

## What is Giant Miscanthus?

- Giant Miscanthus (hereafter referred to as miscanthus) is a perennial warm-season grass
- It is a sterile hybrid of two species, *Miscanthus sinensis* and *Miscanthus sacchariflorus*
- Due to sterility, miscanthus must be propagated by rhizome division
- Miscanthus is an efficient user of soil nutrients and has potential as a relatively low input crop



Figure 1: Miscanthus stand in winter following leaf drop. Credit: Sarah Hirsh, UME

## Site Selection for Growing Miscanthus

- Miscanthus grows on a wide variety of soils with an optimum pH between 5.5 and 7.5
- Water availability may be the most constraining factor in Miscanthus production
- Regions with at least 30 inches of annual rainfall are recommended for miscanthus production, thus Maryland's climate is suitable
- Miscanthus may also produce comparably on poorly drained soils with high water tables or root-restricting layers



Figure 2: Sterile seeds of miscanthus. Credit: Brian Kalmbach, UM-ANMP



Figure 3: Miscanthus (left) growing next to corn and sunflower. Credit: AGgrow Tech / Tribbett Farm

## Miscanthus Production

- Once successfully established, a miscanthus stand can maintain maximum biomass production for up to 15 years or longer
- Miscanthus grows up to ~12 feet tall with an extensive root system reaching as far as ~8 feet into the soil, utilizing water and nutrients in the deep soil profile
- Yields throughout the U.S. range from 8 to 15 tons of dry matter per acre



Figure 4: Miscanthus rhizomes. Credit: Brian Kalmbach, UM-ANMP

## What are the End Uses of Miscanthus?

- Miscanthus is grown in many regions of the U.S. as a high-yielding bioenergy crop
- Production in Maryland mainly serves the poultry industry as an alternative bedding material in poultry production houses
- In the future, miscanthus may be used for a variety of products such as geotextile fabrics and straw bales for erosion control, home lawn and garden products such as planting pots and straw blankets, and as a building material

## Is Giant Miscanthus Invasive?

- A weed risk assessment of *miscanthus x giganteus* gave an "accept" rating, indicating a relatively minor risk of invasion. This is due, in part, to the sterility of giant miscanthus seed
- Best Management Practices (BMPs) are recommended to miscanthus growers to limit unintentional spread including, but not limited to, maintenance of a 25-foot setback around stands neighboring land not managed by the grower, covering rhizomes during transportation, and proper disposal of excess planting material

## Fertility Considerations

- Due to its efficient use and seasonal translocation of nutrients, miscanthus fertilizer requirements are low relative to the amount of biomass produced
- Prior to planting, phosphorus and potassium should be applied based on soil test level to achieve optimum fertility levels
- Nitrogen fertilizer is not needed during the two-year establishment period and, if applied, may encourage weed pressure during establishment
- Once full yield potential is realized, typically by year 3, fertilizer application to replace nutrients removed by crop harvest is recommended.
- Late winter or early spring harvest will allow maximum translocation of nutrients from shoots back to the rhizomes, thereby maximizing nutrient efficiency

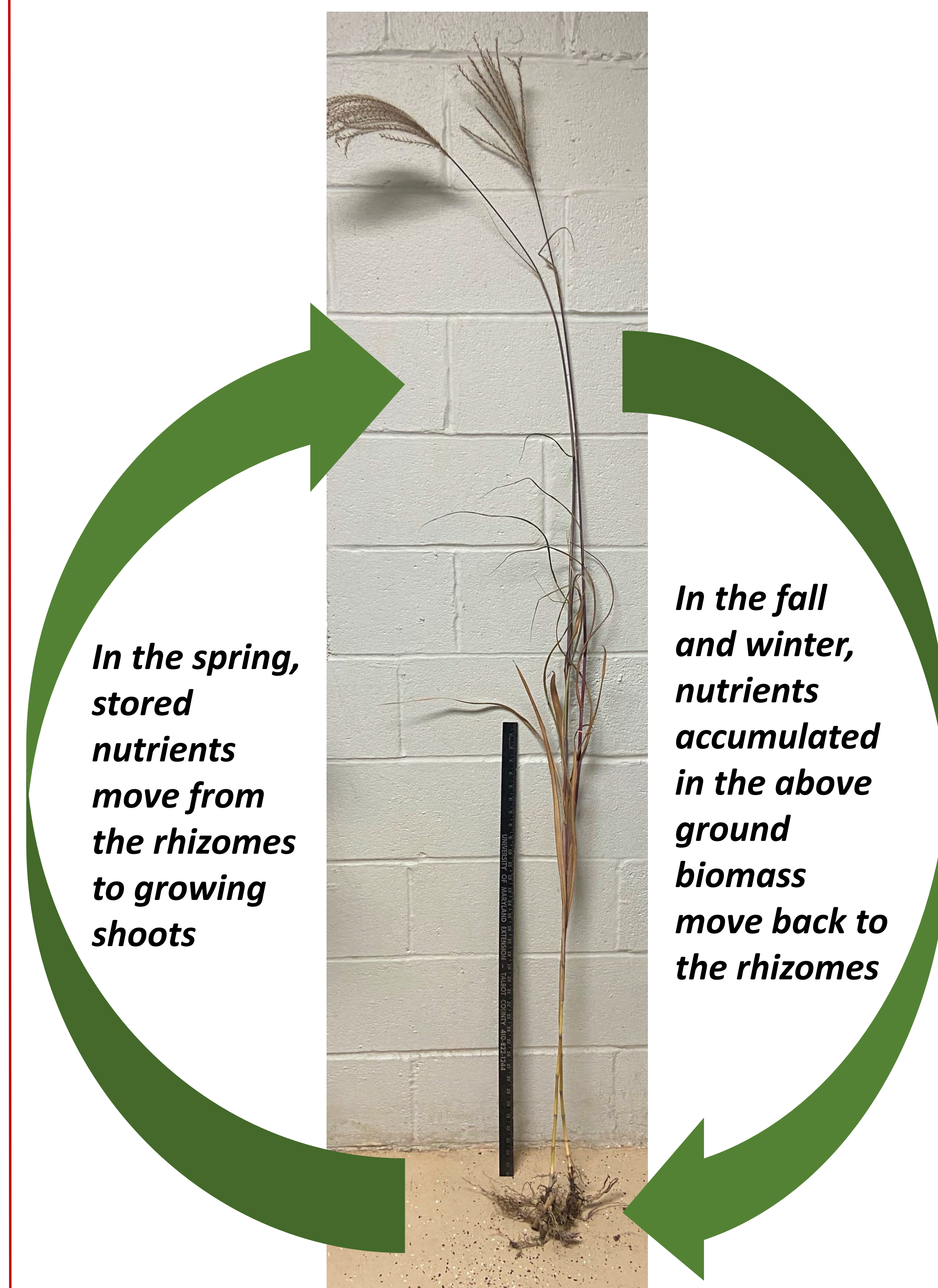


Figure 5: 1-year old miscanthus plant. Nutrients translocate seasonally between above and below-ground biomass. Credit: Brian Kalmbach, UM-ANMP

For more information and references, consult University of Maryland Extension publication **EB-443, Soil Fertility Recommendations: Nitrogen, Phosphorus, and Potassium Requirement of Miscanthus**