Alopecurus pratensis L. Discovered in Porter County

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Introduction

Alopecurus pratensis L., meadow foxtail, is a long-lived perennial grass which is native to the temperate portions of Europe and Asia. It was first cultivated in Europe about 1750 and is still grown as a forage crop on poorly drained soils of high fertility. Meadow foxtail is believed to have been introduced into northeastern United States and eastern Canada in the latter part of the nineteenth century. It has been grown to only a very limited extent in the northcentral and northeastern states although it has recently become of some importance in the Pacific Northwest. To the authors' knowledge, the only report of meadow foxtail being grown in Indiana is that reported in Deam's book "Grasses of Indiana" (1). According to Deam, meadow foxtail has been reported growing in Tippecanoe County which was most likely a seeding by a Purdue University agronomist.

Plant Description and Closely Related Species

Meadow foxtail is a long-lived perennial cool-season grass possessing an inflorescence which is very similar in appearance to that of timothy (*Phleum pratense* L.). It produces comparatively few rhizomes ranging from approximately five to ten cm. in length resulting in loose tufts with numerous basal leaves. Growth starts extremely early in the spring and it is one of the earliest grasses to head. The erect flowering culms generally are about one meter high but have been reported to occasionally reach a height of nearly two meters (2). Meadow foxtail seed is small, light and fluffy making it difficult to harvest as well as to sow. Meadow foxtail, because of its common name, should not be confused with some of the weedy grasses. It bears little, if any, resemblance to other weedy grasses referred to as foxtail. Meadow foxtail is a high quality forage crop with no evidence of weedy characteristics (3).

Two other species of *Alopecurus* are found in Indiana. *A. aequalis* Sobol., short-awn foxtail, is occasionally found growing in central and northern Indiana in shallow water, pond borders, and swamps that become dry in midsummer. *A. carolinianus* Walt. can be found throughout most of Indiana. It is found growing on mucky soils and in ditches in northern Indiana while in southern Indiana it will be found on slightly acid, light-colored clay soils especially in fallow fields (1).

Adaptation

Meadow foxtail is adapted primarily to a cool and moist climate. However, it can be grown in regions where summer temperatures occasionally reach 100° F as well as regions where winter temperatures drop below 0° F for long periods. Piper (2) reported that "it is perhaps the most winter hardy of any cultivated perennial grass." In addition, it withstands cold weather in early spring after its growth has begun better than any other grass. Consequently, it survives well where frost may occur any month of the year as at high elevations or muck areas in northern United States where frost can occur any month of the year.

The best growth of meadow foxtail is obtained on fertile, moist, or swampy soils. Muck or peat soils that are swampy or are overflow lands are ideal for meadow foxtail. It grows well under irrigation but does not withstand drought.

Utilization

Meadow foxtail is primarily a pasture grass in northern regions where it is grown (3). Cattle and sheep graze it more readily than most other grasses due to its palatability and high percentage of basal leaves. This can be a disadvantage when grown in a mixture with other grasses of lower palatability as livestock will graze it very closely allowing the less palatable species to predominate.

Due to its low yield and high percentage of basal leaves, meadow foxtail is seldom used for hay. However, in northern Europe it is a favorite hay crop on wet meadows. Although yields of only one to three tons are most common, yields as high as 4-½ tons per acre have been reported in England and France (2).

Several Ecotypes Discovered in Porter County

In the spring of 1975, a few scattered plants of meadow foxtail were observed on the muck weather station of the Pinney-Purdue Agricultural Center at Wanatah, Indiana in Porter County. At first the plants were assumed to be a very early selection of timothy, but the plants later were identified as meadow foxtail. The site has been clipped only once or twice annually over the past 5 years in order to observe the meadow foxtail plants. Meadow foxtail appears to be very competitive with Kentucky bluegrass under these conditions and now occupies about 20 percent of the area in the muck weather station. Another closely related but much shorter species, either *A. aequalis* Sobol. or *A. carolinianus* Walt. also has been observed growing on the Pinney-Purdue Agricultural Center as a weed in cultivated fields.

It is believed that this meadow foxtail originated as a contaminant of a forage grass seeded in an evaluation study adjacent to the muck weather station in the late 1960s. Several ecotypes have been transplanted to the Agronomy Farm, West Lafayette, to observe their growth characteristics as compared to that of timothy. Considerable differences have been observed among the meadow foxtail ecotypes relative to leaf width and density of basal leaves. These ecotypes of meadow foxtail head out in late April to early May, being three to four weeks earlier than timothy.

Potential for Meadow Foxtail

Meadow foxtail is almost unknown to Corn Belt forage researchers as well as forage producers. This is probably due to its historically low yielding ability as well as its lack of persistence under droughty conditions. However, some of the characteristics observed from the ecotypes growing in Porter County would indicate that meadow foxtail could be a valuable forage species on poorly drained soils in northern and possibly central Indiana.

Many farmers on the nearly one million acres of muck soils in northern Indiana have given up trying to grow corn and/or soybeans. This is due to the problems encountered in getting the crops planted in the spring because of excessive moisture along with the often short growing season resulting from early frosts on these low-lying soils. Some farmers are presently using these soil for pasture. Kentucky bluegrass (*Poa pratensis* L.) is very well adapted to these soils as is birdsfoot trefoil (*Lotus corniculatus* L.), a legume. However, Kentucky bluegrass is extremely competitive and, if not properly managed, will out-compete the birdsfoot trefoil and necessitate the application of nitrogen fertilizer to obtain

high yields. Since meadow foxtail appears to be well adapted to these soils but less competitive than Kentucky bluegrass, it may be an ideal grass to grow in association with birdsfoot trefoil. The very early spring and late fall growth of meadow foxtail along with the high late spring and summer production of birdsfoot trefoil should provide a highly palatable pasture over a long grazing season.

In addition, meadow foxtail may be a desirable grass for northern Indiana dairy farmers to seed with alfalfa. A limited amount of grass in a mixture with alfalfa can have many benefits, such as better erosion control and easier harvesting and drying, when compared to pure alfalfa without reducing the quality of the hay or silage.

Summary

The observations reported in this paper can be summarized as follows:

1. Several ecotypes of meadow foxtail have been discovered growing on the shallow muck soils in Porter County.
2. Meadow foxtail closely resembles timothy in the heading stage.
3. In northern Indiana, meadow foxtail heads out nearly one month earlier than timothy.
4. These ecotypes of meadow foxtail are spreading in competition with Kentucky bluegrass.
5. Meadow foxtail appears to be well adapted to the muck soils of northern Indiana where frosts can occur any month of the year.
6. Meadow foxtail may have promise in northern and possibly central Indiana as a grass to grow in association with
    A. birdsfoot trefoil for pasture particularly on muck soils.
    B. alfalfa for hay or low moisture silage by dairymen.

Literature Cited

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