

Spring Barley Production in Northern Michigan

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Barley can be grown successfully as a feed crop in many areas of northern Michigan. Much of it is fed on the farm as an excellent energy feed for all classes of livestock. It compares favorably with corn for growing and fattening of animals. Barley contains substantially more total digestible nutrients (TDN) per 100 pounds than oats and slightly less than corn. Protein content of barley is higher than both corn and oats. The crop responds well to good management practices, with new varieties producing well over 65 bushels of grain per acre.

Land Selection

Barley requires better soil fertility and drainage conditions than other small grains. The best soils for growing barley are well drained silt or clay loams with soil pH of 6.5 to 7.0. Light, sandy soils are poor for growing barley because of drought susceptibility. Acid soils must be limed to a pH of 6.5 to 7.0 before barley can be grown successfully.

Fertilizers and Planting Date

The highest barley yields are obtained when it is planted early and fertilized adequately with nitrogen fertilizer. If barley is sown early, extra nitrogen does not result in lodging the grain appreciably. Early planting with adequate nitrogen gave the highest yields in Canadian research (see Figure 1). In the Canadian research, nitrogen at 60-90 pounds per acre gave the greatest response with minimal lodging when applied early. Apply nitrogen based on soil type, previous crop and manure applications. For further information on recommended nitrogen fertilizer, see Extension Bulletin E-550, "Fertilizer Recommendations for Vegetables and Field Crops" (35 cents).

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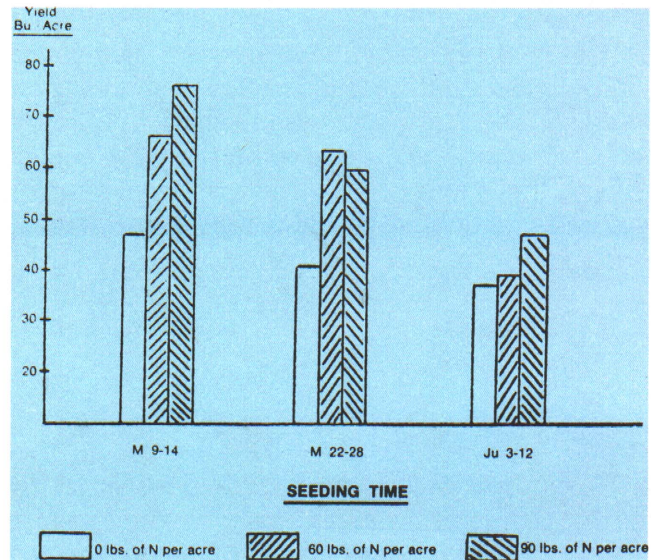


Fig. 1. The effect of date of sowing and rates of nitrogen on yield of barley—3 year averages.

Adequate potassium and phosphorus levels are also necessary for good barley growth. Deficiencies of these nutrients will cause weak straw and lower yields. Use a soil test to determine phosphate and potash need and fertilize accordingly. Do not drill more than 140 pounds of actual nutrients (N + P₂O₅ + K₂O) with the seed on loam soils. Broadcast any additional fertilizer before planting to avoid fertilizer injury.

Plant barley as early in the spring as possible. Fall plowing facilitates early planting and where erosion hazards are minimal, it is highly recommended.

Seeding Rate

Seeding rate partially determines the straw strength, number of tillers per plant and kernels per head. The rate can be affected by variety, seed quality, seeding method and soil type. A seeding of 1½ bushels per acre is generally adequate. When planted early, barley seeded at 1½ bushels will stool enough to produce a good stand. Lower rates may encourage weeds while

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higher rates may result in excessive lodging. When barley is used as a companion crop for a forage seeding, a seeding rate greater than 1½ bushels per acre may result in poor establishment of the forage species because of excessive competition from the grain crop.

High Quality Seed

The best variety will not produce good yields unless good quality seed is used. The cheapest seed, if poor in germination, vigor or high in weed content, may prove to be the most expensive in the long run. Only certified seed assures varietal purity and good germination. Certified seed must meet mechanical quality standards, such as purity from noxious weeds and uniform seed size, and germination must be at least 90 percent.

Variety Selection

When selecting a variety, consider maturity, grain yield, test weight, lodging and disease resistance. For current information on the latest varietal recommendations, see Extension Bulletin E-1313, "Barley Variety Performance in Michigan" (free). Larker barley is the best choice today. In the next few years, we expect a new higher yielding variety "Bowers" to replace Larker in areas where feed barley is grown.

Diseases

Several diseases of varying importance occur on cultivated barley in Michigan. These include net blotch (*Helminthosporium teres*), spot blotch (*H. sativum*), stripe (*H. gramineum*), scald (*Rhynchosporium secalis*), and loose smut (*Ustilago nuda*). In addition to being leaf pathogens the *Helminthosporium* species are also carried on the seed and often cause seed and seedling diseases. Symptoms range from distinct brown to black spots or yellow to brown stripes on the leaves, to replacement of the grain with masses of black spores (loose smut).

Seed treatment with a protectant fungicide such as captan, thiram, PCNB (pentachloronitrobenzene), or maneb, will reduce seedling in-

fections by the *Helminthosporium* species. Seed treatment with a carboxin fungicide (Vitavax or Vitavax 200) will effectively control loose smut. Cultural practices also offer a means of reducing disease problems. Rotate whenever possible, avoid planting into barley stubble, plant spring barley as early as possible, and use high quality, treated, certified seed. Select resistant varieties if their agronomic characteristics are acceptable and there is a high potential for disease problems.

Weed and Insect Control

Check fields early in the growing season since early detection and treatment are essential for good weed or insect control. A vigorous stand of barley planted early will help to keep weeds in check.

Chemicals such as 2,4-D, 2,4-DB or MCP will control most broadleaved weeds. Roundup (glyphosate) is registered for control of quackgrass and other perennial weeds, as a non-selective herbicide for early fall application prior to the spring planting of barley. When using chemicals, follow recommendations and label instructions. Proper timing of herbicide and insecticide application is important for effective control. Further information on weed and insect control is available in MSU Bulletin E-434, "Weed Control in Field Crops" and E-829, "Insect Control in Small Grain Crops" (free).

Harvesting

Barley is ready to harvest at about 13 or 14 percent moisture. It is safe to store at this moisture without risk of "heating." When ripe, the heads of most barley varieties will bend over and are susceptible to breaking off, causing yield losses. Delayed harvest may cause heavy losses.

Harvesting barley at 25 to 32 percent moisture is a method gaining popularity in the Upper Peninsula. The barley is harvested with a conventional combine followed by ensiling in an airtight, upright silo or treated with an acid preservative. This method offers many advantages since field losses are reduced substantially because of earlier harvesting.