

Summary of Switchgrass Varieties Yields for the Following Locations

Information

**USDA – Natural Resources Conservation Service
Elsberry Plant Materials Center**

Trial Sites

The trial sites were studies in cooperation with several partners: the USDA NRCS PMC, Elsberry, Missouri; in cooperation with the University of Missouri, Southwest Research Center, Mount Vernon, Missouri; the University of Illinois, Orr Agricultural Research Center, at Perry, Illinois; and the University of Northern Iowa, Tallgrass Prairie Center, Cedar Falls, Iowa.

Dry matter biomass yields and other information were compiled at three sites in Missouri from 1993 to 1995, Illinois from 1992 to 1994 and Iowa from 1994 to 1996. The effects of seed origin (parentage) on plant performance were apparent.

University of Missouri Southwest Research Center, Mount Vernon Missouri

Major Land Resource Area 116B - Springfield Plains, Ozark Border.

The soil is a Hoberg-silt loam. The Hoberg series consists of very deep, moderately well drained soils that have a fragipan. These soils formed in a thin mantle of loess and the underlying residuum from cherty limestone. Slopes range from 2 to 8 percent. Permeability is moderate above the fragipan, slow in the fragipan and moderate below the fragipan

Average biomass yields were generally excellent on the upland silt loam soils. Alamo and Kanlow produced an average of 13,500 pounds per acre or greater. All varieties were in the 90% range in percent stand the second year after planting except for Grenville 78%, and Shelter at 45%. Alamo and Kanlow were the tallest varieties at the average forage height of 6 feet. Alamo and Kanlow were also the latest in the date of first seed head emergence, Alamo August 7, and Kanlow July 28.

Orr Research Center, University of Illinois, Perry, Illinois

Major Land Resource Area 115C - Central Mississippi Valley Wooded Slopes.

The soil is a Muscatine silt loam. The Muscatine series consists of very deep, somewhat poorly drained soils formed in loess. These soils are on summits of interfluves on dissected till plains and on treads and risers on stream terraces. Slopes range from 0 to 5 percent.

Average biomass yields were good. The highest production was Kanlow 9,729 pounds per acre, followed by Alamo 8,820 pounds per acre; however, Alamo did not achieve greater than 90% cover until the third year. The varieties Kanlow, Cave-in-Rock, Carthage and Pathfinder were in the 90%-100% range in percent stand the year following planting. The remaining varieties did not achieve those levels until the third growing season. Kanlow was the tallest, average forage height of 5.7 feet. Kanlow, July 25, and Alamo, July 17, were the latest in dates of first seed head emergence, late boot stage.

University of Northern Iowa Cedar Falls Iowa
 Major Land Resource Area 104 - Eastern Iowa Till Prairie

The soils on this site are a well drained Kenyon clay loam and Olin fine sandy loam. The Kenyon series consists of very deep, moderately well drained soils formed in 12 to 30 inches of silty or loamy sediments and the underlying till. These soils are on interfluves and side slopes on dissected till plains on the Eastern Iowa and Minnesota Till Prairies. Slope ranges from 2 to 35 percent.

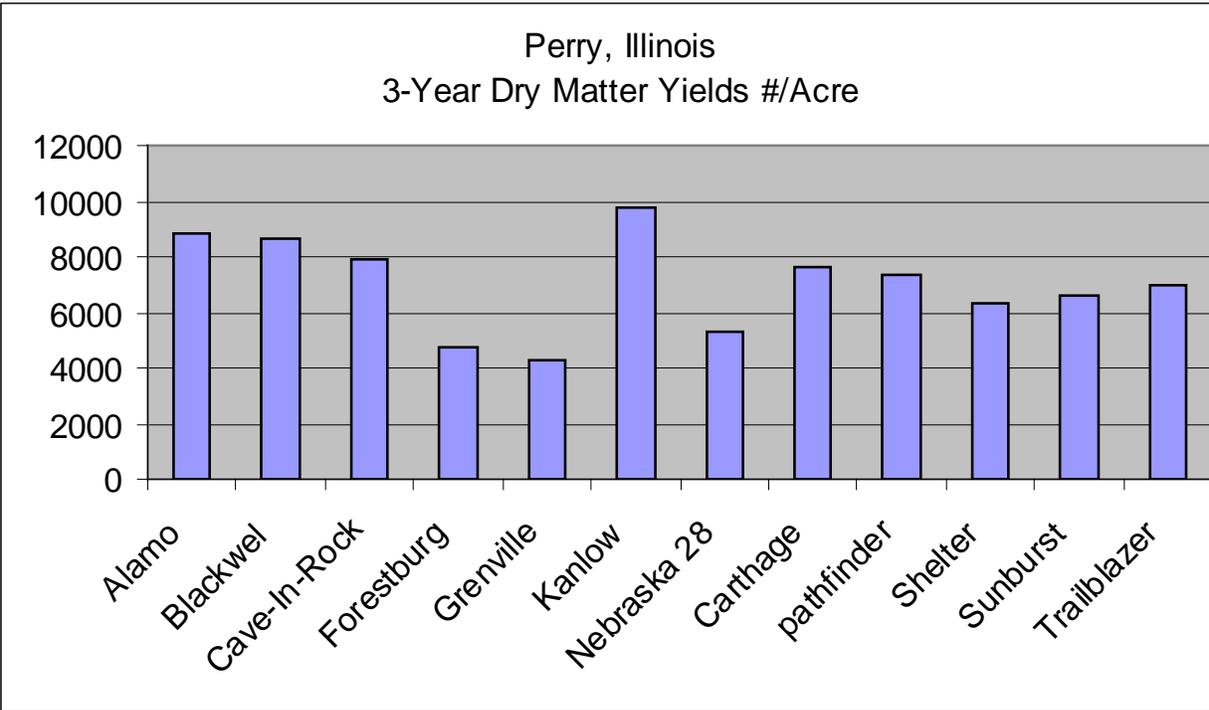
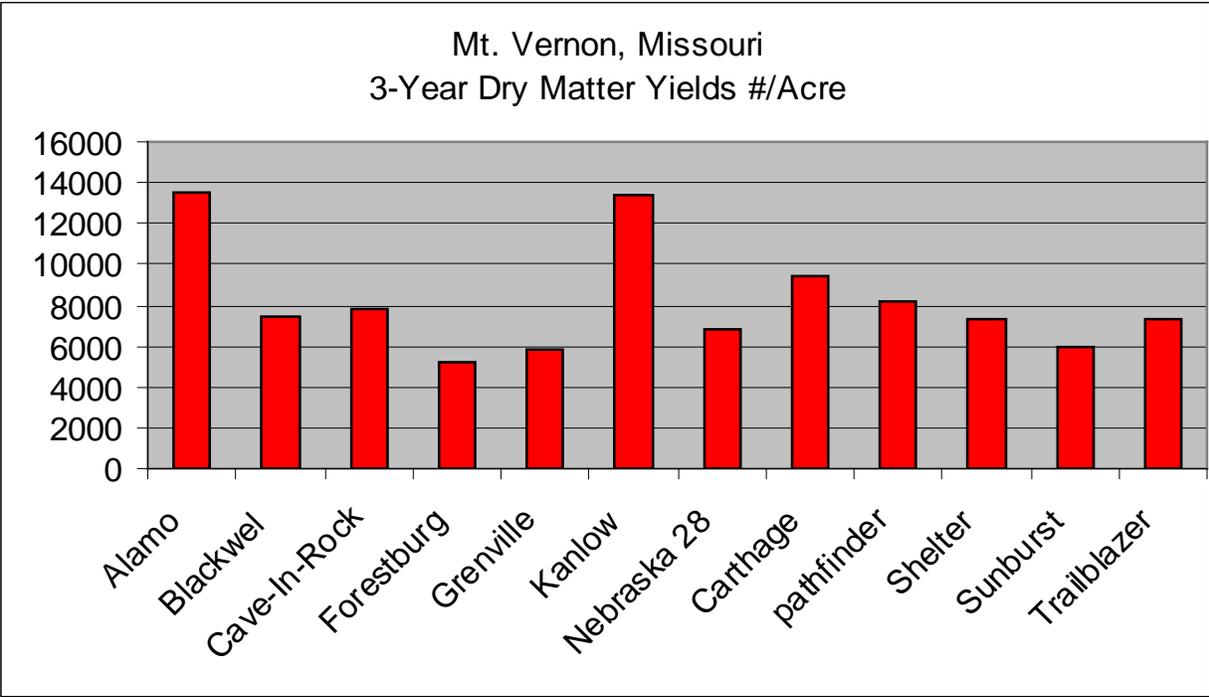
The Olin series consists of very deep, well drained soils formed in 24 to 36 inches of loamy sediments and in the underlying glacial till. These soils are on interfluves and side slopes on dissected till plains. Slopes range from 2 to 14 percent.

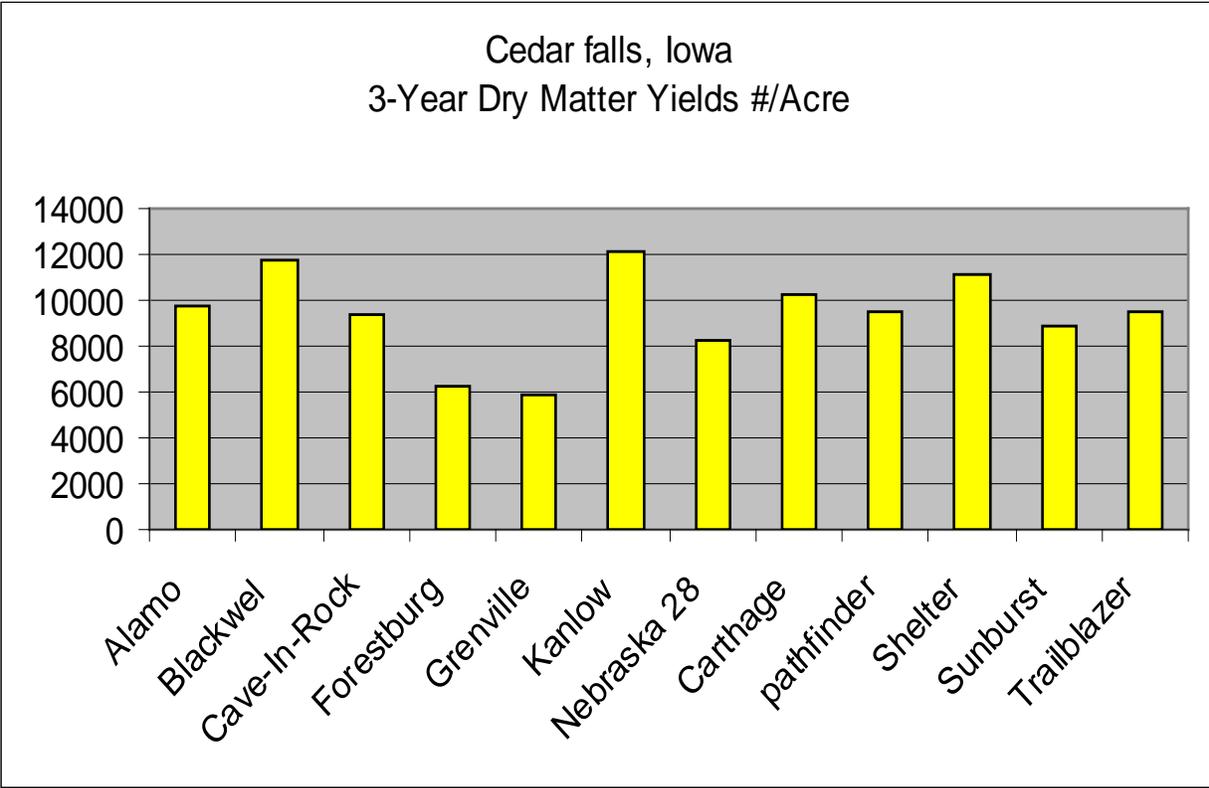
The highest biomass yield for the three year average was Kanlow 12,143 pounds per acre, Blackwell 11,731, Shelter 11,147, and Carthage 10,272.

The varieties Kanlow, Cave-in-Rock, Shelter, Carthage, Alamo, and Forestburg were in the 90%-100% range in percent stand the second year following planting. The remaining varieties did not achieve those levels until the third growing season. Kanlow (August 18) and Alamo (August 14) had the latest average date of first seedhead emergence (late boot stage).

Summary of Results

	Mount Vernon Missouri South Location	Perry, Illinois Central Location	Cedar Falls, Iowa North Location
Switchgrass			
Best Varieties Biomass Yields range, 6-7 tons/acre	Alamo Kanlow	None	Kanlow
Better Varieties Biomass Yield range, 5-6 tons/acre	None	None	Blackwell Shelter Carthage
Good Varieties Biomass Yield range, 4-5 tons/acre	Carthage Pathfinder Cave-in-Rock	Kanlow Alamo Blackwell Cave-in-Rock	Alamo Trailblazer Pathfinder Cave-in-Rock Sunburst Nebraska 28





The study details are located under the web links below with USDA NRCS Missouri Agronomy Technical Notes.

Switchgrass varieties

<http://www.mo.nrcs.usda.gov/technical/agronomy/out/Agron%20Tech%20Note%2037.pdf>

Big Bluestem and Indiangrass varieties listed on the following pages.

http://www.mo.nrcs.usda.gov/technical/tech_ref/out/Agron%20Tech%20Note%2039_311a.pdf

Details on Biomass studies for USDA NRCS Elsberry Plant Materials Center can be obtained at the website, under publications, Annual Technical Reports.

<http://plant-materials.nrcs.usda.gov/mopmc/>

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**Summary of Big Bluestem Varieties Yields for the following site locations
Information**

USDA – Natural Resources Conservation Service
Elsberry Plant Materials Center

Big Bluestem	MountVernon Missouri South Location	Perry Illinois Central Location	Cedar Falls Iowa North Location
Best Varieties Biomass Yields Range 5-6 tons/acre	None	None	None
Better Varieties Biomass Yields Range 4-5 tons/acre	None	None	Rountree Pawnee Champ PI483446
Good Varieties Biomass Yields Range 3-4 tons/acre	Kaw Rountree Pawnee PI483446	Champ PI483446 Rountree Pawnee Kaw	Kaw Niagara Bonilla

University of Missouri, Southwest Research Center, Mount Vernon, Missouri

Kaw and Rountree each produced an average yield of 6,800 pounds per acre. All varieties were in the 90% range in percent stand the third year after planting except for Niagra at 82%, and Bison at 65%. Rountree (5.6') and Kaw at (5.4') based on an average forage height were the tallest varieties. Kaw was also the latest by date, average date August 12th, for first seed head emergence.

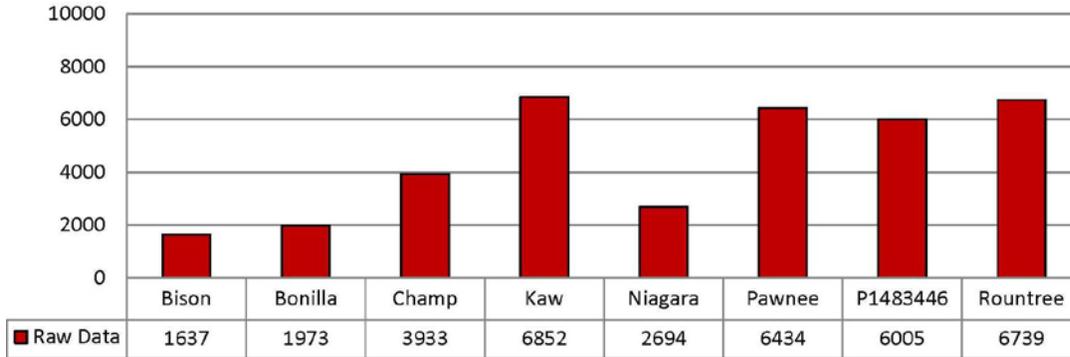
University of Illinois, Orr Research Center, Perry, Illinois

Champ produced an average yield of 7,500 pounds per acre. All varieties were in the 85% range in percent stand the 3rd year after planting, except Bison at 78%, and Niagara at 76%. PI483446 was tallest at (4.8') followed by Rountree (4.3') and Champ at (4.1') based on average forage height. PI483446 was also the latest by date, average date August 14th, for first seed head emergence.

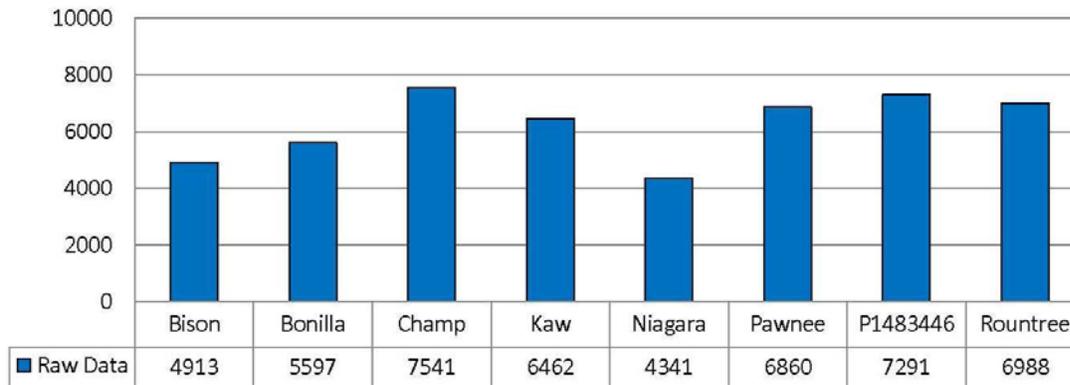
University of Northern Iowa, Tallgrass Prairie Center, Cedar Falls, Iowa

Rountree produced an average yield of 9,300 pounds per acre; followed by Pawnee with yield of 9,100 pounds per acre, and Champ yield at 8,400 pounds per acre. All varieties were in the 90% range in percent stand by the third year after planting except for Bonilla at 82%, Bonilla and Champ at 80%. Rountree was tallest at (4.4'). PI483446 was also the latest by date, average date August 23rd, for first seed head emergence.

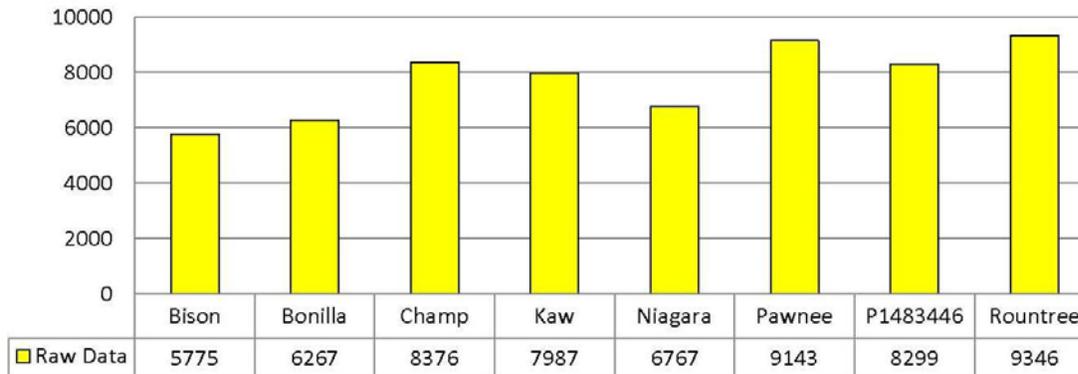
Mt. Vernon, Missouri 3-Year Dry Matter Yields #/Acre



Perry, Illinois 3-Year Dry Matter Yields #/Acre



Cedar Falls, Iowa 3-Year Dry Matter Yields #/Acre



Summary of Indiangrass Varieties Yields for the following site locations

Information

USDA – Natural Resources Conservation Service
Elsberry Plant Materials Center

Indiangrass	Mount Vernon Missouri South Location	Perry Illinois Central Location	Cedar Falls Iowa North Location
Best Varieties Biomass Yields Range 5-6 tons/acre	None	None	Cheyenne
Better Varieties Biomass Yields Range 4-5 tons/acre	Osage Rumsey	Rumsey	Oto Rumsey
Good Varieties Biomass Yields Range 3-4 tons/acre	Oto Lometa Cheyenne	Osage Cheyenne	Osage

University of Missouri, Southwest Research Center, Mount Vernon, Missouri

Osage and Rumsey each produced an average yield of 8,300 pounds per acre. Three varieties were in the 90% range in percent stand the second year after planting, Osage, Rumsey, and Cheyenne. Rumsey was the tallest at (5.0') based on the average forage height. Lometa was the latest by date, average date of September 28th for first seed head emergence.

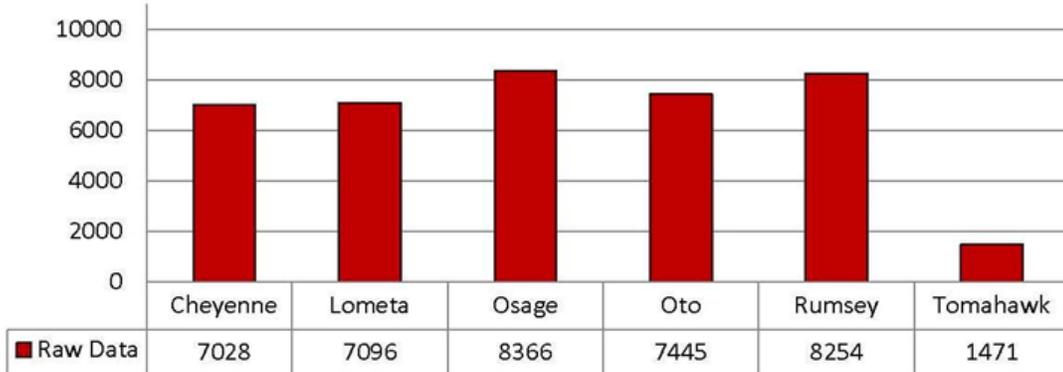
University of Illinois, Orr Research Center, Perry, Illinois

Rumsey produced an average yield of 9,000 pounds per acre; which was 1/3 more than the next highest variety. All varieties were in the 90% range in percent stand the 2nd year after planting, except for Lometa (80%) and Tomahawk (48%). Rumsey was the tallest at (5.3') based on the average forage height. Rumsey and Cheyenne were the latest by date, average date of August 22nd, for first seed head emergence.

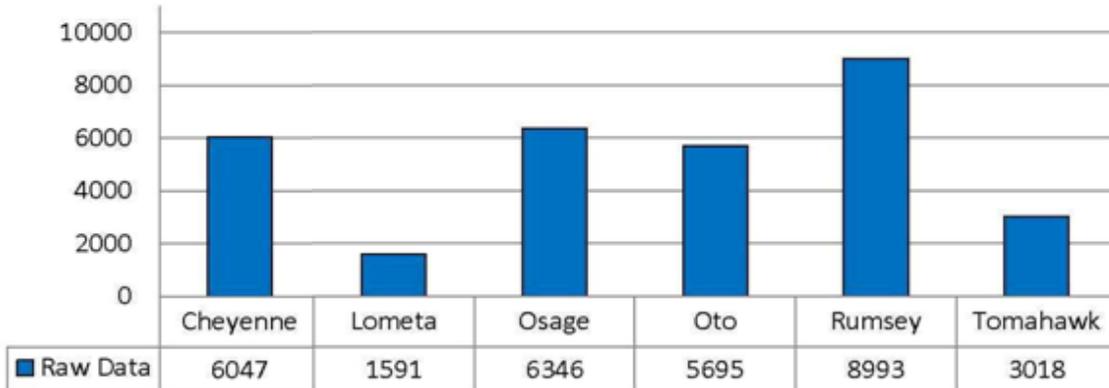
University of Northern Iowa, Tallgrass Prairie Center, Cedar Falls, Iowa

Cheyenne produced an average yield of 10,600 pounds per acre; followed by Oto and Rumsey 8,850 and 8,700 pounds per acre, respectively. Percent stand after the 2nd growing season Oto had 65% all other varieties had less percent cover with the least being Tomahawk with 18%. Rumsey and Cheyenne were the tallest at 4.0' based on average forage height. Rumsey and Cheyenne were the latest by date of first (September 7th) for first seed head emergence. Lometa (TX.) did not establish at this site.

Mt. Vernon 3-Year Dry Matter Yields #/Acre



Perry, Illinois 3-Year Dry Matter Yields #/Acre



Cedar Falls, Iowa 3-Year Dry Matter Yields #/Acre

