

# grow winter rye

➔ as a cash crop

➔ for better weed control



**T**he production of a limited acreage of winter rye in North Dakota on the weedier fields or in the regular crop rotation offers the following main advantages:

1. Rye competes effectively with weeds.
2. Rye is an additional cash crop.
3. Rye protects against rust injury.
4. With rye there is less risk from heat, drouth and hail, because of its earlier maturity.
5. Rye permits better distribution of labor and machine use for planting and harvest.
6. Rye can provide some grazing for livestock.

The main disadvantage of rye is that the average yield per acre is about the same as wheat, meaning a lower per acre income than wheat, malting barley or flax.

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## WINTER RYE HELPS FIGHT WEEDS

Winter rye is one of the most effective small grain crops for weed control in North Dakota. Even though rye may not be quite as profitable as wheat, some increase in rye acreage for more effective weed control appears to be desirable in areas where wild oats and other weeds are a problem.

In planning crop production on any farm, a change in the acreage devoted to cash crops may be required from time to time as a result of surpluses and acreage allotments. A small acreage of rye on many North Dakota farms to help clean up weedy fields will pay dividends in weed control and thereby increase future yields of other crops.

Winter rye provides more effective weed competition than a spring sown grain. Late summer cultivation to work up the seedbed kills or sets back many weeds. Then if rye can be planted early in September, when moisture conditions are favorable for quick germination and growth, it will tend to smother the weeds during the fall. The early vigorous spring growth of winter rye provides strong competition to spring weed growth and the earlier harvest helps to prevent much of the shattering of weed seeds that occurs in later crops.

Alternating intensive summerfallow with the growing of winter rye followed by fall tillage after rye harvest over a period of two or three crop years is effective on a field infested with perennial noxious weeds such as leafy spurge or creeping jenny. One season of fallow, followed by winter rye and cultivation after harvest, would be effective in control of other troublesome weeds such as perennial sow thistle, Canada thistle and wild oats.

## HOW PROFITABLE IS RYE?

Rye production in North Dakota before World War II averaged three to five times greater than in recent years. This reduction in rye acreage was mainly a result of acreage changes required during World War II and of the higher support levels for wheat and other crops in recent years.

Six times during the 9 year period 1948 to 1957 North Dakota rye yields ran as high or higher than wheat yields. Long-time average rye yields are nearly equal to wheat. This speaks well for the capacity of rye to yield well considering that rye is often grown on more weedy or drouthy fields.

With slightly lower average yield per acre and with a lower support price than wheat, rye has produced less income per acre in recent years, However, in looking at its ability to compete with weeds and its labor distribution and rust protection, rye will often be a profitable crop. The potential income per acre for rye in much of North Dakota compares favorably with feed barley and oats.

### PRICE SUPPORTS FOR RYE

Rye is one of the non-basic agricultural commodities for which price supports are fixed each year by the Secretary of Agriculture. The 1958 support price was set at 70 per cent of parity. The average loan price for rye in North Dakota for 1958 is about \$1 per bushel for rye grading number 2 or better. Loan rates vary between counties.

### WINTER RYE VARIETIES

Antelope and Caribou are winter hardy varieties and have proven their yield capacity.

Dakold and Pierre varieties are also winter hardy and yield moderately well. Less winter hardy are Emerald and White Soviet. White Soviet is the latest to ripen but is a good yielding variety when it overwinters satisfactorily. Adams, a Wisconsin variety, has not done well in North Dakota tests.

Rye cross pollinates considerably, causing varieties to become mixed. To assure variety purity, it's best to obtain certified seed for which isolation is required.

### RYE VARIETY YIELDS

Variety	Fargo 1954-57	Edgeley 1956-57	Langdon 1954-56	Minot 1954-57
Dakold	45.0	46.0	37.7	36.6
Pierre	43.1	34.9	33.8	34.1
Antelope	49.8	-----	-----	-----
Caribou	48.9	44.8	39.8	45.3
White Soviet	37.2	34.4	35.9	35.8

## SELECTING THE FIELD

The purpose for which rye is to be grown will usually be the deciding factor in selecting the field for rye. Winter rye can be included in the regular crop rotation, it can be a temporary shift in acreage or it can be grown for weed control purposes on a specific field.

**ON FALLOW GROUND** -- A summerfallow field will usually be best for rye production. A good seedbed can be prepared and the reserve of moisture and available plant food provided by fallow helps insure maximum yields. The combination of fallow and winter rye is very effective in weed control. Many farmers are using this combination of rye on summer-fallow for effective wild oats control. One disadvantage of rye on fallow is less protection against winter kill because fallow holds less snow than stubble.

**IN A STUBBLE FIELD** -- Rye is often planted in a clean stubble field. If such a field is relatively free from weeds it will often result in satisfactory yields. The crop stubble provides excellent winter protection from snow it holds and it saves in seed bed preparation as well.

In many cases some cultivation of the stubble may be advisable to provide a better seedbed. A light disking or the use of other tillage implements that will leave as much stubble as possible standing or on the surface will provide the best winter protection. Weedy stubble fields are usually not satisfactory.

**ON FALL PLOWING** -- A fall plowed field will usually be less satisfactory than either fallow or clean stubble for rye. After producing a crop that season, a lack of moisture and sometimes available plant food can result in poor growth and less winter protection than on fallow.

**ON CORN GROUND** -- Corn stubble is a good place to grow rye. However, getting the corn crop off the field in time for seeding will usually be a problem unless the corn is cut and removed early such as for silage.

## TREAT THE SEED

Seed treatment is recommended for rye as for other small grains. Treating gives it a better start through protection from seedling blights and other rootrot organisms as well as from striped smut.

Treating the seed will not prevent ergot in rye. Thorough cleaning of the seed will remove many of the larger and more viable ergot bodies.

## **PLANT EARLY IN SEPTEMBER**

Planting early in September will allow rye to become established before winter. Seeding during the first two weeks in September when enough moisture is in the soil for rapid germination will insure a good stand and growth before freeze up and will provide the best weed competition.

Depending on the variety and seed size, from 4 to 5 pecks per acre is the recommended seeding rate. Dormancy in winter rye seed is not a problem. Rye can be planted the same year it is harvested without danger of not germinating due to being dormant.

## **RYE RESPONDS TO FERTILIZER**

Although there have been no Experiment Station trials conducted on rye with commercial fertilizer in North Dakota, a number of farmers have carried out field trials and frequently report a good response. Fertilizer applied to rye can be expected to produce responses and increased yields similar to those of other small grains.

About 20 to 35 pounds per acre of phosphate fertilizer is suggested for rye seeded on fallow ground. On non-fallow ground about 20 to 30 pounds per acre of nitrogen in addition to the phosphate would be suggested. The above rates are for applying fertilizer by drill attachment at seeding time which has been the most efficient method of application on small grains in North Dakota.

## **RUST SELDOM INJURES RYE**

In the severe rust epidemic on wheat and durum in the early 1950's only occasional and very slight rust was observed on rye and no yield reduction was reported.

## CONCLUSION

Winter rye is one of the most effective grain crops for weed control. It also provides protection from present races of rust and a better distribution of labor and machine use on the farm.

Rye has not been as profitable in North Dakota during recent years as cash crops such as wheat, malting barley or flax. However, it does compare favorably in potential cash returns per acre with crops such as feed barley and oats. Considering the weed control obtained, some winter rye on many farms could be very profitable over a period of years.

Although any big shift to rye is not advised, the crop is warranted for weed control and when crop adjustments are necessary.

Year	Wheat	Barley	Oats	Rye
1911	1.25	1.00	0.75	0.50
1912	1.40	1.10	0.80	0.60
1913	1.50	1.20	0.90	0.70
1914	1.60	1.30	1.00	0.80

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