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Biomass Production In Switchgrass Across

Plot size is graphed on a log scale. Similar conclusions can be drawn about row spacing, which in our database varied from 15 cm (Casler and Boe, 2003) to 61 cm (Thomason et al., 2004). It appears that biomass yield in switchgrass, a perennial that spreads vegetatively,...

Biomass Production in Switchgrass across the United States ...

Fundamental to deriving a sustainable supply of cellulosic feedstock for an emerging biofuels industry is understanding how biomass yield varies as a function of crop management, climate, and soils...

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Biomass Production in Switchgrass across the United States ...

Mean biomass yield (dry mass, Mg ha⁻¹) for lowland and upland ecotypes of switchgrass in represented plot size classes. (m²). Standard deviation, number of observations, and mean plot size within a given plot size class are also given.

Biomass Production in Switchgrass across the United States ...

Biomass production of irrigated switchgrass differs by N fertilizer and harvest frequency across ecoregions in California, which was reasonably validated. Once established, Alamo and Kanlow (21-24 Mg ha⁻¹ yr⁻¹) produce higher yields than the other cultivars in fertilized (224 kg N ha⁻¹ yr⁻¹) two-cut systems.

Simulating switchgrass biomass production across ...

For example, variants of genes from the lowland ecotype increased biomass production at many of the field sites, or were neutral compared to the variants of genes from the northern upland ecotype. These results are helping them sort out the traits and underlying genes to help develop a switchgrass cultivar with high biomass production in multiple planting zones.

Developing Switchgrass for Biomass Production - DOE Joint ...

Fundamental to deriving a sustainable supply of cellulosic feedstock for an emerging biofuels industry is understanding how biomass yield varies as a function of crop management, climate, and soils. Here we focus on the perennial switchgrass (*Panicum virgatum* L.) and compile a database that contains 1190 observations of yield from 39 field trials conducted across the United States.

Biomass production in switchgrass across the United States ...

Switchgrass production for biomass (Research Brief #51) Posted January 2001. Switchgrass offers a wide range of environmental benefits as an alternative energy crop. Switchgrass can reduce soil erosion and provide warm season pasture for most ruminants. Harvesting this crop in August can improve habitat

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for grassland birds.

Switchgrass production for biomass (Research Brief #51

...

various management strategies [35]. ALMANAC predicts growth and biomass of switchgrass and has been validated against field data for multiple sites across the southern U.S. [36,37]. Future application of this model with switchgrass will benefit from its improved simulation of switchgrass production for biofuels in diverse environments.

Simulated Biomass, Climate Change Impacts, and Nitrogen ...

Switchgrass (*Panicum virgatum*) is a native warm-season grass that is a leading biomass crop in the United States. More than 70 years of experience with switchgrass as a hay and forage crop suggest switchgrass will be productive and sustainable on rain-fed marginal land east of the 100th meridian.

Switchgrass (*Panicum virgatum*) for Biofuel Production ...

Maximum switchgrass biomass yields were projected westward from the mid-Atlantic Coast region to Kansas and Oklahoma. Stan Wullschleger, crop physiologist who led the study, noted that field trials are often planted to provide local estimates of crop production.

Scientists evaluate switchgrass yields across US ...

Desirable traits of switchgrass include its high biomass yield potential, high water and nutrient use efficiency, wide range of geographic adaptation, improved soil conservation when grown on marginal land, perennial growth habit, low ash content, and potential for carbon storage in soil (Christian et al.,...

(PDF) Biomass Production in Switchgrass across the United ...

Biomass is plant or animal material used for energy production (electricity or heat), or in various industrial processes as raw substance for a range of products. It can be purposely grown energy crops (e.g. miscanthus, switchgrass), wood or forest residues, waste from food crops (wheat straw, bagasse),

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horticulture (yard waste), food processing (corn cobs), animal farming (manure, rich in ...

Biomass - Wikipedia

The lignocellulosic biomass of switchgrass is suitable for energy production through thermochemical (gasification, combustion, and pyrolysis) and biochemical (advanced biofuels: bioethanol and biogas) processes.

Switchgrass: From Production to End Use - ScienceDirect

Biomass Production in Switchgrass across the United States: Database Description and Determinants of Yield

(PDF) Biomass Production in Switchgrass across the United ...

In our study, the average simulated annual production cost averaged across the five sites was \$58.74 t⁻¹ DM for fall harvesting and \$62.82 t⁻¹ DM for spring harvesting. This increase for spring harvesting is attributable mainly to losses of switchgrass biomass during the winter.

Simulating switchgrass aboveground biomass and production ...

The Next Generation of Biofuels Could Come From These Five Crops Researchers are currently developing biofuels from these abundant species, which require relatively little land, water and fertilizer

The Next Generation of Biofuels Could Come From These Five ...

Dry matter biomass yields and other information were compiled from 1982 to 1992 at six sites in North Dakota, South Dakota, and Minnesota. The effects of seed origin (parentage) on plant performance was apparent. Ten seed sources/varieties of switchgrass were evaluated. Southern seed sources generally had heavier biomass production.

in North Dakota, South Dakota, and Minnesota

Simulating switchgrass biomass production across ecoregions using the DAYCENT Model Article in GCB Bioenergy 4:521-533 ·

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Simulating switchgrass biomass production across ...

A New Energy Source Found In Switchgrass. With the scientific discoveries concerning Biomass and its possibility to solve many current and future energy problems that affect the world the question arose as to what type of organic matter should be used for this purpose.

A New Energy Source Found In Switchgrass - Biomass

The vast majority of winter kill of AP13 (100%) and WBC3 (83%) at Brookings occurred in the 2017/2018 winter, which was significantly colder than the previous two winters. Future data collection from our experiment will clarify how that harsh winter translates to impacts on biomass production across the northern sites.

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