The Native Vegetation Advantage
Forage and Biomass

Native warm-season grasses and forbs provide increased summer forage production.

**Increased summer forage production** – Native warm-season grasses grow during the warmest months of the year when cool-season grasses are in a slump, providing excellent forage when cool-season grasses are at their lowest quality and quantity.

**Improved summer weight gains** – Research in a variety of locations east of the Rocky Mountains show Average Daily Gains (ADG) greater than on cool-season grasses during the same summertime grazing period.

Different classes of livestock under differing grazing regimes showed a range of gains:
- Tennessee: 1.12 lbs. to 2.65 lbs. ADG
- Kansas: 1.23 lbs. to 2.28 lbs. ADG
- Nebraska: 1.40 lbs. to 2.80 lbs. ADG
- Eastern Piedmont: average 2.0 lbs. ADG

**Reduced acres needed for hay production** – Native grasses typically outyield cool-season introduced grasses by 1 to 3 tons per acre, depending upon species and site quality. In addition, appropriate harvest time for several species of native warm-season grasses is later in the growing season than cool-season grasses, reducing conflicts with other on-farm activities. Hay harvest is also after typical rainy spring weather, allowing for better hay curing and higher quality hay because it is less likely to be rained on once cut.

**Reduced inputs and drought tolerant** – Generally, native warm-season grasses require one-third to one-half as much water and nitrogen to produce a unit of dry matter compared to tall fescue. Properly managed native warm-season grasses have deep, extensive root systems and build soil organic matter which increases the water holding capacity of the soil allowing the plants to resist the impacts of drought much more effectively than introduced cool-season grasses.

### Yields for Hay Production - Kentucky

<table>
<thead>
<tr>
<th>Species</th>
<th>Range (tons/ac)</th>
<th>Average (lb./ac)</th>
<th>Fertility</th>
<th>Harvests</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Bluestem</td>
<td>2.6 – 6.0</td>
<td>3.9</td>
<td>60</td>
<td>1 – 2</td>
</tr>
<tr>
<td>Indiagrass</td>
<td>2.5 – 5.9</td>
<td>4.6</td>
<td>60</td>
<td>1 – 2</td>
</tr>
<tr>
<td>Eastern Gamagrass</td>
<td>3.1 – 9.6</td>
<td>4.9</td>
<td>60</td>
<td>1 – 2</td>
</tr>
<tr>
<td>Switchgrass (Alamo)</td>
<td>2.0 – 11.6</td>
<td>5.3</td>
<td>60</td>
<td>1 – 2</td>
</tr>
<tr>
<td>Tall Fescue (KY31)</td>
<td>2.1 – 4.8</td>
<td>3.1</td>
<td>180</td>
<td>4</td>
</tr>
</tbody>
</table>

*Data from University of Kentucky variety trials conducted at Lexington, KY. 2009 Native Warm Season Perennial Grass Report*
Native warm-season grasses are a logical choice for biofuel.

Native vegetation doesn’t compete with food crops as sources for biomass fuel production – Competition between food and non-food uses drives prices up, resulting in both higher food prices and higher biofuel prices. Native vegetation doesn’t compete with food crops, eliminating the inflationary cycle caused by competing interests.

No annual cultivation/planting cycle – Native warm-season grasses are perennial and do not require annual cultivation and planting.

Native grasses out yield many biomass crops – Native grasses harvested for biomass yield from 4.6 to over 12 tons per acre, depending upon species, nutrients, environmental and edaphic conditions; yields over 8 tons per acre are not uncommon.7,8

Native vegetation sequesters carbon – Over 95% of the carbon storage in native vegetation is below ground9, meaning when harvested the majority of sequestered carbon is retained.

References

2. Kansas State University, Agricultural Experiment Station, Bulletin 638, October 1981.
The Native Vegetation Advantage: An Overview

What is Native Vegetation? Native vegetation includes those plants that occurred within a region before settlement by Europeans. Native vegetation is well adapted to local features such as climate, soil, and water availability. Planting native plants can lessen the need for pesticides and herbicides, reduce demand for water, and increase the types and number of species in the area.

Water Quality
The physical properties of native vegetation slow overland flow while increasing groundwater infiltration, reducing soil erosion while filtering out pollutants and fertilizers, leading to more stable, less polluted waterways.

Native vegetation’s extensive root systems and associated microorganisms improve Soil Health, increasing soil organic carbon, infiltration rates, water-holding capacity and fertility compared to row crops or introduced non-native species.

Native vegetation, particularly native grasses, sequesters more atmospheric carbon than introduced species, improving Air Quality. The majority of carbon in native grasses is stored underground—allowing for the removal of above ground biomass with minimal impact on stored carbon.
Native grasses are a logical choice as Biomass for energy production. Native grasses do not compete with food crops, there is no annual cultivation, and they out yield many biomass crops with minimal fertilizer and herbicide requirements.

Native grasses provide quality Forage. Native warm season grasses provide superior forage during the summer when introduced non-native cool season grasses perform at their worst, providing a significant economic gain for the producer.

Native vegetation provides superior Wildlife and pollinator habitat, including cover, food, and material or structure for nesting/bedding.
The Native Vegetation Advantage
Wildlife Habitat

Native grasses and forbs provide cover.
A wide range of vertebrate and invertebrate wildlife use native vegetation for cover. The general bunch grass structure, which provides an interspersion of bare ground and space for unrestricted movement underneath and overhead canopy for concealment, provides preferable brood habitat for ground nesting species and protection for many other birds and small mammals. The erect stems of the tall grass species and many forbs provide elevated perching sites, important for breeding activity of many grassland bird species.

Seeds, leaves and plant parts provide food.
Insects, mammals and birds all consume one part or another of native vegetation. Insect abundance and diversity is commonly greater in native vegetation than non-native, making native vegetation more attractive to other insect-eating wildlife, particularly fledglings and broods of precocial birds, also providing habitat for beneficial predatory insects. Pollinators have been shown to select a greater number of native plants than non-native. A Tennessee Wildlife Resources Agency study, when looking at the overall nutrition of seeds of 26 common food plants of wildlife, including agriculture crops, food plot species and native plants, identified 6 of the top 10 plants as native while the bottom five were dominated by non-native seeds.

Native vegetation provides material/structure for nesting/bedding.
Residual leaf material provides nesting and bedding material for many species of wildlife; deer and other mammals commonly bed in native vegetation. The bunchgrass structure and diversity of vegetation height and plant composition is attractive to many species of wildlife for nesting or bedding.
References


