

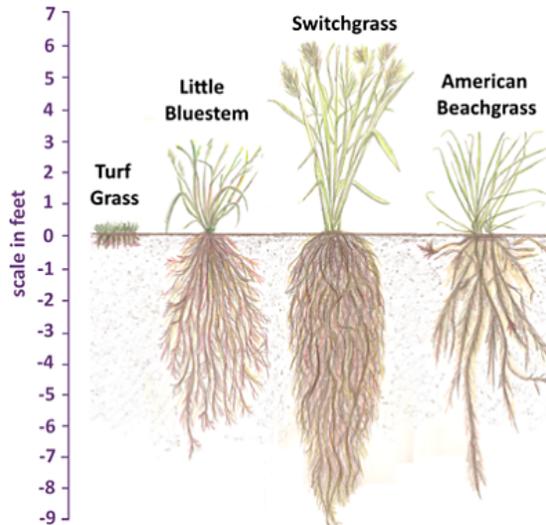
Perennial Bioenergy Cropping Systems

What are perennial bioenergy crops?

Perennials are plants that live for more than two years. Many appear to die when temperatures drop, but grow back during the next season. Perennial crops used for bioenergy are harvested for the use of their biomass as fuel, especially for the generation of heat, electricity, and biochar. Perennial crops, wood, other agricultural crops & waste, algae, and livestock manure are examples of biomass used in bioenergy production.

Examples of Perennial Bioenergy Crops

- Miscanthus
- Switchgrass
- Perennial Sorghum
- Mixed Prairie Grass
- Shrub Willow
- Many More!



Why add perennial crops to your farm?

Environmental Benefits

- Reduce nutrient loss, sequester soil carbon, and reduce greenhouse gas emissions.
- Soil stabilization & erosion prevention; rootstocks on perennial crops are typically deeper and stronger than annual row crops, and stay in the ground.
- Increase wildlife biodiversity.

Agronomic Benefits

- Increase soil health and productivity potential in marginal soils.
- Improve soil organic matter, soil structure, soil water retention & aeration due to consistent ground cover.

Economic Benefits

- Potential to offset the cost of and dependence on traditional fuel types (gas, propane, etc.) for on-farm use.
- Emerging bioenergy and carbon sequestration markets may offer financial benefit to early adopters.
- Perennial crops can grow on marginal lands where cash crop yields are not strong or profitable. Marginal lands are areas that have little to no agricultural or economic value and often have poor soil or other undesirable characteristics.
- Hay baling & harvesting equipment can be used to harvest grass biomass, no need to invest in specialized equipment. However, willow and other woody biomass harvesting requires specialized equipment.
- Increased hunting potential due to biodiversity increase - enhanced turkey habitat and deer browsing.



For more information on this project or to discuss bioenergy cropping systems, please contact Marlee Giacometti, American Farmland Trust, Midwest Program Associate, mgiacometti@farmland.org, 815-267-1326

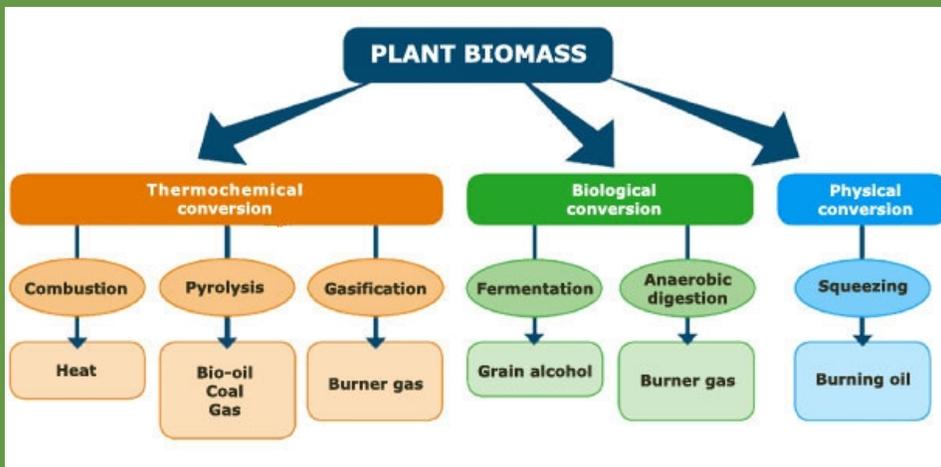
This project is supported by Argonne National Laboratory



The Project

Argonne National Laboratory and American Farmland Trust are collaborating to explore the use of perennial bioenergy crops on marginal land. Technical assistance may be available for farmers who are interested in incorporating perennial bioenergy crops into their farm production and management system.

Converting your crops to energy



Source: IMAM Ambiente

Biomass is converted to energy through various processes.

Here are a few examples of end products:

- Biofuels - ethanol, biodiesel, sustainable aviation fuels
- Bioplastics
- Bioenergy/biogas - in lieu of propane
- Biochar - soil amendment for carbon sequestration & soil health improvement
- And More!

Biomass Market Opportunities

Due to their renewable and sustainable potential, new biomass markets are emerging that can benefit bioenergy producers. Biomass conversion facilities purchase feedstocks from producers. This can provide producers with additional economic value on lands that were previously low yielding areas for other cash crops.

On-Farm Biomass Use

Producers can also use perennial bioenergy crops to produce energy on their farms. Using and converting biomass to energy can potentially offset the high costs of propane systems and increase a farm's self sufficiency and resiliency.

Want to learn more?

For more information on this project or to find out what opportunities exist for your farm, please contact Marlee Giacometti, American Farmland Trust, Midwest Program Associate, mgiacometti@farmland.org, 815-267-1326

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