



## The Case of Fine Fescue and Tall Fescue

# Marketing of Low-Input Turfgrass in the Northern U.S.

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## Introduction

The turfgrass industry in the U.S. is expanding rapidly due to increased demand for residential and commercial property development, and the environmental and aesthetic benefits of turfgrass in the rural and urban landscape (Haydu et al., 2006). Turfgrass benefits the environment by reducing soil erosion and surface runoff, sequestering carbon, and protecting water quality (Beard and Green, 1994). Aesthetic benefits are related to the beauty, quality of life, mental health, and social harmony offered by pleasant landscapes.

Turfgrass also provides economic benefits; for example, properly landscaped homes and businesses may benefit from higher resale values compared to poorly landscaped residences (Behe et al., 2005). The contribution of the turfgrass industry to the U.S. economy was estimated at \$62 billion in 2005 (Haydu et al., 2006) which includes the production of turfgrasses in the form of home lawns, commercial properties, golf courses, parks, and roadsides.

Despite turfgrass typically providing benefits, improper management can lead to potential negative impacts on the environment due to overuse of inputs such as fertilizers and pesticides. Yue et al. (2020) found that reductions in environmental impact, along with important financial savings, can be achieved when planting turfgrass cultivars that are well adapted to site conditions, tolerant to environmental stresses (e.g., drought, salinity, and shade), and that need fewer resources to be produced. Researchers have been exploring potential solutions to make lawns more sustainable, including promoting the use of turfgrasses that require fewer inputs. Tall fescue (*Festuca arundinacea*) and the fine fescues (*Festuca* spp.) are turfgrasses that represent viable options to increase the sustainability of managed landscapes because they exhibit improved abiotic and biotic stress tolerance, as well as enhanced quality under limited inputs. These grasses can also help to diversify sod crops and increase the market value of sod.

Tall fescue has a medium to wide leaf texture, increased tiller density, and dark green color. Tall fescue provides improved disease and insect resistance compared with other more frequently used sod species, such as Kentucky bluegrass (*Poa pratensis*) (Meyer and Watkins, 2003). Homeowners may desire tall fescue because of its improved drought and shade tolerance, disease resistance, and reduced fertilization needs compared to Kentucky bluegrass and perennial ryegrass (*Lolium perenne*).

Fine fescue refers to a group of grasses known for their fine leaf texture. The plural form “fescues” is used because it refers to a group of grasses that showcase similar characteristics. Species of fine fescue include hard fescue (*Festuca brevipila*), Chewings fescue (*F. rubra* ssp. *commutata*), slender creeping red fescue (*F. rubra* ssp. *littoralis*), sheep fescue (*F. ovina*), and strong creeping red fescue (*F. rubra* ssp. *rubra*). Their narrow leaf blades range from 1 to 3 mm (Braun et al., 2020). Watkins et al. (2011) reported that cultivars of fine fescue showed excellent performance and uniformity under low-input environments, and they require less fertilizer, irrigation, and mowing than Kentucky bluegrass. Fine fescue include species used in shaded environments, low-input areas, and areas that receive deicing salts, making them a good fit for turf near roadsides and landscapes using reclaimed water.

Despite the availability of tall fescue and fine fescue as low-input cultivars in the turfgrass seed market, most consumers have little awareness of their presence. These low-input turfgrasses are not widely planted by sod producers because of the familiarity of growers with other common species, such as Kentucky bluegrass. Thus, fine fescue makes up a small proportion of the turfgrass sod produced in the United States.

In this publication, we used data from a web-based survey of sod buyers to investigate the marketing opportunities and barriers for fine fescue and tall fescue sod. Sod buyers in our study refer to businesses that buy sod to either use, resell, or offer sod with other value-added activities. Sod buyers include landscape contractors, lawncare operators, golf course superintendents, sports turf managers, and parks managers. Those are the primary buyers of sod, and their preferences are likely to influence the sustainability of the sod industry.

## The Project

To address the lack of information regarding the preferences of sod buyers, we surveyed a sample of sod buyers from the northern United States. We used an online survey to assess the marketing opportunities

and barriers of low-input sod in the turfgrass industry. We collected data on characteristics of buyers, primary market outlets, seasonality, preferences toward sod attributes, and respondents' motivation to purchase low-input turfgrasses.

Sod buyers in our study included golf course superintendents and intermediaries. Intermediaries are companies that provide services or specialize in a few activities, such as sod reselling, transportation, installation, and maintenance (Breuninger et al., 2013). Some major groups in this category are landscape contractors, garden centers, and lawncare services businesses. A total of 200 buyers, located in 19 states (CO, DE, IL, IN, IA, KY, MD, MA, MI, MN, MO, ND, OH, PA, SD, TN, VA, WV, and WI), completed the survey. From the 200 completed surveys, we drew a subsample of 92 buyers, 15 of whom reported having purchased fine fescue in 2020, and 77 of whom purchased tall fescue sod in 2020. We excluded buyers of other turfgrass species from this analysis.

## Main Findings

**Characteristics of low-input turfgrass buyers.** Buyers in our sample have been buying sod for 31 years, on average, and they had been operating for 42 years. Sod buyers spent 8% of their total sales on advertising, and most of the buyers used social media and websites as their primary advertising strategies. Torres et al. (2021) suggested that online advertising can help businesses increase their sales more efficiently by improving their visibility and customer reach. It seems that buyers are benefiting from online advertising, a trend that is expected to increase post-COVID-19 impact on online marketing. Through online advertising, the existing markets could become stronger, and potential markets might develop.

Low-input turfgrass buyers were located an average of 25 miles from their main supplier, meaning that buyers most likely acquire sod from growers within their state of operation. This finding suggests that growers located nearby key markets and metropolitan areas have a strategic advantage over growers located farther away, which is consistent with a previous report (Patton, 2009). The total distance between buyer-supplier ranged from 1 to 150 miles. About 44% of buyers surveyed purchased sod from only one supplier, and 56% had at least two different suppliers.

Buyers in our study purchased an average of 2,175 ft<sup>2</sup> of fine fescue and 94,184 ft<sup>2</sup> of tall fescue in 2020. The small amount of fine fescue sod purchased indicates that these jobs were small or for niche areas such as shaded lawns or golf course bunker faces.

**Comparison of Fine Fescue and Tall Fescue Buyers.**

In the next section, we present additional findings with respective graphs from tall fescue and fine fescue buyers. Respondents were asked to indicate the state(s) in which they operated. Location is very critical in the turfgrass industry because cultivars that do well in one location may be poorly adapted to other locations; hence, turfgrass species should be selected based on their adaptation to the region where they are to be used. Figures 1 and 2 are maps that illustrate the location of buyers' operations who indicated having purchased fine fescue (Figure 1) and tall fescue (Figure 2) sod in 2020. Most buyers of fine fescue in our survey were in Minnesota (15%), Ohio (12%), and Wisconsin (12%). The states of Indiana, Iowa, Missouri, North Dakota, South Dakota, Kansas, Kentucky, Illinois, and Michigan had between 8% and 4% of fine fescue buyers per state.

On the other hand, most of tall fescue buyers that responded the survey were operating in Indiana (35%). Ohio had 9%, and Illinois and Kentucky had 6% each. Five and four percent of our tall fescue buyers were in Missouri and Minnesota, respectively. Also, 23% of tall fescue buyers had operations outside of the Midwest in states such as Pennsylvania and Colorado.

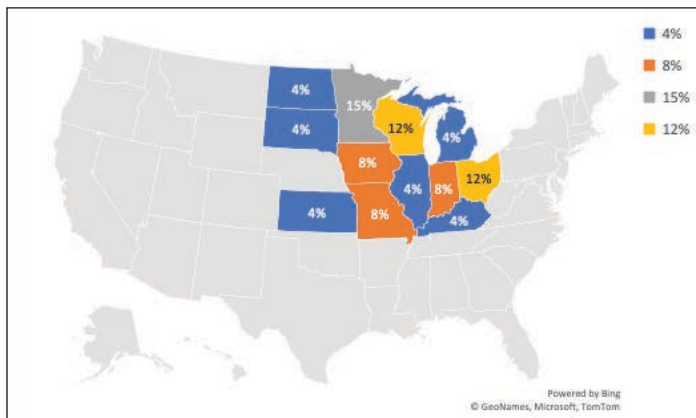


Figure 1. Location of fine fescue sod buyers in the Midwest.

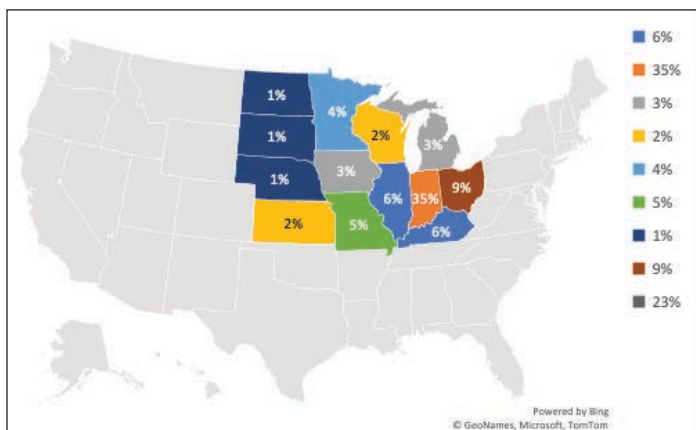


Figure 2. Location of tall fescue sod buyer in the Midwest.

**Purchasing Sod.** To better understand the seasonality of sod purchasing, respondents were asked the percentage of their total sod purchased during each season.

Buyers of both species had a similar trendline on the percentage of sod they tend to purchase during each season. Fine fescue buyers indicated having purchased 40% of their sod during fall, with 28% purchased in the spring and 23% in the summer. Only 8% of their total fine fescue sod was purchased during winter. The purchase of tall fescue followed a similar pattern, with 44% of tall fescue purchased during fall, 31% in the spring, 22% in the summer, and only 3% in the winter.

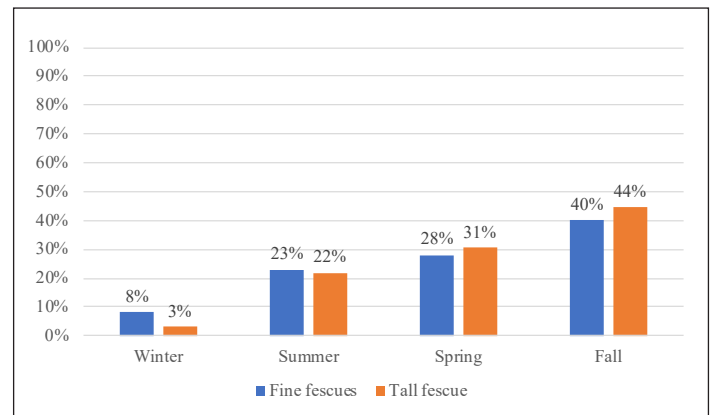


Figure 3. Distribution of quantity of sod purchased by season.

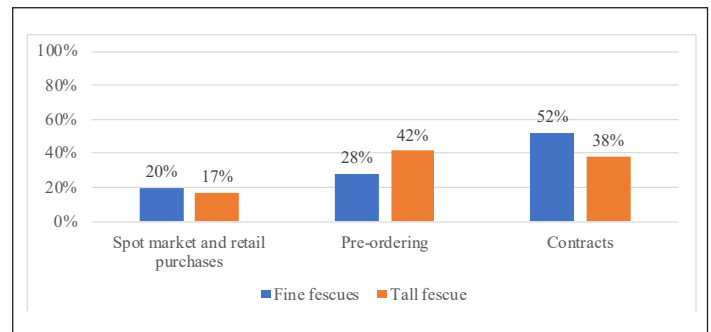


Figure 4. Purchasing agreements among fine fescue and tall fescue buyers.

Figure 4 illustrates the selling arrangements of fine fescue and tall fescue. Selling arrangements are critical among sod buyers because buyers acquire sod from other businesses (i.e., sod suppliers), and some selling arrangements may help buyers to set more specific market standards when buying sod, resulting in potential benefits from price fluctuations and availability. Preordering arrangements help buyers manage sales forecasts and take control of their inventory because sod is a perishable product. Fine fescue buyers purchased most of their sod through contract agreements (52%), showing that fine fescue growers desire the lower risk of a contract since there are fewer overall buyers. Twenty-

eight percent of fine fescue buyers purchased sod through pre-order arrangements and 20% purchased sod through spot and retail markets. Meanwhile, tall fescue buyers purchased 42% of their sod through preordering arrangements, 38% through contracts, and 20% through spot and retail markets.

Turfgrass attributes that sod buyers consider important play a vital role in the type of turf they ultimately decide to buy. The importance of some attributes varies substantially according to the purpose for which the turf is to be used. Figure 5 displays the most important sod attributes among buyers of fine fescue and tall fescue.

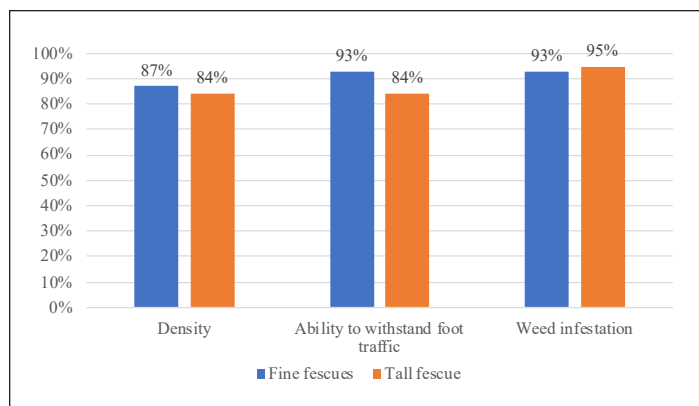


Figure 5. Most important attributes among fine fescue and tall fescue buyers.

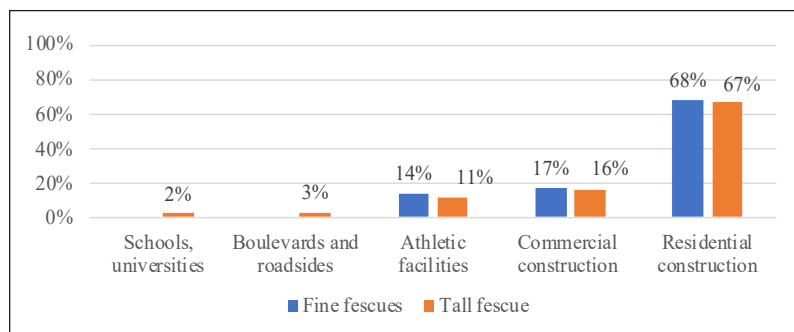


Figure 6. Distribution of landscaper's installation of fine fescues and tall fescue to end-users.

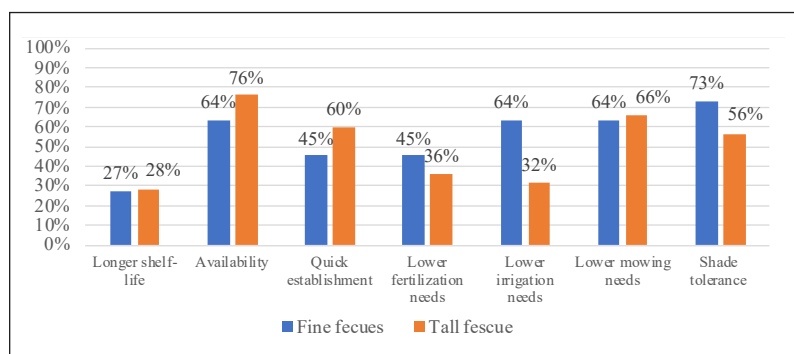


Figure 7. Other reasons to purchase fine fescues and tall fescue.

Three attributes were common to both species: density, ability to withstand foot traffic, and low weed infestation. This finding is consistent with consumer preferences; low weed infestation and ability to withstand foot traffic are among the most influential turfgrass attributes among US consumers (Yue et al., 2012; Yue et al., 2017). All fine fescue buyers considered drought tolerance an important attribute when they buy sod, and 87% considered summer performance as an important attribute. For tall fescue buyers, important attributes include root development (83%) and disease resistance (78%).

Sod buyers in our study were divided into two categories: (1) landscape contractors and (2) athletic facilities. Landscape contractors include businesses such as lawn care operators, building contractors, and garden centers; athletic facilities include the golf courses and sports turf managers. Landscape contractors were the major buyers of low-input sod, accounting for 73% of the buyers who purchased fine fescue and 64% of buyers who purchased tall fescue.

Interestingly, the most common market for low-input turfgrass was the residential market. Fully 68% and 67% of fine fescue and tall fescue installed by landscapers went to residential, respectively. This result is consistent with Yue et al. (2012) and Yue et al. (2017), who found that a market exists for low-input sod in residential, particularly the homeowners. The second largest market for low-input sod installation was commercial properties (17% fine fescue, 14% tall fescue), followed by athletic facilities (14% fine fescue, 11% tall fescue). Less significant tall fescue installation went to boulevards and roadsides (3.15%) and schools (2.39%).

### Drivers to buy fine fescue and tall fescue

The biggest reason why sod buyers reported purchasing low-input turfgrasses was market availability. Seventy-six percent of fine fescue buyers and 64% of tall fescue buyers indicated having purchased both species because their suppliers had them available. Other important reasons are shade tolerance and lower mowing needs. Some other attributes are significant for only one group of species. For example, lower-irrigation needs is highly desired among fine fescue buyers (64%) and much less for tall fescue buyers (32%), while quick establishment is valued among tall fescue buyers (60%) and a little less

desired among fine fescue buyers (45%). Finally, a small proportion of buyers have purchased fine fescue and tall fescue because of lower fertilization needs and perceived longer shelf life. While it is true that fine fescue and tall fescue require less fertilization to make quality sod than Kentucky bluegrass (Braun et al., 2021a), recent research demonstrates that sod of all three species has a similar shelf life (Braun et al., 2021b, 2022). Figure 7 illustrates the main sod attributes influencing the purchasing of tall fescue and fine fescue.

## Conclusion

We found that a high percentage of fine fescue and tall fescue sod was installed on residential landscapes, making this category the main market for low-input sod species. This result is consistent with most studies in the literature of low-input turfgrasses that found low-input turfgrasses would likely be accepted in the residential turfgrass market. Buyers of low-input sod may be able to place more emphasis on residential end users, especially the homeowners, to increase the market value of residential properties. We also found that contracts with growers may be a feasible way to push low-input turfgrass adoption. Farmers can lock in a market that will ensure selling their acreage of low-input sod species in case of lower price and market uncertainty.

Landscape contractors are the major buyers of fine fescue and tall fescue, and most of them indicated having purchased both species because their main suppliers had them available. This is another key finding of this study – showing the role that sod growers must play in the spreading of sustainable turfgrasses in the US. In addition, very few landscapers indicated having purchased low-input sod because there was a lack of demand from clients. It seems that end-users accept what is being offered by buyers and growers; therefore, a demand of low-input sod coming from the buyers will be a key driver to persuade farmers to grow more low-input sod. Future studies may focus on grower-buyer relationship to better understand market opportunities.

Customer demand and competitors were not major influencing factors for landscapers to purchase low-input turfgrasses. Other key reasons to purchase low-input sod among landscapers included attributes such as shade tolerance, lower mowing needs, and lower irrigation needs. We found that turfgrass density, ability to withstand foot traffic and minimum weed infestation were among the most important attributes that both fine fescue and tall fescue buyers consider important in sod. Focusing on marketing different maintenance attributes such as lower mowing needs (fine fescue), lower irrigation (fine fescue and tall

fescue), and lower fertilization (fine fescue and tall fescue) may be important selling points for fine fescue and tall fescue. In addition, turfgrass breeders should consider focusing attention on traits that sod buyers find the most important, with a particular emphasis on shade tolerance and increased ability to suppress or outcompete weeds.

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