

David Paul Belesky

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Education

Ph.D. Plant Sciences – West Virginia University 1978
M.Sc. Agronomy – Pennsylvania State University 1975
B.Sc. Agronomy – Pennsylvania State University 1973 *Magna Cum Laude*
American Society of Agronomy Outstanding Senior Student Award
C.D. Jeffries Agronomy Achievement Award

Professional Experience

Clinical Associate Professor & Director WVU Farms – West Virginia University (2016 – present)
Research Assistant Professor – Plant & Soil Sciences, West Virginia University (2013 – 2015)
Research Program Leader – USDA-ARS. Beckley, West Virginia (2004 – 2010)
Research Agronomist – USDA-ARS. Beckley, West Virginia (1988 – 2012)
Adjunct Professor – Virginia Tech (1997 – 2012)
Research Agronomist – USDA-ARS, Watkinsville, Georgia (1978 – 1988)
Adjunct Research Associate – University of Georgia (1984 – 1988)
Research Assistant – West Virginia University (1976 – 1978)
Assistant Science Officer – Queen's University Belfast, Northern Ireland (1975)
Research Assistant – The Pennsylvania State University (1973 – 1975)
Research/Teaching Aide – The Pennsylvania State University (1970 – 1973)

Service

Editorial Council – *Acta Agrobotanica*, Polish Botanical Society (2016 – present)
Advisory Editor – *Grass & Forage Science* (2014 – present)
Associate Editor – *Grass & Forage Science* (2004 - 2014)
Associate Editor – *Journal of Range Management* (1997 - 2002)
Associate Editor – *Agronomy Journal* (1991 -1996)
Assistant Editor – *American Forage & Grassland Council Proceedings* (1994 – 2006)
Northeastern Pasture Research & Extension Consortium. West Virginia Grasslands Council Steering Committee (1994 – 2001)
Conference Proceedings Coordinator – Southern Pasture & Forage Crop Improvement Conference (1986 – 1990)

Recognition

Ten invited book chapters addressing tall fescue – endophyte response to abiotic stress, and forage management
USDA-ARS Certificate of Merit (9) for research excellence and administrative accomplishments
Southern Pasture and Forage Crop Improvement Council; editor (1991)

Organization for Economic Cooperation and Development (OECD) Research Fellowship, University of Stirling/Edinburgh, Scotland (1986)
Sigma Xi, Gamma Sigma Delta, Phi Kappa Phi

Professional affiliations

Polish Botanical Society (2016 – present)
British Grassland Society (1988 - present)
American Forage & Grassland Council (1979 - present)
Society for Range Management (1988 -2008)
Botanical Society of America (1985 -2008)
American Society of Agronomy (1972 -2002; 2013 – 2016)

Leadership

December 2015 – present. Director, West Virginia University Farm System. The farm system, comprising seven farms across the state of West Virginia, was reorganized into a centralized teaching-research and demonstration resource for the faculty and students of WVU Davis College of Agriculture, Natural Resources & Design, and other internal and extramural partners.

March 1988 – November 2010. Project Lead Scientist – USDA-ARS, Appalachian Farming Systems Research Center, Beckley, WV. Forage Management and Physiology, and the Landscape Hydrology and Grazing Management Research project teams.

March 2004 – April 2010. Research Program Leader – USDA-ARS, Appalachian Farming Systems Research Center, Beckley, WV.

Research

I developed an internationally recognized research program addressing tall fescue-endophyte interactions in agro-ecosystems. A series of basic discoveries inform survival strategy models for tall fescue-endophyte associations growing in a wide range of conditions and contribute to practical management of tall fescue grown on about 35 million acres in the USA.

Much of my work was accomplished using field experiments conducted in the southern Piedmont and the Appalachian Plateau of the eastern USA. Findings from that work helped define spatial and temporal distribution of pasture botanical composition and production in response to biotic and abiotic stressors. We found that sward responses can be used as predictors of climate variation. Discoveries in pasture ecology and pasture management system function help improve low-input grazing practices for hill-land pasture including management strategies for new forage resources, methods to establish and manage silvopasture and sward management to sustain livestock health and performance.

Research program results are published in approximately 200 original works appearing in refereed journals and reviewed proceedings, invited book chapters and experiment station technical reports. Work-in-progress was presented in numerous published proceedings and at producer-oriented and advisory staff workshops.

The Research Team Approach – complex systems research demands an integrative, multidisciplinary approach. This requires on-going efforts to learn new ways to identify and pursue systems issues, as well as create a learning environment for students and professionals in the field. My research program was built upon multidisciplinary collaborations that included post-doctoral research associates and visiting scholars from Poland, Hungary, Syria, China, Britain, Northern Ireland, New Zealand, Slovakia, Poland, Venezuela, Sri Lanka, Israel and Brazil as well as numerous colleagues in the USA. I served as an ad hoc reviewer for applied agriculture and botanical journal submissions and competitive grant proposals. I am an external examiner for PhD candidates at Massey University, Palmerston North, New Zealand. I worked with numerous university and high school student research aides who helped with my research program over the years to make them aware of the fundamentals of interdisciplinary agro-ecosystem research. I also served as a judge for high school and competitive undergraduate science fairs.

Refereed Publications

Google Scholar profile available at:

<https://scholar.google.com/citations?user=m8yv-p0AAAAJ&hl=en&oi=ao>

	All	Since 2012
<u>Citation indices</u>		
Citations	4314	1449
h-index	35	18
i10-index	77	37

Mata-Padrino DJ, EED Felton, WB Bryan, DP Belesky. 2017. Winter grazing in a grass-fed system: Effect of stocking density and sequential use of autumn-stockpiled grassland on performance of yearling steers. Intl J. Agron. Article ID 2375954 9p. doi.org/10.1155/2017/2375954.

Halvorson JJ, DP Belesky, M West. 2017. Inhibition of forage seed germination by leaf litter extracts of overstory hardwoods used in silvopasture systems. Agrofor. Syst. 91:69-83.

Neel JPS, DP Belesky. 2017. Hbage production, nutritive value and animal productivity within hardwood silvopasture, open and mixed pasture systems in Appalachia, United States. Grass Forage Sci. 72: 137-153

Burner DM, AJ Ashworth, DH Pote, JR Kiniry, DP Belesky, JH Houx III, P Carver, FB Fritschi. 2017. Dual-Use Bioenergy-Livestock Feed Potential of Giant Miscanthus, Giant Reed, and Miscane. Agric. Sci. 8:97-112.

Belesky DP, DP Malinowski. 2016. Grassland communities in the USA and expected trends associated with climate change. Acta Agrobotanica. (invited review). DOI: 10.5586/aa.1673

- Turner KE, DP Belesky, KA Cassida, AM Zajac MA Brown. 2016. Selective deworming effects on performance and parameters associated with gastrointestinal parasite management in lambs and meat-goat kids finished on pasture. *Sheep & Goat Res. J.* 31: 17-29.
- Bowdridge SA, DJ Mata-Padrino, DP Belesky. 2016. Effect of fish meal supplementation rate on parasitism and performance of grazing lambs. *J. Anim. Sci.* 94: supplement1: 49-49 doi:10.2527/ssasas2015-099.
- Halvorson JJ, DP Belesky, HW Godwin. 2015. Seedling performance associated with live or herbicide treated tall fescue. *Intl. J. Agron.* doi.org/10.1155/2015/841213
- Neel JPS, EED Felton, S Singh, AJ Sexstone, DP Belesky. 2015. Open pasture, silvopasture and sward maturity effects on nutritive value and fermentation characteristics of cool-season pasture. *Grass & Forage Sci.* doi:10.1111/gfs.12172
- Turner KE, DP Belesky, AM Zajac, MK Dowd. 2014. Performance and blood parameters when lambs and meat-goat kids were finished on pasture with and without whole cottonseed (*Gossypium hirsutum*) supplementation. *Grass Forage Sci.* 70: 451-464
- Turner KE, DP Belesky, KA Cassida, HN Zerby. 2014. Carcass merit and meat quality in Suffolk lambs, Katahdin lambs, and meat-goat kids finished on a grass-legume pasture with and without supplementation. *Meat Sci.* 98:211-219.
- Casler MD, DJ Undersander, YA Papadopolous, S Bittman, D Hunt, RD Mathison, DH Min, JG Robins, JH Cherney, SN Acharya, DP Belesky, SR Bowley, BE Coulman, R Drapeau, NJ Ehlike, MH Hall, RH Leep, R Michaud, J Rowsell, GE Shewmaker, CD Teutsch, WK Coblenz. 2014. Sparse-flowering orchardgrass represents an improvement in forage quality during reproductive growth. *Crop Sci.*54:421-429.
- Casler MD, YA Papadopolous, S Bittman, RD Mathison, DH. Min, JG Robins, JH Cherney, SN Acharya, DP Belesky, SR Bowley, BE Coulman, R Drapeau, NJ Ehlike, MH Hall, RH Leep, R Michaud, J Rowsell, GE Shewmaker, CD Teutsch, WK Coblenz. 2013. Sparse-flowering orchardgrass is stable across temperate North America. *Crop Sci.* 53:1870-1877.
- Malinowski, DP, DP Belesky, JM Ruckle, JM Fedders. 2012. Productivity and botanical composition of orchardgrass-white clover swards in a cool-temperate hill land region of the eastern United States. *Grassland Sci.* 58:188-200.
- Belesky DP, DM Burner, JM Ruckle. 2011. Tiller production in cocksfoot (*Dactylis glomerata*) and tall fescue (*Lolium arundinaceum*) growing along a light gradient. *Grass Forage Sci.* 66: 370-380.
- Malinowski DP, TJ Butler, DP Belesky. 2011. Competitive ability of tall fescue against alfalfa as a function of summer dormancy, endophyte infection, and soil moisture availability. *Crop Sci.* 51:1282-1290.
- Halvorson JJ, KA Cassida, KE Turner, DP Belesky. 2011. Nutritive value of bamboo as browse for livestock. *Renew. Agric. Food Syst.* 26:161-170.

- Belesky DP, JM Ruckle, JJ Halvorson. 2010. Carbon isotope discrimination as an index of tall fescue–endophyte association response to light availability and defoliation. *Environ. Exp. Bot.* 67: 515-521.
- Turner, KE, DP Belesky. 2010. Forages, pastures, and grazing: Using appropriate terminology to communicate. *J. Ext.* (on-line) 48(2) Article 2FEA5.
- Feldhake C M, JPS Neel, DP Belesky. 2010. Establishment and production from thinned, mature deciduous-forest silvopastures in Appalachia. *Agrofor. Syst.* 79:31-37.
- Burner, DM, DH Pote, DP Belesky. 2009. Effect of loblolly pine root pruning on alley cropped herbage production and tree growth. *Agron. J.* 101:184-192.
- Feldhake CM, DP Belesky. 2009. Photosynthetically active radiation use efficiency of *Dactylis glomerata* and *Schedonorus phoenix* along a hardwood tree-induced light gradient. *Agrofor. Sys.* 75:189-196.
- Cassida KA, JPS Neel, DP Belesky. 2009. Stockpiled prairiegrass provides high-quality fall grazing for lambs. *Forage & Grazinglands*. doi:10.1094/FG-2009-0318-01-RS.
- Boyer DG, DP Belesky. 2009. Forage canopy – slope interaction effects on splash transport of fecal indicator bacteria under simulated rainfall. *Grass Forage Sci.* 64: 432-442.
- Burner DM, TL Tew, JJ Harvey, DP Belesky. 2009. Dry matter partitioning and quality of *Miscanthus*, *Panicum*, and *Saccharum* genotypes in Arkansas, USA. *Biomass Bioenergy.* 33:610-619.
- Belesky DP, JM Ruckle, LP Bush. 2009. Microsite conditions influence nutritive value characteristics of a common tall fescue cultivar infected with either a native or a novel non-ergogenic endophyte. *Environ. Exp. Bot.* 67:284-292.
- Belesky DP, DM Burner JM Ruckle. 2008. Does endophyte influence resource acquisition and allocation in defoliated tall fescue as a function of microsite conditions? *Environ. & Exp. Bot.* 63:368-377.
- Burner DM, DP Belesky. 2008. Relative effects of irrigation and intense shade on productivity of alley-cropped tall fescue herbage. *Agrofor. Sys.* 73:127-139.
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- Malinowski DP, DP Belesky, BA Kramp, J Ruckle, J Kigel, WE Pinchak. 2008. A method to differentiate summer-dormant from summer-active tall fescue and orchardgrass accessions at germination stage. *Aust. J. Agric Res.* 59:1092-1102.
- Neel JPS, CM Feldhake, DP Belesky. 2008. Influence of solar radiation on the productivity and nutritive value of herbage of cool-season species of an understorey sward in a mature conifer woodland. *Grass Forage Sci.* 63:38-47.

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- Belesky DP, NJ Chatterton, JPS Neel. 2006. *Dactylis glomerata* growing along a light gradient in the central Appalachian Region of the eastern USA: III. Nonstructural carbohydrates and nutritive value. *Agrofor. Syst.* 67:51-61.
- Feldhake CM, JPS Neel, DP Belesky, EL Mathias. 2005. Light measurement methods related to forage yield in a grazed northern conifer silvopasture in the Appalachian region of eastern USA. *Agrofor. Syst.* 65:231-239.
- Malinowski DP, H Zuo, DP Belesky, GA Alloush. 2005. Evidence for copper binding by extracellular root exudates of tall fescue but not perennial ryegrass infected with *Neotyphodium* spp. endophytes. *Plant Soil.* 267:1-12.

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- Ritchey KD, DP Belesky, JJ Halvorson. 2004. Soil properties and clover establishment six years after surface application of Ca-rich by products. *Agron. J.* 96:1531-1539.
- Belesky DP, JM Ruckle, WM Clapham. 2004. Chicory cultivar influences response to nitrogen source. *J. Agron. Crop Sci.* 190:100-110.
- Staley TE, DP Belesky, D.P 2004. Nodulation and root growth of forage legumes sown into tall fescue swards. *Grass Forage Sci.* 59:399-405.
- Alloush GA, DP Belesky, WM Clapham. 2003. Forage chicory: a plant resource for nutrient-rich sites. *J. Agron. Crop Sci.* 189: 96-104.
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- Belesky DP, CM Feldhake, DG Boyer. 2002. Herbage productivity and botanical composition of hill pasture as a function of clipping and site features. *Agron. J.* 94:351-358.
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- Neel JPS, GA Alloush, DP Belesky, WM Clapham. 2002. Influence of ionic strength on mineral composition, dry matter yield and nutritive value of forage chicory *J. Agron. Crop Sci.* 188:1-10.
- Baligar VC, DL Grunes, DP Belesky, RB Clark. 2001. Mineral composition of forage legumes as influenced by aluminum. *J. Plant Nutr.* 24:215-227.
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- Clapham WM, JM Fedders, DP Belesky, JG Foster. 2001. Developmental dynamics of forage chicory (*Cichorium intybus* L.). *Crop Sci.* 93:443-450.
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- Belesky DP, KE Turner, JM Ruckle. 2000. Influence of nitrogen on productivity and

- nutritive value of forage chicory. *Agron. J.* 92:472-478.
- Belesky DP, KE Turner, JM Fedders, JM Ruckle. 1999. Productivity, botanical composition and nutritive value of mixed-species stands including forage chicory. *Agron.* 91:450-456.
- Malinowski DP, DK Brauer, DP Belesky. 1999. The endophyte *Neotyphodium coenophialum* affects root morphology of tall fescue grown under phosphorus deficiency. *J. Agron. & Crop Sci.* 183:53-60.
- Malinowski DP, DP Belesky, JM Fedders. 1999. Endophyte infection may affect the competitive ability of tall fescue grown with red clover. *J. Agron. & Crop Sci.* 183:91-102.
- Turner KE, DP Belesky, JM Fedders. 1999. Chicory (*Cichorium intybus* L.) effect on lamb weight gain, and rate of in vitro neutral detergent fiber disappearance. *Agron. J.* 91:445-450.
- Malinowski DP, DP Belesky. 1999. Tall fescue aluminum tolerance is affected by *Neotyphodium coenophialum*-endophyte. *J. Plant Nutr.* 22:1335-1349.
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- Hill NS, DP Belesky, WC Stringer. 1998. Encroachment of endophyte-infected on endophyte-free tall fescue. *Ann. Bot.* 81:483-488.
- Malinowski DP, GA Alloush, DP Belesky. 1998. Evidence for chemical changes on the root surface of tall fescue in response to infection with the fungal endophyte *Neotyphodium coenophialum*. *Plant and Soil* 205:1-12.
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