High | High | Good | Good | |
| Wisconsin 413 | C | 98-102 | High | Medium | Medium | Medium | High | High | Good | Medium | |
| Wisconsin 453 | C | 100-104 | High | Medium | Medium | ..... | Medium | High | Good | Medium | |
| Varieties not recommended | | | | | | | | | | | |
| Wisconsin 416AA | SC | 101-105 | Low ‡ | Medium | Medium | Medium | Low | High | ..... | ..... |  |
| Wisconsin 641AA | S | 112-116 | Medium | Medium | Medium | Medium | Medium | Medium | Good | Good | |
| Wisconsin 341A | SC | 101-105 | Low | Medium | Medium | Medium | Low | High | ..... | ..... |  |
| Wisconsin 525A | SC | 103-107 | Low | Medium | Medium | Medium | Low | High | ..... | ..... |  |
| Wisconsin 353 | C | 100-104 | Medium | Tall | Medium | Medium | Medium | Low | Good | Good | |
| Wisconsin 355A | C | 100-104 | Low | Medium | Medium | Medium | High | High | ..... | Good | |
| Wisconsin 464 | C | 100-104 | Medium | Medium | Medium | Medium | High | Medium | Good | Good | |
| Wisconsin 416 | C | 100-104 | Medium | Medium | Medium | Medium | High | High | Good | Good | |
| Wisconsin 355 | NC | 93-97 | Low | Medium | Medium | Medium | Medium | Medium | Medium | Good | |
| Wisconsin 275A | NC | 93-97 | Low | Medium | Medium | Medium | High | High | Good | Medium | |
| Wisconsin 270 | NC | 87-91 | Medium | Short | Low | Medium | High | Low | Poor | Good | |

‡ Characteristics in bold type indicate important shortcomings of variety.

Sunflowers

| Variety | Seed yield | Maturity | Height | Resistance to lodging | Seed | | | |
|--|---------------|-------------|---------------|-----------------------|--------|---------------|---------------|----------------|
| | | | | | Size | Bushel weight | Per cent hull | Oil content |
| Varieties recommended | | | | | | | | |
| For feed or oil—Advance | High | Medium | Short | Very good | Small | High | Low | High |
| For feed only—Arrowhead | High | Early | Short | Good | Medium | High | Low | Medium* |
| Varieties not adequately tested | | | | | | | | |
| Beacon† | Medium | Late | Medium | Good | Small | High | High | Medium |
| Varieties not recommended | | | | | | | | |
| Commercial Advance (second generation Advance) | Low | Medium | Short | Very good | Small | High | Low | High |
| Greystripe | Medium | Late | Tall | Medium | Large | Low | High | Low |
| Manchurian | Medium | Late | Tall | Medium | Large | Low | High | Low |
| Mennonite | High | Medium | Short | Good | Large | Medium | High | Low |
| Sunrise | Low | Medium | Short | Good | Small | High | Low | High |

* Characteristics in bold type indicate important shortcomings of variety.

† Most rust-resistant variety available.

Field Peas or Dry, Edible Peas

Field peas are also used as a forage crop, usually in mixture with oats. Chancellor or Dashaway are the best varieties for this purpose.

| Variety | Seed yield | Maturity | Vine length | Seed | | |
|----------------------------------|---------------|----------|-------------|--------------|---------------|--------------------------|
| | | | | Size | Bushel weight | Color |
| Varieties recommended | | | | | | |
| Chancellor | High | Medium | Long | Small | High | Cream |
| Dashaway | High | Medium | Long | Small | High | Cream |
| Multiplier | High | Late | Long | Small | High | Cream |
| Varieties not recommended | | | | | | |
| Alaska | Low* | Early | Short | Medium | Medium | Green |
| Arthur | Medium | Early | Long | Large | High | Cream |
| Austrian | Low | Late | Medium | Small | High | Dark speckled |
| Chang | High | Medium | Long | Medium | High | Cream-black hilum |
| Delwiche Early Scotch | Low | Early | Short | Medium | Medium | Mottled green |
| First and Best | Medium | Early | Short | Medium | Medium | Cream |
| Guinevere | Medium | Medium | Long | Large | High | Cream |
| Late Scotch | Medium | Late | Long | Medium | High | Mottled green |
| Valley | High | Early | Long | Large | High | Cream |
| White Marrowfat | Medium | Late | Long | Large | Medium | Cream |

* Characteristics in bold type indicate important shortcomings of variety.

Alfalfa

| Variety | Forage yield | Winter hardiness | Recovery after clipping | Diseases | | |
|--|--------------|------------------|-------------------------|----------------|------------------|------------|
| | | | | Bacterial wilt | Common leaf spot | Black stem |
| Varieties recommended | | | | | | |
| Ladak* | High | Good | Slow | R | S | S |
| Narragansett*† | High | Good | Medium | § | S | S |
| Ranger§ | Medium | Good | Medium | R | S | S |
| Vernal¶ | High | Good | Medium | VR | S | S |
| Varieties not adequately tested | | | | | | |
| Du Puits | High | Medium | Rapid | S | S | S |
| Varieties not recommended | | | | | | |
| Atlantic | Medium | Medium | Medium | S | S | S |
| Buffalo | Low | Medium | Rapid | R | S | S |
| Canadian Variegated | Medium | Good | Medium | S | S | S |
| Cossack | Medium | Good | Medium | S | S | S |
| Grimm | Medium | Good | Medium | S | S | S |
| Kansas Common | Low | Medium | Rapid | S | S | S |
| Nomad | Low | Poor | Medium | S | S | S |
| Rhizoma | Medium | Good | Medium | S | S | S |
| Talent | Low | Poor | Rapid | S | S | S |
| Williamsburg | Low | Poor | Rapid | S | S | S |

* The supply of Narragansett and Ladak is somewhat limited.

† Narragansett recommended only for rotations that include alfalfa for two crop years or less.

‡ Characteristics in bold type indicate important shortcomings of variety.

§ There is an excellent supply of certified seed of Ranger available for 1956.

¶ There will be about 4,500,000 pounds of certified Vernal seed available for 1956.

Medium Red Clover

| Variety | Forage yield | Seed yield |
|----------------------------------|--------------|------------|
| Varieties recommended | | |
| Midland | High | Medium |
| Wegener | High | Medium |
| Varieties not recommended | | |
| Commercial* | High | Medium |
| Dollard† | High | High |
| Kenland | Medium | Medium |

* The information given applies to high quality Minnesota grown commercial.

† Although Dollard appears to be a good variety it is not on the recommended list because of limited seed supply.

Biennial Sweetclover

| Variety | Forage yield | | Seed yield | Time of maturity second year |
|----------------------------------|---------------|-------------|------------|------------------------------|
| | Seedling year | Second year | | |
| Varieties recommended | | | | |
| Evergreen | High | High | Medium | Very late |
| Madrid | High | Medium | Medium | Medium |
| Varieties not recommended | | | | |
| Commercial white..... | Medium | Medium | Medium | Medium |
| Commercial yellow..... | Medium | Medium | Medium | Medium |
| Arctic | Low | Low | Low | Early |
| Alpha | Low | Low | Low | ..... |
| Brandon Dwarf | Low | Low | Low | Early |

Forage yield in the fall of the seedling year is associated with green manure value and lateness the second year would increase the value as pasture.

Damage by the sweetclover weevil has seriously reduced sweetclover acreage in recent years. However, current experiments have demonstrated feasible methods of control.

Smooth Bromegrass

| Variety | Forage yield | Seed yield |
|----------------------------------|--------------|------------|
| Varieties recommended | | |
| Achenbach | High | Medium |
| Fischer | High | Medium |
| Lincoln | High | Medium |
| Varieties not recommended | | |
| Canadian Commercial | Medium | Medium |
| Manchar | High | High |

Lincoln is the only recommended variety for which adequate seed supplies are available through Minnesota dealers. Regional cooperative tests have indi-

cated that Achenbach may prove to be adapted to a wider area than Lincoln.

Manchar, a USDA introduction from Manchuria which has undergone mass selection at Pullman, Washington, has proved superior in seed yield in Minnesota and appears to recover more quickly after cutting than the recommended strains. Regional testing had not been extensive enough to warrant recommendation.

Birdsfoot Trefoil

Empire is a variety of broadleaf birdsfoot trefoil grown in New York State. It is relatively winter hardy in Minnesota. Birdsfoot trefoil of Italian origin is being offered for sale at a considerably lower price than Empire, but trials indicate it is not as winter hardy as Empire.

Sudangrass

Piper is more vigorous than commercial types, has a lower level of hydrocyanic acid (HCN) potential, and is more resistant to leaf blight and anthracnose than other varieties. HCN is the glucoside which causes poisoning in livestock. Fewer livestock are poisoned when pastured on Piper sudan than when pastured on commercial types. Caution should still be exercised in grazing sudan.

Timothy

Itasca is a synthetic variety composed of six inbred lines: one from Minnesota commercial seed, two from Cornell No. 1620, and three from Cornell No. 1777. It is superior to commercial timothy in hay production and about equal in seed production, and it matures at about the same time.

Lorain was introduced from Ohio. It blooms, matures, and the leaves stay green six to eight days later than Itasca or commercial timothy. In Minnesota tests, Lorain has been superior to commercial timothy in hay production and somewhat lower in seed production.

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