Biochar 2016

The Synergy of Science and Industry:
Biochar's Connection to Ecology, Soil, Food, and Energy

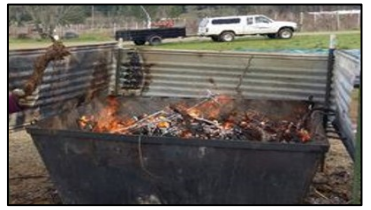
August 22nd - 25th, 2016
CH2M Hill Alumni Center
Corvallis, OR

USBI
Building the future from the ground up.™

Welcome!

Jim Johnson
Acting Dean || Program Leader
Forestry & Natural Resources Extension

SCHEDULE AT A GLANCE



TUESDAY, AUGUST 23RD	
7:30am	**Conference Registration** *Breakfast available*
8:30-10:30 am *Cascade Ballroom*	**Opening Plenary** **Welcome with Tom Miles, Conference Chair and Jim Johnson, College of Forestry**
8:45-9:20am	**Keynote Speaker**: Jen Kucera, USDA Natural Resources Conservation Service **Soil Health: Opportunities and Challenges**
9:20-9:30	**Plenary Table Discussion Instructions** with David Smith
9:35-9:45am	Table Discussion
9:45-10:20am	**Keynote Speaker:** Jim Amonette, Pacific Northwest National Laboratory **Potential Use of Biochar to Drawdown Atmospheric Carbon: A Preliminary Assessment for Washington State**
10:20-10:30am	Table Discussion
11am-4:30pm	**Concurrent Sessions**: See the schedule on page 5 for Tuesday's sessions
12:15-1pm	**LUNCH Plenary Presentation**: Alberta Biochar Initiative and Introduction to the North American Biochar Working Group Presented by Don Harfield, Alberta Innovates
4:30-6pm *Cascade Ballroom*	**Poster Session**
6-8pm *Lawn and Courtyard*	**BBQ Dinner** **Tickets in Back of Name Tag**
WEDNESDAY, AUGUST 24TH	
7:30am	**Conference Registration** *Breakfast available*
8:30am-10am *Cascade Ballroom*	**Plenary: Group Discussion Report and Panel Discussion** with David Smith, Oregon State University
Panel:	**Jim Amonette**, Pacific NW National Laboratory, **Marcus Kauffman**, OR Department of Forestry, **Jen Kucera**, Natural Resources Conservation Service, **John Miedema**, BioLogical Carbon, LLC, and **Tom Miles**., TR Miles Technical Consultants
10:30am-4:45pm	**Concurrent Sessions continued**: See the schedule on page 6 for Wednesday's sessions
4:50-5:15pm	**Ending Plenary – Biochar Book Raffle (blue tickets!)**
THURSDAY, AUGUST 25TH	
	Post Conference Field Tours (pre-registration required) ~~**and Burn Boss Demonstration**~~
9am-1pm	**Morning Biochar Field Day** - From Production to Practice *Meet at the Alumni Center at 8:45am*
10am-2pm	**Burn Boss Demonstration CANCELLED!**
Noon-4pm	**Afternoon Biochar Field Day** - From Production to Practice *Meet at*_____

Schedule Announcements

- **Tuesday Night BBQ**, there will be a ticket or tickets in the back of your name tag. *If you do not have a ticket in your nametag but would like to attend, please see someone at the registration desk- there may be tickets available.*

- **Wednesday 4:20 PM** 3.6.4 Policy and Production, Trysting Tree Room

  Alan Propp, Syntech Bioenergy

  Commercial biopower system for high value biochar production

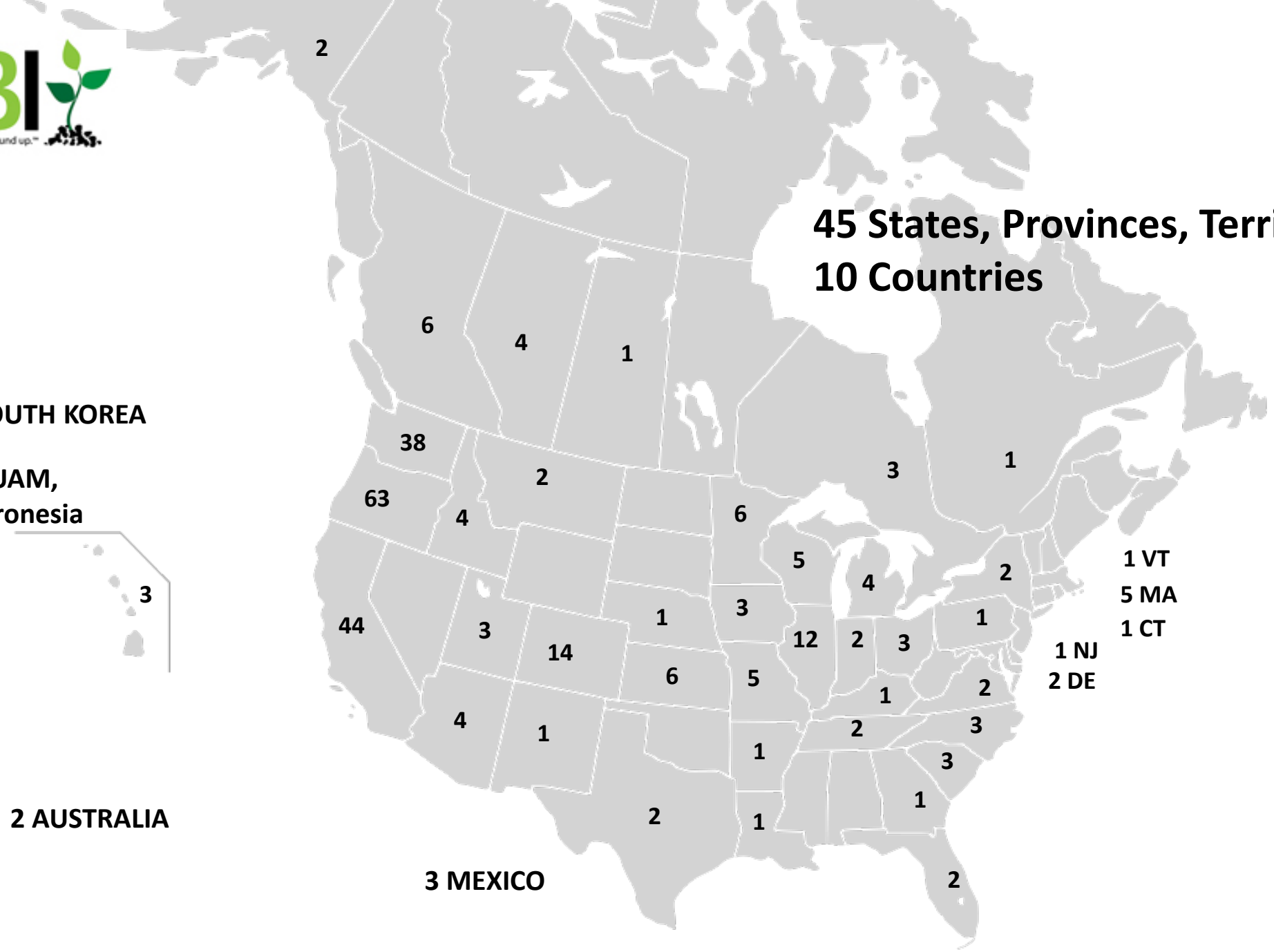
- **Raffle** at the closing plenary and for taking the post-conference survey

  Biochar: Production, Characterization, and Applications, CRC Press
  Sophie Minori Uchimiya

  1 -- Raffle Ticket at Closing Plenary. Must be Present to Win!

  1 – Post-Conference Survey

45 States, Provinces, Territories
10 Countries



1 SOUTH KOREA

1 GUAM,
Micronesia

2 NORWAY

1 PAKISTAN

1 SAUDI ARABIA

1 SOUTH AFRICA

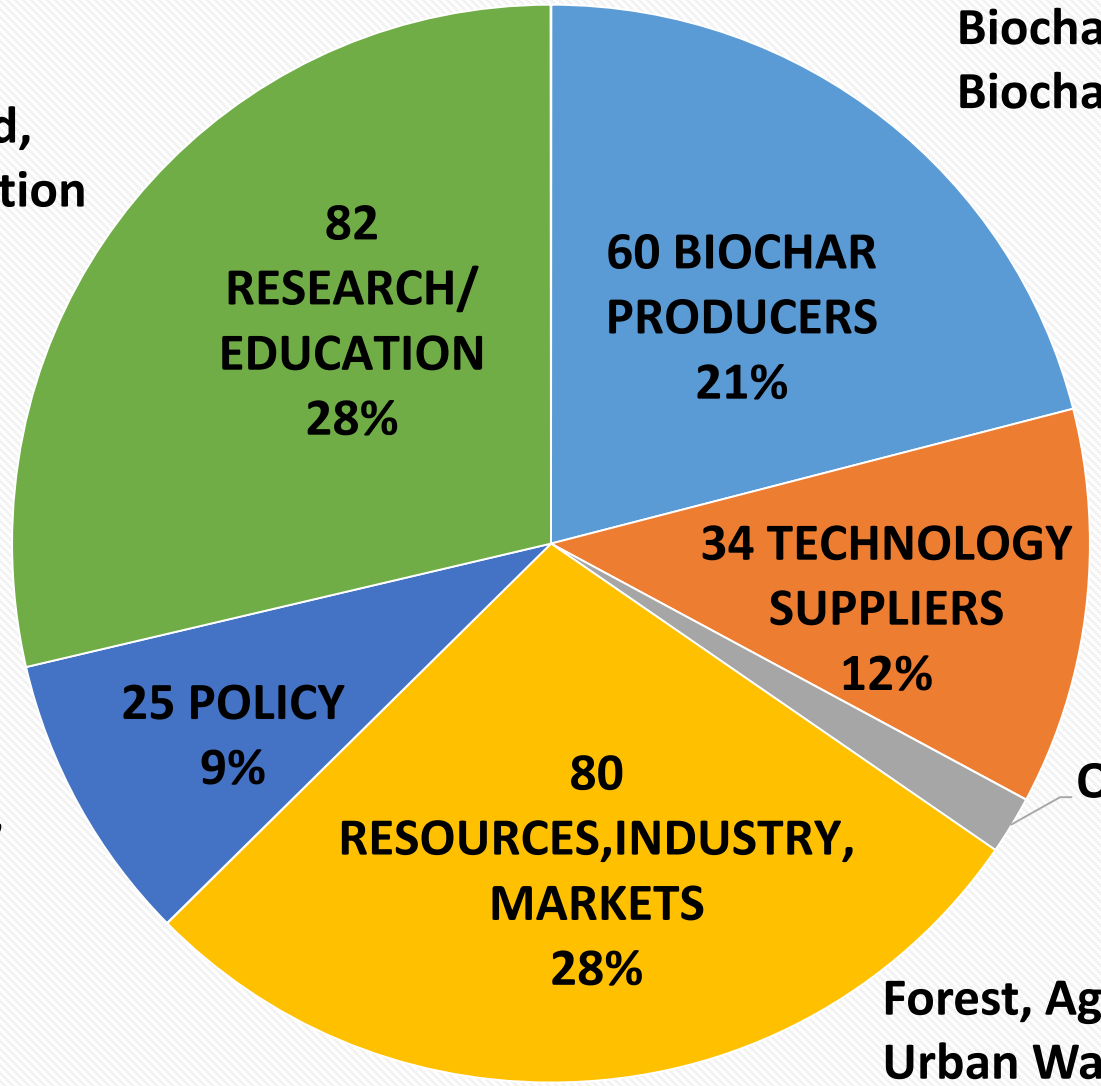
2 AUSTRALIA

3 MEXICO

2 BRAZIL

Aug 18 2016

Biochar 2016 Participants by Sector



Fundamental, Applied, Extension, Dissemination

Biochars, Media with Biochar, Energy, Co-Products

User-Producers, Systems, Equipment

Policy - Energy, Economics, Climate, Environment, and Resource Management

Forest, Ag, Food, Landscape, Urban Waste, Stormwater, Organic Recycling, Retail

Biochar Producers Attending

Sponsor*

Algae Aqua, MT

A Meliora, CA

Aqueous Solutions, NC

Biochar Farms, OR

Biochar Now, CO

Biochar Options, WI

Biochar Solutions, CO*

Biochar Supreme, WA

Biological Solutions, OR*

Biospecific LLC, WI*

Blue Sky Biochar, CA

Cascade Carbon LLC, CA

Charborn, CA

Clean Forest Energy, CO*

Confluence Energy, CO*

Cool Planet, CO

Emergent Waste Solutions, BC

Energy Anew, CA

Finger Lakes Biochar, NY

Forest Energy Group, OR

Freer Organics, ID

Integrated Biomass Resources, OR

Karr Group, WA*

Miller Soils, LLC, ID*

Natural Plant Solutions, WA

New England Biochar, MA

Nextchar, LLC, MA*

Olympic Biochar, WA

Pacific Biochar, HI*

Permamatrix, OR*

Phoenix Energy, CA

Rainforest Capital, MX

Rexius Forest ByProducts, OR*

Seachar, WA/Costa Rica

Sierra Pacific Industries, CA

Simon Landscape, WI

Smart Terra Care LLC, KS

Terra Char, MO*

Titan Carbon Smart Technologies, SK, Canada

Umpqua Biochar Alternatives, OR

Wakefield Agricultural Carbon, MO

Wallowa Resources, OR

Waste to Energy Inc, GA

Western Excelsior Corporation, CO

Wilson Biochar, OR*

Wind River Biomass LLC, WA

Zero Waste Vashon, WA

Technology and System Suppliers Attending

Sponsor*

Ag Energy Solutions, WA

Algae Aqua-Culture Technology, MT

Amaron Energy, LLC

BC Biochar, BC, Canada

BioEnergy Development, CA

Bioforcetech, CA

Biomass Controls, CT

Cascade Carbon, CA

Dr TLUD, IL*

Enginuity Worldwide LLC, MO

Exterra LLC, OH

ICM Inc ,KS*

Innovative Reduction Strategies, AB, Canada

Karr Group, WA*

LEI Products, KY

Living Soil Abundant Life, WA

New Carbon, South Africa

New England Biochar, MA

Norris Thermal Technologies/Biogreen, IN*

PHG Energy

R&R Technologies, CA

TSI Inc, WA

V-GRID, CA

Vorsana, OR

Wilson Biochar Associates, OR

Research and Education Organizations Attending

Sponsor*

Alberta Innovates, AB, Canada

Aqueous Solutions, NC

Biochar Books, **Australia**

Carbon in the Soil, BC, Canada

Center for Carbon Removal, CA

Colorado School of Mines, CO

Colorado State University, CO

Gonzaga University, WA

Humboldt University, CA

Instituto Nacional de Investigaciones Forestales, **Mexico**

Iowa State University,IA*

Ithaka Institute, NY

Kansas State University, KS

King Saud University, **Saudia Arabia**

Laurentian University, ON, Canada

Lincoln University, MO

Marquette University, WI

Michigan State University, MI

Montana State University, MT

New Mexico State University, NM

Oregon State University, OR*

Pacific Northwest National Laboratory, WA

Portland State University, OR

Rice University, TX

Schatz Energy Research Center, CA

Southern Illinois University, IL

The Biochar Journal, NY

The Urban Farmer, BC, Canada

Université Laval, QC, Canada

University of Alaska, AK

University of Arid Agriculture, **Pakistan**

University of California, Berkeley, CA

University of California, Merced, CA

University of California, Riverside, CA

University of Colorado, Boulder, CO

University of Dayton, OH

University of Delaware, DE

University of Georgia, GA

University of Hawaii Manoa, HI

University of Massachusetts, Amherst, MA

University of Massachusetts, Boston, MA

University of Minnesota, MN

University of Technology, Sydney**, Australia**

University of Toronto, ON, Canada

University of Ulsan, **South Korea**

University of Washington, WA

University of Wisconsin, WI

USDA Agricultural Research Service, ID, IL, LA, MN, OR, SC,

USDA Natural Resources Conservation Service, OR

US Environmental Protection Agency, OR

Utah Agricultural Experiment Station, UT

Utah State University Extension, UT

Washington State University, WA

Policy – Energy, Economics, Climate, Environment and Resource Management

Sponsor*

Alberta Innovates, AB, **Canada***

Biotecnologia Mexicana Contra el Cambio Climatico, **Mexico**

California Department of Agriculture, CA

City of Minneapolis, MN

International Biochar Initiative

Metro, Portland, OR

Nebraska Forest Service, NE

Oregon BEST, OR

Oregon Department of Forestry, OR*

Sonoma Biochar Initiative/Sonoma Ecology Center, CA

South Fork John Day Watershed Council, OR

South Umpqua Rural Community Partnership, OR

Sustainable Northwest, OR

US Biochar Initiative

US Environmental Protection Agency

USDA Forest Service, AK, CA, OR

USFS Umatilla National Forest, OR

Washington Department of Commerce, WA

Washington Department of Ecology, WA

Washington Department of Natural Resources, WA

Westbrook Associates, WA

Thank You!

Gold Sponsor

Alberta Innovates Technology Futures

Iowa State University cenusa bioenergy

ALL Power Labs
personal scale power

Silver Sponsors

Boost BioChar
Converting Forest Products into High Performance Char

KARR ECO-FRIENDLY SOLUTIONS

Oregon Department of Forestry

Terra Char

Bronze Sponsors

BIOCHAR SOLUTIONS

bioLOGICAL SOLUTIONS

DR LUD
Juntos Energy Solutions

forestconcepts™
bioenergy

Pacific Biochar

ntt BELTOMATIC SAFESTERIL BIOGREEN

NextChar

OSU Forestry & Natural Resources Extension

OSU Oregon State University College of Forestry

PermaMatrix
U.S. Patent No. 8,430,599 Other U.S. Patents pending.
BIOTIC SOIL AMENDMENT

Biogreen®

tsi

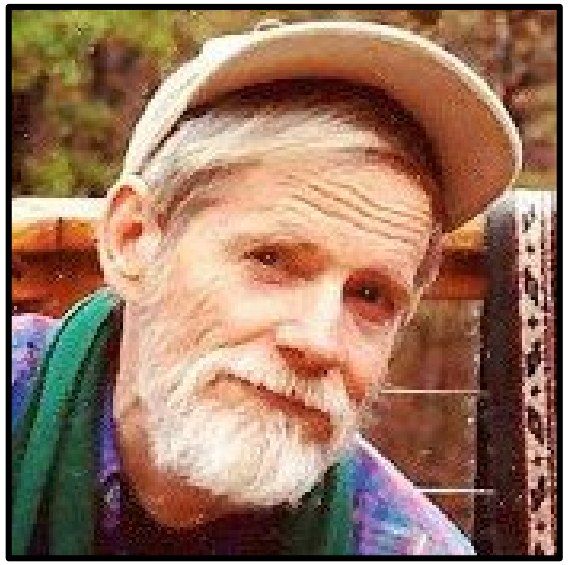
REXIUS

The Biochar 2016 planning committee would like to express their sincerest thanks for the support of our sponsors!

Thank You Workshop Instructors and Exhibitors !

Mike Flynn
BioSpecifics LLC

David Yarrow
Soil and Carbon Consultant



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Biochar 2016 Planning Committee

Tom Miles, Conference Chair
TR Miles Technical Consultants

Brianna Beene
Oregon State University

Sarah Burch
Oregon State University

Matt Delaney
Delaney Forestry Services

Myles Gray
Geosyntec Consultants

Marcus Kauffman
Oregon Department of Forestry

John Miedema
Biological Solutions

David Smith
Oregon State University

Kristin Trippe
USDA Agricultural Research Service

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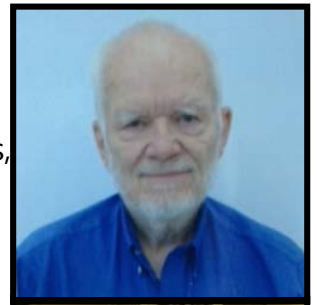
Sustainable Obtainable Solutions, WA

Albert Bates
Global Village Institute, TN

John Bonitz
Celebrity Goat Dairy, NC

Kathleen Draper
Finger Lakes Biochar, NY



Ron Larson
Larson Consulting, CO

Jonah Levine
Biochar Solutions, CO

Tom Miles, Conference Chair
TR Miles Technical Consultants, OR

Kelpie Wilson
Wilson Biochar Associates, OR

Soil Health: Opportunities and Challenges

Jen Kucera

USDA Natural Resources Conservation Service

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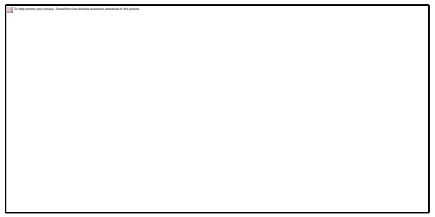

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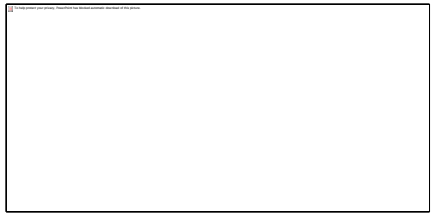
PLENARY QUESTIONS

Time for audience participation

BIOCHAR WANTS TO KNOW YOUR OPINION!



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Q1

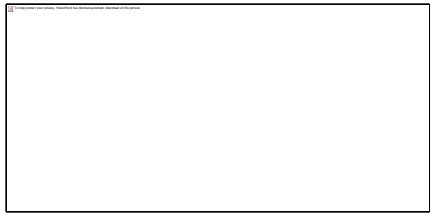
Q1: Biochar has proven to improve soil health in many ways. How important are each one of these benefits for expanding biochar markets?

Directions: This is the number of votes to record for each part of the question. Tally the votes, multiply by the ranking (1-5), then add-up and enter total points for each part.

Number of people at the table: 6

EXAMPLE

Importance ranking, Not important → Votes	1	2	3	4	5	Very important → Total points
Water/nutrient retention		3	1		2	2x3 +3x1 +5x2 = 19
pH adjustment (liming)	3		1	2		1x3 +3x1 +4x2 = 14
Tilth, soil structure improvement		2		3	1	2x2 +4x3 +5x1 = 21
Crop productivity improvement					6	6x5 = 30
Soil carbon addition				5	1	4x5 +5x1 = 25



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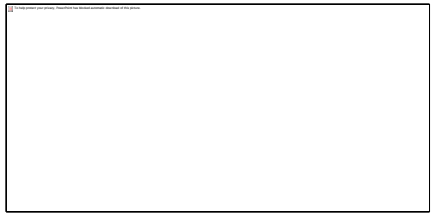
Number of people at the table: _____

Importance ranking, Not important Votes	1	2	3	4	5	Very important Total points
Water/nutrient retention						
pH adjustment (liming)						
Tilth, soil structure improvement						
Crop productivity improvement						
Soil carbon addition						



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Q2

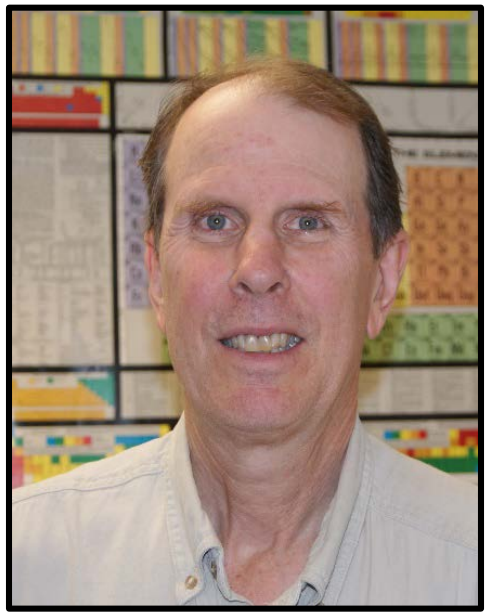
Q2: How can we help propel the biochar industry forward? What do we need more of?

Directions: This is the number of votes to record for each part of the question. Tally the votes, multiply by the ranking (1-5), then add-up and enter total points for each part.

Number of people at the table: _____

Importance ranking, Do Not Need More Votes	1	2	3	4	5	Need More Total points
Technical application information						
Increased supply						
Better production technology						
Lower prices						
Technical grade specifications and test methods						
Policy support and incentives						

Potential Use of Biochar to Drawdown Atmospheric Carbon: A Preliminary Assessment for Washington State



Jim Amonette

Pacific Northwest National Laboratory

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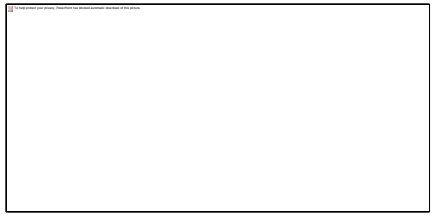
Q3

Q3: Public and industry acceptance of biochar (and ultimately growth of the industry) are best achieved by promoting its attributes and benefits to society. Which are the most important to promote?

Directions: This is the number of votes to record for each part of the question. Tally the votes, multiply by the ranking (1-5), then add-up and enter total points for each part.

Number of people at the table: _____

Importance ranking, Not important Votes	1	2	3	4	5	Very important Total points
Mitigation of climate change						
Rural economic development						
Agricultural soil productivity and water efficiency						
Recycling/reuse of biomass						
Pollution mitigation/reclamation						



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Q4

Q4: Biochar is a growing industry, but how will it grow? In 10 years, how important will each of these producer-types be to the industry's success?

Directions: This is the number of votes to record for each part of the question. Tally the votes, multiply by the ranking (1-5), then add-up and enter total points for each part.

Number of people at the table: _____

Importance ranking, Not important Votes	1	2	3	4	5	Very important Total points
Boutique producers, producing a few hundred tons per year.						
Medium producers, making a couple thousand tons per year, focused on selling locally.						
Large producers, making tens of thousands of tons per year to tight quality specs and selling technical grades to large, special markets.						
Biomass-fueled boilers retrofitted to produce both energy and generic biochar to general specifications for broad markets.						