



BALL HORTICULTURAL COMPANY
2024 SUMMER INTERNSHIP PROGRAM

For well over two decades, Ball Horticultural Company has offered a wide variety of internships to students majoring in Horticulture, Plant Science, Agribusiness, and related fields. Each year, our internship projects are linked to specific business initiatives, which encompass a range of horticulture disciplines including advanced research, breeding and genetics, marketing, business operations, production, and trialing.



All internships require a minimum of Junior-level standing at an accredited, four-year university or college. Historically, Ball interns arrive with significant academic and/or related extracurricular accomplishments, although consideration is also given to those students demonstrating exceptional promise. When applying for these internship projects, students should consider the following:

- All internships are offered during the summer months for a period of 10-12 weeks.
- Start and end dates are relatively flexible, depending upon the student's availability and the needs of the department; we prefer interns start no later than the day after Memorial Day.
- Unless otherwise noted, internships are located in West Chicago, Illinois, a suburb approximately 35 miles west of Chicago.
- Rate of pay is \$15.00 per hour. Students work a minimum of 40 hours/week; some internships require overtime during critical periods.
- We provide fully furnished and appointed apartments in a nearby apartment complex and absorb the rental costs. Food, transportation, and other living costs are the responsibility of the student. Students are required to have their own transportation since housing is not within walking distance from work locations and public transportation is not readily accessible.

- A major goal of the program is to expose students to multiple aspects of our business operations; presentations and tours of departments throughout the company are provided during the summer. Similarly, interns are expected to participate in company and industry events including AmericanHort's Cultivate '24 in Columbus, OH and Ball Customer Days.
- All internships culminate in mid-August with a final presentation made by each intern on his/her experiences and accomplishments; these presentations are made to members of Ball's Management Teams.
- The application deadline is November 3rd, 2023. Intern selections will be determined by December 8th, 2023. All applicants will be notified of our decisions.



Students interested in pursuing one of these internships should forward a cover letter and resume to:

Ball Horticultural Company

Attn: Emma Ryan

622 Town Road

West Chicago, IL 60185

630-588-3223, ext. 3223

E-mail: eryan@ballhort.com

<https://www.ballhort.com/Careers/Internships/>

MARKETING COMMUNICATIONS INTERNSHIP

WEST CHICAGO, IL

Supervised by: *Katie Rotella and Alyson Upshaw*

The intern's primary responsibilities will include developing standardized descriptions for each business unit's channel, creating video thumbnails for cohesive branding, building an analytics report for the clients, and organizing video content for sharing on social/Ball Community/campus TV/websites. Optimize the Ball business YouTube channels with new-variety videos through enhanced descriptions, creative thumbnails, strategic playlists, video chapters, etc., and document progress and growth through analytics/reporting for Ball's marketing clients.

The ultimate goal will be to increase subscriptions for the channels and build digital exposure for each brand. The intern may also capture their own video to document The Gardens at Ball and collaborate on video projects with the Creative Director and Account Executives.

For Ball corporate events (e.g., Cultivate, Ball Seed Customer Days) the candidate will create a comprehensive plan for video promotions on social media and YouTube channels.

Duties may also include consumer events and local press opportunities to assist the Public Relations and Brand Managers.

Candidate may also monitor and analyze competitor video activity to increase Ball awareness to current campaigns. They will support Marketing Communications as needed on other projects, too, including photo library, project management, websites, social media, etc.

Requirements

A junior or senior-level student majoring in Horticultural marketing with an emphasis on digital marketing or new media, and/or a strong personal interest in promotional strategies. Knowledge of social media platforms (YouTube, Instagram, Pinterest, and LinkedIn) is a strong plus, as are skills in digital photography and video production platforms (Adobe Premier, Canva, Photoshop, etc.). This position requires a person who has developed communication aptitude and a flair for creative work. In addition, this individual should be a self-starter, collaborative, and have strong organizational skills.

SEEDLING DEVELOPMENT INTERNSHIP

WEST CHICAGO, ILLINOIS

Supervised by: Robert Conrad and Andrew Ernat

This intern will work in our Premier Seed Research Lab with our priming and conditioning groups and testing groups.

Principal projects include:

1. Screen Natural Biocides as priming additives for the prevention of pathogens in the priming process.
2. Run the primed seed seeds through our optical seed counters to develop seed by seed physical characteristics.
3. Test seedling development performance and try to link back to Natural Biocides and/or physical characteristics of the seed.

Examples of the activities involved in these projects will include setting up growing priming runs, gathering data on disease suppression, seed size and germination timing. Interpretation, and evaluation of technologies employed in the seed conditioning\enhancement processes. Use of proprietary seed testing methods will be employed.

Requirements

General lab skills and ability to grow plants. We will train in all necessary steps of the process. It is a lab position and most of the plant growing will be done in chambers, not a greenhouse.

Junior or senior level student majoring in horticulture with an emphasis on propagation and young plant production research or greenhouse production is ideal. This internship requires intermediate-level proficiency with MS Word, Excel, Outlook and PowerPoint. Selected intern must be self-directed, have the ability to organize and prioritize their work, as well as work a flexible schedule during peak periods. Similarly, this hands-on internship requires that the student is able to work under a variety of environmental conditions, including heat and humidity for prolonged periods of time, as well as lift 20+ pounds and perform physical labor.

BIOINFORMATICS AND DATA SCIENCES

WEST CHICAGO, IL

Supervised by: Dr. Shankar Shakya, Ball Helix

Bioinformatics Support for Plant Molecular Breeding

The prospective intern will work as the third member of the Bioinformatics and Data Sciences team at Ball Helix. The successful candidate will have basic prior experience using bioinformatics software via the command line. The prospective intern should be an enthusiastic, self-motivated person who is interested in rapidly expanding their existing skill set. Potential supervised projects include genome assembly, read mapping, sequence variant calling, RNA-seq, and genetic association.

The successful candidate should be excited to learn about the application of genomics in plant breeding and be interested in pursuing genomics as a future career. This internship is highly collaborative and requires real time communication of analysis results with Ball Helix team and plant breeders. The prospective intern will be primarily working in an office environment and will be expected to work at a desk for 6-8 hours at a time, with possible greenhouse and field experiences.

To be developed: First-hand experience with an array of bioinformatics techniques, exposure to advance breeding concepts including genetic association, application of different sequencing technologies, pipeline development, interpretation of bioinformatics results, and communication as a key member in a collaborative science environment.

Requirements:

Junior or senior level student majoring in plant pathology, molecular biology, plant biology, horticulture, plant breeding, plant physiology, genetics, or a related major is ideal. All skill levels will be earnestly considered and are encouraged to apply. Some coding experience in any language is preferred. Basic proficiency in plant molecular genetics. Basic knowledge of statistics and data visualization. Prior exposure to core bioinformatics concepts including read mapping, alignment, and assembly.

PLANT PATHOLOGY INTERNSHIP

WEST CHICAGO, IL

Supervised by: Dr. Sladana Bec

The goal for this internship is to introduce a student to the principles and practice of plant pathology, plant disease diagnostics, molecular, and serological pathogen detection techniques. Throughout the course of the internship the student will gain skills in disease symptom recognition, triage, culturing techniques, understanding of disease triangle, host-pathogen interactions, nucleic acid extraction, serological techniques, and become capable of independently performing a range of molecular tests including, but not limited to conventional PCR, qPCR, and sequence analyses.

- Work with plant pathology and other Ball Helix research teams to learn scientific techniques.
- Assist laboratory scientists and associates to advance and expand our diagnostic toolbox.
- Work with the daily supervisor to scout the garden for relevant plant pathogens.
- Learn sampling and tissue preparation techniques used in plant diagnostics.
- Become familiar with a range of methodologies and technologies used in a diagnostic lab.
- Assist in plant disease screens of selected germplasm under controlled environment.
- Learn plant diagnostic techniques such as ELISA, RT-PCR, PCR, qRT-PCR, qPCR.

This internship is tailored for a self-driven, passionate, exceptionally curious, enthusiastic, and self-motivated student. Undergraduates interested in plant pathology and plant disease diagnostics with an acute attention to detail, ability to work independently, and as a part of a team people are encouraged to apply.

Combining the disease scouting and diagnostic testing data with the current literature review the intern will create a set of original disease diagnostic datasheets for a select number of diseases encountered in the Ball Horticultural Company garden. These materials will be made available for future educational and technical support use.

Requirements

Junior or senior level student majoring in plant pathology, molecular biology, plant biology, horticulture, plant breeding, plant physiology, genetics, or a related major is ideal. Student should have taken at least one plant pathology course before the start of the internship. Selected intern must have good communication skills, be self-motivated, can organize and prioritize their work, and has a high level of attention to detail. Similarly, this internship requires that the student can work in a laboratory environment, follow safety procedures, and will be expected to work in the lab for 6-8 hours at a time. Student may also be asked to assist with a wide range of research tasks as they arise, a positive attitude is essential for these tasks.

SEED BREEDING AND CULTURE RESEARCH INTERNSHIP

ELBURN, IL

SUPERVISED BY: SUNDRISH SHARMA AND ADAM HANSON – PRODUCT DEVELOPMENT, PANAMERICAN SEED

You're not afraid to get dirty and have a passion for plants and want to gain experience in bringing new varieties of plants to market. You're ready to learn the ins and outs of plant breeding, growing, culture research, and product development with a focus on container growing, and are ready to research and develop creative solutions in these disciplines.

Your primary work location will be at the PanAmerican Seed product development research station in Elburn, Illinois, about 30 minutes from the Ball Horticultural headquarters in West Chicago, Illinois. At Elburn you will be working alongside a diverse team of plant breeders, growers, technicians, product managers and culture researchers.

Get ready for a busy and engaging summer including participation at the PanAmerican Product Advancement meeting, a great experience to meet with stakeholders from around the world.

Product Development Intern Summer Projects *may include**:

- Growing
 - Automation and optimization of plant watering which may include research and evaluation of moisture sensors, drip emitters, automation programs, and different fertigation doses
- Breeding and Culture Research
 - Developing creative solutions to overcome breeding challenges such as hybridization of plants with small flowers and/or induction of flowers in crops that are slow to flower
 - Influence of cultural practices (including pruning) and container growing on flavors and plant architecture
- Product development
 - Evaluation and data collection of new varieties
 - Presentation of new varieties to stakeholders at Product Advancement meeting

**Projects are subject to change and will not be finalized until start of internship in May 2024*

Requirements

Junior or Senior level Student majoring in horticulture, plant breeding, crop production, plant science, agriculture, or related field. Experience in data collection is a plus. Comfortable working alone and in a team environment, confident in problem solving and self-organizing time management for multiple projects. This hands-on internship requires that the student be able to work under a variety of indoor/outdoor environmental conditions, including heat and humidity for prolonged periods of time, as well as lift 50+ pounds and perform physical labor. Must have strong computer skills, specifically a comfort working in a Microsoft environment, and good writing/documentation skills.

VEGETATIVE ANNUALS PRODUCT DEVELOPMENT INTERNSHIP

WEST CHICAGO, IL

Supervised by: Sarah Hernandez Swofford, Ball FloraPlant

A leading breeder of vegetatively propagated plant varieties, Ball FloraPlant has won critical acclaim for its genetics and reliable supply of cuttings. We strive to solve grower challenges with high-quality products whose benefits are carried all the way to the consumer level.

Do you have a passion for landscape & patio plants as well as for business? If so, product development is a great place to enhance your skills. Product development is charged with bringing new product ideas that solve growers' challenges into reality. In Product Development you will learn what it takes to create new, experimental plants, trial them, develop marketing information to support them and bring them to market! At each step of the process, you'll have to evaluate the information you have to keep the product moving forward and problem solve as potential roadblocks stand in the path of introduction.

In this internship you'll have an opportunity to work with the product management team to collect information and photography on the summer performance on new plant varieties. Surviving the Illinois Summer is a key decision point in the launch of a new product.

Project: Support Product Management activities and tasks including but not limited to:

- Work on tasks with Ball FloraPlant breeders, product managers, trial coordinator and grower
- Take outdoor photography and collect vital data in summer container and in ground trials
- Organize photography and data and use to create presentations for 2025 introductions
- Research and analyze trial and market data to create a competitive analysis for target crops
- Help prepare for Ball FloraPlant's summer product launch confirmation meetings

Requirements

Junior or senior-level student majoring in horticulture, plant science, agriculture, or related fields. Comfortable working alone and in a team environment, confident in problem solving and self-organizing time management for multiple projects. This hands-on internship requires that the student be able to work under a variety of indoor/outdoor environmental conditions, including heat and humidity for prolonged periods of time, as well as lift 50+ pounds and perform physical labor. Must have strong computer skills with proficiency in MS Word, Excel and PowerPoint.

BIOENGINEERING RESEARCH INTERNSHIP

WEST CHICAGO, IL

Supervised by: Dr. Rakesh Kumar/Dr. Jon Mahoney

Ball Horticultural Company is the global leader in the breeding, production, and distribution of ornamental horticulture products. The Ball Helix Molecular Biology and Cell Biology Teams are searching for a Bioengineering Research Intern to assist with research initiatives that will ultimately help bring new and exciting products to the market. At Ball, we are committed to advancing next generation technologies and infrastructure to assure technology and product leadership in the horticultural industry. Essential components of our next generation innovation strategy include investments in our team and the design, build out, and management of a best-in-class Ball Helix Innovation Center.

The successful candidate will assist the Molecular and Cell Biology Teams in conducting various laboratory and greenhouse research contributing to the development of new products for Ball Horticultural Company. She/he will primarily work in the areas of plant tissue culture, bioengineering, and molecular biology.

- Initiating and maintaining in vitro cultures for tissue culture and transformation experiments.
- Implementing experiments under the supervision of scientists, focusing on tissue culture, transformation, gene cloning, and construct design.
- Create and perform transient assays in controlled environment to test gene constructs
- Learning different methodologies and technologies to create new bioengineered products.
- Collecting, recording, and evaluating various experimental data.
- Participating in lab meetings, journal clubs, and scientific meetings.
- 70% Molecular Biology and 30% Cell Biology

Requirements:

Junior or Senior level standing at an accredited, four-year university or college. Prior experience working in a molecular biology lab and has performed basic molecular techniques such as DNA/RNA extraction, Polymerase Chain Reaction, and gel electrophoresis. Work in a laboratory environment, follow safety procedures, and will be expected to work at a bench for 6-8 hours at a time. Interest in Tissue culture and sterile techniques, Bioengineering, and Plant science, genetics, and chemistry. Good verbal and written communication skills. Strong organizational and prioritization skills. Ability to work in a team setting but also able to work independently when necessary. Good observational skills and be detail oriented. Capable of working under greenhouse conditions and performing greenhouse tasks when necessary.

YOUNG PLANT CULTURE RESEARCH INTERNSHIP

WEST CHICAGO, IL

Supervisor: Dr. Nathan Jahnke, Ball Seed Technical Services

Ball Seed is North America's leading seed and young plant distributor. Our successful leadership depends on superior plant quality and reliability of the supply chain and inputs. Our goal is to provide nothing but the best to our customers.

The objective of this internship is to develop protocols, based on current best management practices, to eliminate plant losses during production of young plants. The selected student will evaluate a wide variety of corporate genetics to improve rooting speed and uniformity. The resulting information will be included in future product culture guides and technical support material.

The selected student will be added to a successful list of interns who have made impressive contributions to the industry by:

- Evaluating tissue culture shipping and acclimation strategies
- Identifying optimum substrate moisture levels
- Developing Vapor Pressure Deficit (VPD) templates
- Determining unrooted cuttings rehydration needs following shipping

Working in our culture/new variety trials greenhouses and laboratories in West Chicago will allow you to interact daily with the staff expanding your experience in greenhouse operations. Through this internship, you will gain a global view of the supply chain and develop and learn about cultural requirements for some of the newest genetics in the marketplace. There will be opportunities to work with some of the floriculture industry's best researchers with expertise in seed technologies, tissue culture, plant pathology, genetics, breeding, landscape design, construction, and management.

Requirements

Junior or senior level student majoring in horticulture with an interest in propagation and young plant production research or greenhouse production is ideal. Intermediate-level proficiency with MS Word, Excel, Outlook, and PowerPoint. Must be self-directed, able to work independently, can organize and prioritize their work, as well as work a flexible schedule during peak periods. Can work under a variety of environmental conditions, including heat and humidity for prolonged periods of time in greenhouses, as well as lift 40+ pounds and perform physical labor.

This internship is for you if you love working with plants in greenhouses and conducting scientific experiments with impactful results.

PERENNIALS PRODUCT DEVELOPMENT INTERNSHIP

WEST CHICAGO, IL

SUPERVISOR: SARA MELLARD

Do you have a passion for perennials? The Darwin Perennials intern will be an integral part of our product development team. They will help evaluate our new products and participate in our product selection process, gaining valuable insight into the perennial market in North America and world-wide!

Essential Job Duties:

1. Evaluate and oversee experimental container and in-ground perennial trials.
 - a. Complete independent project on one or two key genera under evaluation: compile side-by-side comparison data and photography on new varieties vs. current commercial items; evaluate data/images from other research sites and customer trials; conduct market research on top selling varieties. Present findings at Product Advancement Meeting to recommend varieties for advancement
 - b. Conduct weekly evaluation of experimental varieties in perennial container trials: photograph and collect measurements and flowering data to inform advancement decisions
 - c. Travel to Elburn location weekly to evaluate in-ground overwinter performance on experimental varieties
2. Maintain and collect data from the perennial gardens.
 - a. Conduct weekly walkthroughs to keep perennial garden beds in optimal shape; alert grounds crew when pruning, irrigation, or fertilizing is necessary and supervise overall plant health
 - b. Collect flowering data and overwintering data. Photograph and compare Darwin varieties with commercial competitors in comparison beds and send updates to the team
 - c. Update planting and bed location database
3. Conduct rooting trials of key varieties
 - a. Manage rooting trials of new introductions and problem varieties to help optimize rooting success for customers
 - b. Collect data on best rooting practices and document in PPT report
4. Assist with Darwin Perennial Day event

Requirements

Junior or senior-level student majoring in business, horticulture, plant science, agriculture, or related fields. Comfortable working alone and in a team environment, confident in problem solving and self-organizing time management for multiple projects. This hands-on internship requires that the student be able to work under a variety of indoor/outdoor environmental conditions, including heat and humidity for prolonged periods of time, as well as lift 50+ pounds and perform physical labor. Must have strong computer skills with proficiency in MS Word, Excel and PowerPoint.