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**Agri-Therm Inc. Mobile Pyrolysis Technology for the Production of Bio-oil and Bio-char and ICFAR Biomass Feeding Technology**

FEDERICO M. BERRUTI

BESc, HBA, PhD, P.Eng.

NSERC Vanier Canada Graduate Scholar (2010-2013)

Institute for Chemicals and Fuels from Alternative Resources (ICFAR)

Faculty of Engineering, Western University

London, Ontario, Canada

Tel: +1-519-661-3885, Fax: +1-519-661-4016

Email: fberrut@alumni.uwo.ca

**ABSTRACT**

In 2009, Agri-Therm Inc. developed the initial prototype of the first mobile pyrolysis system (MPS100) for rapid in-situ conversion of low value biomass residues into higher-value bio-oil and bio-char. Currently, Agri-Therm is testing the improved second-generation unit (MPS200), the plan being to test and commercialize the technology globally with the final third-generation technology (MPS300) by 2014. With a capacity of up to 5 tonnes per day (tpd), the MPS200’s unique reactor design requires minimal energy input to generate 3 metric tonnes per day of bio-oil and 1.5 tonnes per day of bio-char. Agri-Therm Inc. is currently seeking funding, financing and global partnerships to complete the development and commercial the MPS technology globally.

Features:

* **Mobile modular design:** the MPS200 operates on a heavy duty, standard size pull trailer for easy transportation and set-up. The unit is also collapsible, making it safe and energy efficient to transport over existing roads and off-road right-of-ways.
* **Power Generation:** the MPS200 generates its own power through the recycled use of process bio-gas making the process self-sustaining.
* **Novel reactor design:** the heart of the MPS200 is its novel fluidized bed reactor with the patented heat recovery system (ICFAR Lift-Tube Technology), enabling the pyrolysis process to operate at higher temperatures with lower input energy requirements. The MPS200 is the only mobile pyrolysis system employing fluidized bed technology. This translates to less reactor down-time (due to bio-char build-up as is common with auger type pyrolysis systems), fewer mechanical parts and a higher capacity.
* **Novel Feeding System:** Agri-Therm’s proprietary pulse feeding technology increases the biomass feeding rate over traditional feeding technologies. Additionally, the MPS200 can support variable feedstock sizes, up to 1.5 cm in diameter and 5 cm in length (for straws). Federico Berruti is Agri-Therm's feeding technology expert and will present the fundamentals of the feeding technology.
* **Continuous Bio-Char Removal:** Agri-Therm's MPS200 reactor is uniquely designed to segregate, cool and remove the produced bio-char product continuously, without feed or reactor interruptions.

**BIOGRAPHY**

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Federico Berruti was the gold-medal graduate in 2009 from a five year combined degree program in Chemical Engineering (BESc) and Honours Business Administration (HBA) at Western Engineering and the Richard Ivey School of Business, at Western University. Federico completed his PhD at the Institute for Chemicals and Fuels from Alternative Resources (ICFAR), Western University, studying the sustainable renewable energy market, bio-fuel and bio-char production, feedstock preparation, biomass feeding technologies, and condensation systems. Federico has several publications in these fields and has presented at many international conferences (included in CV below). For his PhD, Federico was awarded the NSERC Vanier Canada Graduate Scholarship, which is the most prestigious graduate scholarship in Canada.

Federico is a Canadian professional engineer and was also the Agri-Therm Vice-President from January 2009 until September 2013, where he oversaw the technical operations of Agri-Therm Inc. and acted as the liaison between the business executive, the shareholders and the operations. He was also involved in the business strategic planning, in hiring, and in demonstrating the Agri-Therm Inc. technology.

Federico now works as a management consultant at an international management consulting firm.