

World Congress on

# PLANT PATHOLOGY & PLANT BIOTECHNOLOGY

International Conference on

## ORGANIC FARMING, BIODYNAMICS

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### *Russell W Jessup*

Texas A&M University, USA

#### **Torrefied biomass development as renewable, pathogen and weed-seed-free fertilizers**

Synthetic fertilizers pose environmental concerns—particularly in urban landscapes—and currently available organic fertilizers have several deficiencies (low nutrient content, low water solubility, potential pathogen, and weed seed contaminants). The development of torrefaction-based fertilizers (TBFs) from perennial, high-biomass feedstocks provides immense opportunity to offset chemical fertilizers, prevent disease and weed risk, and contribute soil carbon. TBFs recently developed in the Perennial Grass Breeding & Genetics Program have demonstrated significant fertility (yield) response in both grain (maize) and biomass (Napiergrass) crops. These novel TBFs further have demonstrated: 6-8 dry tons per acre TBF yield, free of pathogens and weed-seed, 450-600% water-holding capacity, neutral pH (6.5–7.3), significant soil carbon contribution, and nutrient value (3-4% N, 1-2% P, 1-3% K). Opportunities for incorporation of TBFs into organic fertilizers, composts, soilless media, and amendments will be presented.

#### **Biography**

Russell W Jessup is currently an Associate Professor of Perennial Grass Breeding in the Department of Soil & Crop Sciences at Texas A&M University. He completed his PhD in 2005, followed by postdoctoral research with the USDA-ARS (2005-07) and a biofuel feedstock industry breeder position (2007-09). His research focuses on developing improved renewable bioproducts/biorefineries, forages, turfgrass, and ornamentals utilizing classical, cytogenetic, and molecular strategies.

[rjessup@tamu.edu](mailto:rjessup@tamu.edu)

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