



University of Minnesota Agricultural Extension Service, St. Paul

December 31, 1954

Farm Crop Varieties Listed for '55

By E. H. Jensen*

Is it adapted?

Is it pure?

These are the two big questions to ask in selecting crop varieties for 1955. And to help you get the answers to these two big questions, each year the University of Minnesota agronomists conduct tests on many varieties and then report the findings to you. Some crops are recommended—some are not.

For a variety to earn a place on the recommended list, it must have been found to be adapted in Minnesota and must have proved superior to other varieties in comparative tests. Except for unusual circumstances, a variety must be tested in Minnesota at least three years before it is considered for recommendation.

The list of recommended varieties is determined each year at the Minnesota Agricultural Experiment Station Crops Conference by members of the Departments of Agronomy and Plant Genetics, Plant Pathology and Botany, Agricultural Biochemistry, Entomology and Economic Zoology, and Soils; representatives of the Agricultural Extension Service; superintendents and agronomists of the branch experiment stations; and representatives of the Minnesota Crop Improvement Association.

Seed Should Be Certified

For best results, seed must also be "certified." That means that it is the variety it says it is, it contains no harmful weeds, and its quality is high. It is a wise farmer who plants certified seed of a recommended variety.

Naturally, planting such seed does not guarantee top yields. The farmer must follow through with good farming practices. Some of these are (1) treating

Complete Story on Crop Varieties Given in Folder

A complete summary of the crop varieties for Minnesota is given in Minnesota Agricultural Extension Folder 22, "Varieties of Farm Crops." Crops that are recommended, not adequately tested, or not recommended are all included. Write for your copy to the Bulletin Room, University of Minnesota, Institute of Agriculture, St. Paul 1, Minnesota.

the seed, (2) preparing a good firm seed-bed, (3) fertilizing, (4) planting at the right time, (5) using the right amount of seed, (6) controlling weeds, and (7) avoiding harvest losses. Let one of these practices go and you risk the benefit that comes from all the others.

But remember—in order to get top yields, you must start with the best seed available. The following is a list of the recommended varieties and the changes made from the 1954 recommendations.

Oats

In 1954 races 7 and 8 of stem rust made a full-front attack on the oat crop in Minnesota. Since the losses due to race 7 were greater than those from race 8, varieties resistant to race 7 of stem rust yielded more than those resistant to race 8. Ajax, Andrew, Branch, and Mo. O-205 are recommended varieties resistant to race 7 of stem rust. Bonda, Clintafe, Clinton, James (hull-less), and Mindo—also recommended varieties—are resistant to race 8. Of this group of recommended varieties only Clintafe is resistant to crown rust.

Shelby was removed from the recommended list because it is extremely susceptible to race 7 of stem rust. In re-

cent trials this variety yielded considerably lower than the other recommended varieties.

Spring Wheat

Bread Wheat—The recommended varieties are Lee, Rushmore, and Selkirk. Selkirk was added to the recommended list because this variety is moderately resistant to all types of stem and leaf rust and because it has more resistance to stem rust race 15B than any other recommended variety. Consequently it yielded better than Lee or Rushmore in 1953 and 1954.

Mida was removed from the recommended list because it was found to be extremely susceptible to race 15B of stem rust. It yields much less than Rushmore and Lee when race 15B of stem rust attacks.

Willet was removed from the recommended list because it lacked important milling and baking qualities that hard red spring wheat normally has. In particular, the dough had poor handling quality and a short mixing time associated with a mixing tolerance too short for the commercial baker. Also some difficulty was met in milling the wheat.

Hard red spring wheats now bring more money in domestic and world markets, primarily because of their superior dough-making qualities. Widespread production of a variety like Willet may seriously damage this reputation and cut the premiums paid for hard red spring wheats. Because of this, the farmers of the area would lose more over a period of time than they would gain in the immediate future if this variety were released.

Durum Wheat—Carleton, Mindum, and Stewart are recommended. However, none is resistant to the stem rust which has been damaging durum wheats in recent years.

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MINNESOTA FEED SERVICE

Published by the University of Minnesota Agricultural Extension Service, Institute of Agriculture, St. Paul 1, Minnesota.

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Balance Is the Key to Successful Fertilizing, Soils Specialist Says

H. E. Jones*

Balance can be as important to the farmer as it is to the acrobat, for balance is the key word in fertilization.

A few years ago we thought that all the help most Minnesota soils needed in supplying a balanced diet for crops was some phosphate. Today on many of these same fields fertilizers not only must meet a larger part of the potash needs but also must provide nitrogen and phosphate. When these fertilizers fail to increase crop yields on low producing soils, it means that you haven't applied enough or have used the wrong kind.

Corn Presents Fertilizer Problems

Farmers are having more trouble balancing their fertilizers for corn than for other crops. The main reason is that the greatest number of changes has occurred in corn fertilizer practices during the past few years.

One common mistake made by farmers is to assume that a row or "starter" fertilizer is all that corn needs. Actually on soils low in nitrogen, the starter fertilizer often does not pay. Demonstration results from the Bob Remick farm near Windom show this.

Remick had a heavy-textured soil in fourth year corn and his yield without fertilizer was 54.5 bushels per acre. When he applied 150 pounds per acre of 6-24-12 in the row at planting time, his yield was 55.5 bushels—an increase of only 1 bushel over the check plot.

* Extension Specialist in Soils.

(Continued on page 5)

Wean Pigs Earlier?...

L. E. Hanson*

"Is early weaning practical?" That question confronts the feed manufacturer, the dealer, and the farmer. And it cannot be answered easily.

The Animal Husbandry Department of the University of Minnesota did conduct extensive feeding trials in 1954 that will give many clues to the answer to the question.

Generally speaking, weaning of pigs at three weeks is practical when good management practices are followed and reasonably good facilities are available. In our experiments, however, early weaning did not lower costs.

We weaned 600 pigs when they were about three weeks old. We divided these in groups and fed each group different formulas (usually in meal form) until they were eight weeks old. Other pigs were weaned at eight weeks for comparison purposes.

We compared the gains made by early weaned pigs and late weaned pigs from the time they were eight weeks old until they were 23 weeks old.

Rations for Early Weaned Pigs

This is what we found in our trials with our early weaned pigs:

1. A 20 per cent protein formula produced excellent growth. A 16 per cent formula was below needs for best growth, and the results with more than 20 per cent protein varied.

2. Aureomycin or procaine penicillin at a level of 40 grams per ton and arsanilic acid at a level of 120 grams per ton of feed increased the average eight-week weight from 3 to 7.5 lbs. without affecting feed efficiency.

3. Four feed flavors which were tested did not affect either rate of gain or feed efficiency. Two of these, anise-molasses and "molasses-fortifier," were also used in studies of preference. When the pigs were offered a choice they preferred unflavored feed in a ratio of almost 2:1 over either flavor. The other two flavors tested were "fruit flavors." One was in liquid form; the other was in a dry meal carrier.

4. When pigs were offered a choice of formulas which contained one of

* Dr. Hanson is Professor of Animal Husbandry. The research discussed in this report was done in collaboration with E. A. Rutledge, J. M. Russo, and E. F. Ferrin. Glen Swartz and associates assisted in the feeding and care of the pigs.

these—no sugar, 5 per cent sugar, or 10 per cent sugar—81.5 per cent of the total feed consumed was the 10 per cent sugar formula. In two other trials pigs offered a choice of no sugar, 10 per cent sugar, or saccharin (equivalent to 10 per cent sugar) clearly preferred the 10 per cent sugar formula. Saccharin-sweetened feed had no appeal for the pigs. In tests where the pigs had no choice the addition of sugar to the formula was of questionable value.

5. In a single experiment the substitution of dried condensed fish solubles for part of the tankage increased the rate of gain 15 per cent and decreased the feed requirement per pound of gain 10 per cent. In another test the substitution of rolled oats for 40 per cent of the corn in the formula did not affect the rate or efficiency of gain.

6. In four experiments the addition of 5 per cent added fat in the form of a lard-lecithin mixture did not affect the rate of gain but did increase costs.

7. Pigs weaned at three weeks get along best if they are fed in small groups (not more than 10 or 12). They need a minimum of 5 to 6 square feet of floor space per pig until they are eight weeks old.

8. Good sanitation is very important.

U. of M. Formula 23 Gives Good Results

On the basis of the many experiments completed in 1954 we believe that U. of M. Formula 23 will give good results when fed to pigs weaned at three weeks (weighing 10 pounds or more), provided that good management practices are followed. This formula will be modified as more research results become available.

U. of M. Formula 23

	pounds
Ground corn	31.5
Rolled oats	20.0
Sugar	10.0
Soybean oil meal	16.0
Tankage	5.5
Dried condensed fish solubles	2.5
Dried skim milk	12.0
Steamed bone meal	1.0
Salt (trace mineralized)	0.5
Vitamin premix*	1.0
Antibiotic or arsonic acid†	Yes

* One pound of vitamin premix contained 400 mg. riboflavin, 800 mg. pantothenic acid, 1,800 mg. niacin, 2,000 mg. choline, 2 mg. vitamin B₁₂, 400,000 units vitamin A, and 200,000 units of vitamin D₃.

† Antibiotic was fed at a rate of 40 grams per ton; arsanilic acid was fed at a rate of 120 grams per ton.

. . . A University of Minnesota swine researcher answers your questions on whether early weaning of pigs is practical

Three-Week Versus Eight-Week Weaning

After various experiments had been completed with approximately 300 pigs from the early 1954 spring crop, it was clear that three-week weaning was practical. These experiments, however, did not provide for a comparison of early versus eight-week weaning. We used the last 24 litters of the spring crop to make such a comparison.

The litters were divided as soon after birth as possible and cross-switched between pairs of sows, so that each sow of a pair suckled one half of her own and one half of the other sow's litter. At three weeks the pigs nursing one sow were weaned. The other "litter" continued nursing the other sow until the pigs were eight weeks old.

All pigs weaned at three weeks were fed the same feed mixtures. The principal mixture fed was similar to Formula 23 except that it contained 5.1 per cent added fat. Approximately half of the pigs weaned at eight weeks were creep-fed the same feed mixtures as the early-weaned pigs. The rest of the pigs weaned at eight weeks were creep-fed a much simpler mixture.

Table 1. Feed Lot Data from Three Weeks to Eight Weeks of Age

	Age weaned	
	Three weeks	Eight weeks
No. of pigs started	100	100
No. of pigs at eight weeks	98	100
Average daily gain (pounds)	0.77	0.78
Pounds of feed per pound of gain	1.81	3.07*
Net feed cost per pound gain	12.6 cents	11.9 cents

* This figure includes net gains of both sows and pigs.

Simple Creep Mixture Produces Cheapest Gains

All of the pigs made good gains. The first week of the experiment the pigs weaned at three weeks fell behind the pigs not weaned. However, they caught up later and reached the same eight-week weight as the pigs weaned at eight weeks. Within the various groups, the pigs nursing the sows and fed the more complex feed mixture made the most rapid gains and the most expensive gains. The pigs fed the simple creep mixture and weaned at eight weeks made the least rapid gains—but the cheapest gains (table 1).

Dates for Animal Nutrition Short Course Announced

September 12 and 13, 1955 are the dates set for the next Animal Nutrition Short Course on the St. Paul Campus of the University of Minnesota.

More than 200 people attended this outstanding course in 1954. The course is designed to bring the latest in feeding research and techniques to the attention of feed manufacturers, dealers, and others interested in animal feeding.

To find comparative costs, we used current feed prices to figure the value of each formula fed. The 12 sows that nursed their litters for eight weeks gained a total of 302 pounds during the five-week experimental period. The sow gain was valued at 18 cents per pound and deducted from the total feed cost for the sow-raised pigs.

When the pigs were about nine weeks old they were sorted again and placed into eight lots on bromegrass pasture. There were four lots of three-week-weaned pigs and four lots of eight-week-weaned pigs. Four rations were self-fed for a period of 14 weeks.

Table 2 shows clearly that the pigs weaned at eight weeks made faster and more efficient gains than the pigs weaned at three weeks. The superiority of the eight-week-weaned pigs is apparent with each ration fed. The reason (or reasons) for this difference is not known.

It will be noted that six pigs died in the three-week-weaned group. Five of these deaths were due to erysipelas; the death of the sixth was due apparently to a weak heart. One pig in the eight-week group died after a short fight with another pig after going on pasture.

Three-week weaning of pigs is practical when good management practices

are followed and when reasonably good facilities are available. However, we have not yet succeeded in producing market pigs at lower cost by this method of management.

New Equipment and New Tests Enlarge Soil Test Services

Two changes in the University of Minnesota's soil testing service have been announced by H. J. Sloan, Director of the Agricultural Experiment Station.

First, enlarged facilities will permit more complete and accurate soil tests. Second, the fee will be \$1 per sample, effective January 1. The fee has been 50¢ per sample. At 45 state agricultural colleges offering a similar testing service, the usual charge is \$1, but charges range up to \$6.50.

Sloan explains that the \$1 fee does not cover the expense of soil testing—state appropriations also help defray cost of equipment and technical help. The soil tests are considered valuable in the University's research program and hence merit funds.

William P. Martin, Head of the Soils Department, says new laboratory equipment has been purchased and new, improved tests for lime, phosphate, and potash added. A chemist, John Grava, has been employed to supervise the soil testing laboratory.

In the past, the laboratory has not made a soil test for nitrogen. Grava will tackle this problem, examining nitrogen tests other states use, and adapt one for Minnesota in the near future.

Recently a series of courses were conducted for county agents by Professor Paul Burson of the University's Soils Department. The courses were designed to equip them to make final fertilizer and land use recommendations to farmers who have sent soil samples to the laboratory.

Table 2. Feed Lot Data on Pigs from 9 Weeks to 23 Weeks of Age

Ration fed	Average daily gain for pigs weaned at		Feed per 100 lbs. gain for pigs weaned at	
	Three weeks	Eight weeks	Three weeks	Eight weeks
	pounds			
1	1.41	1.50	361	340
2	1.42	1.55	367	347
3	1.44	1.58	362	334
4	1.54	1.63	363	339
Average all rations	1.45	1.56	363	340
No. of pigs marketed	94	99		
Feed cost per 100 lbs. gain			\$12.70	\$11.90

Alfalfa Must Be Hardy, Resist Wilt

L. J. Elling*

Hardiness and wilt resistance are the two big factors to consider in choosing an alfalfa variety for Minnesota. Let's consider hardiness first, for it is especially important in Minnesota.

Alfalfa varieties may be divided into three groups: hardy, semihardy, and nonhardy. For hay, pasture, or silage production in Minnesota, only varieties in the hardy group are adapted; the winter conditions are too severe for alfalfas from the other two groups.

Resistance to bacterial wilt is important in the choice of a variety when you want a good stand for more than two crop years. Wilt-susceptible varieties will generally produce less during the third or fourth crop year than the wilt-resistant varieties.

The foliage diseases are important to Minnesota farmers, but no varieties are resistant. Several alfalfa breeders are working on this problem, but it will be several years before resistant varieties will be available.

Alfalfa varieties available in Minnesota are as follows:

RANGER is a synthetic variety produced by the cooperative efforts of the Nebraska Agricultural Experiment Station and the United States Department of Agriculture. Five highly selected strains are brought together to produce breeder seed for further increase. Due to the rapid increase of this variety by southwestern growers since 1949, certified seed of Ranger alfalfa is available in large quantities.

LADAK was selected from a seed lot introduced from northern India by the

* Assistant Professor, Department of Agronomy and Plant Genetics.

USDA in 1910. The seed supply is much less dependable than that of Ranger, especially since there is no breeder or foundation seed of Ladak.

NARRAGANSETT was produced by the Rhode Island Agricultural Experiment Station. It is particularly well adapted in the northeastern states, is very winter hardy, has good seedling vigor, and yields well. It is susceptible to bacterial wilt and should be seeded only where alfalfa is used for two crop years or less. Since this variety appears to be low for seed production, limited seed supplies may continue to prevent widespread use of Narragansett.

VERNAL is a synthetic variety produced in Wisconsin. Seed will be available generally for the first time in 1955. Since there is not yet enough performance information on this variety, at least two more years of testing will be required before recommendations can be made for Minnesota.

GRIMM is a well known northern alfalfa variety with two important drawbacks: it is susceptible to bacterial wilt and there is no source of breeder or foundation seed.

BUFFALO and **WILLIAMSBURG** have been developed from Kansas common alfalfa. All three perform very similarly, except where bacterial wilt is present—Buffalo is wilt resistant and the other two are susceptible. None is sufficiently winter hardy for Minnesota.

NORTHERN COMMON ALFALFAS. Most of the northern common alfalfas are winter hardy, are susceptible to bacterial wilt, and give average performance. Most agronomists agree that much of the northern common alfalfa

has probably descended from Grimm. Different lots of northern common give different results, so seed of this kind is less reliable than is certified seed of adapted varieties.

SOUTHERN OR SOUTHWESTERN COMMON ALFALFAS should not be seeded in Minnesota for forage production as they are not winter hardy. But don't confuse these with certified seed of adapted varieties—also produced in the southwest. Certified seed of the adapted varieties produced in the southwest gives very satisfactory performance in Minnesota.

Certified seed of adapted varieties is the best buy for Minnesota farmers. Growers of certified seed must take extra precautions to insure varietal purity. Frequent and rigid inspections are also made by crop improvement officials to enforce regulations regarding isolation, crop mixtures, and other important factors.

Experimental trials have shown that certified seed lots of each variety are uniform for yield, disease resistance, and winter hardiness. Only through purchasing certified seed is the farmer able to get seed of known performance.

Poultry Researcher Joins Staff Here

Paul E. Waibel, a native of Hawthorne, New Jersey, has joined the staff of the University of Minnesota's Institute of Agriculture as a research associate. He will specialize in poultry nutrition research.

Waibel received his Bachelor of Science degree in poultry husbandry at Rutgers University, New Brunswick, New Jersey in 1948. He was granted his Master's degree in 1951 and Doctor of Philosophy degree in 1953, both at the University of Wisconsin, Madison.

In addition, he spent a year in poultry research at Cornell University, Ithaca, New York, after completing his doctoral studies. He has done a good deal of research on the B-complex vitamins and their role in poultry nutrition. His studies also involve effects of antibiotics and their relation to choline, methionine, vitamin B₁₂, thiamine, and other B-complex vitamins.

He will continue studies begun at Cornell on unidentified factors in poultry nutrition and conduct other research.

A Summary of the Important Characteristics of the More Common Alfalfa Varieties

Variety	Forage yield	Winter hardiness	Diseases*			Supply of high quality seed
			Bacterial wilt	Common leafspot	Black stem	
Ladak	High	Good	R	*S	S	Poor
Narragansett	High	Good	S	S	S	Poor
Ranger	Medium	Good	R	S	S	Excellent†
Vernal	High‡	Good‡	VR	S	‡	Fair¶
Atlantic	Medium	Medium	S	S	S	Fair
Buffalo	Low	Medium	R	S	S	Good
Canadian Variegated	Medium	Good	S	S	S	Poor
Cossack	Medium	Good	S	S	S	Poor
Grimm	Medium	Good	S	S	S	Poor
Kansas Common	Low	Medium	S	S	S	Fair
Montana Common	Medium	Good	S	S	S	Poor
Nomad	Very low	Poor	S	S	S	Poor
Rhizoma	Medium	Good	S	S	S	Poor
South Dakota Common	Medium	Good	S	S	S	Poor
Talent	Very low	Poor	S	S	S	Poor
Williamsburg	Low	Poor	S	S	S	Poor

* R—resistant; VR—very resistant; S—susceptible.

† Approximately 35-40 million pounds of certified seed available for 1955 seeding.

‡ Based on Wisconsin data.

¶ About two million pounds of certified seed available in the U.S. for 1955 seeding.

High Protein Rations Will NOT Poison Pigs

A too high protein ration will not poison pigs but it is more expensive and acts as a laxative. This was shown again in a demonstration last summer by a University of Minnesota animal husbandry professor, L. E. Hanson.

Hanson split several groups of littermates into two lots at eight weeks, just after weaning. He gave one lot a ration with 14 per cent protein—the recommended level—and the other a 30 per cent protein feed.

Pigs on the 14 per cent protein ration outgained the others 1.31 to 1.54 pounds a day. They used their feed better, too, gaining 100 pounds on 318 pounds of feed compared to 345 pounds for pigs on the 30 per cent ration.

The feed cost was 10 cents a pound for the pigs fed 14 per cent protein compared to 15.2 cents for those on high protein ration.

BALANCED FERTILIZING—Continued from page 2

However, when Remick added 33 pounds of nitrogen sidedressed on the corn to his original application of row fertilizer, the yield jumped to 73.1 bushels per acre. Without the nitrogen treatment this farmer might not have known why the starter fertilizer failed to increase yields.

Another common mistake in corn fertilization is exactly opposite to the example cited above. That is, nitrogen is applied as a sidedressing without enough phosphate and potash in the soil to carry the crop. For example, on the Leo Keefe farm near Delavan in 1953 an application of nitrogen actually decreased yields. Keefe sidedressed 80 pounds of nitrogen on corn following corn and got 66 bushels per acre. Compare this with his non-fertilized plot, which made 74 bushels—8 more per acre!

When Keefe added the nitrogen to a plot that had received 200 pounds per acre of 5-20-10 in the row, he got 111 bushels per acre.

Quite often a fertilizer has little or no effect simply because not enough was put on. Many farmers, for example, do not put enough fertilizer in the row for corn to give the best response. A demonstration on the Bill Raschke farm near Grey Eagle this year illustrates this point. On corn following legumes Raschke's non-fertilized plot yielded 68 bushels per acre and had 49 per cent moisture at the time of the yield test. When he applied 80 pounds per acre

Farm & Home Week To Be Outstanding

- Seed production of forage legumes.
- Developing new corn varieties.
- Sheep production.
- Crop improvement.
- Fattening cattle.
- Dairy cattle feeding.
- Swine research.
- Pasture improvement.
- Fertilizing alfalfa.
- Trace elements.
- Weed control.

These are only a few of the highlights of the fifty-third annual Farm and Home Week to be held January 11-14, 1955 on the St. Paul Campus of the University of Minnesota. Feed, seed, and fertilizer dealers will find many topics of interest at this outstanding short course, and will want to hear Secretary of Agriculture Ezra T. Benson speak Thursday noon, January 13.

Full Color Map in New Bulletin Shows All of State's Soils

You'll want a copy of *Soils in Minnesota*, the University of Minnesota Agricultural Extension Service's new Bulletin 278. You can identify the type of soil you're working and get more accurate help in selecting crops, fertilizer, and seed this spring.

Bulletin 278 is based on information gathered by the Minnesota Agricultural Experiment Station, the United States Department of Agriculture, and the Soil Conservation Service. Free copies are available at your county agent's office.

The soils on a farm determine to a great extent the type of farming, selection of crops, and yields. Anyone who buys a piece of land or operates a farm can use the information presented in this bulletin.

One valuable feature is a soils map, which shows the location of 24 areas of the state that have similar soils. Each soil association area is described. Topography, kinds of soil, and drainage characteristics are mentioned. From this description it is possible to compare one area with another.

Information of climate, always of interest to the farmer, is also in map form. One map shows the annual rainfall for the various areas in Minnesota. It ranges from 20 inches in the northwestern part of the state to 32 in the southeast.

Pick up your free copy of Bulletin 278 at the county agent's office or write to Bulletin Room, Institute of Agriculture, University of Minnesota, St. Paul 1, Minnesota.

Winter Calves Properly

Farmers wintering steer or heifer calves on late-cut, nonlegume hay or corn silage should add a pound of protein supplement to each calf's daily menu. They will make faster, cheaper gains because the added protein will cause them to eat more hay and thus increase their intake of the beneficial nutrients they get from the hay. Unbalanced rations that result in slow rate of gain are uneconomical, regardless of what the feed costs you. This tip comes from R. M. Jordan, assistant professor of animal husbandry at the University of Minnesota.

High Yields. Crop records kept by farmers show that high crop yields are the most important factor in getting low costs per bushel or ton.

FARM CROP VARIETIES LISTED FOR '55---Continued from page 1

Winter Wheat

Minter and Minturki are recommended.

Barley

The recommended varieties are Kindred, Montcalm, Peatland, and Vantage. Kindred and Montcalm are satisfactory for malting, but Peatland and Vantage are not. Peatland is adapted to the cut-over region of Minnesota and is recommended for feed. Vantage is a feed barley adapted to all sections of Minnesota.

Rye

The varieties Adams and Caribou are recommended. Adams rye was added to the list of recommended varieties because it has yielded well in field trials. It resembles Imperial but has produced higher yields. Imperial and Emerald were removed from the recommended list because they were inferior to the two recommended varieties.

Corn

Minhybrids 404, 405, 406, and 505 were removed from the recommended list because seed of the new superior Minhybrids 409, 411, 412, 502, and 508, and AES 610 became plentiful. A complete list of the recommended corn varieties is given in Extension Folder 22, *Improved Varieties of Farm Crops*.

Flax

No changes were made in the list of recommended varieties of flax this year. B5128, Marine, and Redwood are still recommended. These varieties are im-

mune to all races of rust found in Minnesota and are resistant or moderately resistant to wilt. Marine is earlier than the other recommended varieties and is the most resistant to pasmo.

Soybeans

Soybeans continue to grow in importance in Minnesota, with about 2 million acres of soybeans being planted in our state this past year. This year Chippewa and Norchief were added to the list of recommended varieties, which included Blackhawk, Capital, Flambeau, Ottawa Mandarin, and Renville. Chippewa is adapted to the southern half of Minnesota and has been excellent in yield, oil content, and resistance to lodging. The selection was made at Illinois and developed through cooperative breeding and testing programs conducted in this region.

Norchief is a very early maturing variety and is adapted to the Central Zone, North Central Zone, and southern half of the Northern Corn Maturity Zone. It is superior to Flambeau in yield, standing ability, and oil content. This selection was made at Wisconsin and developed through regional cooperation.

Alfalfa

Ladak, Narragansett, and Ranger are recommended. There will be an excellent seed supply of Ranger, but the seed supply of Narragansett will be very short. In addition to these, the promising new variety, Vernal, will be offered for sale in Minnesota this winter. However, the seed supply will be somewhat limited and will bring higher prices than Ranger.

Bromegrass

The varieties Achenbach, Fischer, and Lincoln are recommended. They are southern bromegrass varieties and have been better than northern strains in Minnesota trials.

Red Clover

The two recommended varieties, Midland and Wegener, will be in short supply this year. If you are unable to get either one, you could substitute good Minnesota-grown common red clover satisfactorily.

Sweetclover

Evergreen and Madrid are the recommended varieties.

Other Varieties

No changes were made in the recommendations for other varieties of farm crops. The recommended list includes Advance and Arrowhead sunflowers; Chancellor, Dashaway, and Multiplier field peas; Empire birdsfoot trefoil; Piper sudangrass; and Itasca and Lorain timothy.

Starting Farming

Think starting farming is a hard go? Well, almost everyone has to start small. A University of Minnesota research project checked on 350 young farmers. It found that 51 per cent of them had a net worth of less than \$3,000 when they began. Only 18 per cent of the newcomers had enough money to buy a farm. Nearly half began with a crop and livestock share arrangement. The other 36 per cent started out under a cash or crop share lease.

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UNIVERSITY OF MINNESOTA, INSTITUTE OF AGRICULTURE,
ST. PAUL 1, MINNESOTA

Cooperative Extension Work in Agriculture and Home Economics, University of Minnesota, Agricultural Extension Service and United States Department of Agriculture Cooperating. Skuli Rutford, Director. Published in furtherance of Agricultural Extension Acts of May 8 and June 30, 1914.

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Institute of Agriculture
Agricultural Extension Service
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SKULI RUTFORD, Director
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