Occupational Guide for Hydroponic Growers
[within Controlled Environment Agriculture (CEA)]

prepared by
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for
Selena Chavis
Finney Company
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1. What type of education is generally required for working in this field? How does one go about entering this field?
A science-based technical education is necessary for preparing the student for work within the greenhouse controlled environment agriculture (CEA) hydroponic crop production industry. Biology and chemistry are important foundation subjects. Mathematics is critical. Hands-on experience with plant growth within a controlled environment crop production facility is important to learn of the interactions of the greenhouse climate control systems with crop growth, and to develop strategies for directing plant growth by use of the greenhouse environmental control systems. These systems may include: heating, ventilating, cooling, shading, irrigation and fertilization. An understanding of the crop culture procedures [watering, nutrition, pest/disease control, seeding to harvest tasks, etc] for various crops which are based on the biological needs and growth habits of the crop is critical for the success of a hydroponic grower. Entering the field may best begin with an internship at a facility of an established grower, primarily to gain experience. This could lead to a long term job with this employer, assuming that they are of sufficient size to offer major growing responsibilities within the near future, such as becoming the primary grower for a section of the greenhouse.

2. What types of specializations exist?

1. Crops Specialists in the production of particular crop either for food, flower, or in near future medicinal or other biological purposes are necessary. Furthermore crop specialists for a particular
climate or geographical part of the world are necessary. The challenges of production for example, in the northern regions [above 40° from equator], compared to the sub-tropics [30° from equator], compared to the tropics [20° from equator], or compared to maritime climate or continental climate or tropical island climate, desire a grower experienced in such specialized climates.

2. Disease and pest control specialists, especially for IPM Integrated Pest Management as a biological control means.

3. System design and operations, sometimes erroneously called ‘engineering’, but with focus mostly on climate monitoring and control, since it is so critical to the quality production and consistent production of the crops. Maintenance of these systems is a sub-specialization, which would not only include the more traditional mechanical systems repairs, but the more modern computer and communications repairs.

4. Nutritional specialist able to diagnose plant nutrient deficiency or toxicity, and able to remedy the situation with procedures that modify nutrient feeding schedule or regime, or modify the plant environment, or to do a combination of both.

5. Marketing and product sales specialist who can develop outlets for new sales, alternative presentations within the current market, with both national and international interests.

Note that these last four jobs may exist within specialized companies within the supporting industry, and not as a position within a greenhouse facility. Such job opportunities would come after some years of experience within the production industry, or more rapidly if the individual were to specialize by completing an advanced degree university program.

3. Typical salary range?
$20 to 40,000 to start depending the quality of the individual and the amount of their practical experience in the industry.

4. What are the advantages and disadvantages to working as a Hydroponics Grower? What is the draw?

Growers of greenhouse controlled environment crops [e.g. ‘Hydroponics Growers’] have become a major part of modern, technical production agriculture, so called ‘high-tech, 21 Century’ farming. The ‘draw’ is the opportunity for young people to enter the agriculture industry from advanced educational backgrounds and develop a rewarding career working within a part of the food production system, and not necessarily having to have come from a farm background. Such opportunities have not existed in the past.

Production agriculture such as hydroponic crop production within controlled environments is an environmental profession. The climate, the local weather and outdoor activities are a daily part of this profession. This can be both an advantage to the profession, as may be a primary reason for interest in production agriculture, or a disadvantage, as having to work within the greenhouse with high air temperature and humidity that is more appropriate for the crop than is comfortable for people.

5. Where are the best job opportunities?
CEA has the advantage as the only form of production agriculture that can select its desired optimal location for production, as opposed to having nature select field soil and climate conditions appropriate for outdoor production. Thus the decision for location of a CEA facility can be based on available local markets, optimal climate conditions, available local labor force, or accessibility to transportation infrastructure. Therefore, traditionally CEA greenhouse facilities would be constructed nearby to large consumer markets, or at least locations that are readily accessible to these markets by a transportation network. More recently the economic pressures associated with the operational expenses of facilities located close to urban/suburban markets has created job opportunities in more distance locations that are selected based on the climate conditions and access to transportation infrastructure.

Original Message-----
From: Scppmc@cs.com [mailto:Scppmc@cs.com]
Sent: Friday, September 21, 2001 1:28 PM
To: edavison@Ag.arizona.edu
Subject: Finney Company Request

Dear Ms. Davison,
I am working with Finney Company, a publisher of educational and reference materials. Currently, we are working on an Occupational Guidance collection for agriculture that is used in educational institutions throughout the country. I am researching and writing a monograph for this collection on Hydroponics Growers and hoped your organization could be a resource for this.

The monograph covers information related to this career including a description, education requirements, salary, job outlook, abilities, job duties, etc. As part of my research, I need to get input from national organizations, educational institutions, and field professionals for accuracy. If you have information related to the below statements/questions, or if you could provide answers, I would greatly appreciate it.
I'm sure you are very busy, but, of course, I am working on a deadline. Please let me know one way or the other if you can be of assistance. I will follow up with you later to answer any questions you may have. Any information you can provide would be greatly appreciated.

Sincerely,
Selena Chavis  850-729-2697

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