

7th International Congress on

BIOFUELS AND BIOENERGY

October 02-04, 2017 Toronto, Canada



Ronald S Zalesny Jr

USDA Forest Service, USA

Fast growing poplars for bioenergy

Fast growing trees such as poplars have a number of potential bioenergy applications. Currently, the genus *Populus* is comprised of 32 species belonging to 6 taxonomic sections, each with distinct environmental and economic importance. In addition to being grown within their native ranges, successful natural and planned inter- and intra-species hybridization has resulted in poplars being used worldwide for bioenergy, biofuels, and bioproducts, as well as timber products (e.g., pulpwood, sawn wood, veneer) and ecological applications (e.g., phytoremediation and associated phytotechnologies).

Poplars are among the most valuable and widely planted hardwoods in the world, with 28 countries having significant areas of planted poplar totaling 8.8 million ha. Nearly 90% of these worldwide poplars are grown in Asia, with China producing 85.7% of the global total. Additionally, European countries have 9.4% of the worldwide poplar production, followed by North America (1%), South America (0.6%) and Africa (0.1%). Across the globe, poplar productivities range from 8.6 to 13.9 Mg ha⁻¹ yr⁻¹, with average mean annual increment of 11.2 Mg ha⁻¹ yr⁻¹. In general, the greatest poplar productivities are from Asia and North America, with mean values that are 1.4 and 1.1 times the global average, respectively. In contrast, productivities from Europe and South America are 90% and 54% of the worldwide mean, respectively. I will describe the general importance of poplar energy crops for the provision of ecosystem services such as biomass production and carbon sequestration, and I will emphasize how these uses can be integrated into existing and emerging markets as bioenergy products. Using experiences in the Midwestern USA and similar locations, I will highlight how maximization of productivity potential across the landscape contributes to environmental and economic benefits of these purpose-grown trees, regardless of end use and geographic location of deployment.

Biography

Dr. Ronald S. Zalesny Jr., Team Leader and Research Plant Geneticist at the Northern Research Station's Institute for Applied Ecosystem Studies, has over 20 years of experience on the development of *Populus* species and their hybrids for bioenergy, biofuels, and bioproducts. In addition, he is currently conducting ecosystem services research on the use of *Populus* and other short rotation woody crops for phytoremediation, phyto-recurrent selection, and associated phytotechnologies. He serves on the editorial boards of *BioEnergy Research* and *International Journal of Phytoremediation*, as well as being Coordinator of IUFRO working group 2.08.04 (Physiology and Genetics of Poplars and Willows), International Delegate to the Environmental Applications Working Party of FAO's International Poplar Commission, Board Member of the International Phytotechnology Society, and Chairperson of the Short Rotation Woody Crops Operations Working Group.

rzalesny@fs.fed.us

Notes: