



# Cooperative Extension Service

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NORTH DAKOTA STATE UNIVERSITY - FARGO, NORTH DAKOTA 58102  
-UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING



## TRITICALE

IN NORTH DAKOTA

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AGRONOMY

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Triticale is a man-made crop resulting from a cross between wheat and rye. The name is derived from a combination of the scientific names for wheat (*Triticum*) and rye (*Secale*) and is pronounced (trit-ih-KAY-lee). So far, plant breeders have succeeded in producing more than one type of triticale--common wheat-rye combinations and a durum wheat-rye combinations. Some current varieties are a combination of these types.

The first intensive breeding program in North America to obtain a possible commercial crop from this new species was started at the University of Manitoba, Canada, about ten years ago working mostly with the durum-rye cross. Other public and private programs have been started since and have involved the common wheat-rye cross and combinations of the two. Breeding work is continuing and variety improvements are being made.

### POTENTIAL USE

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The chief hope for triticale is that it will outyield other cereal grains. Triticale probably won't compete as a cash crop for acreage with either hard red spring or durum wheat in the next few years. As triticale varieties are improved perhaps they will compete with oats and feed barley as a home grown feed crop. Feeding trials have indicated that triticale may have potential as a feed grain. In the varieties now available, ergot is a problem in most years and often runs above the feeding tolerance level.

Triticale does not compare favorably with bread wheat in either milling or baking characteristics nor with durum for semolina purposes. Scientists are testing triticale for possible use as breakfast cereals, for distilling and for brewing but no practical commercial use has been established to date.

Triticale varieties breed true the same as other small grain varieties. They are not hybrids requiring the purchase of new seed each year. Both spring and fall-sown types are being developed.

Federal grades have not been established for this crop. Currently no cash market outlet is established.

#### FEEDING TRIALS

Triticale (rye and durum cross) has been investigated as a feed grain for cattle and hogs at the North Dakota Experiment Station and elsewhere.

All the triticale used in the North Dakota experiments contained varying amounts of ergot. Cleaning did not remove all the ergot and in some cases 0.04 per cent ergot in the triticale caused symptoms of ergot toxicity. In other trials slightly higher levels of ergot resulted in only reduced feed intake and gain. Research is continuing to ascertain if ergot-free triticale would have greater value. Up to now, no ergot-free triticale has been available for these experiments.

Triticale fed as the only grain in a complete, balanced swine ration for growing-finishing swine was not satisfactory in terms of feed consumption and gain. Pigs fed a barley ration for comparison gained up to 27 per cent faster than those on the triticale rations. The feed efficiencies on the triticale rations were similar to those of the barley rations. Where triticale was used with barley as half the grain, the gain and efficiency was much improved over a straight triticale ration. In general, the triticale rations appeared to be somewhat

unpalatable to the swine and the reduced consumption explains most of the differences in gain. The ergot content of the triticale was variable and it was not possible to ascertain if the ergot or triticale caused reduced feed intake.

With cattle, triticale as the only grain in fattening rations resulted in both reduced gains and feed efficiency as compared to barley rations. In general, the triticale was consumed in lesser amounts and partly explains the lower gains of the cattle.

### YIELD POTENTIAL

Triticale has been tested by the North Dakota Experiment Station. The average yields in pounds per acre of wheat, oats, barley, Rosner triticale and the best performing triticale are presented in Table 1.

	<u>Fargo</u>					<u>Williston</u>				
	1967	1968	1969	1970	Ave.	1967	1968	1969	1970	Ave.
Wheat	2386	1753	1989	2005	2033	1230	1623	1821	1200	1469
Oats	3711	2963	3754 <sup>1/</sup>	2220	3162	1302	1703	3033	1234	1818
Barley	3392	2115	3437	2076	2755	1439	2021	2742	1453	1914
Rosner triticale	1942	1464	2307	1846	1890	765	1311	1908	758	1186
Highest yielding triticale	1942 <sup>2/</sup>	1717 <sup>2/</sup>	2753 <sup>3/</sup>	2214 <sup>3/</sup>	2156	798 <sup>2/</sup>	1402 <sup>2/</sup>	2322 <sup>3/</sup>	1226 <sup>3/</sup>	1437

<sup>1/</sup> Calculated yields

<sup>2/</sup> University of Manitoba lines

Highest yielding triticale in each trial

<sup>3/</sup> Triticale line from Jenkins Foundation

The Jenkins lines tested at both Fargo and Williston in 1969 and 1970 have outyielded the variety Rosner and other Manitoba lines.

Limited yield from the Minot and Dickinson Extension and Research centers confirm the relative yields reported in Table 1.

#### VARIETIES AVAILABLE

The University of Manitoba released a durum-rye variety of triticale called Rosner in 1969. The Jenkins Foundation for Research of Salinas, California, a private organization, is also currently developing spring varieties of triticale which include common spring wheat in their pedigree. These are being sold under the FasGro brand name by the International Commodities Corporation in Amarillo, Texas and as Dot brand by Dot Inc., of Plainview, Texas. Seed of the variety Rosner from Canada and one or more varieties from the Jenkins Foundation sold under brand names will be quite readily available for 1971 planting.

#### GROWING THE CROP

Triticale is sown and harvested much like other small grain crops. Kernels are larger than durum and test weight is usually in the 45- to 50-pound per bushel range. Seeding rates should probably be about two bushels (100 lbs.) or more per acre. Usually triticale does not stool as much as common wheat or durum. Heads rarely fill more than four rows.

Seeding dates should be the same as for wheat. Triticale is expected to respond to fertilizer and herbicides about the same as for Hard Red Spring or Durum wheat. While triticale varieties available may vary, general maturity date is a few days later than common Hard Red Spring and Durum wheat varieties. Varieties available to date may have sterility problems and therefore be susceptible to ergot (particularly in some years) and then are somewhat susceptible to leaf rust. They are several inches taller and tend to be somewhat later maturing than hard wheat or durum varieties.

CLASSIFICATION UNDER FEDERAL FARM PROGRAM

Triticale acres are classed as a soil depleting crop under the current Federal Farm Program. They are not counted against either the feed grain or the wheat allotment base and are not eligible for price support.

CONCLUSION

No triticale varieties will be recommended for commercial production in North Dakota until varieties less susceptible to ergot and more competitive for yield are developed.

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