Winter Rye in Montana

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Winter Rye as a Crop for Montana

INTRODUCTION

Two years of drought of more or less severity in Montana have caused a large increase in the acreage of rye. According to Montana Extension Bulletin No. 25, it has increased 125 per cent during the past year. The number of inquiries received at the Experiment Station regarding available seed and cultural methods indicate that the acreage will be more than double for 1919.

Winter rye is coming into popularity because of its winter hardiness, early maturity, wide soil adaptation, comparative freedom from disease, excellence of labor distribution and its use as a fall and spring pasture. Many object to winter rye because of its volunteering habit in winter wheat, which causes mixture, thus lowering its market grade.

While winter rye may have won a permanent place as a dry land crop in Montana it is not considered a crop that will replace wheat. Its use will be primarily in the dry land sections of the spring wheat districts.

FAVORABLE POINTS OF WINTER RYE

Winter hardiness.—The uncertainty of winter wheat in many parts of Montana, and the hardiness of winter rye are the chief causes of the increased acreage of the latter. There are scarcely any reports of winter killing of winter rye while in years of drought the rye usually exceeds wheat in yield. In 1917, according to the report of the Yearbook of the United States Department of Agriculture, winter rye in Montana yielded 12.7 bushels. In parts of Montana winter wheat is grown under irrigation and thus under more favorable conditions than the greater part of the rye crop.

Early maturity.—Rye is shown by the United States Department of Agriculture to require more water to produce a pound of dry matter than any other grain except oats. However, rye has the ability to grow at comparatively low temperatures and will mature a crop with less heat than any other small grain. It thus matures before the severe, dry, hot weather of the summer comes on.

Wide adaptation.—Rye has a slightly wider soil adaptation than any other cereal. It naturally will respond to good soils, but no
other grain crop will stand as adverse soil conditions as rye. It is a crop that is often recommended for sandy places where blowing is likely to take place. It does fairly well on acid or alkali soil, while it grows quite well on heavy types of soil. Rye would be an excellent crop to grow as a first crop in the western portion of the State on the cut-over timber lands. It is very likely to be a failure on poorly drained soil. Therefore it cannot be recommended for the boggy, wet soil that is found in certain portions of Montana.

Good labor distribution.—The labor distribution of the winter rye is particularly good in the spring wheat sections of Montana. Winter rye is seeded and harvested at a time of the year when it does not interfere with handling of other grains and therefore fits well into the work of the average grain farmer. It fits better into labor conditions in spring wheat regions than in winter wheat regions, because if grown extensively in winter wheat sections, it competes quite directly with winter wheat for labor in the preparation of the ground.

OBJECTIONS TO RYE

Volunteering.—The chief objection to growing rye is found in its volunteering habit. The volunteer rye appears in the following winter wheat crops, thus impairing the milling qualities of the wheat. The federal grades for wheat discriminate severely against a mixture of rye as such mixture makes it impossible for the miller to produce white flour.

Another valid objection to rye is the lower market price that it commands. The records show that on the average it has received approximately 80 per cent of the price paid for wheat. For the farmer who grows rye for feed this objection will not hold, since the feed value of the rye is practically as great as wheat.

THE USES OF WINTER RYE

Grain.—Growing rye to maturity as a grain crop for market purposes is probably its chief purpose in Montana. The yields have varied between 13 and 40 bushels. State averages show about 22 bushels per acre. In the spring wheat, dry land section of Montana the conditions are quite similar to Russia. Russia produces 25 per cent more rye than wheat although we think of Russia as a wheat nation. While rye is not likely to replace wheat as a grain crop in this State, yet its limited use as stated above is desirable. In the adverse seasons it will more than pay costs and form somewhat of an insurance for the farmer of limited means.
Pasture.—The use of winter rye as a fall and spring pasture is another of its merits. Pasturing no doubt lowers the yield of grain slightly, although if this is not overdone it may be a profitable practice. Stock should be kept off the grain fields when the ground is wet as it injures the soil as well as the crop. Occasionally farmers use rye as a fall and spring pasture instead of cutting it for grain, in which case the rye furnishes a fair quality of pasture until the middle of June.

Hay.—If rye is cut when the kernel commences to form it makes an excellent grain hay for horses. The binder should be used for this purpose. If a mower is used the hay will become dusty. A few acres of bundle rye cut for horse feed is an insurance against hay shortage.

VARIETIES OF RYE

Spring rye.—Spring rye is far less common in Montana than winter rye. Spring rye does not yield as well as winter rye and as a usual thing its use is to be discouraged, since spring wheat will generally outyield spring rye. The latter also competes with spring grain for labor.

Winter rye.—To the average farmer winter rye is merely “winter rye.” We have, however, several varieties of fairly recent introduction and selection. Rye is practically the only small grain that cross-fertilizes or mixes. It is for this reason that we have so few distinct varieties of rye.

Varietal characteristics disappear in cross-fertilization. It is apparent from unofficial tests that Swedish rye, or selections from it, is the best for Montana. Minnesota No. 2 and S. D. Dean varieties are considered high yielding strains. Three carloads of Swedish S. D. 348 rye were shipped into Yellowstone Valley for seeding purposes in the fall of 1917. The reports show that it far outyielded the commonly grown winter rye. This variety has become so popular in this valley that the farmers are ordering three more carloads in addition to what they have grown.

RATES OF SEEDING

The most comprehensive rate of seeding tests for rye for the entire State are those conducted by the Montana Experiment Station at the demonstration farms in seven different counties through-
out the State. Below is given the average of all the demonstration farms at the various rates of seeding.

Two pecks averaged 25.05 bushels.
Four pecks averaged 25.91 bushels.
Six pecks averaged 27.24 bushels.
Eight pecks averaged 25.92 bushels.

Two pecks gave the lowest yield, while six pecks gave the highest. The difference between the highest and the lowest is only 2.19 bushels per acre. It is apparent that the rate of seeding is relatively unimportant. The rates most generally recommended are from 40 to 60 pounds per acre, the late seeding requiring the larger amount.

**DATE OF SEEDING**

The usual dates for seeding rye are the latter three weeks of August and the first week in September. It is being seeded successfully in certain parts of the State as early as July 25 and as late as it is possible to run a drill. If fall pasture is desired it is better to seed early since early seedings stool greatly and produce much heavier growth. For grain purposes rye may be seeded during the same period as winter wheat, although it may be seeded later than winter wheat with safety.

**DEPTH OF SEEDING**

Practically all small grain in Montana is seeded with a drill and when thus planted it is possible for the seed to be placed at a proper depth. More money is lost by improper depth of seeding than by improper rate of seeding. It is not commonly known that the depth of seeding has practically no relationship to the depth at which the permanent roots will come. The first roots that appear upon germinating grain are only temporary and soon wither and die. The permanent roots come later from the stem-sprout some distance above the kernel. This point of their appearance will depend upon the point where heat, air and moisture are just right. Rye can stand slightly shallower seeding than wheat. The proper depth varies from 1½ to 3½ inches of firm soil in accordance with the type of soil. If the soil is somewhat loose, seeding two inches deep may be quite shallow when the soil becomes firm by rains.

**CHOICE OF SEED**

Germination.—All seed rye should have a germination test before being seeded. Rye deteriorates very rapidly with age and cannot be relied upon to last in vitality as wheat can. A test of 80 to 90 per cent is considered good for rye. Samples are tested free at the
State Grain Inspection Laboratory, Bozeman, Montana. Rye seed may be easily tested at home by the usual dinner-plate-blotted method.

**Treatment.**—Up to the present time in this State diseases of rye have not been sufficiently prevalent to warrant treatment.

**CULTURAL METHODS**

Rye will give better yields if seeded on summer-fallowed land rather than on previously grained land. This is not a common practice since the wheat is given the preference. It is more desirable to fallow the land the year after the rye crop is removed. Ground for rye is most generally prepared by plowing or double disking winter or spring wheat stubble. This makes the rye seeding a little late and less desirable when seeded for pasture purposes. If the land is plowed only shortly before time of seeding it is better to pack or harrow thoroughly in order to make a firm seed bed which is as essential for rye as for wheat. In general the methods adapted to wheat will apply to rye culture. With some farmers it is a common practice to allow a volunteer crop to mature. While this method will not give maximum yields, yet, when land is plentiful and cheap and labor scarce it may be profitable.

**CONTROLLING VOLUNTEER RYE**

The Montana Experiment Station is conducting tests as to how to best remove this objectionable feature of rye. The first method suggested is shallow disking or plowing the rye stubble immediately after harvest, thus causing shattered rye to germinate. In the following spring this land should be plowed at the usual depth or disked thoroughly to eradicate the rye plants. This method will allow spring wheat to follow rye.

Another method suggested is to summer fallow or grow a cultivated crop such as corn. Tests show that corn is equivalent to summer fallow upon the succeeding crop. Corn has the additional advantage of preventing the soil from blowing, and also furnishes feed if not grain.

Some farmers overcome volunteer rye by cutting the crop slightly green for hay purposes. Others are overcoming the volunteer problem by growing the rye upon a certain field for two or three years and then fallowing before wheat is seeded. After the first crop of rye is cut upon this particular field, the second usually comes on without seeding. This may prove profitable if the ground is in fine shape before planting the first rye crop.
HARVESTING RYE

Handling and harvesting of rye is similar to that of wheat although rye is frequently cut a little earlier in the ripening process since it shatters badly if left until quite ripe.

Clean summer fallow eradicates volunteer rye