

WINTER GRAIN FERTILITY

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As with any crop the fertility program for winter grains should be based on a regular soil testing program. Ideally, the soil levels for pH, phosphorus, and potassium should all be in the optimum range on the soil test report before planting. For wheat the pH should be between 6.0 and 7.0 and for barley it should be between 6.5 and 7.0. If the pH is low, the recommended limestone should be applied and worked into the soil as far ahead of planting as possible. If the magnesium is low, a dolomitic type lime should be used.

Both wheat and barley take up large

amounts of phosphorus and potassium. If soil tests are in the low range, nutrients must be applied to build the soil up into the optimum range plus replace what is removed in the crop. For soils already in the optimum range, the recommendation only considers replacing what is removed. At high soil test levels there may be adequate nutrients in the soil to supply what the crop removes without any added phosphorus or potassium, in which case, the recommendation will be zero.

For winter grains, all of the recommended phosphorus and potassium should be broadcast applied prior to planting. A small portion of this requirement can be applied through the

drill.

To minimize fertilizer injury, do not apply more than 30 pounds per acre of the recommended *nitrogen plus potash* through the drill. All of the commonly available fertilizer sources of phosphorus and potassium are acceptable for application to winter grains.

Nitrogen requirements of wheat and barley are also substantial. The actual amount of fertilizer nitrogen needed to meet this requirement will depend on the amount of nitrogen supplied by the soil. In Pennsylvania, this is largely influenced by the manure history of the field. Thus, nitrogen recommendations for small grains are mainly based on the manure history of the field as summarized in the following table:

Crop	Manure Every 1-2 yrs.	Manure Every 3-4 yrs.	Manure None recently
	N recommendation (lb/acre)		
Wheat	0-30	30-60	60-90
Barley	0	0-30	30-40

Within a given manure history category,

the actual rate selected will depend on the yield potential and the nitrogen history of the field. For higher expected yields use the higher end of the recommendation range. Use the lower end of the recommendation range where the previous manure or nitrogen fertilizer rates were high or where lodging has been a problem in the past. Remember that because of the potential for lodging do not apply excess nitrogen to small grains.

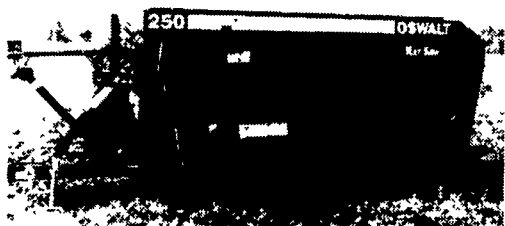
Only up to 15 pounds per acre of the nitrogen should be applied in the fall at planting time. The balance of the nitrogen should be applied in the spring. If the plants did not tiller well in the fall, the nitrogen should be applied by mid-March; otherwise, apply it anytime up to growth stage 5, which is the stage just before the stems start to elongate. The commonly available forms of nitrogen fertilizer are all acceptable for the winter grains.

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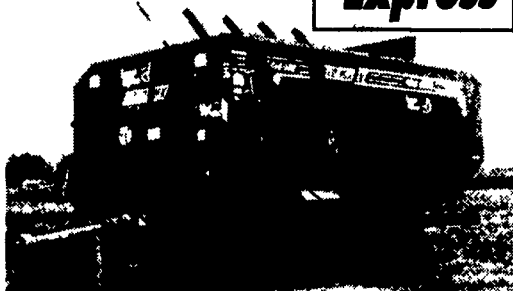


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