

NIGER THISTLE POTENTIAL IN NORTH DAKOTA

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Niger thistle is commonly used as birdseed, but the current 70 million pound annual U.S. demand is all imported from China, Ethiopia, India, and Myanmar. The development of a short-season cultivar (EarlyBird) in recent years has permitted successful growing of niger in test areas in the Northern Plains. Research has narrowed recommendations for seeding rate and some herbicides are labeled in Minnesota and North Dakota. However, little else is known about agronomic management of the crop.



Niger thistle variety trial.

This project is studying the effects of seeding rate and nitrogen (N) fertilization on crop performance. A second trial evaluates the effect of swathing time on yield. In conjunction with the niger growers cooperative (FeatherFeed Foods, Red Lake Falls, Minnesota) and the University of Minnesota, 2002 field experiments were conducted at the North Dakota State University (NDSU) Research Extension Centers in Carrington, Langdon, and Minot, the NDSU Agronomy Seed Farm in Casselton, and on-farm sites near St. Hilaire and Oklee, Minnesota.

The crop matured and produced yield at all sites, even with delayed planting (13 June) at Casselton, providing further evidence of the adaptation of EarlyBird to this region. The 9-lb/acre seeding rate consistently produced higher yields than the 3-lb and 6-lb rates. Yield was generally unaffected by N fertilizer applications of 20, 40, or 60 lbs N/acre, suggesting that niger may be a low-input crop. Mean yield varied considerably by site. The 700 and 500 lbs/acre yields recorded at Langdon and Oklee, respectively, are considered very good. At Carrington, severe lodging resulted in a yield of 327 lbs/acre, while excess moisture stress in St. Hilaire reduced yield to 339 lbs/acre. The late-planted plots in Casselton produced 296 lbs/acre.

An economic analysis has shown the break-even yield to be 310 lbs/acre, including a \$20/acre management fee for the farmer. In light of this, the yields obtained are encouraging.

The time of swathing showed that, at all sites except Langdon, swathing on 20 September or later or straight-combining after a killing frost produced similar yields, allowing some flexibility in scheduling harvest operations. At Langdon, swathing on 15 September produced a significantly better yield.