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COMING THROUGH *with* RYE

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COMING THROUGH WITH RYE

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Rye—A Crop of Several Uses

In the early stages of rye growing in Michigan the crop was grown almost exclusively for grain. Today, however, only 60 percent of the acreage is used for grain and the rest is used as a pasture, green manure, or cover crop. Because rye has a wide range of adaptation as to soil and weather conditions and is easy to grow, it is usable on most farms for a variety of purposes. This crop is recognized as a cheap and effective means of providing late fall and early spring pasture, suitable to all classes of livestock. Increased emphasis is continually being placed on the value of rye as an efficient means of protecting soils subject to erosion or leaching through fall, winter and spring. Rye as a green manure crop, when properly handled, will increase the organic matter of the soil and increase the yields of the succeeding crop. These secondary uses of rye often are more valuable to a farmer than if the crop is used for grain.

As a Grain Crop

The acreage of rye for grain reached its highest point in 1919 when nearly one million acres were grown. High prices and a good demand during and immediately following World War I, were the principal stimulating factors. Part of the increased production of rye during this period was due to the popularity and the demand for the new Rosen variety introduced by the Michigan Agricultural Experiment Station just before the war. After 1920, the acreage dropped rapidly for a few years and then tapered off to a more gradual downward trend. In 1940, only 82,000 acres of rye were grown for grain purposes, which was the smallest acreage in more than 50 years and almost 70,000 acres less than the 1930-40 average. As a grain crop, rye has a smaller acreage than any of the common cereals. This is in keeping with its value per acre as compared with that of other grain crops.

Soil and Climatic Adaptation

Rye grown for grain is most generally grown on those sandier or lighter soils of the state where it can be grown more profitably than the other cereals such as wheat, oats or barley. Rye can be and often is grown on the heavier more productive soils, but if grown under such conditions it is likely to grow very tall (5 to 7 feet), lodge badly, and become very difficult to handle in harvest; on such soils, one or more of the other grains may be grown more advantageously.

As a pasture, green manure, or cover crop rye is well suited to nearly all types of soil.

Being very winter-hardy, rye is able to withstand the winter better than wheat, even when grown under more adverse conditions.

Response to Cultural Practices

The per acre value of rye for grain as reported by Michigan farmers is rather low as compared with that of other grain crops. This fact is not proof of rye's inability to produce well but rather reflects the carelessness of many rye growers in failing to provide growing conditions favorable to a good crop. Rye produces fairly well on soils

Fig. 1. The center strip of rye and that at the extreme left were planted September 25. Other strips are later October plantings.

(From time of planting rye experiments conducted by the Michigan Agricultural Experiment Station.)

which are too poor or thin to grow other grain crops efficiently. Even so, rye responds to good cultural practices and low yields of rye often attributed to "run-down" seed will be materially increased by a balanced cropping program. A proper rotation which provides a vacation from continuous grain farming, lime application followed by a legume plowed under, an adequate application of commercial fertilizer, proper use of barnyard manure, and the invigorating effects of a properly handled crop of alfalfa will make it possible for the farmer to realize more of a cash return per acre. Efficiently managed, much of this land will still produce 25 to 35 bushels of rye per acre, and the rye will fill its place in a rotation in which alfalfa, the clovers, sweet clover, or winter vetch with some intertilled crop, play the leading parts.

Early Seeding Pays Best

A desirable practice in growing rye for grain is that of early planting. This procedure, differing from the usual practice of very late planting costs nothing and its returns are net profit. In trials conducted by the Michigan Agricultural Experiment Station, at East Lansing rye planted September 25 yielded 17 percent more than rye planted October 15, 10 percent more than rye planted October 25, and four times as much as that planted November 5. The most satisfactory date for central and southern Michigan is mid-September to early October; for the northern part of the Lower Peninsula, the first week of September, while rye in the Upper Peninsula yields best if planted before August 31. Rye is seeded from 1 to 1½ bushels per acre.

Rosen Rye is Most Profitable

Rosen has long been accepted by Michigan farmers as being the most profitable variety of rye to grow. Virtually all rye grown in Michigan today is Rosen of greater or less degree of purity.

MICHIGAN STATE COLLEGE AND PEDIGREED SEED GROWERS KEEP ROSEN PURE

Pure Rosen is a superior variety; however, its superiority over common rye is dependent in a large measure on its purity. Rye, being an open-pollinated plant, is readily subject to mixing by cross-pollination and, thus, presents a problem for the grower in keeping Rosen pure. The purity and attendant superiority of Rosen are protected by the continued work conducted by the Experiment Station workers of Michigan State College and certified seed growers.

ROSEN KEPT PURE ON SOUTH MANITOU ISLAND

South Manitou Island, 12 miles off the mainland in northern Lake Michigan, is the principal area for growing pure Rosen rye. Here in the perfect isolation of forest-surrounded fields, some of the purest and finest rye known is grown by the island rye growers. Each year representatives of the Farm Crops Department, Michigan State College, work with the island farmers in further head-selecting Rosen rye to be increased on South Manitou for later use by growers on the mainland.

CHARACTERISTICS OF ROSEN RYE

Pure Rosen is known by its large heads, almost completely filled with uniformly plump greenish kernels. The straw is of even length, giving a field of pure Rosen a smooth, level appearance, rather than the ragged look of common rye or of Rosen which has become badly contaminated with inferior varieties by cross-pollination. Common or mixed rye is also characterized by the number of empty spikelets its heads usually carry.

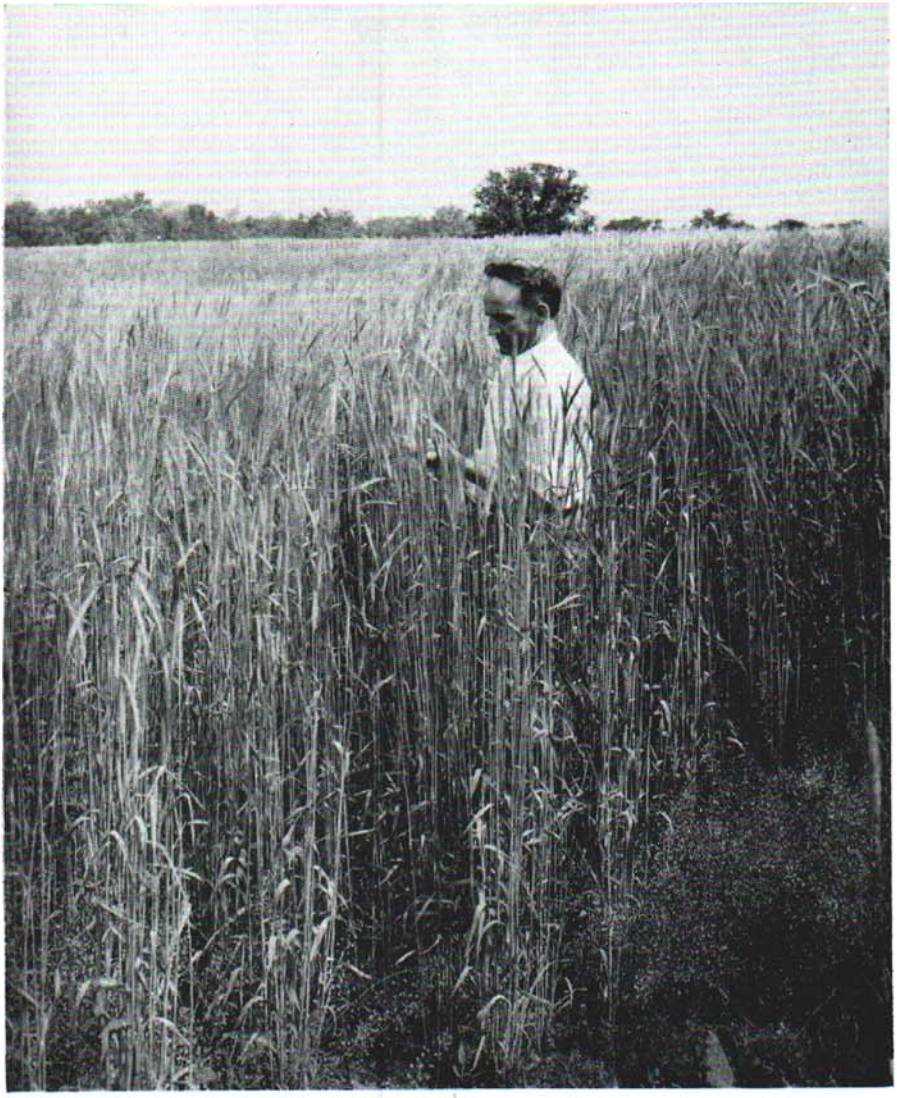

Fig. 2. Rosen has proved its superiority for Michigan conditions.

Seed Certified by the Michigan Crop Improvement Association has Unusual Merit

Growers wishing to obtain the most from their rye crop, both in quality and in yield, will do well to renew their seed very frequently from stock certified by the Michigan Crop Improvement Association. This organization of farmers works under the supervision of the Michigan State College, and the rye it certifies comes directly from the

Experiment Station, from South Manitou, or other parts where breeding work is maintained, or is mainland seed only a generation or two removed from the highly desirable head-selected stock. Such seed rye is grown in isolated fields, thoroughly cleaned and rogued to free it from weeds, and must conform to very high standards of purity and vigor in order to meet the requirements for certification established by the association.

Pure Rosen, thus handled, frequently yields from 30 to 45 bushels per acre under favorable conditions, with yields of as high as 54 bushels per acre having been recorded. Common or mixed rye seldom exceeds 15 to 18 bushels per acre, and a 20- to 25-bushel yield is exceptional.

Ergot of Rye

The most serious and destructive of rye diseases is ergot. In this disease one or more of the kernels is replaced by horny, violet or purple structures which are larger than the kernel. The disease overwinters in the soil and for that reason rye should not follow rye in the rotation if ergot is present. If the ergot bodies are present in rye to be used for seed or feed they can be easily removed from the rye by use of a 20-percent brine solution. When immersed in a strong brine solution the ergot will float to the top and can easily be skimmed off.

Ergot in rye not only reduces the yield and quality of the crop but when present in grain fed to livestock is dangerous, causing an acute disease known as ergotism, and often causing abortion in pregnant animals.

Vetch Increases the Net Profits of the Rye Crop

Where rye is grown for grain on sandy to sandy loam soils, farmers frequently seed from 18 to 20 pounds of hairy or winter vetch with one bushel of rye per acre. With the vetch in the mixture an almost normal crop of rye is harvested and in addition from 2 to 5 bushels of vetch is obtained which is readily separated from the rye with a spiral vetch separator. The two crops grown together add little to the cost of production and the returns from the vetch represent almost clear profit. The price which Michigan farmers receive for the hairy vetch seed is rather variable, depending primarily on the amount imported by the United States from Europe. Hairy vetch grown in Michigan is in good demand, inasmuch as this state supplies a great share of the seed sown in the United States.

Rye Prolongs Pasture Season

Rye provides some of the best early spring and late fall pasture. It may be used by farmers in all parts of the state to extend the normal grazing season and can easily provide an extra month or more of pasture on most Michigan farms.

For fall pasture, rye should be seeded in late August or early September, but when used for early spring pasture only it may be seeded as late as September 25 or October 1. For pasture purposes, rye should be seeded at the rate of 1-2 bushels per acre. Growth starts early in

the spring and livestock may be turned out to graze as soon as the ground is sufficiently firm.

An almost normal crop of grain can be expected if the winter rye is not grazed too severely and if the stock is removed from the pasture about the time the rye begins to joint. If the rye is closely grazed in the fall there will be correspondingly less growth the following spring.

Regarding milk and cream flavors caused by pasturing dairy cattle on rye pasture, G. M. Trout, Research Associate in Dairy Husbandry, Michigan State College, states:

Fig. 3. Fall-sown rye supplies abundant late fall and early spring pasture.

"Feeding trials have demonstrated that rye pasture is capable of imparting to milk very undesirable flavors which may render it unfit for market milk and cream purposes unless special precautions are taken in dairy herd management. Pasturing the cows immediately after milking and removing them from the rye pasture at least three to four hours prior to the next milking is a safe procedure to follow so far as off-flavors in the milk from rye pasture are concerned."

After pasturing a rye field farmers often plow and fit the soil for an intertilled crop such as corn, beans, or sugar beets. It is thus seen that rye is well suited as a combination pasture, green manure and cover crop. Many more Michigan farmers could profitably afford themselves of such opportunities offered by rye.

One of Best All-around Cover Crops

Michigan farmers can grow profitable crops only as the fertility of the soil is maintained or improved. One of the effective methods of protecting and enriching the soil is the proper use of cover crops. Rye is one of the best all-around cover crops because it has a very wide range of soil adaptation, and it is easy and cheap to grow. On moderately erodable or flat land, a good seeding of rye will do a good job of holding the soil in place and preventing leaching losses of plant nutrients.

Rye as a cover crop properly handled will add organic matter to the soil and increase the yield of the succeeding crop. It may be seeded after the grain, potato, corn or hay crop has been removed. Rye seeded by October 1 on corn ground after the corn has been removed or shocked will generally result in a good seeding of rye. Rye sown between the corn rows before the corn is mature will materially reduce the yield of corn in dry seasons if seeded early enough to obtain a good stand.

Two bushels per acre is the proper rate of seeding rye to be used as a cover crop. A rye seeding will do best on a good seedbed, although extensive tillage or seedbed preparation is generally unnecessary.

It is important that rye or any cover crop be plowed under before it becomes too large. As rye grows, its protein content decreases and the amount of fiber increases, thus making the plant increasingly resistant to decay. If allowed to continue growth very far into May, rye will take much moisture from the soil and the succeeding crop will suffer correspondingly. Rye should be plowed under two weeks or more previous to corn, beans, or potato planting.

Cover Crop for Orchards

N. L. Partridge of the Horticulture Department, Michigan State College, states that cover crops are used in orchards (1) to protect the soil from erosion, (2) to remove excess moisture from the soil and to conserve soluble nutrients that would be lost if the soil were bare, thus aiding in maturing the tree, (3) to provide a cover that will hold the snow and reduce the depth to which the ground will freeze, thus reducing root injury, and (4) to supply plant residues for soil improvement.

The date on which the cover crop is to be sown usually limits the selection of the cover crop to one or two crops. When trees or grape vines are producing a full crop, the seeding of the cover crop should be delayed late enough so that the new seeding will not remove moisture needed to bring the fruit to maximum size. On the other hand, the soil should not be permitted to remain exposed throughout the winter, subject to erosion losses. When the crop must be sown in September or later, winter rye has proved to be most suitable on sandy soil.

One caution is essential, however, if rye is seeded. This crop makes a very vigorous growth in the spring if it is left in the orchard. Repeated observations have revealed instances where the fruit crop the following season has been reduced greatly by the operator's neglecting to kill the rye early enough. Rye must be worked into the soil when it is not more than 12 inches tall if injury is to be avoided.

Rye's Usefulness Not Fully Realized

Rye, because of its wide adaptability to soil and weather conditions, may be used profitably by Michigan farmers not only as a cash or feed crop, but also as early spring and late fall pasture. It likewise serves a very vital part in areas, where erosion is a menace to continued agricultural pursuits, in preventing losses from leaching and top soil losses. Also in those areas where corn or other cereals cannot be profitably grown because of soil and weather limitations, rye often will supply an economical source of carbohydrate feed for livestock.

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