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Cooperative Extension, South Dakota State University

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*Cooperative Extension Service*

## Oat Production in South Dakota

### Oat Production

More than three million acres of oats are raised each year in South Dakota. The oat crop ranks first in total acres among all small grain crops in this state and is surpassed only by wheat in total valuation.

The greatest oat acreages are in eastern counties where wheat is not a major crop and where corn acres are the greatest. The crop can be grown under varied soil types, soil fertility, climatic conditions, and methods of farming which may not always suit other small grains.

Oats is produced both as a cash crop and as a feed crop. Usually, oats has an economic advantage if it is used for livestock feed, and especially so if used for hay or silage. Experiment Station agronomists have found that the total digestible nutrients produced per acre can be doubled if the entire oat crop can be harvested as forage and fed to livestock.

#### OATS IN THE ROTATION

Oats usually follows an intertilled or row crop that leaves the soil in condition to be prepared quickly for spring planting. The yield is greater following a row crop than it is following other small grain crops in the rotation.

#### RESPOND TO SOIL FERTILITY

Oats, like all small grains, develops rapidly in the early spring when soil temperatures are cold. Under these conditions, the nitrogen release is low. If available plant food is lacking, especially nitrogen, the oat plant will be yellow, have only a few or no tillers, and reach little height. Under such conditions, grain quality may be good but the yield disappointing. This is especially true for early varieties which must make their growth earlier in the season than late varieties.

Oats will respond to commercial fertilizers. There is some question as to whether the use of commercial fertilizers will always pay in the lower rainfall acres in western South Dakota. A soil test should be made to accurately determine soil fertility levels and plant food needs. Since legumes and plant residues are "musts" in helping to maintain soil productivity, the establishment of legumes is frequently accomplished using oats as a companion crop.

#### SEEDBED PREPARATION

Double disking and harrowing row crop land is a common method of preparing a seedbed for oats. This method is relatively cheap, fast, and leaves 3 to 4 inches of loose, friable soil on the surface with firm soil beneath. Spring plowing may give increased yields but is slow and more costly. All plowed land should be

packed either before or after planting in order to prevent excessive moisture evaporation. Firm seedbeds are invaluable when drought conditions prevail.

#### TIME OF SEEDING

Oats should be seeded as soon as the soil can be properly worked with usual farming equipment. "Mudding in" before the surface soil has a chance to dry is not a good practice.

#### METHOD AND RATE OF SEEDING

Seeding with a grain drill is the best method. Drilling distributes the seed evenly at a uniform depth in moist soil where conditions are favorable for germination. Drilling is especially recommended for the drier areas. Broadcasting and disking-in is a cheaper seeding practice and can be justified on small acreages. Seed at the rate of 2 to 2½ bushels per acre. Western areas may even seed less than 2 bushels. Increase the rate slightly for broadcasting.

#### USE GOOD SEED

Using pure seed, free of weed seed and of high germination ability, is the first requirement of a successful crop. A good farmer will seed nothing else. Certified seed is your assurance of good seed.

#### SEED TREATMENT

Proper seed treatment with a recommended chemical is always a good practice. This treatment controls both loose and covered smut of oats and certain other seed-borne diseases. Several good seed treatment fungicides are on the market. The actual cost per acre is very small. Except for small amounts of seed, custom treating has proved practical. For custom and home treatment, the instruction on the seed treatment container as to rate and method of treatment should be followed very carefully. Thorough mixing of the fun-

gicide and seed is necessary in order to get good seed coverage and derive maximum benefits from the treatment.

## WEED CONTROL

Under normal rainfall in South Dakota, one cannot expect to raise a weed crop and oat crop on the same field in the same year. A planned cultural weed control program should be practiced throughout the cropping rotation and should be supplemented with herbicides as needed. Most oat varieties are more tolerant to MCPA than to 2,4-D. General recommendations are to use one-third pound of 2,4-D acid in an ester or one-half pound in an amine form or one-half pound of MCPA acid per acre. Apply during the tolerant periods of growth which are usually between the 5-leaf and early boot stages. For complete information on spraying to control weeds in oats, variety tolerance, and so on, consult your county agent or experiment station.

## HARVESTING AND STORING

Most of the oat 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 most common in eastern oat producing counties. Highest quality grain is obtained by allowing the oats to mature and threshing as soon as the grain is dry enough for safe storage. The moisture content of the grain should be 14% or less for safe storage.

## SELECTING THE BEST VARIETY

Selecting the best oat variety for a farm or for a certain field is an important decision. Growing an

adapted variety or varieties insures more stable production. Ignoring this principle often invites disappointments and causes fluctuations in farm income. Recommendations given in this fact sheet and variety descriptions should help South Dakota farmers to choose their varieties.

There is no one variety of oats that is best for all areas or for all situations. Factors determining the selection of a variety are: (1) local climatic environments such as elevation, normal expected rainfall, and temperature, (2) soil type, (3) soil fertility, (4) varietal performance, (5) market demand, and (6) crop use.

## VARIETY RECOMMENDATIONS

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

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

Varieties* Recommended	Yield	Plant Height	Maturity	Lodging Resistance	Seed Color	Bushel Weight	Disease Reactionst							
							Stem Rust Races†			Leaf Rust Races‡				
							6	7	7A	8	202	216	216	Smut
Andrew	High	Medium	Early	Good	Yellow	Medium	S	R	R	S	MS	S	R	
Burnett	High	Med. Tall	Medium	Good	Yellow-Wh.	High	R	R	S	R	R	S	R	
Cintland 60	High	Medium	Early	Good	Yellow	Medium	R	R	S	R	R	S	R	
Dodge	Medium	Medium	Medium	Good	Yellow	High	R	R	R	R	R	R	R	
Dupree	Medium	Short	Early	Medium	White-Gray	Medium	S	S	S	R	S	S	R	
Garry	High	Tall	Late	Good	White	High	R	R	R	R	MR	S	R	
Marion	Medium	Medium	Medium	Medium	Tan-White	Medium	S	R	R	S	MS	S	R	
Minhafer	High	Medium	Early	Good	Yellow	Medium	R	R	R	R	R	R	R	
Mo-0-205	High	Medium	Medium	Good	Gray	Medium	S	R	R	S	MS	S	R	
Nehawka	Medium	Short	Early	Good	Yellow-Wh.	Medium	S	R	R	S	S	S	R	
Ransom	Medium	Med. Short	Early	Good	Yellow	Medium	R	R	R	R	MR	S	R	
Rodney	High	Tall	Late	Good	White	High	R	R	S	R	MR	S	R	
<b>Varieties Not Recommended</b>														
Ajax	High	Tall	Med. Late	Medium	White	Low	S	R	R	S	S	S	S	
Branch	Medium	Tall	Late	Medium	White	Medium	S	R	R	S	MS	S	R	
Cherokee	Low	Short	Early	Good	Yellow-Pink	High	S	S	S	R	S	S	R	
James	Low	Medium	Medium	Good	White	High	S	S	S	R	S	S	R	
Minton	Medium	Medium	Medium	Medium	White	Low	R	R	S	R	R	R	R	
Nemaha	Low	Short	Early	Good	Yellow-Pink	High	S	S	S	R	S	S	R	
Newton	Medium	Med. Short	Medium	Good	Br.-Yellow	Medium	S	R	R	S	MS	S	R	
Nodaway	Medium	Medium	Early	Good	White	Medium	S	R	R	S	MR	S	R	
Portage	Medium	Tall	Med. Late	Medium	White	Medium	S	R	R	S	R	S	R	
Sauk	High	Tall	Med. Late	Medium	Yellow	Medium	S	R	R	S	MR	S	R	
Shield	High	Medium	Early	Good	Yellow-Wh.	Medium	R	R	S	R	MS	S	R	
Tonka	Medium	Short	Early	Good	Yellow	High	S	S	S	S	S	S	R	
Waubay	Medium	Medium	Medium	Good	Yellow	High	S	R	R	S	S	S	R	

\*Varieties are listed alphabetically and not in order of importance.

†Symbols used to indicate degrees of resistance or susceptibility to diseases are: R=resistant; MR=moderately resistant; S=susceptible; MS=moderately susceptible.

‡Race 7 is currently the most prevalent stem rust race. Other races not

listed are of economic importance in other areas of U. S. and may become damaging in the future.

§Race 216 is the most prevalent leaf (crown) rust race at present. Races 264 and 290 potentially may increase in importance and all present oat varieties are susceptible to them.