ACTS Freedom Farms International

"Inspired Global Solutions"

CONTROLLED ENVIRONMENT AGRICULTURE INTERNSHIP

Training Module Description

Wanted: Controlled Environment Agriculture Interns

ACTS Freedom Farms International (ACTS FFI) is currently offering entry level training for individuals interested in working in the Controlled Environment Agriculture industry and participating in a paid internship that may lead to employment opportunity and wage progression.

The Controlled Environment Agriculture (CEA) Intern Program is designed to assist men and women to gain the skills needed to become successful workers in high-tech agriculture. Interns learn trade skills, which are relevant to various agricultural occupations in the workplace.

ACTS FFI's Intern Program is structured to include learning objectives, observation, reflection, evaluation and assessment. It provides a learning agenda comprised of education and training using a planned, closely supervised combination of on-the-job training, and classroom education. Subjects and activities that focus on building habits for success include personal learning styles, time management, understanding non-verbal communication, initiative taking, group-team communication, line/staff/team organization, etc.

Basic aptitude requirements for this position:

- Read, write and comprehend in common "English."
- Function and interact well within a "team" structure with a positive attitude
- Possess an express interest in and can understand basic mechanical devices "working with objects such as ladders and hand tools."
- Function while wearing personal protective clothing such as "suites, gloves, hard hat, goggles, breathing respirators and harnesses.
- Possess a general sense of self-preservation and the safety of others.
- Willingness to study in a classroom and workshop setting and pass a written test.

Behavioral Expectations

- Work as if already employed; be visible and make an impression
- Dress professionally, use appropriate language
- Show up for assignments when expected and work until the work day has ended
- Complete tasks asked and in full compliance with directions
- Demonstrate commitment to the assignments; exhibit a "can-do" attitude

Basic Qualifications for Employment:

- High School Diploma or equivalent
- Must provide Proof of Citizenship and is authorized to be employed in the United States.
- Must have a valid Social Security Card.
- Pass a Criminal Background Check.
- Pass a "Drug Free Work Place" screening.
- Must possess Valid Driver's License
- Access to Reliable Transportation

Compensation:

- At minimum, US Department of Labor Prevailing Wage or higher based on experience and previous employment history.
- Paid Holidays.
- Overtime pay.
- Per-Diem when traveling.
- Government and industry accredited training and certifications.

Controlled Environment Agriculture Internship – 3 Months

The CEA Intern Program covers the "Core Body of Knowledge" requirements for various methods of high-tech agriculture, and ancillary systems, processes, machinery and equipment, as well as OSHA health and safety regulations relating to food production, harvesting, processing and packaging operations.

CEA is a technology-based approach toward food production. The aim of CEA is to provide protection and maintain optimal growing conditions throughout the development of the crop. Production takes place within enclosed growing structures such as a greenhouse, building or other such "under cover" apparatus. ACTS FFI has designed a comprehensive CEA training program. The 3-level curriculum, scheduled over three (3) consecutive months, consists of 1) independent and/or classroom, 2) workplace assignments, and 3) government and industry accredited training and certifications components.

Internship training is comprised of lecture, written exercises, large and small group discussions, hands-on workshops, and workplace assignments that reinforce the learning experience. During sessions, trainees learn techniques needed to effectively prepare plant nutrient formulas, regulate climate-control, plant irrigation, sanitation, participate in post-harvest disciplines and other food production activities.

Safety sessions focus on personal protective equipment (PPE), state, federal and OSHA regulations on health and safety, safe work practices, and safe and proper use of tools and chemical components, and equipment safety, handling, maintenance and troubleshooting.

Upon completion of classroom and workshop training, trainees will have gained a new set of skills for CEA that are directly connected to ACST FFI food production operations. Internship training includes quizzes, exams, and validation of the skills relating to nutrient formula preparation, equipment operations, diagnostics, and servicing.

Training Module Descriptions

Individual and/or Classroom Learning: Trainees gain basic knowledge of CEA technologies, and the industries served via Instructor-led classroom sessions and/or the Internet using a personal Computer. Instruction is segmented into

independent training sessions with specific performance objectives outlined. Instruction includes both independent and group assignments, quizzes, exams and real-time evaluations.

***CEA Industry Sessions:**

1. **Controlled Environment Agriculture:** describes the uniqueness, and features and benefits of CEA. *A written exam, and hands-on skill assessment are given at the end of the module.*
2. **Hydroponics:** describes the various types of hydroponic operations, methods, processes and associated equipment. *A written exam, and hands-on skill assessment are given at the end of the module.*
3. **Sanitation:** learn protective measures involved in hydroponic systems (e.g., irrigation lines, reservoirs and pumps) to minimize pest, pathogens and other contaminants. *A written exam, and hands-on skill assessment are given at the end of the module.*
4. **Climate Control:** learn how to control heat and humidity using light meters, pH meters, conductivity meters, cooling thermostats, and ventilation fans in various CEA environments. *A written exam, and hands-on skill assessment are given at the end of the module.*
5. **Nutrient Formulation:** learn how to design and facilitate various crop fertilizer programs. Work with macronutrients such as: iron, manganese, zinc, boron, copper, molybdenum, chloride and nickel. Prepare nutrient solution recipes. *A written exam, and hands-on skill assessment are given at the end of the module.*
6. **Water Analysis:** learn how to filter source water and identify conditions such as: alkalinity, the electrical conductivity (EC) and the concentration specific elements (calcium carbonate) using reverse osmosis. *A written exam, and hands-on skill assessment are given at the end of the module.*
7. **Light Control:** describes the various types of light and shade system implementation used in CEA. *A written exam, and hands-on skill assessment are given at the end of the module.*
8. **Watering Systems:** describes the various types of hydroponic irrigation systems, watering methods and best practices based on crop variety. *A written exam, and hands-on skill assessment are given at the end of the module.*
9. **Vertical Farming:** describes the practice of producing food in vertically stacked layers, inclined surfaces where all environmental factors are controlled. *A written exam, and hands-on skill assessment are given at the* end of the module.
10. **Aquaponics:** describes the process of using fish waste to provide some of the nutrients plants require in hydroponic systems. *A written exam, and hands-on skill assessment are given at the end of the module.*
11. **Undercover Growing:** describes various methods used to grow crops undercover such as greenhouses, tunnels, netting, etc. *A written exam, and hands-on skill assessment are given at the end of the module.*
12. **Water Retention and Recycling:** describes various water collection and sanitation methods. *A written exam, and hands-on skill assessment are given at the end of the module.*
13. **Waste Management:** describes the various methods of collection, treatment and disposal of nutrient loaded (effluent) solutions. *A written exam, and hands-on skill assessment are given at the end of the module.*

***Safety Training Sessions:**

1. **Personal Protective Equipment:** offers trainees instruction on the use and care of PPE. A written exam, and hands-on skill assessment are given at the end of the module.
2. **Workplace Safety - Hands:** session focuses on hand injury prevention. *A written exam, and hands-on skill assessment are given at the end of the module.*
3. **Ladder Safety:** overview of Ladder Safety Standards, providing explanations of the various requirements set by OSHA. *A written exam, and hands-on skill assessment are given at the end of the module.*
4. **Fire Extinguisher Use:** enables trainees to identify the different classes of fires and to know what to do in case of a fire. Session includes hands-on use of an extinguisher. *A written exam, and hands-on skill assessment are given at the end of the module.*

6. **Workplace Safety - Falls:** training focuses on recognizing the hazards of falling, and the procedures to be followed in order to minimize these hazards. *A written exam, and hands-on skill assessment are given at the end of the module.*
7. **Hand & Power Tool Safety:** provides general instruction on guidelines for hand and power tool safety. *A written exam, and hands-on skill assessment are given at the end of the module.*
8. **Electrical Safety:** basic electrical concepts and provides a working knowledge of the safe practices when working with electricity. A written exam, and hands-on skill assessment are given at the end of the module.
9. **Chemical Components Safety:** session focuses on how to work safely with chemicals used in nutrient formulas. *A written exam, and hands-on skill assessment are given at the end of the module.*
10. **Understanding Material Data Safety Sheets (MSDS):** provides overview of MSDSs, and how to interpret the information contained such as risks, precautions and remedies to exposure. *A written exam, and hands-on skill assessment are given at the end of the module.*
11. **Accident Prevention:** provides trainees with a better understanding of general safety precautions in order to identify and prevent hazards in the workplace. *A written exam, and hands-on skill assessment are given at the end of the module.*

***Training topics covered in the Intern Program are subject to change without notice. This is a partial list.**

Group Training and Workplace Assignments: provides trainees with visual and hands-on reinforcement designed to teach the practical application of CEA technologies, basic diagnostics and distribution systems. Instruction includes both independent and group assignments, quizzes, exams and real-time evaluations.

****Group Training and Workplace Assignments:**

1. **Math Calculations & Conversions:** provides explanations of nutrient formula measurement, measurement tools, surface area and volume measurement calculations. General Math review including fractions, decimals and gram conversions. *Hands-on skill assessment* is *given throughout the module.*

2. **Nutrient Formula Preparation:** familiarizes the trainee with nutrients and the fundamental principles of the performance of nutrient formulations. Trainees will discover the reasons and benefits for using nutrients, and their individual properties. Trainees will also learn about nutrient formula components, their functions, and how they contribute to desired plant growth. The knowledge of basic concepts of nutrient formulations, and their roles goes a long way in understanding and appreciating formula differentiations, growing attributes and performance, cost, application areas and trouble-shooting. Effects of key formulation parameters for crop varieties and cost will be discussed. *Hands-on skill assessment* is *given throughout the module.*

3. **System Equipment Breakdown & Rebuild:** trainees will learn the importance of system equipment and the process involved in supplying nutrient formulas for a variety of crops. System components will be identified and features and benefits will be discussed. Trainees will understand the procedures involved in the care, maintenance and repair of system equipment. Trainees will learn about the causes of common equipment failures and recognize how equipment failures are investigated and remediated. Trainees will be able to identify hazards that are commonly encountered by crop technicians and the equipment, methods, and procedures available to reduce these hazards to an acceptable level. *A written exam, and hands-on skill assessment are given at the end of the module.*

4. **Equipment Safety:** provides specific instruction on guidelines for equipment safety and be able to identify hazards that are commonly encountered on the job site. Trainees will learn about the causes of common of accidents relating to equipment components, hand and power tools, and air driven tools used in connection

with equipment operation. *A written exam, and hands-on skill assessment are given at the end of the module.*

5. **Documentation:** trainees learn the importance of documenting each phase of the job to ensure the successful completion of the project per the specification including, but not limited to material and nutrient formula selections, supply and application techniques used, formula cycles, environmental factors, worker assignments, job results, etc. *Hands-on skill assessment* is *given at the end of the module.*

6. **Quality Control:** provides trainees with a complete understanding of quality assurance procedures, system failure analysis, and proprietary techniques used in CEA technologies. Trainees will gain insight into quality standards during various stages of CEA operations and food production processes. *A written exam, and hands-on skill assessment are given at the end of the module.*

**** Group Workshops and Workplace Assignments are subject to change without notice. Interns work collaboratively with a team and perform skills and perfect techniques on a "job-rotation" basis, which serves to provide a well-rounded experience in the many aspects of CEA as practiced by ACTS FFI.**

Learning Outcomes

By the end of the Intern Program the Intern should be able to:

1. Possess life skills such as punctuality, perseverance, positive attitude, and work ethic that will help assure job success for a CEA operation.
2. Possess skills specific to each segment of the CEA training program and may include practice with tools, climate control techniques, irrigation strategies, sanitation protocols, trade math calculations, nutrient formulation, and system equipment identification, operation, and maintenance, among others.
3. Possess the necessary skills to successfully achieve 3rd party offered OSHA Safety compliance training.

