

# Cereal Straw Production

## Introduction

Winter small grains, especially wheat and barley, are an important part of the typical crop rotation system of many Kentucky farmers. These crops are primarily grown for their grain; however, harvesting the straw as a secondary product can provide additional income. Harvesting straw as a secondary commodity when grown in a double crop system with soybeans also minimizes harvest residue, which helps the establishment and growth of the following soybean crop. Some growers choose to forgo the grain harvest altogether, producing high quality straw as the main commodity. Other grains, such as rye, oats and triticale, also have potential for straw production.

## Marketing

Wheat straw is used as animal bedding for a variety of domesticated animals and is a valuable commodity in the horse industry. Straw is also used as mulch by homeowners, landscapers, and small fruit growers. Gardens, newly seeded turfgrass, and strawberry plantings are a few of the areas that are often mulched with straw. Highway departments also make use of straw as mulch along roadsides. In addition, straw bales can serve as barriers to run-off at road and building construction sites. Straw is also used as the growing media in the production of some gourmet mushrooms. Marketing strategies should target these end-users.



Producers growing bearded varieties could also consider tapping into the ornamentals market. In this case the entire plant is cut to include the stem and head, and then sold for use in cut flower arrangements. Barley varieties with long awns are particularly attractive in terms of dried arrangements. Potential markets include farmers markets, crafts stores, and florists.

## Market Outlook

The production of high quality winter wheat straw may have considerable potential in Kentucky. Recent reports of high selling prices for quality straw for horse bedding and home landscape mulch further raises those prospects.

Straw quality is extremely important for successful marketing of this product. Both growers and end-users most commonly cite “dustiness” as a reason for reduced prices. “Brightness” is also a measure of quality.

## Production Considerations

Wheat straw production is similar to wheat production for grain. Since small grains do not tolerate waterlogged conditions, a well-drained





CEREAL STRAW IS USED AS ANIMAL BEDDING.

site should be selected. Seeding, which takes place in the fall, can be accomplished either by drilling or broadcasting. Tillage options include conventional tillage, reduced tillage, and no-till.

Wheat straw producers may apply more nitrogen than grain producers attempting to get more straw. Excessive nitrogen rates, however, can lead to lodging, which will reduce straw quality. Rye and triticale tend to grow taller than wheat with fewer lodging problems. Since the vast majority of straw is produced as a secondary commodity associated with wheat grain production, it is best to follow the well-established guidelines for wheat grain production.

Most small grains production information is directed to achieving high yields of quality seed. In the past, UK recommended tall wheat varieties for straw production, but recent data indicates that taller plants do not always produce more straw. The University of Kentucky Small Grains Variety Testing Program annually conducts research trials to determine varietal differences in straw and grain yield potential. These yield differences, along with head-type (bearded or smooth), are indicated in the variety test report. Growers can maximize potential production profitability by selecting varieties with both high grain and straw yield potential.

### *Pest management*

Disease and insect problems are best managed through the use of integrated pest management strategies, including crop rotation, resistant varieties, and proper fertility. Scouting to monitor insect and disease problems can help the grower determine when and how often pesticides should be applied. Weed control begins with managing weeds in the previous crop.

The presence of fungal spores in straw contributes to its dustiness and can reduce saleability. If the market for straw requires clean, bright, shiny straw, then a fungicide application near bloom stage is recommended. The fungicide application may or may not improve grain yield, but will likely improve straw appearance.

### *Harvest and storage*

Wheat is typically harvested when the grain dries to the desired moisture content. Once cut, the straw should not be baled until it has dried sufficiently to store in the bale. One acre of winter wheat can easily produce 2 tons of straw or 80 bales weighing 50 pounds each.

### *Labor requirements*

Labor needs are approximately 2 hours per acre to bale straw. Pre-harvest production labor is the same as grain production (0.8 hours).

## **Economic Considerations**

Initial investments include land preparation and purchase of seed. Producers will also need baling equipment if not already owned. Variable costs for baling cereal straw include the operating cost of machinery used for baling, hired labor, and the cost of baler twine. Although significant additional labor may be necessary to handle square bales, the total variable cost per bale for producing and baling can range from \$1 to \$3, depending greatly on the hourly rate of hired labor and how many times bales are manually handled. Depending on the age and kind of equipment used, fixed costs (such as depreciation

and interest on machinery) can bring the total cost per bale to about \$3.30. Good quality straw can sell for \$200 to \$400 per ton (\$2.50 to \$5 per bale) at auction or off the farm.

Prices received per bale of straw can vary considerably, depending on location and intended use. It is not uncommon to see bales of straw retailing for \$6 or more per bale for use in home landscaping or as animal bedding. Producers located near these areas may be able to capitalize on such lucrative markets, but may incur added transportation and handling costs. Returns to management could exceed \$3 per bale for producers who are able to capture such prices with lower transport and handling costs.

## **Selected Resources**

- Comprehensive Guide to Wheat Management in Kentucky, ID-125 (University of Kentucky, 2009)  
<http://www.ca.uky.edu/agc/pubs/id/id125/id125.htm>
- Kentucky Small Grain Variety Testing Program (University of Kentucky)  
<http://www.uky.edu/ag/WheatVarietyTest>
- Straw Yields from Six Small Grain Varieties (University of Kentucky, 2006)  
[http://www.uky.edu/Ag/GrainCrops/Research/Research\\_pdf/SmallGrains\\_StrawYields2005.pdf](http://www.uky.edu/Ag/GrainCrops/Research/Research_pdf/SmallGrains_StrawYields2005.pdf)
- Best Management Practices when Harvesting Surplus Cereal Straw (Saskatchewan, Agriculture and Food, 2006)  
<http://www.agriculture.gov.sk.ca/Default.aspx?DN=9d0653b7-9839-42e5-9a72-c5f678834165>
- Small Grain and Straw Budgets (Virginia Tech, 2007)  
[http://www.pubs.ext.vt.edu/446/446-047/XLS\\_WheatorBarleyStraw.xls](http://www.pubs.ext.vt.edu/446/446-047/XLS_WheatorBarleyStraw.xls)

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*Photos: Matt Barton, UK Ag Communications Services (harvesting bales) and Morgue File (animal bedding)*

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For additional information, contact your local [County Extension](#) agent