SPRING CEREAL GRAINS

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Why would Massachusetts farmers want to grow cereal small grains on their farm? Perhaps for several reasons, but it is unlikely small grains will soon be crops for most farmers. In New York State there is renewed interest in producing hard red spring wheat. Hard red spring wheat produces a high quality bread flour required by many bakers. Energy and transportation costs have resulted in millers seeking out closer markets than the Dakotas and Minnesota, now that testing programs have shown promising new spring wheat varieties. Perhaps some farmers in Massachusetts with an interest in cash cropping may be able to tap into some of these markets as they become established within or near our borders.

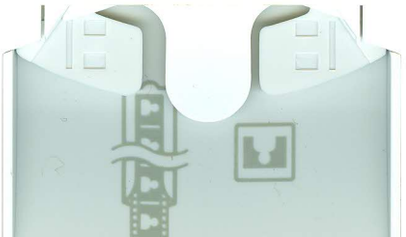
There continues to be a shortage of an adequate supply of suitable bedding material for dairy farms and here small grains may be dual purpose crops. Besides the highly valued straw, small grain crops can produce high yields of feed grain. As feed grains, the small grains are good sources of energy. Wheat, barley and rye have about 97-98% of the total digestible nutrients (TDN) of corn. Oats and barley contain up to 13% protein compared with about 9% for corn grain. Not only are spring barley, oats and wheat suited to this environment but some locations should have good success in producing winter wheat and barley.

Small grains grow best on well-drained, medium to fine textured soils. Oats and rye are more tolerant of wet, poorly drained soils and acid soils. Wheat and particularly barley are not suited to these soils and ideally for spring wheat a soil pH of 6.3 or higher is needed. Rye is the only small grain that will produce well on dry sandy soils.

A soil with well-balanced fertility produces the best small grain field. Too much nitrogen in relation to other nutrients leads to excessive vegetative growth and lodging. All small grains are susceptible to atrazine and this needs to be taken into account in planning the rotation. Fields heavily infested with quackgrass should not be planted to small grains until the weed is controlled. Quackgrass is very competitive, taking up nitrogen and soil moisture.

For highest yields spring grain must be planted early. For barley, oats and wheat the earlier the planting date the higher the potential yield. Cereal grains can germinate at soil temperatures in the mid 30's and wheat seedlings are very resistant to freezing. With spring wheat, Dr. Knapp at Cornell University recommends planting as soon as fields can be worked. In some cases this may be as early as mid-March. For all spring grains much yield is lost if planting is delayed from mid-April to mid-May, as much as 50% in oats. Winter planting of adapted cereals may perhaps be the first choice for barley or wheat for feed purposes.

Spring seedings need higher planting rates than winter seedings since they have a lower tillering potential. Spring seedings need 2½ to 3 bushels



of seed per acre, while winter seedings need 1½ to 2 bushels. Preferably seed should be drilled, and if broadcast rates need to be increased by a half bushel. Sufficient phosphorus and potassium are required. With the absence of a soil test and assuming a medium to high fertility level apply 40 lb per acre of P_2O_5 and K_2O. Nitrogen rate will vary according to previous crop, but in most cases 50 to 60 lbs per acre of fertilizer N is needed to obtain optimum yields. For greatest efficiency apply about 2/3 of the nitrogen at planting and then topdress the remaining 1/3 about the time of stem elongation (5-6 weeks). If urea is used be aware of potentially high losses of N to the air.

Chemical weed control may be necessary in some situations but overall good cultural management involving early planting and a good fertility promote vigorous crop growth and reduce weed competition. Present recommendations for annual broad-leafed weeds include 2,4-D applied at the tillering stage, or bromoxynil which must be applied when the weeds and grain crop are small (prior to tillering).

Currently in the 1982 experiment three small grains are being evaluated. A single spring cultivar each of barley, oats and wheat are being studied at two seeding rates and two nitrogen fertilizer levels; and six oat varieties are being evaluated for grain and straw production.