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The oat acreage in South Dakota has gradually declined over the past 10 years. In 1954 more than 4 million acres were planted to oats. In 1964 only slightly more than 2½ million acres were devoted to this crop. But oats still ranks first in total acres among all small grain crops in the state and is surpassed only by wheat in total valuation.

The largest acreage of oats is in the high corn producing eastern counties where wheat is not a major crop. Oats 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 used for livestock feed, and especially if used for hay or silage. Experiment Station agronomists 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 following other small grain crops in the rotation. Since legumes and plant residues help maintain soil productivity, the establishment of legumes is frequently accomplished using oats as a companion crop.

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, short, and have few or no tillers. 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 areas in western South Dakota. A soil test should be made to accurately determine soil fertility levels and plant food needs.

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 ofter planting 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

First requirement of a successful crop is to use pure seed, free of weed seed and of high germinating ability. A good farmer will seed nothing else. Certified seed is your assurance of good seed.

SEED TREATMENT

Proper seed treatment with a recommended fungicide is often a good practice. Seed treatment controls both loose and covered smut of oats and can help control certain other seed-borne and soil-borne diseases. More detailed information on seed treatment and recommended fungicides are given in Fact Sheet 193 "Seed Treatment."

The actual cost of seed treatment per acre is small. Except for small amounts of seed, custom treating has proved practical. For custom and home treatment, instructions on the seed treatment container as to rate and method of treatment should be followed

carefully. Thorough mixing of the fungicide and seed is necessary to get good seed coverage and derive maximum benefits from the treatment.

WEED CONTROL

Under normal rainfall conditions in South Dakota, you 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 secure Fact Sheet "Weed Control in Small Grains."

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.

DISEASES

Breeding new varieties is an ever-continuing process, mainly because new disease troubles follow new varieties. Sometimes a disease may have been minor or previously unknown. On occasions, new races or varieties of well-known disease organisms or little-known races have increased and caused severe losses. Under such changing conditions, older varieties which were once popular may reappear and produce well until older diseases also return. Newer varieties generally are much more disease resistant than those of a generation ago.

Leaf Rust (Crown Rust) is usually the most serious disease of oats in South Dakota. When severe, it causes lodging, light-weight kernels, and low yields. Leaf rust races now prevalent in the United States consist of two groups: the older races to which many of the recommended varieties have moderately resistant to resistant reactions, and the new races (264, 295. and 326) to which present varieties are all susceptible. It cannot be predicted how rapidly these newer races will increase in importance, but plant pathologists and plant breeders are hopeful of developing oat varieties resistant to these races. Attempts to stay one step ahead of the constantly changing development of leaf and stem rust races accounts for the rather rapid change in oat varieties.

Stem Rust has not been serious in South Dakota in recent years. Because stem rust has not caused severe damage to oats since 1957, there may be a tendency to overlook the importance of stem rust resistance for successful oat production in South Dakota. Stem rust could become important again if newly discovered subraces become widely distributed. Races 6A, and 6AF can attack all present available commercial varieties. If, or how rapidly, these races increase in importance cannot be predicted. Research workers in several states have recently found sources of resistance in some breeding lines, and this resistance will be incorporated into commercial varieties as rapidly as possible.

"Red Leaf" of oats, a virus disease, was present in most areas of the state in 1959 and reduced yields where infection was high early in the growing season. This disease has been minor since 1959, although insect carriers of the virus have been observed early in the growing season each year. All commercial oat varieties are susceptible; however, Brave and Newton have shown some field tolerance.

Smut resistance is found in all recommended varieties. Some nonrecommended varieties including Ajax and Nodaway are susceptible to certain races. Smut-susceptible varieties should be seed treated for control of this disease.

Halo blight, a bacterial leaf-spot disease, frequently is found early in the season. At first spots are yellow and later turn brown. The appearance of this disease on leaves often causes much concern. But the plants tend to outgrow the disease and the effect on yields is usually minor.

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 and variety descriptions given in this Fact Sheet 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 (table below) 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 Fact Sheet "Field Crop Varieties in South Dakota" for the current year.

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 those recommended but may merely represent duplication of qualities already available.

Agronomic characteristics and stem and leaf rust reactions

Varieties Recommended	Yielding Ability	Bushel Weight	Stem[1] Rust	Leaf[2] Rust	Plant Height	Lodging Resistance	Seed Color
Early-Maturity							
Andrew	High	Medium	S[3]	S	Medium	Medium	Yellow
Bonkee	Medium	High	R	MS	Medium	Medium	White-Pink
Dupree	Medium	Medium	S	S	Short	Medium	White-Gray
Minhafer	Medium	Medium	R	MS	Medium	Good	Yellow
Neal	Medium	Medium	S	S	Med-Short	Good	Ivory
Santee	Medium	Medium	R	MS	Short	Good	Ivory
Tippecanoe	Medium	High	R	MS	Short	Excellent	Yellow
Medium-Early-Maturity							
Clintland 64	Medium	High	R	R	Medium	Good	Yellow
Mo-O-205	High	High	S	S	Medium	Medium	Gray
Medium-Maturity							
Brave	High	Medium	R	MR	Medium	Medium	Yellow
Burnett	High	High	R	MS	Med-Tall	Good	Yellow-White
Dodge	Medium	High	R	MR	Medium	Good	Yellow
Garland	Medium	High	R	MR	Med-Short	Good	Yellow
Late-Maturity							
Garry	High	Medium	R	MS	Tall	Good	White
Lodi	High	Medium	R	MR	Tall	Good	Lt. Yellow
Ortley	High	High	R	MS	Tall	Medium	White
Portage	High	Medium	S	R	Tall	Medium	White
Rodney	High	High	R	MR	Tall	Good	White
Varieties Not Recommended							
Early Maturity							
Cherokee	Low	High	S	S	Short	Good	Yellow-Pink
Nehawka	Medium	Medium	S	S	Short	Medium	Yellow
Nemaha	Low	High	S	S	Short	Good	Yellow-Pink
Nodaway	Medium	Medium	R	S	Medium	Good	White
Putnam 61	Medium	High	R	MS	Short	Good	Lt. Yellow
Ransom	Medium	Medium	S	S	Med-Short	Medium	Yellow
Tonka	Medium	High	S	S	Short	Good	Yellow
Medium Early-Maturity							
Clintland 60	Medium	High	R	S	Medium	Good	Yellow
Medium-Maturity							
Coachman[4]	Medium	High	R	MS	Medium	Good	Yellow
Newton	Medium	Medium	S	MS	Med-Short	Good	Brown-Yellow
Marion	Medium	Medium	S	S	Medium	Medium	Tan-White
Medium-Late-Maturity							
Ajax	High	Low	S	S	Tall	Medium	White
Sauk	High	Medium	S	MS	Tall	Medium	Yellow
Late Maturity							
Branch	Medium	Medium	S	MS	Tall	Medium	White

[1]Disease reactions to races 6 and 6F which comprised 72 per cent of the oat stem rust races prevalent in the United States in 1964.
[2]Leaf rust reactions observed in South Dakota nurseries during 1963 and 1964.
[3]R=resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible.
[4]Not sufficiently tested for recommendation.

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OFFICIAL BUSINESS

Secure these Fact Sheets for additional information on oats production:

- Crop Variety Recommendations
- Seed Treatment
- Fertilizing Small Grains
- Weed Control in Small Grains
- Producing Milling Oats

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