

Alternative Greenhouse Crops - Florida Greenhouse Vegetable Production Handbook, Vol 3¹

W. D. Thomas²

Currently, there are relatively few vegetable crops grown commercially in greenhouses. Tomatoes, cucumbers, lettuce, and peppers probably account for the vast majority of all vegetables produced commercially in greenhouses. Occasional reports on production of such crops as watercress, herbs, melons, and strawberries, make up the remaining small percentage of production.

An initial reaction to this might be: "if we can successfully produce tomato, cucumber, lettuce, and peppers, then certainly we can produce other types of vegetables." The answer is yes, however, there are several considerations that require deeper analysis. When considering an alternative crop in the greenhouse, each of the following elements should be completely researched to identify the potential feasibility.

First is the growth characteristics of the crop. In Florida, growers need to realize that the edge a greenhouse may give only relates to producing vegetables in cool seasons when they ordinarily would not be grown. Therefore, cool season crops are

virtually eliminated as economically feasible for greenhouse production due to competition with field-grown produce. Plants which require several square feet per plant and are not conducive to trellising and/or pruning would not make logical choices due to the reduced number of plants which could be grown in a unit. Many fruiting plants have imperfect flowers and require pollen to be physically moved from one flower to another or sometimes from one plant to another. Such a process would require excessive labor, however today, commercially available bumblebees can solve this problem.

Some crops require relatively long periods of vegetative growth prior to producing a marketable product. Since greenhouse production is expensive, optimum produce volume per square foot per unit of time is of paramount importance.

The volume/space/time relationship is just one consideration of production volume. The second element is the volume and price relationship. The volume-price relationship is what has made tomato, cucumber, lettuce, and pepper viable crops. The

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 2. W.D. Thomas, extension agent IV, Columbia County, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville. The Florida Greenhouse Vegetable Production Handbook is edited by George Hochmuth, professor of Horticultural Sciences and Center Director, North Florida Research and Education Center - Quincy and Robert Hochmuth, extension agent IV, North Florida Research and Education Center - Suwannee Valley, Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL 32611.

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product needs to be a relatively high value crop and capable of producing good volume. To emphasize the importance of volume, the following examples are given:

1. A net of 10 cents per pound x 20,000 lbs. = \$2000
2. A net of 15 cents per pound x 8,000 lbs. = \$1200

Volume can generate a greater return on investment even if the per pound return is not as great. Very few crops have a high volume potential and high value in the market.

Some crops can be made profitable by creating a value-added aspect. For example, various lettuces and greens by themselves might not be very profitable. However, when packaged as a mixed salad or as "mescalum", there is more value to the end-product and potentially more profit.

Timing of production is critical for some markets. The seasonal volatility of produce prices only emphasizes the need to research the market trends to assist in determining viable marketing periods. After locating potential market windows, consider the crop again. Can it be grown successfully at that time of the year?

Some crops have specific requirements such as minimum day lengths, temperatures, etc., that could not be economically met in order to produce the crop during some periods of the year. An in-depth study of the crop's environmental requirements and responses could be very important in avoiding a potential problem.

The market locality or proximity also might play a role in the decision-making process. A local market might be lucrative enough to encourage a grower to produce a crop that might not be profitable for wholesale market channels.

If a grower gets past all the above hurdles and still has a viable alternative crop, there is hope. However, growers will need to deal with the following areas of concerns.

By virtue of living in Florida, we are blessed with a mild climate. Unfortunately, the same virtue is extended to insects, fungi, bacteria, and viruses which live here also. Each crop, typically, has a fairly well defined set of pest problems that are associated with it. Through identifying potential pest problems and methods of control (or lack of control methods) a more informed decision can be made of the risk.

Next, growers must consider labor. All crops require labor to some extent. Production in a greenhouse requires intense management, and operations must be timely. Certain cultivars require much more labor than others. An example of this is "cherry-type" tomatoes. Most cherry tomatoes sucker profusely and repeatedly at the same axils, which means suckering and pruning up and down the entire vine all season versus once for the standard beefsteak types of tomatoes. Another example is the sequential ripening of cherry tomatoes on each fruiting cluster. This characteristic results in picking over several feet of vine at each harvest. The cherry tomato fits all the other parameters of a good crop until the labor element is factored in.

The last element is certainly not the least consideration nor the final one, but should be weighed seriously. When considering any alternative crop, make an exhaustive effort to obtain as much technical and supportive information as possible and identify sources of help including Cooperative Extension Service employees, local industry members, and greenhouse supply representatives.

More Information

For more information on greenhouse crop production, please visit our website at <http://nfrec-sv.ifas.ufl.edu>.

For the other chapters in the Greenhouse Vegetable Production Handbook, see the documents listed below:

Florida Greenhouse Vegetable Production Handbook, Vol 1

Introduction, HS 766

Financial Considerations, HS767

Pre-Construction Considerations, HS768

Crop Production, HS769

Considerations for Managing Greenhouse Pests, HS770

Harvest and Handling Considerations, HS771

Marketing Considerations, HS772

Summary, HS773

Greenhouse Cucumber Production, HS790

Alternative Greenhouse Crops, HS791

Operational Considerations for Harvest, HS792

Enterprise Budget and Cash Flow for Greenhouse Tomato Production, HS793

Vegetable Disease Recognition and Control, HS797

Vegetable Insect Identification and Control, HS798

Florida Greenhouse Vegetable Production Handbook, Vol 2

General Considerations, HS774

Site Selection, HS775

Physical Greenhouse Design Considerations, HS776

Production Systems, HS777

Greenhouse Environmental Design Considerations, HS778

Environmental Controls, HS779

Materials Handling, HS780

Other Design Information Resources, HS781

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Preface, HS783

General Aspects of Plant Growth, HS784

Production Systems, HS785

Irrigation of Greenhouse Vegetables, HS786

Fertilizer Management for Greenhouse Vegetables, HS787

Production of Greenhouse Tomatoes, HS788

Generalized Sequence of Operations for Tomato Culture, HS789