**Xiaoying Li**

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**EDUCATION \_\_\_\_\_ \_**

**Ph.D. in Agronomy and Crop Science**

*School of Plant and Environmental Sciences, Virginia Tech, Blacksburg, VA*

August 2019-December 2023

GPA: 3.9/4.0

**M.S. in Plant Pathology**

*College of Agricultural Sciences, South China Agricultural University, Guangzhou, China*

August 2013-May 2016

GPA: 3.4/4.0

**B.S. in Plant Protection**

*College of Agricultural Sciences, Shanxi Agricultural University, Jinzhong, China*

August 2009-May 2013

GPA: 3.2/4.0

**RESEARCH EXPERIENCE \_\_\_\_\_\_\_\_\_\_ \_\_**

**Graduate Research Assistant** Aug. 2019 – Dec. 2023

*Virginia Tech,* Blacksburg, VA

Within the Soybean Breeding and Genetics Program (Dr. Bo Zhang’s Lab), Plant Pathology Program (Dr. Steve Rideout’s Lab), and Food Microbiology Program (Dr. Laura Strawn’s Lab)

*Laboratory Work*

1. *The poor germination potential and seedling vigor of edamame significantly increased production costs and limited the growing acreage of this new specialty crop in the U.S. I took a lead role in the following initiatives:*

* Adopted a LabFieldTM simulation method and modified the traditional blotting paper method to assess the impact of various factors on seed germination potential and seedling vigor, including germplasm lines, seed coat integrity, cotyledon size, seed and seed leachate composition, and storage conditions. This extensive project not only honed my patience and work ethic, but also generated valuable information to solve the poor seedling emergence issue faced by edamame farmers.
* Evaluated the effects of environmental factors on edamame germination and seedling vigor using a thermal gradient table and water potential control. Sensor-based approaches were used to evaluate the effect of soil temperature on edamame seedling emergence. These results are beneficial for farmers to determine planting time and other management practices (e.g. irrigation frequency).
* Isolated and identified soil-/seed-borne pathogens that cause significant economic losses in edamame production. Developed an inoculation method and efficient edamame screening procedures to identify edamame lines resistant to critical soybean pathogens.
* Isolated over 100 endophytes from edamame seeds and pods and screened 43 potential Plant Growth-Promoting Bacteria (PGPB). These findings are beneficial for developing biological seed treatment formulations and methods, combining seed performance and high throughput phenotyping (HTP) information for predicting the effectiveness of seed treatment in improving edamame emergence, which is ongoing.

1. *Microbial and abiotic contaminations caused by handling practices of edamame pose significant concerns for consumers and impact the edamame market. I have:*

* Established and verified laboratory protocols for detecting food-borne pathogens that cause human illness.
* Examined the survival and spread of food-borne pathogens on edamame under various temperatures during handling, storage, and transportation. The results are practical for protecting the entire edamame industry, valued at an estimated $200 million in the U.S.

*Fieldwork*

* Gained hands-on experience in various aspects of soybean research over the past four years, including seed cleaning and packaging, plot marking, planting, weeding, rogueing, cross-pollination, harvesting, processing, and seed testing in over 10,000 research plots across three locations in Virginia. This experience has honed my skills in both manual labor and the use of equipment, including sophisticated instruments like HPLC and Near-infrared spectroscopy.
* Supported edamame extension trials across seven plant-breeding programs in five states (Virginia, Missouri, Arkansas, Mississippi, and Florida) from 2020-2022.
* Conducted field scouting for edamame pod diseases in two locations in the mid-Atlantic region, evaluating over 400 samples and providing the foundation for developing effective disease control strategies.

*Extension Contributions*

* Provided technical support to a multi-disciplinary team working on edamame research funded by a $3.7 million grant from USDA NIFA.
* Organized the successful Edamame Supply Chain Workshop in Charlotte, NC in December 2021, attracting over 50 attendees from the grower, supplier, processor, distributor, and end-user industries.
* Presented research findings at two workshops for the local grower association and two field days/tours.
* Authored and updated Virginia's edamame field management recommendations.
* Published three peer-reviewed extension manuscripts as the first author.
* Responded to regular inquiries from various local industry sectors.

**Horticultural Research Assistant** Jul*.* 2016 - Jun. 2019

*Beijing Academy of Agricultural and Forestry Sciences,* Beijing, China

Vegetable Disease Diagnosis Program (Dr. Hua Xie’s Lab)

*Laboratory Work*

*Addressed the issue of soft rot, a major cause of loss in economically important vegetables such as Bok choy, Chinese cabbage, lettuce, and celery, which is responsible for 15-30% loss with an estimated commodity value of over one billion dollars annually:*

* Led a project that used genomics analysis and whole genome sequencing to compare Pectobacterium species, investigating their genetic variation of pathogenesis on the host. Collaborated with bioinformatic companies, supervised graduate students, and analyzed data for manuscript preparation.
* Developed rapid disease diagnostic tools using several conventional PCR and quantitative PCR (qPCR) assays for soft rot. These tools are now in practice to help producers make decisions prior to disease outbreaks.

*Fieldwork*

* Conducted field scouting over 10 acres of commercial vegetable fields and collected over 100 plant samples, isolating, identifying, and characterizing the phytobacteria causing soft rot disease.
* For the first time, Pseudomonas marginalis and Pectobacterium aroidearum were reported as the causal agents of soft rot on celery and Chinese cabbage, respectively.

**Graduate Research Assistant** Jul. 2013 - Jun. 2016

*South China Agricultural University,* Guangzhou, China

Plant Protection and New Technology Application Program (Dr. Zifu He’s Lab)

*Laboratory Work*

*Ralstonia solanacearum wilt disease is highly damaging to aromatic ginger and can result in a 35% to 90% yield loss in this specialty vegetable in China:*

* Identified the virulent genes by comparing the wilt symptoms, physiological and biochemical traits between mutants and wild types of the bacteria.
* Conducted plasmid construction, gene cloning, and gene knock-out using homologous recombination, resulting in the development of mutants.
* Gained expertise in various microbiological and molecular biology techniques including nucleic acid manipulation, sequence analysis, and bioinformatics.

*Fieldwork*

* Conducted extensive field monitoring in commercial pumpkin production, with a focus on disease management.
* Discovered and reported the presence of *Pseudomonas syringae* pv. *syringae* causing leaf blight in pumpkins in China.

**High-Performance Computing Intern** Jun. - Aug. 2022

USDA*-ARS/Mississippi State University,* Starkville, MS

Comparative Biomedical Program (Dr. Bindu Nanduri’s Lab)

*Big Data Computing Analytics for farm management:*

* Responsible for genomic data mining from USDA-ARS, GA.
* Conducted factor analysis to prioritize objectives using machine learning of different models: 1) compared the microbiomes from over 1,990 poultry samples collected pre-harvest (soil, feces), during processing, and the final product; 2) assessed the distribution of *Listeria*, *Salmonella*, and *Campylobacter* at each stage of poultry production; 3) tested probiotics in soil, feces, ceca, and carcass rinse samples at each stage of poultry production.
* Identified the association between farm practices and the prevalence of poultry pathogens and probiotics using machine learning.

**High-throughput Plant Phenotyping Student Visitor** Apr. - Jun. 2023

*The Robotics Institute, Carnegie Mellon University*, Pittsburgh PA

Field robotics program (Dr. George A. Kantor’s lab)

High-Throughput Phenotype System Setting Up:

* Collaborated in building a system for monitoring crop growth and automated leaf sampling for DNA extraction.
* Mentored graduate students on crop cultivation within controlled environments, emphasizing interaction with sensors and robotics.
* Engaged with esteemed faculty and students, enhancing communication skills and understanding of robotics in agriculture.
* Contributed significantly to advancements in field robotics alongside Dr. Kantor, fostering potential for future collaborations.

**Bayer Bioprocess RD Support Co-op**  Jun. - Dec. 2023

*Bayer Crop Science,* Chesterfield, MO

Small Molecular Bioprocess (Dr. Grace Liu’s Team)

*Accessing the feasibility of commercial systems for Bt protein expression in insect control:*

* Conducted plasmid construction and assessed new potential host organisms available in the market for transformation to evaluate their effectiveness in Bt protein expression.
* Conducted evaluations of bacterial culture conditions, including variables such as temperature, medium, shaking volume, and shaking speed, to optimize fermentation conditions for protein production.
* Collaborated closely with the regulatory, fermentation, and biotech teams at Bayer Crop Science throughout the entire process.

**PUBLICATIONS \_\_\_ \_**

***Research Papers (Peer-reviewed publications)***

* **Li, X**.; Ma, Y.; Liang, S.; Tian, Y.; Yin, S.; Xie, S.; Xie, H. "Comparative genomics of 84 *Pectobacterium* genomes reveals the variations related to a pathogenic lifestyle." BMC Genomics 19, no. 1 (2018): 1-22. doi:10.1186/s12864-018-5269-6.
* Xie, H (*Advisor*).; **Li, X**.; Ma, Y.; Tian, Y. "First report of *Pectobacterium aroidearum* causing soft rot of Chinese cabbage in China." Plant Disease 102, no. 3 (2018): 674. doi:10.1094/PDIS-07-17-1059-PDN.
* **Li, X**.; Tian, Y.; Song, L.; Xie, H. "First report of *Pseudomonas marginalis* isolated from celery with symptoms of stem rot in China." Journal of Plant Pathology 100, no. 3 (2018): 585-585. doi:10.1007/s42161-018-0039-5.
* **Li, X**.; L, S.; Yu, T.; Xie, H. "Identification and characterization of QC02 causing celery (*Apium graveolens*) rot." Journal of Agricultural Biotechnology 26, no. 10 (2018): 1778-1786. doi: 10.3969/j.issn.1674-7968.2018.10.016.
* **Li, X**.; Tian, Y.; Zhao, L.; Chen, C.; Xie, H. “Identification of the bacterial soft rot pathogens on Chinese cabbage in Beijing.” Acta Agriculturae Boreali-sinica (in Chinese with English abstract) 33(2018):63-70.
* **Li, X**.; She, X.; He, Z. "Identification of the pathogen of pumpkin bacterial leaf blight disease in Guangdong." Acta Phytopathologica Sinica 48, no. 2 (2018): 159-168. doi: 10.13926 /j.cnki.apps.000165.
* **Li, X**,; Tian, Y,; Zhang, J,; Chen, C,; Xie, H. "Identification and characterization of a *Pectobacterium aroidearum* strain causing bacterial soft rot on Chinese cabbage (*Brassica rapa* L. ssp. *pekinensis*)." Acta Phytopathologica Sinica 8, no. 4 (2018): 455-465. doi: 10.13926 /j.cnki.apps.000136.
* Tian, Y,; **Li, X**,; Shi, M,; Sun, W,; Chen, C,; Xie, H. “Assessment of identification method of lettuce (*Lactuca sativa*) bacterial soft rot resistance and evaluation of cultivar resistance.” Acta Agriculturae Boreali-sinica (in Chinese with English abstract) 34, no. S1 (2019): 309-317, doi: 10.7668 /hbnxb.20190388.
* Chen, C,; Zhao, X,; Sun, W,; **Li, X**,; Tian, Y,; Li, W,; Xie, H. “Molecular marker development of soft rot disease defense-related genes in Chinese cabbage (*Brassica rapa* ssp. *pekinensis*).” Journal of Agricultural Biotechnology(in Chinese with English abstract) 27, no.6 (2019): 982-992, doi: 10.3969/j.issn.1674-7968.2019.06.004.
* Sun, W,; Yan, L,; Chen, C,; Tian, Y,; **Li, X**,; Chen, J,; Xie, H. “Identification and biocontrol effect of antagonistic bacterium *Bacillus velezensis* BPC6 against soft rot and Sclerotinia Rot diseases on lettuce.” Chinese Journal of Biological Control(in Chinese with English abstract) 36, no.2 (2020): 231-240, doi: 10.16409/j.cnki.2095-039x.2020.02.008.
* **Li, X**.; Fu, L.; Chen, C.; Sun, W.; Tian, Y.; Xie, H. “Characteristics and rapid diagnosis of *Pectobacterium carotovorum* ssp. associated with bacterial soft rot of vegetables in China.” Plant Disease 104 (2020): 1158–1166, doi:10.1094/PDIS-05-19-1033-RE.
* Averitt, B.J.; Welbaum, G.E.; **Li, X**.; Prenger, E.; Qin, J.; Zhang, B. "Evaluating genotypes and seed treatments to increase field emergence of low phytic acid soybeans." Agriculture 10, no. 11 (2020): 516. doi:10.3390/agriculture10110516.
* Chen, C.; Yuan, F.; **Li, X**.; Ma, R,; Xie, H. "Jasmonic acid and ethylene signaling pathways participate in the defense response of Chinese cabbage to P*ectobacterium carotovorum* infection." Journal of Integrative Agriculture 20, no. 5 (2021): 1314-1326. doi:1 0.1016/S2095-3119(20)63267-1.
* Chen, C.; **Li, X**.; Bo, Z.; Du, W.; Fu, L.; Tian, Y.; et al. "Occurrence, characteristics, and PCR-based detection of *Pectobacterium polaris* causing soft rot of Chinese cabbage in China." Plant Disease 105, no. 10 (2021): 2880-2887. doi:10.1094/pdis-12-20-2752-re.
* Lord, N.; Kuhar, T.; Rideout, S.; Sutton, K.; Alford, A.; **Li, X**., Wu, X.; Reiter, M.; Doughty, H. and Zhang, B. "Combining agronomic and pest studies to identify vegetable soybean genotypes suitable for commercial edamame production in the Mid-Atlantic U.S." Agricultural Sciences 12 (2021): 738-754, doi: 10.4236/as.2021.127048.
* Zhang, B.; Lord, N.; Kuhar, T.;et al… **Li, X**., Wang, Z. & Buss. G. "‘VT Sweet’: A vegetable soybean cultivar to drive commercial edamame production in the Mid-Atlantic U.S." Journal of Plant Registration 16 (2022): 29-33. doi: 10.1002/plr2.20140.
* Su, Y†.; **Li, X**†(‘†’: *equally contributed*).; Li, L.; Lukianova, A. A.; Tokmakova, A.; Chen, C.; ... & Xie, H. "Occurrence, characteristics and qPCR-based identification of *Pectobacterium versatile* causing soft rot of Chinese cabbage in China." Plant Disease 107(2023): 2751-2762.
* Singer, W., Lee, Y., Shea, Z., Vieira, C., Lee, D., **Li, X**…. Henry Nguyen & Zhang, B. (2023) "Soybean genetics, genomics, and breeding for improving nutritional value and reducing antinutritional traits in food and feed".  The Plant Genome, 00, e20415. <https://doi.org/10.1002/tpg2.20415> (I led the food-grade soybean section).

***Extension Papers (Peer-reviewed publications)***

* **Li, X**.; Yin, Y,; Strawn, L,; Rideout, S,; Kuhar, T,; Welbaum, G,; Li, S,; Liu, K,; Weckworth, K,; Zhang, B\*. “Edamame in Virginia I. Products and Marketing.” Virginia Coop. Ext. 2023. Available at: https://www.pubs.ext.vt.edu/content/dam/pubs\_ext\_vt\_edu/spes/spes-454/SPES-454.pdf.
* **Li, X**.; Rideout, S.; Strawn, L,; Welbaum, G,; Kuhar, T,; Li, S.; Chen, P,; Reiter, M,; Zhang, B\*. “Edamame in Virginia II. Producing a High-Quality Product.” Virginia Coop. Ex. 2023. Available at: https://www.pubs.ext.vt.edu/content/dam/pubs\_ext\_vt\_edu/spes/spes-455/SPES-455.pdf.
* **Li, X**.; Strawn, L,; Huang, H.; Yin, Y.; Rideout, S,; Welbaum, G,; Duncan, S,; Mille, R., Li, S,; Zhang, B\*. “Edamame in Virginia III. Handling and Processing from Harvest to Package.” Virginia Coop. Ext. 2023. Available at: https://www.pubs.ext.vt.edu/content/dam/pubs\_ext\_vt\_edu/spes/spes-456/SPES-456.pdf.

***Patent***

* Xie, H (*Advisor*)., **Li, X.**, Chen, C., & Tian, Y. (2022). A specific primer and its detection system. Chinese Patent No. #ZL 2018 1 1593856.9 (my role here was to design the project, conduct the experiments, and write).

***Book Chapter***

* **Li, X**., Welbaum, G., Rideout, S. L., Singer, W & Zhang, B. "Vegetable soybean and its seedling emergence in the United States, In: Legume Crops-Prospects, Production and Uses." Legumes Research 1 (2022): IntechOpen. doi: 10.5772/intechopen.102622.

***Un-Peer-Reviewed Publications (published on the conference website)***

* **Li, X**., Liu, K., Welbaum, G., Rideout, S. L., & Zhang, B. (2021). "Effect of temperature on the seedling stand of edamame." 2021 ASA, CSSA, SSSA Annual Meeting.
* **Li, X**., Liu, K., Welbaum, G., Rideout, S. L., & Zhang, B. "Seed vigor and the emergence of vegetable soybean (Edamame) in Virginia." 2021 American Society for Horticultural Scientists Annual Conference.
* **Li, X**., Pollok, J. R., Kuhar, T. P., Sutton, K. L., Rideout, S. L., & Zhang, B. "Diseases associated with edamame production in the mid-Atlantic region." 2020 American Society for Horticultural Scientists Annual Conference.

**CONFERENCE PRESENTATIONS\_\_ \_\_ \_\_\_**

* **Li, X**., & Zhang, B. (2023). Vegetable Soybean and Its Poor Seedling Emergence Issue in The U.S. Orally presented at seminar class of the Department of Plant Science, University of Tennessee, Knoxville, TN.
* **Li, X**., Welbaum, G., Liu, K. Rideout, S. L., Xue, M., & Zhang, B. (2023). Response of the Edamame Germplasm to Early-season Diseases Caused by the Soil-borne Pathogens in the United States.Poster presented at Vegetable & Flower Seed Conference - ASTA, Orlando, FL.
* **Li, X**., Welbaum, G., Liu, K. Rideout, S. L., Xue, M., & Zhang, B. (2023). Response of the Edamame Germplasm to Early-season Diseases Caused by the Soil-borne Pathogens in the United States.Poster presented at Translational Plant Science Symposium, Blacksburg, VA.
* **Li, X**., Welbaum, G., Liu, K. Rideout, S. L., Xue, M., & Zhang, B. (2022). Screening Edamame Cultivars for Resistance to Damping-off Caused by *Rhizoctonia solani* and Southern Stem Blight Caused by *Sclerotium rolfsii.* Poster presented at SPES Symposium, Blacksburg, VA.
* **Li, X**., Ayoola, M., Rothrock, M., Ramkumar, M., Nandu, B. (2022). Microbiome Characterization Along the Farm-to-Fork Continuum of Pastured Poultry Flocks in the Southeastern United States. Orally presented at MSU/USDA Research Symposium, Starkville, GA.
* **Li, X**., Ayoola, M., Rothrock, M., Ramkumar, M., Nandu, B. (2022). Microbiome Characterization Along the Farm-to-Fork Continuum of Pastured Poultry Flocks in the Southeastern United States. Poster presented at MSU/USDA Research Symposium, Starkville, GA.
* **Li, X**., Liu, K., Welbaum, G., Rideout, S. L., & Zhang, B. (2022). Improving Edamame Seedling Establishment by Determining the Optimal Temperature. Poster presented at AOCS Annual Meeting & Expo, Atlanta, GA.
* **Li, X**., Liu, K., Welbaum, G., Rideout, S. L., & Zhang, B. (2022). Evaluation of seed and seedling vigor of vegetable soybean on emergence. Orally presented at Translational Plant Science Symposium, Blacksburg, VA.
* **Li, X.**, Liu, K., Welbaum, G., Rideout, S. L., & Zhang, B. (2021). Effect of temperature on the seedling stand of edamame. Poster presented at ASA, CSSA, SSSA Annual Meeting, Salt Lake City, UT.
* **Li, X**., Liu, K., Welbaum, G., Rideout, S. L., & Zhang, B. (2021). Emergence response of vegetable soybean (edamame) to temperature. Poster presented at SPES Mini-Symposium, Blacksburg, VA.
* **Li, X**., Liu, K., Welbaum, G., Rideout, S. L., & Zhang, B. (2021). Seed vigor and the emergence of vegetable soybean (Edamame) in Virginia. Poster presented at American Society for Horticultural Scientists Annual Conference, Denver.
* **Li, X**., Rideout, S. L., & Zhang, B. (2020). Basics of vegetable disease management-- know your enemies (i.e. pathogens)!!! Poster presented at Scholars Ignite Competition at American Society for Horticultural Scientists Annual Conference, Virtual.
* **Li, X.**, Pollok, J. R., Kuhar, T. P., Sutton, K. L., Rideout, S. L., & Zhang, B. (2020). Diseases associated with edamame production in the mid-Atlantic region. Poster presented at American Society for Horticultural Scientists Annual Conference, Virtual.
* **Li, X**., Rosso, L., Pollok, J., Ozzie, A. A., Rideout, S., & Zhang, B. (2020). Isolation and identification of pathogens associated with leaf spot of mungbean. Poster presented at Translational Plant Science Symposium, Blacksburg, VA.
* **Li, X**., Pollok, J. R., Kuhar, T. P., Sutton, K. L., Rideout, S. L., & Zhang, B. (2020). Diseases associated with edamame production in the mid-Atlantic region. Poster presented at National Association of Plant Breeders Annual Conference, Virtual.
* **Li, X**., Ma, Y., Liang, S., Chen, C., Rosso, L., Xie, H., Rideout, S., & Zhang, B. (2019). Characteristics and rapid diagnosis of *Pectobacterium carotovorum* ssp. associated with the soft rot of vegetables. Poster presented at SPES Mini-Symposium, Blacksburg, VA.
* **Li, X**. (2019). Identification of pathogens causing leaf spot on mung bean in Virginia. Orally presented at Translational Plant Science -Discussion Group talks, Virginia Tech, Blacksburg, VA

**EXTENSION PRESENTATIONS\_\_ \_\_ \_\_\_**

* **Li, X**., Welbaum, G., Rideout, S. L., & Zhang, B. (2023). Evaluation of Edamame Germplasm to Soil-borne Pathogens in the United States.Poster presented at Soybean Breeder Workshop, St. Louise, MO.
* **Li, X**. (2022). Edamame and Biological Seed Treatment. Experience CALS: A day behind the scenes for alumni and friends. ALS Tour, Virginia Tech, Blacksburg, VA.
* **Li, X**., Welbaum, G., Rideout, S. L., & Zhang, B. (2022). Evaluation of seed and seedling vigor of vegetable soybean on emergence. Lighting talks on Soybean Breeders Workshop, Virtual.
* **Li, X**. (2022). The opportunity and challenges for biological products in promoting plant development. Elevator talk on annual Nutshell Games organized by the Department of Communication Science, Moss Arts Center.
* **Li, X**., Liu, K., Welbaum, G., Rideout, S. L., & Zhang, B. (2021). Edamame seed vigor and emergence in Virginia. Orally presented at Edamame Supply Chain Workshop, Charlotte, NC.
* Zhang, B., **Li, X**., Kuhar, T., Rideout, S., Duncan, S., Huang, H., Yun, Y., Li., S., Reiter, M. (2021). Edamame: Specialty soybean for Virginia. Poster presented at Warsaw Field Day Tour, Warsaw, VA.

**GRANTS \_\_\_ \_**

* **LI, X**. (2023). Service on TPSC Inventory and Expertise committee, Virginia Tech, USA. **$750**.
* **LI, X**. (2023). Travel sponsored by *Bayer Vegetable Seeds*, to attend the ASTA Vegetable and Flower Conference in Orlando, Florida.
* **LI, X**., WELBAUM, G., RIDEOUT, S., ZHANG, B. (2022). Developing novel organic seed treatments to promote the growth of vegetable soybeans. Graduate Research and Development Program (GRDP), Virginia Tech, USA. **$1000** (my role here was to design the project, write the proposal draft, conduct the experiments, and write the reports).
* **LI, X**., RIDEOUT, S., ZHANG, B., WELBAUM, G., & LI, S. (2022). Improve vegetable soybean seedling emergence through novel organic seed treatments using high-throughput phenotyping. Graduate Student Grants, Southern Sustainable Agriculture Research and Education, USA. **$14,998** (my role here was to design the project, write the proposal draft, and conduct the experiments).
* **LI, X**. (2021). GSA Travel Fund Program (TFP) Award (**$500**), Virginia Tech.
* ZHANG, B., WELBAUM, G., RIDEOUT, S., & **LI, X**. (2020) Improve Edamame Seedling Emergence through Optimum Planting Temperature and Biological Seed Treatments. Virginia Department of Agriculture and Consumer Services, USA. **$19,267** (my role here was to design the project, write the proposal draft, conduct the experiments, and write the reports).
* **LI, X**., WANG, K., ZHANG, B., RIDEOUT, S., & ZHAO, B. (2020). Improving Resistance of Commercial Edamame Cultivars to Common Occurred Soilborne Diseases by Biological Seed Treatments. Translational Plant Sciences Graduate Student Grant (Research), Virginia Tech, USA. **$3,000**(my role here was to design the project, write the proposal draft, conduct the experiments, and write the reports).

**JOURNAL REVIEWER \_ \_\_\_**

* PhytoFrontier (APS)
* Plant Disease (APS)

**SKILLS \_ \_\_\_**

**Laboratory Techniques**

* Microbial culture, isolation, purification, identification, characterization, and collection
* Pathogen inoculation and plant traits evaluation
* Molecular techniques (16SrDNA and ITS sequencing, PCR, qPCR, MLSA, ANI, ITS-RFLP, phylogenetic tree construction)
* Molecular biology software including MEGA-X, DNA star, DNAMAN, etc.
* Genetic constructions and oligonucleotides design
* BIOLOG (GEN III OmniLog system)
* HPLC and NIR
* Association of Official Seed Analysts (AOSA) tests

**Field Skills**

* Field experiment design and implementation.
* Planting, weeding, harvesting, crossing, and seed post-harvest processing.
* Field day and workshop organizing.

**Analytical Tools**

* SPSS
* JMP
* R

**Languages**

* Mandarin (Native)
* English (Fluent)

**TEACHING/MENTORING EXPERIENCE \_ \_ \_\_\_\_\_\_**

**Graduate Teaching Assistant** Aug. 2019 - Current

*Virginia Tech,* Blacksburg, VA

* Mentored four undergraduate students in their research internships in the Plant Breeding Program. The students include Patrick Bewick ([pwb@vt.edu](mailto:pwb@vt.edu)), Kathryn Liu ([kat13@vt.edu](mailto:kat13@vt.edu)), Kayla Weckworth ([kaylaw00@vt.edu](mailto:kaylaw00@vt.edu)), Xueming Xu (xuemingxu@vt.edu)
* Advised students in Plant Breeding and Genetics course (CSES 4144) on group projects and presentations.
* Assisted professor of CSES 4144 in developing examination questions, helping sessions, and grading.

**Teaching Assistant** Jul. 2016 - Jun. 2019

*Beijing Academy of Agricultural and Forestry Sciences,* Beijing, China

* Mentored five undergraduate students on their degree projects.

**EXTRACURRICULAR ACTIVITIES \_\_\_\_\_\_\_\_\_ \_\_**

* TPSC Inventory and Expertise committee, Virginia Tech, Feb 2023 - Jun 2023.
* Graduate student representative on the Search Committee for the position of “Grain Crops Extension Specialist”, Virginia Tech, 2023.
* Sexual Violence Culture and Climate (SVCC) Community Engagement Subcommittee, Virginia Tech, Feb 2022 - Dec 2022
* Represented Graduate and Professional Student Senate on the Library Committee, Virginia Tech, Jun 2021 - 2022
* Graduate Student Assembly Delegate, School of Plant and Environmental Sciences, Virginia Tech, May 2021 - May 2022
* Participated in the annual Nutshell Games organized by the Department of Communication Science to promote public communication, Mar 2022.
* Admissions Committee of Translational Plant Sciences Center, Virginia Tech, Jan 2021 - Dec 2021
* Website Committee of Translational Plant Sciences Center, Virginia Tech, Jan 2021 - Dec 2021

**SERVICE \_\_\_**

* Participated in sensory evaluation of edamame to identify descriptive words that can be used to describe edamame grown and/or purchased domestically. The study involves 8 group training sessions (60 minutes each), and 6 individual evaluation sessions (45 minutes each).
* Served as a guest lecturer in the graduate student seminar class of the University of Tennessee, Knoxville, TN, Mar 2023
* Judged science projects for the Roanoke Valley Governor’s School Project Forum, Feb 2023
* Judged Graduate Research and Development Program (GRDP) Graduate Student Grant Competition, Jan 2023
* Judged Translational Plant Sciences Graduate Student Grant Competition, Oct 2022
* Served as one of the organizers of the 2022 Soybean Breeder Tour at Norfolk, Virginia, Sep 2022
* Judged science projects for the Roanoke Valley Governor’s School Project Forum, Feb 2022
* Reviewed dossier of TPSC Ph.D. student applicants, Jan 2022
* Served on the organizing committee for the Edamame Supply Chain Workshop, Charlotte, NC, Dec 2021
* Served on the Committee of TPSC Virtual Recruitment 2022, Nov 2021
* Judged Diversity Posters for ASA, CSSA, SSSA 2021 Poster Contest, Oct 2021
* Judged Translational Plant Sciences Graduate Student Grant Competition, Oct 2021
* Moderated live Q&A - "Root Growth and Rhizosphere Dynamics/Seed and Stand Establishment" - Poster Session, American Society for Horticultural Scientists Annual Conference, Denver, 2021
* Served on the panel of the workshop “Applying to Grad School is Intimidating. A-Z of Everything You Need to Know!”, American Society for Horticultural Scientists Annual Conference, Denver, 2021
* Presented at the science fair at Blacksburg Middle School, Oct 2019
* Volunteered as a tutor in the primary school of “*Xishandi*” Village, a disadvantaged area in Shanxi Province. Summer vacation of 2012

**HONORS AND AWARDS \_ \_ \_**

* Gerald O. Mott Award, Crop Science Society of America, USA, 2023.
* P. Howard & Betsy Massey Horticulture Scholarship ($1,514), Virginia Tech, USA, 2023.
* Travel award, sponsored by Bayer Vegetable Seeds, invited to do a poster presentation at the ASTA Vegetable and Flower Conference in Orlando, Florida, USA, 2023.
* 3rd place in Poster presentation competition of School of Plant and Environmental Sciences Symposium ($200), Virginia Tech, USA, 2022.
* Graduate Research and Development Program (GRDP) Graduate Research and Development Fund (GRDP) competition award ($1,000), Virginia Tech, USA, 2022.
* Southern Sustainable Agriculture Research and Education Graduate Student Grants Competition Award ($14,998), USDA, USA, 2022.
* GSA Travel Fund Program (TFP) Award ($500), Virginia Tech, 2021
* Translational Plant Sciences Graduate Student Grant Competition Award ($3,000), Virginia Tech, 2020
* National Undergraduate Student Excellence Scholarship (¥5,000), China, 2012
* Academic Outstanding scholarship (¥1,500); Shanxi Agricultural University, China, 2012
* Academic Outstanding scholarship (¥2,000); Shanxi Agricultural University, China, 2011
* Academic Outstanding scholarship (¥2,000); Shanxi Agricultural University, China, 2010*.*

**PROFESSIONAL AFFILIATIONS \_ \_\_**

* American Society for Horticultural Science (ASHS), May 2020-Present
* Crop Science Society of America (CSSA), Aug 2021 - Present
* American Phytopathological Society, Jan 2023 - Present