

**WSU Mount Vernon NWREC
Semi-Annual Faculty Report
January 1 to June 30, 2015**

The research, extension and education programs at WSU Mount Vernon are dynamic and serve many different audiences throughout the region, the state, and the country. Throughout any given year, programs differ in terms of their productivity regarding publications, extension presentations, grant awards, etc. This semi-annual report provides a snapshot of some of our faculty and graduate student accomplishments since January 2015. The names of WSU Mount Vernon personnel are highlighted for your convenience.

---Debbie Inglis, Interim Director

Abstracts and Proceedings:

Collins, B.D., McDonald, M.R., **du Toit, L.J.**, and Westerveld, S. 2015. Evaluation of management practices for Fusarium wilt in bunching spinach production in Ontario, Canada. 2015 International Spinach Conference, 24-25 Feb. 2015, Yuma, AZ.

Duan, Y., Chastagner, G.A., Debauw, A., and **Miller, T.W.** 2015. Effect of green manure and cover crops for weed and disease management in tulip. Weed Science Society of America Annual Meeting, February 9-12, Lexington, KY.

Duan, Y., Libbey, C.R., and **Miller, T.W.** 2015. Using cover crops for weed management in tulip production. Western Society of Weed Science Annual Meeting, March 9-12, Portland, OR.

du Toit, L.J., Derie, M.L., Correll, J.C., and Feng, C. 2015. Phomopsis/Diaporthe and spinach seed: History, concerns, and research update. 2015 International Spinach Conference, 24-25 Feb. 2015, Yuma, AZ.

du Toit, L.J., Derie, M.L., Youngquist, C.P., and Holmes, B.J. Suppression of Fusarium wilt in spinach seed production using compost. 2015 International Spinach Conference, 24-25 Feb. 2015, Yuma, AZ.

Grahn, C., C Miles, T. Thornton, and C. Benedict. 2015. Leafy green crops help growers manage production risk. Extension Risk Management Education National Conference, April 29-30, Minneapolis, MN.

Humphreys-Pereira, D.A., **T.L. Peever,** and A.A. Elling. 2015. Genetic diversity of the Columbia root-knot nematode, *Meloidogyne chitwoodi*, in the United States. 54th Annual Meeting of the Society of Nematologists, July 19-24, East Lansing, MI.

Libbey, C.R. and Miller, T.W. 2015. Dormant season weed control in established strawberry. Western Society of Weed Science Annual Meeting, March 9-12 Portland, OR.

Miller, T.W. and Libbey, C.R. 2015. Testing several new herbicides for weed control in beet seed production. Western Society of Weed Science Annual Meeting, March 9-12, Portland, OR.

Miller, T.W. and Libbey, C.R. 2015. Recent herbicide trials in spinach seed crops. International Spinach Conference, February 23-24, Yuma, AZ.

Miller, T.W. and Libbey, C.R. 2015. Preliminary trials for weed management in quinoa. Weed Science Society of America Annual Meeting, February 9-12, Lexington, KY.

Sowers, K., Paulitz, T., Davis, J., **du Toit, L.**, Schroeder, K., and Wysocki, D. Blackleg in canola – A reason for alarm in Washington State? 2015 WSU Lind Dryland Field Day, June 11, Lind, WA.

Graduate Students Graduated:

Amy Salamone under the direction of **Debbie Inglis** completed her M.S. Thesis: “Effects of temporary flooding rotations on *Rhizoctonia solani* AG-3 and on soil bacterial communities.”

Kelly Atterberry and **Charlene Grahn** and **Jesse Wimer** under the direction of **Carol Miles** completed their M.S. Theses: on “Production of niche-market dry beans (*Phaseolus vulgaris*) in western Washington and school garden-based pulse education to increase consumption of targeted food” and “Evaluating baby-salad greens for spring and fall production in northwest Washington” and “Grafting watermelon to manage Verticillium wilt in Washington state” respectively.

Invited Speaking Engagements:

January 8. **Susan Kerr** on ‘Beef 100 Workshop ‘Healthy animals - healthy products’ Yakima, WA.

January 10. **Susan Kerr** on ‘Grass fed vs. grain fed beef cattle production’ at the Columbia Grains Conference, Olympia, WA (co-presenter).

January 9. **Carol Miles** on ‘Evaluation of watermelon rootstocks for resistance to Verticillium wilt in northwestern Washington.’ National Vegetable Grafting Symposium, Savannah, GA.

January 14. **Tim Miller** on ‘Weed control principles’ Pre-license Training with the WSU Pesticide Education Program Tacoma, WA.

January 15. **Tim Miller** on ‘Weed management in berry crops’ at the, North Willamette Horticultural Society Annual Meeting, Canby, OR.

January 20. **Bev Gerdeman** and **Lynell Tanigoshi** on ‘Cabbage root fly control strategies with underutilized insecticides and application methods in the Skagit Valley.’ Specialty Seed Growers of Western Oregon, Albany, OR.

January 20. **Lindsey du Toit** on ‘Allium, bean, and crucifer seed quarantines in Washington: Do the rules suffice?’ and, ‘Iris yellow spot virus management considerations’ at the Columbia Basin Vegetable Seed Association Annual Meeting, Moses Lake, WA.

January 20. **Tim Miller** on ‘Herbicide testing in ornamental bulbs’ at the Wilbur-Ellis Grower Meeting, Auburn, WA.

January 20. **Tim Miller** on ‘Weed identification in Christmas trees’ at the Wilbur-Ellis Grower Meeting, Auburn, WA.

January 20-22. **Lindsey du Toit** with R. Myers addressed ‘An Overview of Cover Cropping in the PNW – Opportunities and Challenges’ at the 2015 PNW Oilseed & Direct Seed Conference, Kennewick, WA. The presentation covered the 2014 black leg epidemic in the Willamette Valley, and potential modifications to the WSDA crucifer quarantine to protect brassica oilseed crops in the irrigated and dryland areas of central and eastern Washington.

January 21-22. **Lindsey du Toit** on ‘Allium, bean, and crucifer seed quarantines in Washington: Do the rules suffice?’ at the Columbia Basin Crop Consultants’ Association 2015 Short Course, Moses Lake, WA.

January 24-27. **Lindsey du Toit** on ‘Update on *Phomopsis (Diaporthe)* and spinach seed’ to the Emerging Disease Committee Meeting and to the American Seed Research Foundation Committee at the 54th American Seed Trade Association Vegetable & Flower Conference; and, on ‘Emerging Brassica diseases in the Pacific Northwest: Black leg, light leaf spot, and white leaf spot’ to the Emerging Disease Committee, Tampa, FL.

January 27. **Lynell Tanigoshi** on ‘Implications of insecticide declines in SWD control: Leaf bioassays, foliar residues and tolerances on marketable blueberries’ at the Oregon Blueberry Conference, Portland, OR.

January 29. **Debbie Inglis** on ‘Impacts of *Potato virus Y* on the quality of specialty potato tubers’ at the Annual Washington/Oregon Potato Conference, Kennewick, WA.

January 29. **Susan Kerr** on ‘Non-chemical control of parasites in small ruminants’ in Norland, WA.

January 29. **Tim Miller** on ‘Evaluations of new products for weed control in raspberries and strawberries’ at the, Lower Mainland Horticultural Growers’ Short Course, Abbotsford, BC.

January 29. **Tim Miller** on ‘Yellow nutsedge: a beast of a weed at the Lower Mainland Horticultural Growers’ Short Course, Abbotsford, BC.

January 29. **Tobin Peever** on ‘Fungicide resistance of *Botrytis cinerea* infecting raspberry in BC and WA’ at the 57th Annual Growers' Short Course, Abbotsford, BC, Canada.

January 30. **Lindsey du Toit** on ‘2014 Black leg, light leaf spot, and white leaf spot epidemic in the Willamette Valley of Oregon: Protecting Washington’s Brassica seed industry’; and, on ‘Table beet seed production in Washington: 2014 Disease and fertility assessments’ at the Puget Sound Seed Growers’ Association Annual Meeting, Mount Vernon, WA.

January 30. **Bev Gerdeman** on ‘Identification and management of peony insect pests’ at the Alaska Peony Growers Winter Conference, Fairbanks, AK.

January 30. **Susan Kerr** on ‘Enlivening biosecurity and quality assurance training’ webinar, University of Idaho.

January 30. **Tim Miller** on ‘Weed control in vegetable seed crops’ at the Puget Sound Seed Growers Annual Meeting, Mount Vernon, WA.

January 30. **Lynell Tanigoshi, Bev Gerdeman and Hollis Spitler** on ‘Control of cabbage maggot and investigations into other subterranean pests of vegetable seed crops’ at the Puget Sound Seed Growers Annual Meeting, Mount Vernon, WA.

January 31. **Susan Kerr** on ‘Biosecurity: How you gonna keep ‘em (healthy) down on the farm?’; on ‘Why did ewe die?’; on ‘Cattle diseases: How’s the beef?’; and, on ‘Poisonous plants: What’s in your P?’ all at the Country Living Expo, Stanwood, WA.

January 31. **Tim Miller** on ‘Western Washington pasture weeds’ at the Country Living Expo and Cattlemen’s Winter School, Stanwood, WA.

February 3. **Tim Miller** on ‘Beet seed crop herbicide trials’ at the Wilbur-Ellis and Sakata Seed Grower Meeting, Burlington, WA.

January 31. **Tobin Peever** on ‘Fungicide resistance of *Botrytis cinerea* infecting blueberry in BC and WA’ at the 57th Annual Growers’ Short Course, Abbotsford, BC, Canada.

February 3. **Lindsey du Toit** on ‘Black leg in brassica crops and foliar nutrient analyses for table beet seed crops’ at the Wilbur-Ellis Co. and Sakata America Annual Seed Growers’ Meeting, Burlington, WA.

February 3. **Bev Gerdeman, Lynell Tanigoshi and Hollis Spitler** on Wilbur Ellis/Alf Christianson Seed Workshop, Burlington, WA.

February 5. **Carol Miles** on ‘National survey of cider apple growers and cider makers’ at the National Cider Conference, Chicago, IL.

February 5. **Tim Miller** on ‘Identifying grass weeds’ at the Idaho Weed Conference, Boise, ID.

February 7. **Susan Kerr** on ‘Kidding,’ at Northwest All Breeds Goat Club monthly meeting, Mount Vernon, WA.

February 10. **Susan Kerr** on ‘Non-chemical control of parasites in small ruminants’ in Pullman, WA.

February 10-12. **Lindsey du Toit** as an instructor for ‘Seed Biology, Production and Quality Course’ organized by the Seed Biotechnology Center of the Department of Plant Sciences at the University of California – Davis.

February 11. **Bev Gerdeman, Lynell Tanigoshi** and **Hollis Spitler** on ‘Organic management of Spotted Wing Drosophila’ at the Blueberry Production Workshop. WSU Mount Vernon.

February 12. **Susan Kerr** on ‘Biosecurity in agriculture’ at the WSU Ag and Natural Resources Unit meeting, Spokane, WA.

February 14. **Susan Kerr** on ‘Non-chemical control of parasites in small ruminants’ in Nordand, WA.

February 14. **Carol Miles** on ‘National cider research initiative’ at the State of Cider Summit, Everett, WA.

February 17. **Carol Miles** on ‘Cider varieties, juice quality, costs or orchard establishment, and mechanization’ at the Cider Workshop, Santa Rosa, CA.

February 17. **Tim Miller** on ‘Weed identification and control’ at the Skagit County Master Gardeners, Bayview, WA.

February 18. **Lindsey du Toit** on ‘Black leg of crucifers in the Pacific Northwest: Lessons learned from the 2014 Willamette Valley epidemic’ at the Skagit Farmers’ Supply Growers’ Recertification Day, Burlington, WA.

February 19. **Susan Kerr** on ‘eXtension Goat Industry: Panel discussion and question-answer session’ at the Tuskegee University 123rd Annual Farmers Conference, Tuskegee, AL.

February 19. **Tim Miller** on ‘Biology and control of yellow nutsedge’ at the Skagit Farmers Supply Grower Meeting, Mount Vernon, WA.

February 19. **Tim Miller** on ‘Natural weed control products: do they work?’ for the Snohomish County Natural Yard Care Program, Everett, WA.

February 21. **Susan Kerr** on ‘Non-chemical control of parasites in small ruminants’ at Northwest Oregon Dairy Goat Association Annual Conference in Clackamas, OR.

February 21. **Susan Kerr** on ‘Goat-related crafts for 4-H Youth’ at Northwest Oregon Dairy Goat Association Annual Conference in Clackamas, OR.

February 26. **Debbie Inglis** on ‘Potato pathology research projects in 2014’ at the Annual Western Washington Potato Workshop, Mount Vernon, WA.

February 26. **Carol Miles** on 'Dry beans in the U.S. school lunch program' at the University of Washington, Seattle, WA.

February 26. **Tim Miller** on 'Weed control principles' Pre-license Training with the WSU Pesticide Education Program, Seattle, WA.

February 27. **Tim Miller** on 'Mode of action of potato herbicides' at the Western Washington Potato Workshop, WSU Mount Vernon.

February 28. **Susan Kerr** on 'Healthier animals, healthier profits' at the Oregon State University Small Farm Conference, Corvallis, OR.

February 29. **Susan Kerr** on 'Working with your veterinarian for healthier animals and profits' at the Oregon State University Small Farm Conference, Corvallis, OR.

February 28. **Carol Miles** on 'Cider apple varieties and juice quality'; and, 'High tunnel structures and crop profitability' at San Juan Islands Agricultural Summit, Lopez Island, WA.

March 3. **Lindsey du Toit** on 'Black leg, light leaf spot, and white leaf spot of crucifers in the Pacific Northwest: Lessons learned from the 2014 Willamette Valley epidemic' to Douglas Co. and Okanogan Co. growers, Waterville, WA.

March 4. **Debbie Inglis** on 'New *Potato virus Y* research program in western Washington.' Special seminar for WSU Mount Vernon Graduate Students.

March 5. **Bev Gerdeman, Lynell Tanigoshi** and **Hollis Spitler** on 'Cabbage root fly control strategies and emerging pests in western Washington' at the Wilbur Ellis Grower Meeting, Puyallup, WA.

March 6. **Debbie Inglis** on '*Potato virus Y* and the quality of specialty potato tubers.' A narrated webinar delivered to Potato Growers in Klamath Falls, OR.

March 7. **Bev Gerdeman** on 'Nature's balance understanding and attracting beneficial insects' at the Whidbey Gardens Workshop, Oak Harbor, WA.

March 7. **Susan Kerr** on 'Kid care,' at Northwest All Breeds Goat Club monthly meeting, Burlington, WA.

March 11-12. **Lindsey du Toit** invited by the Cornell University Plant Pathology & Plant-Microbe Biology Graduate Student Association to give two seminars and meet with students and faculty to discuss the WSU Mount Vernon vegetable seed pathology program.

March 12. **Susan Kerr** all day, hands-on 'Goat Management Workshop' at WSU Jefferson County Extension F.I.E.L.D. Program Goat Field Day, Nordland, WA.

March 14. **Tim Miller** on ‘Natural weed control products: do they work?’ for the Snohomish County Master Gardeners, Everett, WA.

March 16. **Lisa DeVetter** and Bernadine Strik on ‘Characteristics of production regions in the Pacific Northwest’ at the Oregon State University (OSU) Blueberry School, Corvallis, OR.

March 17. **Tim Miller** on ‘Weed management for blueberry fields in the Pacific Northwest’ at the Oregon State University Blueberry School, Corvallis, OR.

March 19. **Susan Kerr** on ‘What’s new with calf care?’ at Whatcom County Conservation District’s Dairy Speaker series, Lynden, WA.

March 19. **Tim Miller** on ‘New weeds and weed management tools’ at the Columbia Gorge Invasive Species and Exotic Pest Workshop, Stevenson, WA.

March 25-26. **Debbie Inglis** on ‘Field activities working group updates’ at SCRI CAPS project and advisory meeting on Performance and Adoptability of Biodegradable Plastic Mulch for Sustainable Specialty Crop Production, University of Tennessee, Knoxville.

April 4. **Susan Kerr** on ‘Necropsy demo’ at Northwest All Breeds Goat Club monthly meeting, Mount Vernon, WA.

April 10. **Susan Kerr** on ‘Non-chemical control of parasites in small ruminants’ in Bremerton, WA.

April 11. **Susan Kerr** on ‘Non-chemical control of parasites in small ruminants’ at the WSU Clark County Small Farm Expo, Vancouver, WA.

April 14. **Lisa DeVetter** on ‘Caneberry production in Skagit County’ at the Skagit County Master Gardeners Know & Grow Series, Mount Vernon, WA.

April 16. **Tim Miller** guest lectured on ‘Battling invasive wildland weeds: how we plan and conduct management trials’ at Western Washington University, Bellingham, WA.

April 20-23. **Tim Miller** presented on identification of key weeds and new invading weed species the and environmental effects of herbicides at the Western Invasive Weed Short Course, Loveland, CO.

April 26. **Susan Kerr** all day, hands-on ‘Sheep Management Workshop’ at WSU Jefferson County Extension Sheep Field Day, Discovery

April 27. **Susan Kerr** on ‘Non-chemical control of parasites in small ruminants’ at WSU NWREC Brown Bag Series, Mount Vernon, WA.

April 29. **Susan Kerr** on ‘Bovine respiratory disease risk reduction from bloodlines to fencelines’ at National Extension Risk Management Education conference, Minneapolis, MN.

May 1. **Lisa DeVetter** on ‘Understanding the relationship between pollination services and yield in blueberry’, to the West Plains Beekeepers Association, Spokane, WA.

May 4. **Bev Gerdeman**. ‘Viva walk and talk and insect pest workshop’ at Viva Farms, Mount Vernon, WA.

May 5. **Tim Miller** guest lectured on ‘Weed control in forages’ at Oregon State University, Corvallis, OR.

May 6. **Tim Miller** on ‘Management of four noxious weed species’ for the King County Noxious Weed Program, Renton, WA.

May 6. **Debbie Inglis** on ‘Meeting the challenges of transdisciplinary research and extension for potato soil health management’ at the SCRI CAPS Planning Team meeting for new potato soil health initiative, Denver, CO.

May 7. **Tim Miller** on ‘Natural weed control products: do they work?’ at the Regional IPM Training for Washington State Parks, Bayview, WA.

May 9. **Susan Kerr** on ‘Non-chemical control of parasites in small ruminants’ at Oregon State University Jackson County Extension Service, Medford, OR.

May 12. **Tim Miller** on ‘Killer foam for knotweed control?’ at the Olympic Knotweed Working Group meeting, Sequim, WA.

May 13. **Susan Kerr** on ‘Wildfires: Helping families and communities cope before, during, and after,’ webinar for WA State Youth and Family Living Unit.

May 13. **Tim Miller** on ‘Testing herbicides for weeds in ornamental bulbs’ at the WSU Bulb Field Day, WSU Puyallup.

May 13. **Tim Miller** on ‘Management of four noxious weed species’ for the King County Noxious Weed Program, Kenmore, WA.

May 16. **Susan Kerr** on ‘Non-chemical control of parasites in small ruminants’ at Goat Academy, Goldendale, WA.

May 18. **Susan Kerr** on ‘Value-added opportunities for Extension associated with long-term disaster recovery efforts: Lessons from the Washington SR530 (Oso) Slide’ at the National Association of Community Development Extension Professionals Annual Conference, Little Rock, AK.

May 20. **Tim Miller** on ‘Management of four noxious weed species’ for the King County Noxious Weed Program, Preston, WA.

May 21. **Lindsey du Toit** gave a Brown Bag seminar on ‘Ignorance is bliss? History repeated for brassica black leg in the Pacific Northwest’ at WSU Mount Vernon.

May 26. **Tim Miller** gave a Weed Walk at Skagit Valley College, Mount Vernon, WA.

May 27. **Bev Gerdeman** on ‘Insect pest management’ for the Skagit Sustainable Agriculture Class at the Discovery Garden, WSU Mount Vernon.

June 9. **Tim Miller** on ‘Management of four noxious weed species’ for the King County Noxious Weed Program, Issaquah, WA.

June 10. **Lisa DeVetter** on ‘Application of biodegradable mulches in day-neutral strawberry production’, at the OSU Strawberry Field Day in Aurora, WA.

June 10. **Tim Miller** on ‘Weed control in strawberry’ at the Oregon State University Strawberry Field Day, Aurora, OR.

June 15-17. **Tim Miller** on ‘In between aquatic and terrestrial: Managing weeds growing beside the water, Part II’ at the Washington Association of District Employees Conference, Leavenworth, WA.

June 17-25. **Tim Miller** on ‘Does primocane management affect raspberry fruit yield or anthocyanin content?’ at the International Rubus and Ribes Symposium, Ashville, NC.

June 21-25. **Lisa DeVetter**, Inga Zasada, Jerry Weiland, Tom Walters, **Rachel Rudolph**, and **Sean Watkinson** on ‘Soilborne pathogen and nematode management through removal of root inoculum in continuous red raspberry systems’, poster presentation at the International *Rubus* and *Ribes* Symposium, Ashville, NC.

June 24. Dorrie Main, et al. with **Lisa DeVetter** on ‘Resources available for Rubus research through the Genome Database for Rosaceae’, oral presentation at the International Rubus and Ribes Symposium, Ashville, NC.

June 27. **Lisa DeVetter** on ‘Berry production for the home gardener’ at Transition Fidalgo & Friends, Anacortes, WA.

June 27. **Lisa DeVetter** on ‘Berry production for the home gardener’ at Transition Fidalgo & Friends, Anacortes, WA.

June 29. **Susan Kerr** on ‘Help them bounce’ at WA State 4-H Teen Conference, Pullman, WA.

June 29. **Susan Kerr** on ‘Weathering ups and downs’ at WA State 4-H Teen Conference, Pullman, WA.

New Publications in 2015:

Andreas, J.E., A.D. Halpern, W.C. DesCamp, and **T.W. Miller**. 2015. Early detection rapid response program targets new noxious weed species in Washington state. J. Extension 53:2TOT5.

Brodhagen, M., M. Peyron, **C. Miles** and **D.A. Inglis**. 2015. Biodegradable plastic agricultural mulches and key features of microbial degradation. Appl. Microbiol. Biotechnol.99:1039-1056. doi: 10.1007/s00253-014-6267-5.

Brouwer, B., K. Atterberry and **C. Miles**. 2015. Commercial dry bean production in Western Washington State. Washington State University Extension publication EM092E, 18 p.

Bull, C.T., Ortiz-Lytle, M.C., Ibarra, A.G., **du Toit, L.J.**, and Reynolds, G. 2015. First report of bacterial blight of crucifers caused by *Pseudomonas cannabina* pv. *alisalensis* in Minnesota on arugula (*Eruca vesicaria* subsp. *sativa*). Plant Disease 99:415.

Carris, L.M. and **T.L. Peever**. 2015. Anamorphic states of *Disciotis*, *Gyromitra* and *Morchella* identified in the late fall and early winter in the inland Pacific Northwestern U.S.A. Mycologia 104: (in press).

Christianson, C.E., Jones, S.S., and **du Toit, L.J.** 2015. Screening carrot germplasm for resistance to *Xanthomonas hortorum* pv. *carotae*. HortScience 50:341-350.

Cowan, J.S., Goldberger, J., **Miles, C.**, and **Inglis, D.** 2015. Creating tactile space during a university Extension field day event: The case of a sustainable agriculture innovation. Rural Sociology: (in press).

Dang, H.X., B.M. Pryor, **T.L. Peever** and C.B. Lawrence. 2015. *Alternaria* genomes database: A comprehensive resource for a fungal genus comprised of plant pathogens, saprophytes, and allergenic species. BMC Genomics 16: 000-000 (in press).

DeVetter, L.W., J. Colquhoun, J. Zalapa, and R. Harbut. 2015. Yield estimation in commercial cranberry systems using physiological, environmental, and genetic variables. Sci. Hort. 190:83-93.

Gatch, E.W., and **du Toit, L.J.** 2015. A soil bioassay for predicting the risk of spinach Fusarium wilt. Plant Disease 99:512-526.

Habibi, A, **T.L. Peever**, M.I. Chilvers, W. Kim, W. Chen, W.J. Kaiser and F.J. Muehlbauer. 2015. First Report of Ascochyta Blight of Spotted Locoweed (*Astragalus lentiginosus*) caused by *Ascochyta* sp. in Idaho. Plant Disease 99: 000-000 (in press).

Huang, F., Y. Fu, D. Nie, J.E. Stewart, **T.L. Peever** and H. Li. 2015. Identification of a novel phylogenetic lineage of *Alternaria alternata* causing citrus brown spot in China. *Fungal Biology* 118: 000-000 (in press).

Kerr, S.R. 2015. Management practices to mitigate livestock heat stress. WSU Extension Fact Sheet FS0157E.

Kerr, S.R., D. Annala, B.V. Tuck, E. Hammond, S. Olson. 2015. Living on the Land Series: Getting started with sheep and goats. Oregon State University Extension Publication EC1646.

Kerr, S.R., A. Adams Progar, K. Steensma. 2015. Birds on Dairies Survey, surveymonkey.com.

Kim, W., C.-H. Park, J.-J. Park, H. Akamatsu, **T.L. Peever**, M. Xian, D.R. Gang, G. Vandermark and W. Chen. 2015. Functional analyses of the diels-alderase gene sol5 of *Ascochyta rabiei* and *Alternaria solani* indicate that the phytotoxin solanapyrones are nonessential for pathogenicity. *Molecular Plant-Microbe Interactions* 28: 482-496.

Miller, T. and C. Daniels. 2015. Pesticide ingredient: acetic acid/vinegar (WSU Home Garden Series Fact Sheet).

Ozkilinc, H., K.A. Thomas, M. Abang and **T.L. Peever**. 2015. Reproductive mode of *Didymella fabae* in Syria. *Plant Pathology* 63: 000-000 (in press).

Sharma-Poudyal, D., Paulitz, T.C., and **du Toit, L.J.** 2015. Evaluation of onion genotypes for resistance to stunting caused by *Rhizoctonia solani* AG 8. *HortScience* 50:551-554.

Sharma-Poudyal, D., Paulitz, T.C., and **du Toit, L.J.** 2015. Stunted patches in onion bulb crops in Oregon and Washington: Etiology and yield loss. *Plant Disease* 99:648-658.

Sharma-Poudyal, D., Paulitz, T.C., Porter, L.D., and **du Toit, L.J.** 2015. Characterization and pathogenicity of *Rhizoctonia* and *Rhizoctonia*-like species from pea crops in the Columbia Basin of Oregon and Washington. *Plant Disease* 99:604-613.

Siebach, S., G. Covarrubias-Pazaran, R. Harbut, B. Workmaster, **L.W. DeVetter**, S. Steffan, C. Guédot, A. Atucha, and J. Zalapa. 2015. Toxicity of Chelated Iron (Fe-DTPA) in American Cranberry. *J. Horticulture*. 2: 128. doi:10.4172/2376-0354.1000128.

Tanigoshi, L. K., B. S. Gerdeman and **G. Hollis Spitler**. 2015 (2014). Yellow spider mite control in red raspberry, 2013. *Arthropod Management Tests* 2014 (Vol 39: 1).

Popular Articles:

DeVetter, L.W. April 2015. Understanding the relationship between yield and pollination services in blueberry. *Whatcom Ag Monthly*.

DeVetter, L.W. June 2015. Application of biodegradable mulches in small fruit production. Whatcom Ag Monthly.

du Toit, L.J., Waters, T., and Reitz, S. May/June 2015. Internal dry scale and associated bulb rots: Bane of the 2014 Pacific Northwest onion season. Onion World 2015:4-7.

Gerdeman, B., L. Tanigoshi and **H. Spitler.** 2015. SWD berry management programs for 2015. April edition, Whatcom Ag Monthly.

Grahn, C., C. Miles, and C. Benedict. 2015. Assessing productivity of baby-leaf lettuce in the open field for western Washington. Washington Tilth Quarterly Newsletter, 25(2).

Harteveld, D.O.C. and **T.L. Peever.** January 2015. Botrytis diseases of raspberries and blueberries. Whatcom Ag Monthly.

Kerr, S. R. February 2015. How secure is your farm? Whatcom Ag Monthly.

Kerr, S.R. February 2015. A third hand, in The Kidding Pen newsletter, #70.

Kerr, S.R. February 2015. Getting ready to kid around (again!), in The Kidding Pen newsletter, #70.

Kerr, S. R. March 2015. Pregnancy ketosis. Whatcom Ag Monthly.

Kerr, S.R. March 2015. Revisiting subacute ruminal acidosis (SARA). WSU Dairy Newsletter.

Kerr, S. R. April 2015. Reducing tetanus risks in livestock. Whatcom Ag Monthly.

Kerr, S. R. May 2015. Small ruminant abortion storms. Whatcom Ag Monthly.

Kerr, S.R. May/June 2015. The root of the problem. Hobby Farms magazine

Kerr, S.R. June 2015. V. S. is no B. S.! WSU Dairy Newsletter.

Kerr, S. R. June 2015. Horse manure: Too much of a good thing? Whatcom Ag Monthly.

Kerr, S.R. 2015. Pigs: Home on the range? Oregon State University Extension Small Farm News, Winter 10(1).

Kerr, S.R. 2015. Wimpy worms vs. super worms. Seattle Times Newspapers in Education insert.

Ivors, K. and **L.W. DeVetter.** 2015. Rosaceae nemesis: Strawberry root and crown rot diseases. RosBREED Newsletter, March 2015.

McCotter, S.W., A.R. Garfinkel, T.M. Jardini, L.M. Carris and **T.L. Peever.** 2015. Multiple species of morels occur in landscape settings. FUNGI, Volume 7, 000-000 (in press).

Sullivan, D., and **L.W. DeVetter**. 2015. Not all Composts are equal: Recommendations on composts and organic soil amendments for blueberry. Whatcom Ag Monthly, April 2015.

Recent Awards (Congratulations!)

Lisa DeVetter received the Iowa State University College of Agriculture and Life Sciences 2015 Superior Achievement Award for Early and Mid-Career Alumni.

Lindsey du Toit was nominated to serve as one of three Councilors-at-Large for the American Phytopathological Society (APS) (2014-2017). Lindsey also was invited in April to serve on the APS Ad Hoc Task Force on Journal Publication Strategies (2015-2017), and 2015 is her sixth consecutive year as a Senior Editor for the APS journal Plant Disease.

Susan Kerr has been honored as a SARE Fellow (national, competitive); as a NACAA regional finalist for team newsletter award and publication awards; as a NAE4HA national winner for publication award; as a NACDEP national co-winner for excellence in teamwork award; and, as the Keynote Speaker at NACAA western regional meeting in Anchorage, AK.

Research Grants Awarded:

- **Carol Miles**, C., P. Tozer and C. Ross received **\$40,000** for ‘Characterizing and Valuating Cider Juice and Sensory Analysis of Varietal Cider to Support New Market Development’ from WSU CAHNRS Emerging Research Issues.

- **Carol Miles** and D. Smith received **\$4,939** for ‘Garden-based STEM Nutrition and Biology K-12 Curriculum to Increase Pulse Consumption’ from WSU CSANR BIOAG.

- **Carol Miles** received **\$11,958** for ‘Dry Beans for Improved Health of Farming Systems and Youth in NW Washington’ from NARF.

- **Carol Miles** received **\$4,704** and **\$4,070** for ‘Evaluating Grafted Eggplant for Tolerance to Verticillium wilt’ from NARF and WSCPR.

- **Carol Miles** received **\$4,955** for ‘Testing Apple Anthracnose Control in a Cider Apple Orchard’ from NARF.

- **Carol Miles** and **Debbie Inglis** received **\$133,404** for ‘Grafting Watermelon: A New Sustainable Management Practice for Soilborne Disease, and a New Value-added Enterprise for Washington’ from WSDA Specialty Crops Block Grant Program during 2014-2016.

- Chris Benedict and **Lisa DeVetter** received **\$8,478** from the Washington Red Raspberry Commission for ‘Integration of Factors to Improve Soil Health in Red Raspberry Production’ during 2015-2016.

- Clif Bar Family Foundation Seed Matters Graduate Fellowship for M.S. student, **Shannon Carmody**, to work on Organic Seed Pathology. **\$50,000** during 2015-16.
- **Debbie Inglis**, Chris Benedict and Don McMoran received **\$203,803** for 'Proactive Approaches to Protect Western Washington Specialty Potatoes Against New Strains of PVY' from WSDA Specialty Crops Block Grant Program during 2014-2017.
- Gray et al., which included **Debbie Inglis** and Chris Benedict, received **\$8.4 M** for 'Biological and Economic Impacts of Emerging Potato Tuber Necrotic Viruses and the Development of Comprehensive and Sustainable Management Practices' from USDA AFRI SCRI CAPS during 2014-2019.
- Gwen Hoheisel, Lisa DeVetter, Melba Salazar, and Gerrit Hoogenboom received **\$66,004** from the Washington Blueberry Commission for 'Determining Blueberry Cold Hardiness' during 2015-2018.
- Hayes et al., including **Debbie Inglis** and **Carol Miles** received **\$4.9 M** for 'Biodegradable Plastic Mulch for Sustainable Specialty Crop Production' from USDA AFRI SCRI CAPS during 2014-2019.
- **Lindsey du Toit** is a participant in a grant received from the National Science Foundation Alliances for Graduate Education and the Professoriate (NSF AGEPE) program for the Pacific Northwest Collaborative Opportunities for Success in Mentoring of Students (PNW-COSMOS). The grant is an alliance of WSU, University of Idaho, Montana State University, and University of Montana to increase participation by American Indian (AI) students in STEM doctoral program. Lindsey is one of 10 WSU faculty that will be involved in recruiting AI students from various institutions in Washington. WSU received **\$596,854** for the project.
- **Lisa DeVetter**, **Rachel Rudolph**, Mark Mazzola, and Chris Benedict received **\$8,157** and **\$5,020** from the Washington Red Raspberry Commission and NARF for 'Impacts of Alleyway Cover C on Soil Quality/Plant Competition in Established Red Raspberries' during 2015-2016.
- **Lisa DeVetter** and Suzette Galinato received **\$8,958** from the Washington Red Raspberry Commission for 'Comparison of Alternate- and Every-year Production in Summer-Bearing Red Raspberry' during 2015-2016.
- **Lisa DeVetter** received **\$6,000** and **\$6,394** from the Washington Blueberry Commission and NARF, respectively, for 'Relating Honey Bee Activity to Fruit Set and Yield in Washington Highbush Blueberry' during 2015-2016.
- **Lisa DeVetter** received **\$4,983** from the Washington Blueberry Commission for 'Evaluating the Role of Boron in Enhancing Fruit Set of Highbush Blueberry' during 2015-2016.

- 'Management of White Mold in Sunflower Seed Production in the Columbia Basin' submitted by **Lindsey du Toit** to Washington State Commission for Pesticide Registration (WSCPR) in Nov. 2015 for matching funding (**\$18,846**) committed by Precision Seed Production (**\$15,000**).

- Moore, D., L. Falconer, H. Neibergs, S. Neibergs, A. VanEnnanman, L. Gershwin, **Susan Kerr**, T. Lehenbauer, J. Taylor, J. Womak, and G. Fredricks. **\$9.7 M** from USDA AFRI CAPS for 'An Integrated Approach to Control of Bovine Respiratory Diseases Research Project' during 2011-2016.

- Oregon State University support of **\$1,000** to the PNW Vegetable Extension Group led by **Lindsey du Toit, Carol Miles** and **Debbie Inglis**.

- 'Prevalence and Significance of Seedborne *Pseudomonas syringae* pv. *aptata* in Table Beet and Swiss Chard Seed Crops in Washington State' submitted in Oct. 2014 to Puget Sound Seed Growers' Association via Northwest Agricultural Research Foundation (**\$28,766**); a proposal for matching funding also submitted to WSCPR in Nov. 2014 (**\$17,326**).

- **Shannon Carmody**, M.S. student in the Vegetable Seed Pathology program, was awarded **\$2,000** by the Alexander A. Smick Scholarship in Rural Community Service and Development to develop a replicable "Plant Pathology 101" workshop for beginning farmers, including Spanish-speaking producers, in the Skagit Valley. Shannon will be presenting this workshop in Fall 2015.

- Smith, J., T. Bass, **Susan Kerr**, J. Parker, L. Schulz, T. Sellnow, and G. Tonsor received **\$7.5 M** from USDA NIFA during 2015-2019 for 'A Human Behavioral Approach to Reducing the Impact of Livestock Pest or Disease Incursions of Socio-Economic Importance' (AFRI 004417).

- Steensma, J., K. Steensma, **Susan Kerr**, and A. Adams Progar received **\$24,987** from WSARE for 'Natural Predators as a Means to Limit Wildlife Damage at the Dairy-Fruit Interface' (Farmer/Rancher Grant FW10-012) during 2014-2016.

- **Susan Kerr** received **\$2500** Western SARE Professional Development Program for forage worker training. Also, a **\$800** travel scholarship for National Extension Risk Management Education conference; a **\$225** travel scholarship for National Association of Community Development Extension Professionals annual conference; and, a **\$355** registration scholarship for National Association of County Agriculture Agents Annual Meeting/Professional Improvement Conference.

- The 2015 Specialty Crop Block Grant Program of WSDA recommended funding to **Lisa DeVetter** on 'Optimizing Pre-plant Management Techniques for Nematodes and Soilborne Diseases in Red Raspberry' for **\$141,274**, and to **Lindsey du Toit** and Tim Waters on 'Evaluations of Arbuscular Mycorrhizal Fungi for Enhanced Growth, Phosphorus Use

Efficiency, and Management of Soilborne Pathogens of Onions and Carrot in the Columbia Basin' for **\$211,099**. Funding for both is pending approval by USDA.

- **Tim Miller** received **\$13,851** for 'Testing Herbicides for Crop Safety and Efficacy in Conifer Nurseries' from Northwest Nursery Crop Research Center.

- **Tim Miller** received **\$139,331** for 'Assessing the Impacts of Plow-down and Cover Crops on Field Production of Tulip' from Washington State USDA Specialty Crop Block Grant Program–Farm Bill, as part of a 3-year grant.

- **Tim Miller** and **Carl Libbey** received **\$4,250** for 'New Herbicides in Ornamental Bulbs' from Washington State Commission for Pesticide Registration.

- **Tim Miller** and **Carl Libbey** received **\$4,250** for 'New Herbicides in Red Raspberry' from Washington State Commission for Pesticide Registration.

- **Tim Miller** and **Carl Libbey** received **\$4,750** for 'New Herbicides in Spinach Seed' from Washington State Commission for Pesticide Registration.

- **Tim Miller** and **Carl Libbey** received **\$6,000** for 'Weed Control in Strawberry' from Washington State Strawberry Commission.

- **Tim Miller** and **Carl Libbey** received **\$4,807** for 'Perennial Weed Control in Red Raspberries' from Washington State Red Raspberry Commission.

- **Tim Miller** and **Lisa DeVetter** received **\$3,040** from the Washington Red Raspberry Commission for Effects of Cane Burning Herbicides on Fruit Quality of Red Raspberry' during 2015-2016.

- **Tim Miller** and **Carl Libbey** received **\$4,595** from 'Herbicide Combinations for Weed Control in Ornamental Bulbs' from Washington State Bulb Commission.

- **Tim Miller** and **Carl Libbey** received **\$8,574** for 'Weed Control in Vegetable Seed Crops' from Northwest Ag Research Foundation.

- **Tim Miller** received **\$5,000** for 'Evaluation of Efficacy and Crop Safety of Saflufenacil in Red Raspberry from Western Region IR-4, UC Davis.

- **Tim Miller** received **\$12,000** for 'Evaluation of Efficacy and Crop Safety of Several Herbicides in Ornamental Bulbs and Peony' from Western Region IR-4, UC Davis.

- **Tim Miller** received **\$10,500** for 'Testing Sulfentrazone for Weed Control and Crop Safety in Red Raspberries and Blueberries' from FMC Corporation.

- Tim Waters, WSU Regional Extension Specialist for Benton and Franklin Counties, and **Lindsey du Toit** received **\$2,500** from the Pacific Northwest Vegetable Association and **\$15,400**

from Bejo Seeds, DuPont, and Gowan for ‘Evaluation of Fungicides for Management of Neck Rot and Black Mold in Onion Bulb Production in the Columbia Basin.’

- **Tobin Peever** received **\$22,615** from WA Red Raspberry Commission for ‘Biology and Control of Botrytis Fruit Rot of Red Raspberry’ during 2015-2016.

- **Tobin Peever** received **\$23,192** from WA Blueberry Commission for ‘Biology and Control of Mummyberry of Blueberry and Fungicide Resistance’ during 2015-2016.

- **Tobin Peever** received **\$22,808** from Washington State Commission on Pesticide Registration. For ‘Biology and Control of Botrytis Fruit Rot of Red Raspberry’ during 2015-2016.

- **Tobin Peever** received **\$24,551** from Washington State Commission on Pesticide Registration. For ‘Biology and Control of Mummy Berry of Blueberry and Fungicide Resistance of Botrytis Greenberry’ during 2015-2016.

- **Tobin Peever** received **\$20,000** from the Washington Potato Commission for ‘Genetic Relationships of Columbia Root-Knot Nematode Populations’ during 2014-2015.

- **Tobin Peever** et al., received **\$104,738** from the Northwest Center for Small Fruit Research for ‘Host Specificity and Gene Flow of Fungicide Resistance Alleles Among *Botrytis cinerea* Populations Infecting Small Fruit in the US Pacific Northwest’ during 2014-2017.

- **Tobin Peever** received \$39,000 from the British Columbia Blueberry Council for ‘Identifying Fungicide Resistance of *Botrytis cinerea* Infecting Highbush Blueberry and Red Raspberry in British Columbia’ during 2014-2016.

- Yost, M., K. Galvin, V. Breckwich, H. Ferguson, and **Susan Kerr** received **\$194,919** from CDC-NIOSH for ‘Minimize Flies, Reduce Insecticide Use, Protect Employees: The UW/WSU Dairy Integrated Fly Management Project’ (5U54OH007544) during 2014-2015.

Vegetable Seed Pathology Workshops:

Lindsey du Toit chaired the organization of the WSU Organic Agriculture Stakeholder Forum held on April 24 in North Bend, WA. The forum was attended by 48 invited organic stakeholders from across Washington State that represented the spectrum of organic agriculture, as well as WSU faculty and administrators, to examine how WSU can invest more strategically in organic agricultural research in Washington State. Organic agriculture in this state is now valued at ~\$350 million/year.

Lindsey du Toit was invited by Chris Benedict, WSU Whatcom Co. Extension Director for a Brassica clubroot needs assessment on March 9 in Everson, WA. Lindsey and Chris met with growers from smaller-scale, diversified farms in Whatcom Co. to discuss clubroot impact, management practices, and research needs; and to initiate planning for preparing a Farmer-Researcher SARE grant application.

The 6th Annual Spinach Fusarium Wilt Soil Bioassay Open House was held on 19 Feb. 2015. The Open House is for spinach seed growers and seed companies in northwestern Washington to observe how spinach parent lines ranging from highly susceptible to partially resistant fare in a bioassay that tests soil sampled from growers' fields for the relative risk of Fusarium wilt. This was the 6th winter the bioassay has been offered, with >200 fields tested in northwestern Washington since 2010 to quantify Fusarium wilt risk.

Lindsey du Toit and **Mike Derie** participated in the WSU Onion Cultivar Storage Demonstration Trial at Carr Farms, Pasco, WA on 9 Feb. 2015. They assisted WSU Extension colleagues and onion stakeholders with evaluation of replicated plots of 55 onion cultivars for storage rots and storage quality, by completing the bulb rot ratings. The event was organized by Drs. Tim Waters and Carrie Wohleb, WSU Region Extension Specialists in the Columbia Basin.