

Albert T. Adjesiwor

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Education:

2015 – 2018: Ph.D. Plant Sciences (Minor in Statistics), University of Wyoming, Laramie WY

Specialization: Weed Science

Dissertation: *Response of sugarbeet (Beta vulgaris L.) to light quality*

2013 – 2015: M.S. Agronomy, University of Wyoming, Laramie, WY

Specialization: Forage Agronomy and Nutrient Management

Thesis: *Profitability and environmental benefits of irrigated grass-legume mixtures in comparison with synthetic fertilizer use in Wyoming*

2008 – 2012: B.Sc. Agriculture (Honors), Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Specialization: Crop and Soil Science

Thesis: *Response of maize (Zea mays L.) to weed management*

Professional Experience:

2018 – present: Postdoctoral Research Associate, University of Wyoming, Laramie, WY

- Assessing the effect of relative humidity on the volatilization of dicamba.
- Collaborated with weed scientists in CO, MT, NE, and WY to quantify the economic implications of herbicide-resistant weed management in glyphosate-resistant sugarbeet.
- Co-developed the Herbicide Resistance Risk Calculator (<http://bit.ly/HerbRisk>).
- Assessing the effect of flowering timing and herbicide susceptibility in common lambsquarters.
- Assessed the interaction effect of reflected light quality and moisture stress on sugarbeet growth and development.
- Evaluated Ray and factorial designs for confirming the synergistic effect of herbicides using mesotrione plus atrazine on common lambsquarters.
- Assessed time to flowering in glyphosate-resistant kochia biotypes from Hays KS and Worland WY.
- Evaluated the potential of red-light exposure for common lambsquarters seedbank management.
- Pesticide applications using field pesticide sprayers and spray chambers.
- Statistical data analyses using R statistical language and Statistical Analysis System (SAS).
- Mentoring undergraduate and graduate students and supervising graduate student projects.

2015 – 2018: Graduate Assistant, University of Wyoming, Laramie, WY

- Assessed effect of weed presence on Phenmedipham and Desmedipham injury in sugarbeet.
- Determined the effect of reflected light quality on the critical period of weed removal in sugarbeet.
- Assessed the effect of reflected light quality on growth and photosynthate partitioning in sugarbeet.

- Evaluated herbicide options for creeping bellflower (*Campanula rapunculoides*) control.
- Evaluated the synergistic effect of a glyphosate and proline fungicide on glyphosate-resistant kochia.
- Sugarbeet non-structural carbohydrate analysis using enzymatic assays and anthrone reagent methods.
- Determined the relative toxicities of selected organic and conventional herbicides to large nightcrawlers (*Lumbricus terrestris*).
- Supervised undergraduate interns and student projects

2013 – 2015: Graduate Assistant, University of Wyoming, Laramie, WY

- Determined optimal seed mass ratios for improved productivity and profitability of irrigated grass-legume mixtures.
- Assessed cultivar selection and nutrient management in rainfed sainfoin (*Onobrychis viciifolia*).
- Quantified soil water use in forage grasses, legumes, and grass-legume mixtures using a neutron probe.
- Conducted forage nutritive value analysis using Near Infrared Reflectance Spectroscopy.
- Analyzed soil nitrogen using Biotek and soil microbial biomass using Phospholipid Fatty Acid Analysis.

2012 – 2013: Teaching Assistant (National Service), Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

- Prepared lecture notes, tutored undergraduate students, and proctored exams.
- Laboratory set-up for hands-on lab activities and graded soil science laboratory reports
- Assisted in supervising undergraduate research projects.

2011: Practical Vocation Trainee, Fintrade Model Farm, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

- Processed meat and dairy products.
- Established nurseries and applied fertilizer to research plots.

Teaching:

Spring 2020: Co-instructor, PLNT 5790: Applied Statistics in Plant Sciences (online), University of Wyoming, Laramie WY

Spring 2020: Co-instructor/host, PLNT 5820: Graduate Seminar, University of Wyoming, Laramie WY

Fall 2019: Co-instructor, AECL 3030: Ecology of Plant Protection, University of Wyoming, Laramie WY

2018 – 2019: Panel discussion on “Agriculture in Africa”, AGEL1000: Agroecology, University of Wyoming, Laramie WY

2018: Panel discussion on “Agriculture in Africa”, University of Wyoming Lab School

2015 – present: Teaching assistant, PLNT 4070/5070: Weed Science and Technology, University of Wyoming, Laramie WY

2012 – 2013: Teaching Assistant for Arable Crop Production & Management (CS 157), Physiology of Crop Plants (CS 353), and Arable Crop Production (CS 356), Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

2012: Main Instructor, Core Mathematics - Asesewa Senior High School, Asesewa, Ghana

2009: Main Instructor, General Agriculture and Animal Science, Asesewa Senior High School, Asesewa, Ghana

Extension/Outreach Activities:

2020: Integrated weed management in Wyoming: ecology, herbicides, and an interactive Web App. Wyoming Weed Management Association annual meeting, Casper, WY

2018: Confirmed the presence of Palmer amaranth on a dry bean field, Lingle WY

2017: Herbicide Mixtures, Pesticide applicator training, Laramie WY

2016: Glyphosate-resistant kochia (*Kochia scoparia* (L.) Schrad) update". Wyoming Weed Management Association annual meeting, Casper, WY

2015 – 2017: Participant of the Wyoming Cheatgrass Challenge, Lingle WY

2015 – 2016: Assisted in organizing the Annual Weed Tour, Lingle WY

2015: Collected kochia samples from grower fields in the Big Horn Basin to assess for glyphosate resistance, Worland WY

2015: Effect of reflected light quality on weed removal timing in sugarbeet, Annual Field Day, University of Wyoming Laramie Research and Extension Center, Laramie WY

2015: Effect of reflected light quality on removal timing in sugarbeet, Annual Field Day, University of Wyoming Sustainable Agriculture Research and Extension Center, Laramie WY

2014: Irrigated grass-legume mixtures, Annual Field Day, University of Wyoming Sheridan Research and Extension Center, Sheridan WY

Research Grants:

Awarded

2014: Western Sustainable Agriculture Research and Education Grant (GW15-020; \$24,998) "Economic and environmental sustainability of irrigated grass-legume mixtures."

Unsuccessful

2018: USDA NIFA, Agriculture and Food Research Initiative (AFRI) Foundational Knowledge of Agricultural Production Systems. "Should We Harvest the Weeds? Toward a Mechanistic Understanding of Biodiversity Impacts on Forage Crop Productivity and Nutritive Value."

2015: UW College of Agriculture and Natural Resources AES Competitive Grants Program. "Economic and Environmental Sustainability of Replacing Nitrogen-Fertilized Grasses with Grass-Legume Mixtures under Irrigation."

Contributed Projects

2018 – present: Weed Biology, Ecology, and Management in Sugarbeet (\$20,500). Western Sugar Cooperative

2016 – present: Systems Analysis of Shade-Avoidance Responses as a Mechanism of Crop Yield Loss Due to Weeds (\$500,000). USDA National Institute of Food and Agriculture.

Publications:***Refereed***

- Adjesiwor AT**, Claypool DA, Kniss AR (2019) Dry bean response to preemergence application of flumioxazin. *Weed Technol.* doi:10.1017/wet.2019.87
- Sbatella GM, **Adjesiwor AT**, Kniss AR, Stahlman PW, Westra P, Moechnig M, Wilson RG (2019) Herbicide options for glyphosate-resistant kochia (*Bassia scoparia*) management in the Great Plains. *Weed Technol.* doi:10.1017/wet.2019.48
- Islam MA, **Adjesiwor AT** (2019) Nitrogen application in tall fescue: productivity, agronomic efficiency, and relative profitability. *Grassl Sci.* 2019; 00:1–7.
<https://doi.org/10.1111/grs.12261>
- Schambow TJ, **Adjesiwor AT**, Lorent L, Kniss AR (2019) Shade Avoidance Cues Reduce Beta vulgaris Growth. *Weed Sci.* 67:311-317 doi: 10.1017/wsc.2019.2
- Coburn C W, **Adjesiwor AT**, Kniss AR (2018) Creeping bellflower response to glyphosate and synthetic auxin herbicides. *HortTech.* 28:6-9. DOI: 10.21273/HORTTECH03853-17
- Adjesiwor AT**, Islam MA, Zheljazkov V, Ritten JP, Garcia y Garcia A (2017) Grass-legume seed mass ratios and nitrogen rates affect forage accumulation, nutritive value, and profitability. *Crop Sci.* 57:1–13. DOI: 10.2135/cropsci2016.09.0776
- Adjesiwor AT**, Islam MA (2016) Rising nitrogen fertilizer prices and projected increase in maize ethanol production: the future of forage production and the potential of legumes in forage production systems. *Grassl Sci* 62: 203–212. DOI: 10.1111/grs.12130
- Sintim HY, **Adjesiwor AT**, Zheljazkov VD, Islam MA, Obour AK (2016) Nitrogen application in sainfoin under rain-fed conditions in Wyoming: Productivity and Cost Implications. *Agron J* 108:294-300. DOI:10.2134/agronj2015.0317

In Process

- Mosqueda G, **Adjesiwor AT**, Kniss AR. Relative toxicities of selected organic and conventional herbicides to worms. *PLoS ONE* (*submitted*).
- Adjesiwor AT**, Weinig C, Kniss AR. Effects of timing of weed removal and reflected far-red light on growth and development of sugarbeet. *PNAS* (*In prep*).
- Islam MA, **Adjesiwor AT**. Pre-harvest haying, nitrogen, and cultivar affect seed tall fescue productivity and profitability. *Crop Sci* (*In prep*)
- Adjesiwor AT**, Kniss AR. Light quality-mediated kin recognition in sugarbeet. *Canadian Journal of Plant Science* (*In prep*).
- Adjesiwor AT**, Mosqueda EG, Asay JM, Kniss AR. Effect of weed presence on herbicide injury in sugarbeet. (*In prep*)
- Adjesiwor AT**, Kniss AR. Dry matter and photosynthate partitioning in sugarbeet as influenced by reflected far-red light (*In prep*).

Book Chapters

Islam MA, **Adjesiwor AT**. (2019) Moisture Stress and its Effects on Forage Production Systems. Pages 703-712 in: Pessarakli M ed. Handbook of Plant and Crop Stress, 4th Edition. CRC Press, New York, United States

Islam MA, **Adjesiwor AT** (2018) Nitrogen fixation and transfer in agricultural production systems. Pages 95-110 in: Khan A, Fahad S ed. Nitrogen in Agriculture – Updates. Rijeka, Croatia: InTechOpen

Islam MA, **Adjesiwor AT** (2016) Forage crops and their photosynthesis. Pages 465-474 in: Pessarakli M ed. Handbook of Photosynthesis, 3rd Edition. CRC Press, New York, United States

Selected Extension Publications:

Kniss AR, **Adjesiwor AT**, Unverzagt JC, Rapp RE (2019) Weed Management in Sainfoin. University of Wyoming Extension. B-1333. 7 p.

Adjesiwor AT, Islam MA (2018). Birdsfoot trefoil: Establishment and management as monocultures and mixtures in Wyoming. University of Wyoming Extension, B-1321. 7 p.

Adjesiwor AT, Islam MA, Jeliakov V, Garcia y Garcia A, Ritten J (2014) Productivity and profitability of irrigated grass-legume mixture. Fields Day Bulletin, University of Wyoming Sheridan Research and Extension Center, pp 123-124.

Conference Abstracts and Papers:

Adjesiwor AT, Lawrence NC, Jha P, Gaines T, Westra E, Kniss AR (2019) Economic Implications of Herbicide Resistant Weed Management in Glyphosate-Resistant Sugarbeet. WSSS Annual Meeting, 2019. Denver, Colorado

Asay JM, Mosqueda EG, **Adjesiwor AT**, Kniss AR (2019) Effect of Weed Presence on Sugarbeet Injury with Phenmedipham and Desmedipham. WSSS Annual Meeting, 2019. Denver, Colorado

Adjesiwor AT, Kniss AR (2019) Weed Emergence Timing and Shade Avoidance Responses in Sugarbeet. WSSS Annual Meeting, 2019. Denver, Colorado

Adjesiwor AT, Kniss AR (2019) Early Season Exposure to Weed Reflected Light has Season Long Implications for Sugarbeet. WSSA Annual Meeting, 2019. New Orleans, Louisiana

Adjesiwor AT, Lawrence NC, Jha P, Gaines T, Westra E, Kniss AR (2019) Economic Implications of Herbicide Resistant Weed Management in Glyphosate-Resistant Sugarbeet. WSSA Annual Meeting, 2019. New Orleans, Louisiana

Kniss AR, **Adjesiwor AT**, Lawrence NC (2019) An Interactive Web App that Estimates the Risk of Developing Herbicide Resistance. WSSA Annual Meeting, 2019. New Orleans, Louisiana

Mosqueda EG, **Adjesiwor AT**, Kniss AR (2019) Relative toxicities of selected organic and conventional herbicides to worms. WSSA Annual Meeting, 2019. New Orleans, Louisiana

Adjesiwor AT, Kniss AR (2018) Shade Avoidance in Sugarbeet: Tragedy of the Commons? WSSS Annual Meeting, 2018. Anaheim, California

Adjesiwor AT, Kniss AR (2018) Response of *Beta vulgaris* to Reflected Light Quality. WSSA Annual Meeting, 2018. Arlington, Virginia

- Hosseini, A., B.E. Ewers, **A.T. Adjesiwor**, and A. R. Kniss. Linking root hydraulic properties to carbon allocation patterns in annual plant. AGU fall meeting, 2017. New Orleans, Louisiana
- Adjesiwor AT**, Kniss AR (2017) Effects of Reflected Light Quality on Growth and Photosynthate Partitioning in *Beta vulgaris*. WSWs Annual Meeting, 2017. Coeur d'Alene, Idaho
- Adjesiwor AT**, Kniss AR (2017) Kin recognition in *Beta vulgaris*. WSWs Annual Meeting, 2017. Coeur d'Alene, Idaho
- Adjesiwor AT**, Kniss AR (2017) Effects of reflected light quality on growth and yield of *Beta vulgaris*. Binn. Meeting of American Society of Sugar Beet Technologists, 2017. Greenville, South Carolina
- Adjesiwor AT**, Kniss AR (2016) Role of Shade Avoidance in Critical Period of Weed Control in *Beta vulgaris*. WSSA Annual Meeting, 2016. San Juan, Puerto Rico
- Adjesiwor AT**, Kniss AR (2016) Effects of Shade Avoidance on Growth and Yield of *Beta vulgaris*. WSSA Annual Meeting, 2016. San Juan, Puerto Rico
- Adjesiwor AT**, Kniss AR (2016) T. J. Schambow, and A. R. Kniss. Physiological Mechanisms of Shade Avoidance Response in *Beta vulgaris*. WSWs Annual Meeting, 2016. Albuquerque, New Mexico
- Adjesiwor AT**, Kniss AR (2016) Response of Light-Grown *Beta vulgaris* to Reflected Far-red Light. WSWs Annual Meeting, 2016. Albuquerque, New Mexico
- Adjesiwor, A.T.** and M.A. Islam. Grass, legumes, and grass-legume mixtures: yield, nutritive value, and soil water use. Proc. 2015 Western Alfalfa & Forage Symposium, Reno, Nevada

Honors, Awards, and Scholarships:

- 2015 – 2018: Graduate Research Assistantship, University of Wyoming, Laramie WY
- 2018: First Place, Graduate Student Oral Presentation Contest, Basic Biology and Ecology section, Western Society of Weed Science (WSWS), 2018 Annual Meeting, Anaheim, California
- 2017: Gerald O. Mott Meritorious Graduate Student Award in Crop Science, Crop Science Society of America (CSSA)
- 2017: Second Place, Graduate Student Poster Presentation Contest, Basic Biology and Ecology section, Western Society of Weed Science (WSWS), 2017 Annual Meeting, Coeur d'Alene, Idaho
- 2016: Second Place Graduate Student Poster Presentation Contest, Basic Biology and Ecology section, Western Society of Weed Science (WSWS), 2016 Annual meeting, Albuquerque, New Mexico.
- 2015: University of Wyoming Dept. of Plant Sciences, Edward Ted & Susan King Lloyd Graduate Research Award (\$2100)
- 2013 – 2015: Graduate Research Assistantship, University of Wyoming, Laramie WY
- 2012: Valedictorian and Outstanding Graduating Student in the College of Agriculture and Natural Resources, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
- 2012: NUGs/Vice Chancellors Award for Outstanding Student, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
- 2011: Upper Manya Kro Rural Bank Limited Undergraduate Research Support (\$316) "Response of maize to weed management."
- 2011: NUGs/Vice Chancellors Award for Outstanding Student, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
- 2009 – 2012: Scholarship for brilliant students, Upper Manya Kro Rural Bank Ltd, Asesewa, Ghana

2009 – 2012: Finatrade Foundation Scholarship, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Certifications:

2017: Private Pesticide Application License, Wyoming Department of Agriculture

2014: Department of Transportation Hazardous Materials Shipping Refresher

2014: Nuclear Gauge Safety Training

2014: Pesticide Safety Training

Leadership and Service:

2019: Moderator and Discussion Section Chair, Basic Biology and Ecology section, 2019 WSWS Annual Meeting. Denver, Colorado

2019: Graduate Student Paper Contest Judge, 2019 WSSA Annual Meeting. New Orleans, Louisiana

2019: Graduate Student Poster Contest Judge, 2019 WSWS Annual Meeting. Denver, Colorado

2015 – 2016: Vice President, Graduates in Plant Sciences, University of Wyoming, Laramie WY

2011 – 2012: Secretary, Finatrade Scholars Association, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Journals Ad-hoc Reviewer:

2019 – present: Agronomy Journal

2019 – present: Weed Science

2019 – present: Weed Technology

2019 – present: Canadian Journal of Plant Science

2019 – present: Journal of Crop Improvement

2019 – present: PLOS ONE

2019 – present: Agronomy, Publication of MDPI, Basel, Switzerland.

2018 – present: Grassland Science

Professional Affiliation:

Weed Science Society of America

Western Society of Weed Science

Crop Science Society of America

American Society of Agronomy

Gamma Sigma Delta

The Honor Society of PHI Kappa PHI