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Website: extension.sdstate.edu

Phone: 605-688-4792

Email: sdsu.extension@sdstate.edu

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Barley Production

Barley Production in South Dakota

BARLEY IS PARTICULARLY adapted to good cultural and management practices. To be successful in producing barley, you should:

1. Select an adapted and recommended variety.
2. Use clean, pure, high germinating seed.
3. Treat all seed.
4. Maintain soil fertility.
5. Control weeds.
6. Thresh carefully to prevent skinned and broken kernels.
7. Store grain at not more than 13.5% moisture.

CLASSES OF BARLEY

Feed barley varieties can be grown in all areas of the state. Most of the barley crop in South Dakota is used for livestock feed, much of it being fed on the farm where it is raised.

Barley is a valuable feed for all classes of livestock. It is a good feed for growing animals and for fattening purposes it compares favorably with corn. It has more total digestible nutrients per 100 pounds than oats and slightly less than corn.

Under average growing conditions and with adequate soil fertility, barley will produce more pounds of feed or total digestible nutrients per acre than will oats. During the 10-year period 1949-58, the average yield of barley for all of South Dakota was 19.3 bushels per acre or 926.4 pounds of grain. The average yield of oats for these same 10 years was 28.4 bushels per acre or 908.8 pounds of grain. Compared on the basis of cash income per acre, using prevailing market prices, there is a definite advantage of barley over oats.

Malting barley is generally grown only in the 12 northeastern counties where growing conditions are more favorable for producing a mellow malting barley. Malt made from barley is used by food processors and breweries. The price premium paid for malting barley over feed barley varies, but is often substantial. If you are in the malting barley production area, you should consider raising barley for this premium market.

Malting varieties are those that have been tested and approved by the malting and brewing industry. These varieties possess characteristics deemed necessary for successful processing. However, an approved and recommended variety does not guarantee that malting quality will be obtained.

BARLEY IN THE ROTATION

Experiment station tests indicate barley does better following an intertilled or row crop than following another small grain. The highest yields were obtained in those rotations which included a cultivated crop and a legume crop. Barley also does well on summer fallow. Barley is often used as a companion crop for legumes and grasses.

SOIL FERTILITY IS IMPORTANT

Barley is a poor crop to plant on low fertility soil. Many farmers have become discouraged with barley; however, if adequate soil fertility is maintained through use of legumes and wise use of commercial fertilizer, many crop failures could be prevented.

By Elmer E. Sanderson and Ralph A. Cline, associate Extension agronomists.

Barley makes a fast growth in early spring and thus requires sufficient available plant nutrients. You should test your soils to determine fertility needs.

SEEDBED PREPARATION

Double disking and harrowing row crop land is the common method of preparing a seedbed for barley. This method is relatively cheap and fast, and it leaves 3 to 4 inches of loose, friable soil on the surface with firm soil beneath. The pony-press drill and packer, attached to a plow, is an excellent once-over seedbed preparation and planting method. When barley is to follow small grain crop, you should plow stubble-mulch. Stubble-mulch tillage is highly recommended as it controls soil erosion, conserves moisture, and controls weeds.

Scab, a fungus disease of barley, is often a serious problem. The same disease attacks corn and the organisms can be carried over to the next season by the corn stalk refuse. If scab is a problem and barley is to follow corn, plow the land and thoroughly cover the corn stalks. Pack all plowed land either before or after planting to prevent excessive moisture evaporation.

TIME OF SEEDING

When the soil can be properly worked with usual farming equipment, it is time to seed. "Mudding in" before the surface soil has had a chance to dry out is not a good practice.

The usual practice on most farms is to plant the wheat and oats first, as barley is more susceptible to frost injury. Also the yields of wheat and oats are reduced more than those of barley by delayed seeding. April 15 is about the optimum seeding date.

METHOD AND RATE OF SEEDING

Seed with a grain drill. Drilling distributes the seed uniformly and places it at a uniform depth in moist soil where conditions are favorable for germination. This method is especially recommended for the drier areas. The deep-furrow, the press drill, and pony-press drills are satisfactory types of grain drills. Broadcasting and disking in is a cheaper seeding method and can be justified on small acreages.

Seed at the rate of 1½ to 1¼ bushels per acre. Western areas may seed less than 1½ bushels. Increase the rates slightly for broadcasting.

USE GOOD SEED

The use of pure seed, free of weed seeds and of high germination, is the first prerequisite to insure a successful crop. *Certified seed is an assurance of good seed.*

Seed Treatment. Proper seed treatment with a recommended seed fungicide is always a good practice. Treating aids in the control of covered smut, scab, and other seed borne diseases. The chemical offers protection to the seed and to the small seedling when germination is slow due to adverse growing conditions.

There are several approved seed treatments or fungicides on the market. However mixing of the seed and fungicide is necessary for complete coverage of the seed. The actual cost per acre is very small. Except for small lots of seed, custom treating has proved very practical.

WEED CONTROL

Weeds compete with crops for moisture and plant nutrient. A good weed control program includes both cultural and chemical control methods which are practiced throughout the rotation. Cultural control involves (1) use of weed free seed, (2) clean cultivation of row crops, (3) summer tillage of grain stubble, and (4) preventing weed seed production.

Chemical weed control is practical for controlling broadleaf susceptible weeds. Barley will tolerate up to one-third pound of 2,4-D acid in an ester form or one-half pound in an amine form. Spray when barley is in the 5-leaf to early boot stage. For complete and specific information on spraying and use of herbicides for weed control in barley, consult your county Extension agent.

HARVESTING AND STORING

Most of the barley acreage is harvested with a combine, either direct or from a windrow. Because of weeds, uneven ripening, shattering, and possible high moisture of the grain, the windrowing and combining method is the most common. Highest quality barley is attained by allowing the grain to get fully mature and

thresh as soon as the grain is dry enough for safe storage. The moisture content of the grain should be 13.5%, or less for safe storage. A safe moisture level is especially important for malting barley.

Malting barley cannot contain more than 5% skinned and broken kernels. At one shipping point in South Dakota in 1958, 71.4% of the malting barley was graded down because of skinned and broken kernels. Proper adjustment of the thresher or combine and operating with a minimum cylinder speed could in most cases correct this damage to the barley kernels.

SELECTING THE BEST VARIETY

Selecting the best barley variety for a farm or for a certain field is an important decision. Growing an adapted variety or varieties helps to insure more stable production. Ignoring this principle often invites disappointments and causes fluctuations in farm income. The suggestions, recommendations, and variety descriptions given in this fact sheet should help farmers to choose their varieties.

VARIETY RECOMMENDATIONS

The list of recommended varieties for South Dakota shown in the table is based on Experiment Station tests conducted throughout the state. These recommendations are based not only on yield but also on factors such as earliness, disease and insect resistance, straw strength, grain quality, and market needs. Variety recommendations, according to "crop adaptation areas," are given in Extension Fact Sheet (F.S. 104)

The table gives the important characteristics of the more commonly grown barley varieties in South Dakota. The recommended group represents a list of good varieties adapted in one or more areas of the state, realizing that other varieties may have local interest with satisfactory performance. In some cases, varieties not recommended may not be inferior to those recommended but may merely represent duplication of qualities already available.

Variety	Yield	Plant height	Maturity	Lodging resistance	Bushel weight	Seed size	Malting* quality	Aleurone color	Disease reaction†		
									Stem rust	Spot blotch	Loose smut
Recommended											
Fechar	Medium	Short	Medium	Good	Low	Large	Poor	White	R	MS	S
Kindred (L)	Medium	Medium	Medium	Poor	Medium	Medium	Good	White	R	MS	S
Larker	High	Medium	Medium	Good	Medium	Medium	**	White	R	MS	S
Liberty	High	Medium	Medium	Good	Medium	Medium	Poor	White	R	S	S
Plains	High	Short	Early	Good	High	Medium	Poor	White	R	MS	S
Spartan‡	Medium	Medium	Early	Good	High	Large	Poor	White	S	S	S
Trail	High	Medium	Medium	Good	Medium	Medium	Good	White	R	MS	S
Trophy	High	Medium	Medium	Good	Medium	Medium	**	White	R	MS	S
Not recommended											
Betzes†	Medium	Short	Late	Good	High	Large	§	White	S	S	S
Compana‡	Medium	Short	Early	Good	High	Large	Poor	White	S	S	S
Custer	High	Short	Early	Good	Medium	Large	Poor	White	R	S	S
Husky	Medium	Medium	Late	Medium	Medium	Medium	Poor	White	R	S	S
Parkland	Medium	Tall	Late	Good	Medium	Medium	§	Blue	R	MS	S
Swan	Medium	Medium	Medium	Good	Medium	Medium	Poor	Yellow	R	MR	S
Tregal	High	Medium	Medium	Medium	Medium	Medium	Poor	White	S	S	R
Montcalm	Medium	Tall	Late	Poor	Medium	Medium	Good	Blue	VS	S	S
Forrest	Medium	Medium	Medium	Medium	Medium	Medium	Poor	White	R	MR	S
Odessa	Medium	Medium	Medium	Poor	Medium	Medium	Fair	White	S	MS	S
Otis‡	Medium	Short	Medium	Good	Medium	Large	Poor	White	S	MS	S
White Smyrna‡	Medium	Short	Early	Poor	High	Large	Poor	White	S	S	S

*Inheritable characteristics affecting malting quality and desired in a variety are: (1) A mellow, starchy endosperm; (2) Medium to high level of enzyme activity; (3) Seeds with a firm hull; (4) White aleurone layer (pearls white) is preferred; (5) Bright, plump kernels.

†All varieties are susceptible to leaf rust but leaf rust ratings have been relatively light. All varieties are susceptible to Septoria except Fechar which has resistance. All varieties appear to be susceptible to the virus diseases, yellow dwarf and false stripe. R=resistant; MR=moderately resistant; MS=moderately susceptible; S=susceptible; VS=very susceptible.

‡Two-row variety

§According to the latest information from the malting barley industry, the malting quality of Betzes is acceptable if the variety is grown in Montana and Parkland is acceptable if grown in northeast North Dakota and northwest Minnesota.

**Malting quality reports to date are favorable, but final acceptance by the malting barley industry is being delayed until further testing is completed.

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