**Examples of Researchers Speaking at the Conference**

**Nutrient Cycling and Management Under Direct Seed Systems** - Dr. Jeff Schoeneveld, a senior research scientist in the Department of Soil Science at the University of Saskatchewan. Over the last decade, his research across Western Canada has focused on direct seeding systems and their impact on soil fertility, nutrient cycling and soil quality. Other research areas include soil conservation management strategies, fertilizer technology and use, soil analytical chemistry, dryland cropping agronomy, and land application of agricultural and industrial wastes. He also owns and operates a grain farm in southeastern Saskatchewan.

**Soil Biology and Direct Seeding Benefits to Soil Health** (Wednesday) and Management Strategies to Enhance Soil Biology Benefits Under Direct Seed Systems (Friday) - Dr. Jili Gaspert is the Rhizosphere Ecologist at the Agriculture and Agri-Food Canada Lethbridge Research Center. She studies soil microorganisms and their role in soil health and productivity. Her research is aimed at understanding how soils function biologically so they can be managed for long-term health and productivity.

**Redesigning Rotations for Direct Seed Systems — Evaluation of Alternate Crops** - Dr. David Huggins is a Research Soil Scientist with the USDA-ARS Land Management and Water Conservation Unit at Washington State University, Pullman. He is involved in managing the 200 acre USDA-ARS Palouse Conservation Field Station and the 140 acre WSU Cunningham Agronomy Farm near Pullman, where research is directed toward the development of viable cropping systems. His research focuses on crop and soil management including conservation tillage systems, crop rotation design, site-specific nutrient management, soil and water quality, carbon and nutrient cycling, soil fertility and plant nutrition.

**Soil Acidity Status and Effects on Crop Production** - Dr. Robert Mahler is a Soil Fertility Specialist, Extension Water Quality Coordinator, and Acting Chair of the Environmental Science Program at University of Idaho in Moscow. His research areas include soil-plant relationships, crop response to fertilizer placement, nutrient use efficiency, environmental losses of nutrients, and fertilizer technology for cereals, legumes, grass and oilseed crops. He is an advocate for water quality and sustainable agriculture, and works on soil fertility relationships to sustainable agriculture.

**Effects of Soil Acidity on Beneficial Soil Microbes and Soil Fauna** - Dr. David Beatock has been a Soil Microbiologist at Washington State University in Pullman since 1976. He has also served as Director of the WSU Center for Sustaining Agriculture and Natural Resources. His research on direct seed systems has focused on rhizosphere ecology, nitrogen fixation and N cycling in cereal-legume cropping systems, soil biology, soil quality, and carbon sequestration. He teaches courses in soil biology, plant microbial interactions, and composting.

**Strategies for Managing Soil Acidity Under Direct Seed Systems** - Dr. Greg Schwab is a Soil Fertility Specialist with Washington State University under the new Safe Food Initiative. He has a research and extension appointment with a focus on dryland soil fertility. Some of the current projects include seed-placed lime to improve seed-zone pH, nitrogen nutrition in hard white spring wheat for optimum protein and flour quality, and fertilizer requirements of ultra-short season direct seed dryland corn in the Palouse. He grew up on a livestock and row crop farm in Ohio where his father has been no-till seeding since 1975.

**New Insights into the Make-up and Management of Take-all and Pythium Root Rot Under Direct Seeding** — Dr. R. James Cook has been the Endowed Chair in Wheat Research at Washington State University in Pullman since 1998. From 1961 to 1998, he worked as a Research Plant Pathologist at USDA-Agricultural Research Service at Pullman, conducting research on biological approaches to control root diseases of wheat. He has co-authored two books on biological control of plant pathogens and one book on wheat health management. He has been awarded numerous distinguished service and professional society awards, including his election to the National Academy of Sciences in 1993.

**New Insights into the Make-up and Management of Rhizoctonia Root Rot Under Direct Seeding** (Friday) - Dr. Tim Paulitz is a Research Plant Pathologist with the USDA-ARS Root Disease and Biological Control Unit in Pullman, WA. His research focus is on root diseases of wheat and barley, with an emphasis on direct seed cropping systems. His research focus is on crop and soil management including conservation tillage systems, crop rotation design, site-specific nutrient management, soil and water quality, carbon and nutrient cycling, soil fertility and plant nutrition.

**Soil Acidity Effects on Soluteborne Crop Pathogens (Wednesday) and New Insights into the Make-up and Management of Rhizoctonia Root Rot Under Direct Seeding** (Friday) - Dr. Jack Brown is a Plant Breeder and Nematologist at USDA-ARS in Corvallis, OR and at McGill University in Quebec, Canada before coming to Pullman in 2000. His research on direct seed systems has focused on vegetable seedling establishment, root diseases of wheat and barley, with an emphasis on direct seed cropping systems. His research focus is on crop and soil management including conservation tillage systems, crop rotation design, site-specific nutrient management, soil and water quality, carbon and nutrient cycling, soil fertility and plant nutrition.

**Developing Brassica Crops and Management Strategies for Direct Seed Systems** - Dr. Jack Brown is a Plant Breeder / Geneticist with the University of Idaho in Moscow. A Scottish native, Brown investigates breeding methodologies and the inheritance of important traits, and develops procedures to increase breeding efficiency and produce genetically superior rapses, canola and mustard cultivars. His Brassica breeding program spans the Inland Northwest with a number of research collaborators. He leads several research projects on the selection and management of Brassica cultivars for direct seed systems.
Concurrent Sessions (First choice — sessions repeated at 9:15)

1) Low Precipitation Regions:
   - Lon Welsh Connell, WA • Jack Hay, The Dalles, OR
   - Intermediate Precipitation Regions:
     - Mark Sheffels, Wilbur, WA • Mike Stubbs, Lacombe, WA
   - High Precipitation Regions:
     - Kurt Blume, Genesee, ID • Art Schulthess, Culon, WA

2) Break and Viewing of NW Direct Seed Poster Exhibition

3) Repeat of Grower Concurrent Sessions Above

Thursday, January 17

1:00 Pacific Northwest Direct Seed Association — Highlights and Accomplishments


3:15 Overview of Grower Approaches to Tracking Costs of Production — Dick Wittman


4:00 Field Mapping — Geospatial Technology for Direct Seeding Systems and a Case Study.

7:30 Grower Experiences with 2-Pass Fertilize-and-Seed Systems Using Minimum Tillage Drills — Moderator: David Huggins, USDS-ARS Soil Scientist, Pullman, WA

7:30 Grower Experiences with Direct Seed Cropping Systems - Jill Clapperton, Rhizosphere Ecologist, Agriculture and Agri-Food Canada, Lethbridge, Alberta

7:30 Viewings of Ag Expo exhibits (1st of two special Ag Expo breaks in the Conference program)

7:40 - 8:00 Concurrent Bear Pit Sessions on Direct Seed Systems Strategies

1) Intensifying Rotations in the Low and Intermediate Precipitation Zones:
   - Bill Schilling, WSU Dryland Research Agronomist, Lind, WA
   - Don Wysocki, Oregon State University Agronomist, Pendleton, OR
   - Lon Welsh, Grower, Connell, WA • Jack Hay, Grower, The Dalles, OR • Mark Sheffels, Grower, Wilbur, WA • Mike Stubbs, Grower, Lacombe, WA

2) Understanding Changes in Soil Fertility, Biology, and Quality Over Time:
   - Jeff Schonauer, Research Soil Scientist, Univ. of Saskatchewan • Jill Clapperton, Rhizosphere Ecologist, Lethbridge Research Centre • Greg Schacht, WSU Extension Soil Scientist, Pullman

3) Strategies for Managing Heavy Wheat Residue in Higher Rainfall Zones:
   - David Huggins, USDA-ARS Soil Scientist, Pullman, WA
   - Stephen Guy, University Extension Crop Management Specialist, Moscow, ID • Kurt Blume, Grower, Genesee, ID • Art Schulthess, Grower, Culon, WA
**Conference Web site**  
(http://pwnsteep.wsu.edu/directseed)

**Recertification Credits**  
State Pesticide Applicator Recertification Credits for Oaks, Oregon and Washington, and Certified Crop Advisor Continuing Education Units have been requested.

**Conference Sponsors Available**  
Ag industries and organizations with equipment, products and/or services related to direct seed intensive cropping systems are encouraged to be Conference sponsors to help keep registration fees affordable for NW growers. For more information, contact the Conference office or visit the Conference Web site (see Pre-Registration Form) for a Sponsorship Prospectus.

**Conference Organized as a Service to NW Growers by**  
- Pacific Northwest STSEP (Solutions To Environmental and Economic Problems) Research and Education Program by the University of Idaho, Oregon State University, Washington State University and USDA-Agricultural Research Service  
- Pacific Northwest Direct Seed Association

**Sponsors Include**  
- Monsanto • Great Plains Mfg • Colfax Grange Supply • AGPRO • North Pine Ag Supply • Oregon Association of Conservation Districts • USDA - Natural Resources Conservation Service  
- Columbia Plateau Wind Erosion/Air Quality Project • Oregon Wheat Growers League • Idaho Grain Producers Association • USDA Dry Pea and Lentil Council • Pacific Northwest Oilseeds Association • USDA - Natural Resources Conservation Service  
- Washington Association of Conservation Districts

**Special Conference room rates***:**  
- $58 - one bed for 1 or 2 people  
- $68 - two beds for 2 people  
- $78 - two beds for 3 people.  
*After January 9, regular registration is $70; spouse registration is $56.  
*Registering ENTRANCE into the Spokane Ag Expo and Pacific Northwest Farm Forum separately is a cost of $175, Conference pre-registration as a separate event.

**Mail to:**  
NW Direct Seed Conference  
P.O. BOX 2002, Pasco, WA 99302  
Phone 509-547-5538, FAX 547-5563  
E-mail (Direct Seed Conference <wpseay@mcmt.com>)  

**Hotel Reservations**  
Spokane Doubletree Hotel-City Center  
332 N. Spokane Falls Ct. (Adjacent to the Convention Center)  
509-455-9600  

**Conference Pre-Registration***:**  
no. ______ @$50 = ______ ($70 registration after January 9th)  
Spouse Pre-Registration***:**  
no. ______ @$30 = ______ ($35 registration after January 9th)  
Optional Thursday Lunch***:**  
no. ______ @$15 = ______

Total Enclosed = **$** }

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**Conference registration includes Spokane Ag Expo — largest Ag show in the Inland Northwest — and PNW Farm Forum and seminars. ...13:00 if purchased separately. You are encouraged to come early on January 15-16 to view the Expo exhibits and attend the Forum and seminars. Call 888-374-EXPO or visit their Web site (www.agshow.org) for details.

**Tuesday, January 15**

8:00 a.m. - 6:00 p.m.  
Conference registration in Doubletree Hotel  
9:00 a.m. - 6:00 p.m.  
Spokane Ag Expo and PNW Farm Forum

**Wednesday, January 16**

8:00 a.m. - 6:00 p.m.  
Conference registration in Doubletree Hotel  
9:00 a.m. - 6:00 p.m.  
Spokane Ag Expo and PNW Farm Forum

**Wednesday Afternoon, January 16**

1:00 Welcome and Introduction  
1:05 Nutrient Cycling and Management Under Direct Seed Systems - Jeff Schomau, Research Soil Scientist, University of Saskatchewan, Saskatoon  
2:05 Redesigning Rotations for Direct Seed Systems — Evaluation of Alternate Crops - David Huggins, Research Soil Scientist, USDA-Agricultural Research Service, Pullman, WA  
2:55 Break and viewing of NW Direct Seed Poster Exhibition  
3:10 Soil Biology and Direct Seeding Benefits to Soil Health - Jill Clapperton, Rhizosphere Ecologist, Agriculture and Agri-Food Canada, Lethbridge, Alberta  
4:00 Viewing of Ag Expo exhibits (First of two special Ag Expo breaks in the Conference program)  
4:00 - 7:00 Dinner on your own

**Thursday, January 17**

7:00 - 9:00 Impacts and Management of Soil Acidity under Direct Seed Systems — Panel of Northwest Scientists  
7:00 Status and Effects of Crop Production - Robert Maler, UI Soil Scientist, Moscow, ID  
7:25 Effects on Soilborne Microbes and Soil Fauna - David Bezdicek, WSU Soil Microbiologist, Pullman, WA  
7:50 Effects on Soilborne Microbes and Soil Fauna - Greg Schwab, WSU Extension Soil Scientist, Pullman, WA  
8:40 Panel Discussion  
9:00 Adjourn

**Thursday Evening, January 17**

7:00 - 8:00 Concurrent Bear Pit Sessions on Direct Seed Systems Strategies  
1) Intensifying Rotations in the Low and Intermediate Precipitation Zones:  
   Bill Schilling, WSU Dryland Research Agronomist, Lind, WA  
   Dan Woyssick, OSU Extension Soil Scientist, Pendleton, OR  
   Lon Welch, Grower, Connell, WA • Jack Hay, Grower, The Dalles, OR • Mark Sheffels, Grower, Wapato, WA • Mike Stubbs, Grower, LaCrosse, WA  
2) Understanding Changes in Soil Fertility, Biology and Soil Over Time:  
   Jeff Schomau, Research Soil Scientist, Univ. of Saskatchewan • Jill Clapperton, Rhizosphere Ecologist, Lethbridge Research Center • Greg Schwab, Soil Microbiologist, WSU, Pullman  
3) Strategies for Managing Heavy Wheat Residue in Higher Rainfall Zones:  
   David Huggins, USDA-ARS Soil Scientist, Pullman, Stephen Guy, UI Extension Crop Mgmt. Specialist, Moscow • Kurt Blume, Grower, Genesee, ID • Art Schulthess, Grower, Colton, WA

8:00 Repeat of Concurrent Sessions above (Second choice)  
9:00 Adjourn

**Friday Morning, January 18**

7:30 Grower Experiences with 2-Pass Fertilize-and-Seed Systems Using Minimum Tillage Drills  
Clay Barr, Pomeroy, WA • Jon Nilsson, Cavanagh, Idaho  
8:50 Management Strategies to Enhance Soil Biology Benefits Under Direct Seed Systems - Jill Clapperton, Rhizosphere Ecologist, Agriculture and Agri-Food Canada, Lethbridge, Alberta  
9:40 Break and Viewing of NW Direct Seed Poster Exhibition  
10:00 - 11:25 New Insights into the Make-up and Management of Soilborne Crop Pathogens Under Direct Seeding  
10:00 Introduction - R. James Cook, WSU Plant Pathologist and Endowed Chair in Wheat Research, Pullman, WA  
10:15 Take-all and Pythium - R. James Cook  
10:25 Rhizoctonia - Tim Paulutz, USDA-ARS Plant Pathologist, Pullman  
10:45 Fusarium and Nematosporas - Richard Smiley, OSU Plant Pathologist, Pendleton  
11:05 Panel discussion  
11:25 Developing Brezuska Crops and Management Strategies for Direct Seed Systems - Jack Brown, UI Plant Breeder, Moscow  
12:15 Adjourn

**Conference Web site**  
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Examples of Researchers Speaking at the Conference

Nutrient Cycling and Management Under Direct Seed Systems - Dr. Jeff Schoeneveld, is a senior research scientist in the Department of Soil Science at the University of Saskatchewan. Over the last decade, his research across Western Canada has focused on direct seeding systems and their impact on soil fertility, nutrient cycling and soil quality. Other research areas include soil conservation management strategies, fertilizer technology and use, soil analytical chemistry, dryland cropping agronomy, and land application of agricultural and industrial wastes. He also owns and operates a grain farm in southeastern Saskatchewan.

Strategies for Managing Soil Acidity Under Direct Seed Systems - Dr. Greg Schwab is a Soil Fertility Specialist with Washington State University. His research focuses on managing soil pH, nitrogen nutrition in hard white spring wheat for optimum protein and flour quality, and fertilizer requirements of short-season direct seed cereal crops. He grew up on a livestock and row crop farm in Ohio where his father has been no-till seeding since 1975.

Soil Biology and Direct Seeding Benefits to Soil Health (Wednesday) and Management Strategies to Enhance Soil Biology Benefits Under Direct Seed Systems (Friday) - Dr. Jill Glapton is the Rhizosphere Ecologist at the Agriculture and Agri-Food Canada Lethbridge Research Centre in Lethbridge. Her research group studies soil food webs, nutrient cycling, soil-fauna-plant disease interactions, plant-soil-plant organism interactions, and biodiversity in dryland and irrigated cropping systems under reduced- and no-tillage systems. This research is aimed at understanding how soils function biologically so they can be managed for long-term health and productivity.

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Redesigning Rotations for Direct Seed Systems — Evaluation of Alternate Crops - Dr. David Bezdicek has been in a Soil and Water Quality position with the USDA-ARS Land Management and Water Conservation Unit at Washington State University since 1998. From 1995 to 1998, he worked as a Research Plant Pathologist with USDA-Agricultural Research Service at Pullman, conducting research on biological approaches to control root diseases of wheat. He has co-authored two books on biological control of plant pathogens and one book on wheat health management. He has been awarded numerous distinguished service and professional society awards, including his election to the National Academy of Sciences in 1993.

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New Insights Into the Make-up and Management of Take-all and Pythium Root Rot Under Direct Seeding - Dr. K. James Cook has been the Endowed Chair in Wheat Research at Washington State University in Pullman since 1998. From 1995 to 1998, he worked as a Research Plant Pathologist with USDA-Agricultural Research Service at Pullman, conducting research on biological approaches to control root diseases of wheat. He has co-authored two books on biological control of plant pathogens and one book on wheat health management. He has been awarded numerous distinguished service and professional society awards, including his election to the National Academy of Sciences in 1993.

New Insights Into the Make-up and Management of Fusarium and Nematodes Under Direct Seeding - Dr. Richard Smiley is a Research Plant Pathologist with Oregon State University in Corvallis, OR and at McGill University in Quebec, Canada before coming to Pullman in 2000. He has specialized in soilborne fungal pathogens and their biological control, and has worked with a number of crops, including wheat, corn, lupines, apples and vegetable crops. He has worked at Colorado State University, the USDA-ARS in Corvallis, OR and at McGill University in Quebec, Canada before coming to Pullman in 2000.

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In Conjunction With

SPOKANE AG EXPO
January 15-17, 2002
WA State Ag Trade Center,
Spokane Convention Center, Arena and
Doubletree Hotel – City Center

PNW Farm Forum
January 16-18, 2002
Doubletree Hotel – City Center
Spokane, WA

Accelor—Northwest Direct Seed Systems Technologies

Program & Registration Information

Northwest Direct Seed Systems Technologies