

Title: Designing oilseed feedstock crops for biofuels

Jack Brown
PSES, University of Idaho, Moscow, Idaho 83844-2339

High importation and environmental concerns of fossil based liquid fuels in the U.S. have focused attention on developing biofuels (i.e. biodiesel and hydrotreated renewable jet fuel). Brassicaceae oilseed crops have biofuel feedstock potential, however, different crops may have adaptation to different growing regions. We determined the potential of winter or spring canola and rapeseed (*Brassica napus* and *B. rapa*), Camelina (*Camelina sativa*), as well as spring Indian (*B. juncea*), Ethiopian (*B. carinata*), and yellow (*Sinapis alba*) and greatest potential was found from *B. napus*. However, to significantly reduce greenhouse gases or U.S. dependency on imported oils, then large genetic gains need to be achieved by breeding improved cultivars with modified oil characteristics, and with higher value end-use products. Future advances in adaptability, and resistance to abiotic and biotic stresses will be enhanced by developing improved breeding methodologies, including use of molecular markers for more efficient selection. The University of Idaho has been developing (non-food) biofuel oilseed cultivars for over 35 years. During this time we have significantly increased overall seed yield and oil yield, and developed new 'novel' oil types and seed meal traits that make these new cultivars more suitable for fuel production. More recently we have construct translational genomics platforms to improve the efficiency of rapeseed cultivar development using genome-wide association studies to identify genomic regions associated with important agronomic, morphological, and oil quality traits. Past and future directions of the University of Idaho Breeding program for biofuel feedstock cultivar development will be presented.

Biography

Professor Brown completed his Ph.D. from St. Andrews University, Scotland, UK in 1988. He has worked in breeding barley, potato, wheat and for the past 26 years he has been running the Canola, Rapeseed and Mustard Breeding Program at the University of Idaho. During his career he has released 34 commercial cultivars, been major advisor to 27 MS or PhD students and published 75 refereed journal articles.

Presenting author details
Full name: Jack Brown
Contact telephone: (208) 301-4021
Email: jbrown@uidaho.edu
Session name/number:
Category: Oral presentation