



## ARS CLEAN ENERGY RESEARCH

**USDA has five Regional Biomass Research Centers (RBRC) that work with ARS researchers across the country to help farmers increase biomass production efficiency and farm profits and reduce biorefinery costs.** The Central-East and Western centers are led by ARS, the Southeastern and Northwestern centers are co-led by ARS and the U.S. Forest Service (FS), and the North-Northeast center is led by the FS. The RBRCs work in collaboration with the four **ARS Regional Biomass Utilization Centers (RBUK)** where agricultural feedstocks from the RBRCs and other commodities are bio-converted into biofuels (i.e., renewable diesel and jet fuels) and high value commercial products (e.g., pharmaceuticals, foods, antibiotics, etc.).

### PROVIDING SOLUTIONS

ARS Biomass Research Centers are integrated with the ARS Biomass Utilization Centers (Wyndmoor, PA, Peoria, IL, New Orleans, LA and Albany, CA), universities, and industry research across the country. ARS provides this service to generate clean energy along with sustainable feedstock production because its mission is to safeguard the environment, food supplies, and to support rural economies.

#### Regional Biomass Research Centers

- **Western Biomass Research Center:** Based in Maricopa, Arizona, this center works on the genetic improvement of oilseed crop yield and enhancing biomass production.
- **Northwestern Biomass Research Center:** Based in Sidney, Montana, this center focuses primarily on oilseed crops with the potential to meet the immediate feedstock needs of the U.S. military and aviation industry for jet and marine fuels.
- **Central-East Biomass Research Center.** Based in Lincoln, Nebraska, this center focuses on the genetic development and sustainable production of switchgrass and perennial grasses, corn stover, and other crop residues for cellulosic biomass feedstocks.
- **Southeastern Biomass Research Center.** Based in Tifton, Georgia, this center focuses on semitropical perennial grasses such as sugar cane, Napier grass, and biomass sorghum, which can be harvested for sugar- and cellulose-based biorefinery feedstocks.

#### Regional Biomass Utilization Centers

- The four ARS biomass utilization centers (Wyndmoor, PA, Peoria, IL, New Orleans, LA and Albany, CA) work closely with the RBRCs to produce clean energy products.
- ARS's unique assets of four regionally-located biomass utilization centers, and four regionally-located biomass production centers, when combined, comprise a network of expertise in all forms of clean energy conversion technology along with an expertise in biomass development and sustainable production systems.

### OPPORTUNITIES

- Evaluate biowaste streams as potential feedstocks for clean biofuel production.
- Convert poultry litter and peanut shells into clean biofuel.
- Develop rapid methods for biowaste energy assessment and sorting.
- Utilize existing low-value agricultural waste products to create a renewable flex-use biomethane gas or synthesis gas.
- Expand biochar research to include additional field studies and field collaborations.
- Initiate new work focused on clean bio-methane production.
- Focus on pyrolysis of commodity bio-waste to gas.
- Combat agricultural-related waste by converting undervalued food waste into clean energy using post-production and food processing applications and infrastructure.
- Advance sustainable processes, preservation technologies, and product concepts for specialty crops and their co-products.
- Develop food waste and processing coproducts for clean energy production.

### Contact

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