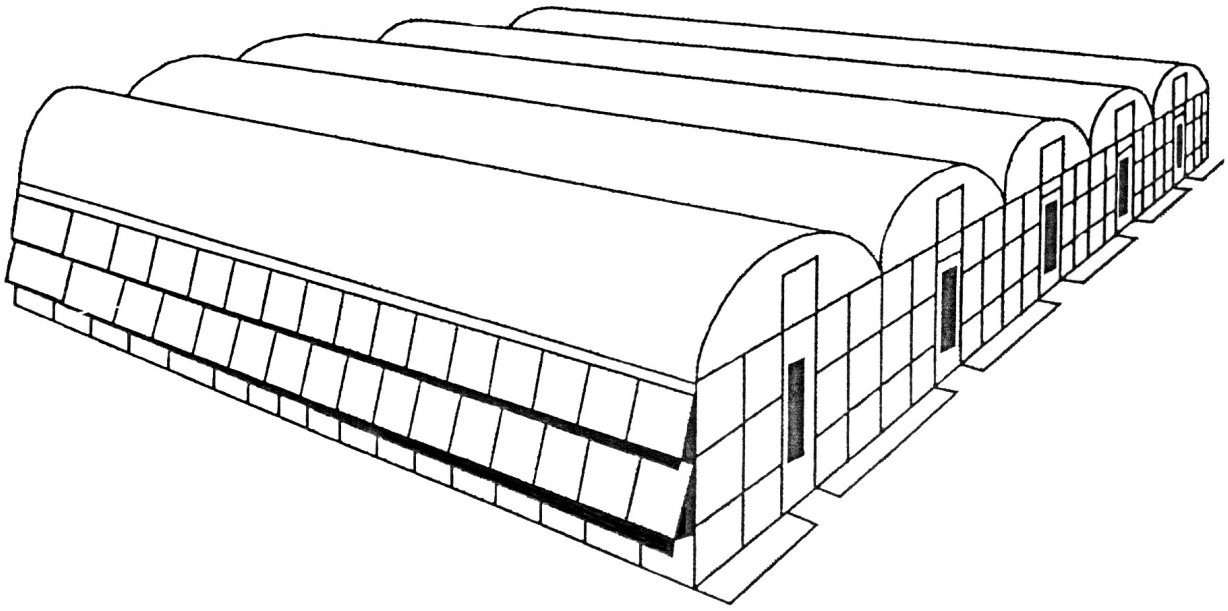
THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION
Colleges of Agricultural and Environmental Sciences & Family and Consumer Sciences

Starting a Greenhouse Business



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The United States floriculture industry is in rapid change – change in consumer demand, marketing channels, crops grown and methods of culture. The seemingly insatiable desire for new varieties, an emerging mass market for floricultural products and new technology and world competition are but a few of the driving forces behind this change. Growers who can foresee and adapt to these changes will prosper in the years ahead, while growers who refuse to change will almost surely perish or see their profits dwindle.

Georgia has a diverse and growing floriculture industry built primarily around bedding plant and flowering pot plant production. However, Georgia is a deficit market (greater demand than supply) and will likely remain so for the foreseeable future. Standard greenhouse cut flower production (roses, mums, poinsettias) has declined sharply in the United States during the past years as a result of Latin American and European competition. Foliage plant production has largely moved to Florida and California. The specialty cut flower industry, comprised of perennial and annual flowers grown for the florist trade, however, is experiencing a resurgence in Georgia.

Georgia currently has more than 11 million square feet in greenhouse production, consisting of both full-time and part-time producers. The wholesale grower markets directly to wholesalers and/or retail florists, chain stores, garden centers, landscape firms and other small outlets. The retail grower markets directly to the customer, often from the greenhouse itself.

The wholesale value of floricultural crops produced in Georgia was estimated at almost $100 million in 1992. As these products move through sales channels, Georgia floriculture is estimated to contribute more than $400 million to the state's economy each year.

The Potential for Success

Georgia is in a position to realize sustained growth in the floriculture industry for many years to come. On the demand side, the state will become one of the fastest growing areas in the nation. As a sunbelt state, Georgia also offers favorable climatic conditions, particularly good winter light and relatively low heating costs, which reduce production time and costs. Several northern producers have recently located operations in Georgia to take advantage of the favorable climate, availability of labor and favorable labor costs.

The widespread use of annuals and herbaceous perennials in municipal and commercial landscapes is creating new markets as is the increase in everyday sales of cut flowers. Interior plantscape firms are doing well in larger cities, where developers desire to "bring the outside in" and create pleasant environments in which to work, dine and shop.

Getting Started

Starting your own business is part of the American dream, but getting started in the greenhouse business can be very risky. Having factual information will help you stay away from bad decisions, losing propositions and unreputable dealers.

If you are interested in owning a greenhouse business, the following series of questions may

stimulate your thinking and allow you to research and compare options. You are encouraged to contact your local Cooperative Extension Service office for more detailed information.

Like most things, running a greenhouse business can be profitable, but only if the facts are available.

Question 1: Why did you decide on the greenhouse business?

If you asked someone that question, most people will tell you they have always loved plants, and they think growing different kinds of plants professionally would be a wonderful job. Some will tell you they look upon the venture as an investment after retirement. Others consider the greenhouse industry a small business where they can start with some measure of independence. However, you need to ask yourself if you actually *know* anything about the greenhouse business.

Consider the following points in order to make balanced and informed decisions.

Minuses

To be successful, a person should have some formal horticultural training. This is essential in order to grow plants capable of competing in the marketplace. Lack of experience or training is very detrimental in this industry. Educational programs, such as Master Gardener through the Cooperative Extension Service and industry-sponsored seminars can provide valuable information. Many schools and universities also have continuing education classes in greenhouse management. Experience is the best asset you can acquire before you get into this business.

Also, consider physical labor. Like any new business, a new greenhouse business can demand 18 hours a day, 7 days a week for months at a time. Greenhouses are frequently very hot; late spring, summer and early fall temperatures inside can be more than 120 degrees F. Heavy lifting, wet feet, employee problems and taxes to deal with on top of conflicting production schedules cause additional problems. Crop failures can be common and are too frequent. Bad debts, snow storms that destroy the greenhouse, and insects are additional concerns. Sometimes you may have problems selling even a great-looking crop because of insufficient marketing. Problem-solving skills are essential, and so it a good sense of humor.

Positives

The majority of well-planned greenhouse ventures succeed. This success usually depends on the new business owner rather than market strength or luck. Success will come to those who acquire the training, resources and drive necessary to succeed. Those willing to give the next five years of their lives to very long hours should see their businesses grow slowly but steadily in our current horticultural business environment.

Are the rewards worth it? Yes. As with most businesses, careful planning, perseverance and lots of elbow grease should pay off handsomely. Most folks find being their own boss a wonderful feeling and enjoy their greenhouse tasks. Despite worries about bills, weather and customers, managing a greenhouse can be a good way of life.

Many greenhouses are trans-generational and have been in operation for more than 50 years. A few Georgia growers are making more than a six-figure profit each year. However, as you might expect, huge profits are not the norm. Many more Georgians are making modest but comfortable incomes ($25,000 to $40,000) for their years of investment. There are no “quick profits” in the greenhouse business. Don’t let anyone tell you otherwise.

Question 2: What type of crops are you thinking about producing?

Annuals, herbaceous perennials, hanging baskets and vegetable plants are good crops to start with. The markets for these products are still wide open to new businesses. Orchids, pond plants and herbs are much more risky and require much stronger training and educational background. Propagating cuttings and seeds for other growers is a very risky line of work and not

recommended for the beginner.

The first golden rule to remember: ***Grow what sells, not what you are fond of.*** Growing "pet" plants has killed many would-be greenhouse businesses. Think "business" and grow only what the customers are demanding and what you know how to grow. Here is a brief summary of the various sectors of the floriculture industry as of 1994 that may help you with this decision.

Bedding Plants

The production value of bedding plants in the United States increased from $39.2 million to $251.7 million from 1970 to 1979. From 1979 to the present, the value has increased to an amazing $8 billion (Hall). During this time, the market share of the bedding plant industry in-creased about 4 percent by 1988, and the esti-mated market share for bedding plants was 30 percent. Growers in Georgia have recently aver-aged 6 percent to 10 percent increase in profits since. Thus, the potential for increased produc-tion clearly exists.

Fall and spring bedding plants now form the backbone of the Georgia industry. Homeowner demand for attractive landscapes and increased use of annuals in the commercial landscape are creating expanding markets for bedding plants.

Bedding plants have traditionally been produced in "standard flats" (24" x 11"), which are subdivided by "inserts" containing "growing cells" of various sizes (36 growing cells per insert is most common). Increasing numbers of annuals are being grown in individual pots, 4-inch or larger, for the commercial landscape market, which demands large and showy flowers immediately upon transplant.

Most bedding plants can be grown successfully in Georgia. A good product mix is important, particularly for retail growers. Impatiens, geraniums (seed and cutting types), petunias, pansies and begonias account for the greatest sales. A number of vegetable transplants, notably tomatoes, are also grown.

Bedding plants have traditionally been a seasonal crop, produced mainly for spring sales. Sales in some areas are now holding up well into summer, and late summer/fall pansy sales increase each year. Producers are advised to combine bedding plant production with other crops, such as pot plants, foliage plants and ferns to maintain full use of the greenhouse throughout the year.

Flowering Pot Plants

Poinsettias are probably produced in greater numbers than other flowering pot plants. Poinsettia production complements most bedding plant operations. Poinsettias are a major Christmas flower crop and are produced in a variety of sizes from 4-inch pots to 12-inch pots, handing baskets and tree forms. However, profit margins for poinsettias have declined since 1988 due to over-production. Consider alternative holiday crops instead.

Chrysanthemums (mums) are produced year-round. Florist chrysanthemums are a staple of the retail florist trade and have year-round demand. Many growers produce garden mums in the spring and fall for transplanting into the landscape. Mum profit margins have been very low since 1992. The average annual profit margin for garden mums in Georgia has been less than 5 percent during the past several years. Again, be cautious.

Easter lilies are produced seasonally in Georgia. Scheduling of this crop is more critical than with other crops, because they must be marketable for the Easter season. *Crops that are too early or too late may result in no sales at all.* Hybrid (multicolored) lilies are also grown but in limited quantities. Although lilies are difficult to grow, they offer the highest profit margin you can obtain from any pot crop. Learning how to grow lilies requires years, so start out small with this crop to minimize the risks.

Small numbers of forced azaleas, hydrangeas and cyclamen are also produced in Georgia, primarily for the Valentine's Day, Mother's Day and Easter markets. Like Easter lilies, profit margins are high for these specialty crops. Consumer interest will keep demand for these holiday crop

plants steady.

A large number of potted geraniums and begonias are grown during the spring in decorative containers. Some are used by retail florists, but most are used in the home landscape or as patio plants for summer color. These plants are also very profitable.

Other crops produced on a limited scale include forced spring bulbs (tulips, daffodils, crocus), gloxinias, African violets and kalanchoe. There is always a demand for "new" pot plants. Cultural and production information for new crops is becoming more widely available. Profitable growers will adapt and grow these high profit margin plants as they appear in the market stream.

While the 6-inch pot remains the industry standard for florists, 4-inch and 5-inch pots are making major inroads due to their slightly lower production costs. Smaller pot sizes mean more pots per square foot of greenhouse production space; therefore, sales and profit potential increase.

Foliage Plants

Production and sales of foliage plants mushroomed in the 1970s and became the most rapidly expanding segment of the floriculture industry. Sales during the 1990s continued to be good. However, with few exceptions, Georgia growers cannot produce large specimen foliage plants at prices competitive with those of Florida producers. Nevertheless, a sizeable number of foliage plants are sold by Georgia growers who often buy foliage plants from Florida, hold them for a short time, and resell them locally at a profit.

The species and varieties of foliage plants are almost endless. A number of growers produce foliage baskets (hanging baskets). Numerous fern baskets are produced each year along with flowering baskets such as Impatiens. Hanging baskets have a reasonably good profit margin.

The interior plantscaping industry in Georgia is expanding although competition is stiff. Most indoor plantscape firms do not produce the plants they use in various accounts, but they rely on the greenhouse industry to supply them. Many firms also offer maintenance agreements, which require additional plants. The interior plantscape industry has enlarged significantly in recent years, particularly in the metro Atlanta area and other urban areas of the state. Before you sell plants to an interior plantscape business venture, be aware that this is a very risky line of work; selling to interiorscape companies means you must know that business' reputation very well.

Cut Flowers

In 1970, cut flowers, such as roses, accounted for 50 percent of floriculture in the United States. By 1979, this figure had dropped to 23 percent and, by 1991, was estimated to be only 5 percent of the total production, despite the fact that per capita consumption of cut flowers had actually increased. Imports of cut flowers, primarily from South America and Western Europe, have caused a major disruption of the U.S. cut flower industry. Renewed interest in local species, however, has greatly improved the market potential for cut flowers in Georgia. In fact, the Georgia cut flower industry is now building. A few roses, mums and snapdragons are produced but fewer every year. Most growers switched to more profitable crops such as annual and perennial cut flowers. Of the current major annual-type flower crops being produced (zinnias, snapdragons, lilies), snapdragons probably have the most potential for local production, since shipping of snapdragons is more difficult than most other cut flowers. Gerbera daisies also offer potential for production by specialized growers.

Renewed interest is very strong in small-scale field production of specialty-type perennial cut flowers for the retail florist trade and for roadside sales. Many perennials can be field-grown in Georgia, although there are risks involved. Insect and disease control are sometimes difficult, and environmental factors that can be controlled in the greenhouse are difficult to control in the field. Rain, hail and wind can cause serious crop losses. Marketing may also present problems.

Specialty cut flowers, such as delphiniums and snapdragons, have greater potential for greenhouse producers in Georgia. A few Georgia growers, however, are finding success in the field-grown cut flower industry.

Herbaceous Perennials

There has been a resurgence of interest in container-grown herbaceous perennials during recent years. Home gardeners, perhaps tiring of annuals, are seeking something new for their gardens. Much mass media attention has focused on English and northeastern U.S. gardens, which feature heavy use of herbaceous perennials; however, Georgia landscape firms are also using herbaceous perennials in increasing numbers in their seasonal color displays.

New markets for container-grown herbaceous perennials have prompted several growers to produce herbaceous perennials exclusively. Most are grown in quart and gallon pots, but there is some small-scale field production of some perennials as well. Daylilies, for example, are produced in the field and sold bare-root.

Container-grown perennials are usually produced outdoors, but most require winter protection provided by small Quonset structures covered with white poly or by traditional greenhouses and cold frames.

The potential for continued expansion of herbaceous perennial production appears good through the 1990s.

In Georgia

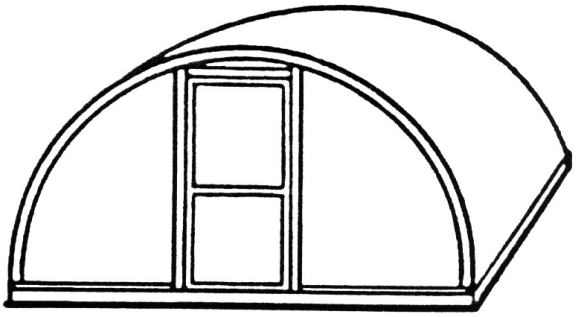
Most floricultural crops grown in Georgia are produced in greenhouses. However, certain bedding plants, notably pansies and herbaceous perennials, are often grown outdoors a portion of the time to harden them off (condition them to the outdoor environment) prior to sale. Growers often move bedding plants out of the greenhouse after the danger of frost has passed if space requirements dictate. Several growers in the state are producing container-grown herbaceous perennials outdoors. Container-grown garden mums are also produced outdoors for the fall market.

Field production of Easter lilies in Georgia no longer exists. Production of spring bulbs and cut gladiolus has also dwindled sharply, with only a few moderate-scale operations in Georgia. Marketing of these products is done through wholesale distributors in major cities.

Question 3: What kind of greenhouse should you buy?

The basic growing structure has changed over the past decade. “Even-span” and “Quonset” poly-covered greenhouses still predominate and are a wise, low-cost choice for the beginner. Few free-standing houses are being built, but ridge-and-furrow and gutter-connected poly houses are becoming more commonplace. The reason for this is the total exposed wall surface is much higher with separate houses than with a range of connected houses, which reduces heating and cooling costs. Connected houses also lend themselves better to mechanization.

Materials used to cover greenhouses also changed. For a time, glass construction virtually disappeared. Some new glass construction, mostly with large pane glass, has occurred in the past few years. Glass has always been a standard of the industry and is virtually unrivaled in light transmission and durability. Where management



has long-range intentions and is well-capitalized, glass is still a good investment. Modern glass with aluminum bars, bar caps or covers that protect the putty, and galvanized metal structures require little maintenance. Construction costs vary but usually range between $5.25 and $7.25 per square foot (for several large houses) exclud-

ing heating, cooling and benches These items may double or triple the basic cost of the house.

By comparison, the basic shell of double poly houses can be built for around $2.00 per square foot. Inflated double-poly is the most widely used greenhouse covering in Georgia. The initial cost of construction is much lower than glass greenhouses; the double-wall arrangement is also more fuel efficient. A disadvantage of poly houses is the slightly lower light transmission than glass houses, but this is not generally a limiting factor in Georgia, where good winter light prevails. The major disadvantage is the need to periodically remove and replace the covering, usually from one to three years, depending on the grade and thickness of poly used. Other flexible plastics are available, but polyethylene predominates.

Relative newcomers to U.S. greenhouse construction are rigid double plastic (structured sheets). The principal materials are acrylic, polycarbonate, and combinations of the two. They are fuel efficient (because of double wall construction), offer good light transmission, and have a lifespan of 10 years or more. However, they are expensive – $1.00 to $1.75 per square foot. There has been little construction in the state to date with this material, as poly is so much easier to work with and is less expensive.

The use of fiberglass as a greenhouse covering has declined. Light transmission is initially good, but fiberglass deteriorates considerably within 10 years. Construction costs are also high, at an average around $3.25 per square foot (shell only).

There have also been changes in heating systems. During the 1970s and 1980s, the unit heater coupled with gable mounted fan-jet systems was the standard. Some large operations may still employ central boilers. More recently, some growers have installed root-zone heating systems.

Two basic root-zone heating systems are commonly used. One employs a duct system mounted underneath the bench to distribute heat; the bench is often draped to retain heat. A second system uses numerous plastic tubes run parallel on the surface of the bench through which warm water is circulated. Growing containers are placed directly on the tubing. The idea behind root-zone heating is to put the heat where it's needed – warming the roots, not the air.

Production costs have risen sharply in recent years as have energy costs, wages, fringe benefits, taxes and transportation costs. In most cases, selling prices have not kept pace with production costs, and growers have had to depend on improved efficiency to maintain their profit margin.

Mechanization is an important consideration when looking at greenhouse designs. The greenhouse industry is becoming more and more automated and mechanized. Soiless media, automated soil handling machinery, pot fillers, flat fillers and seeders are commonplace. Movable benches and trays, belt mechanization and plug production are rapidly moving into the industry. A variety of automatic irrigation and fertilization systems are available. Environmental control is not only automated, but increasingly monitored and controlled by computer. To justify the purchase of machinery and equipment needed for improved mechanization, larger production units are required. While this will not spell the end of small producers, it will mean that ultimately fewer but larger producers will account for the major production in the state.

Tissue culture is revolutionizing the propagation of certain crops. Carbon dioxide enhancement of the greenhouse atmosphere and supplemental lighting, both previously considered not suited for the Southeast, are being re-examined. All these factors are having a tremendous impact on the industry.

Hobby greenhouses are terrible investments if you intend to use them as the basis for starting a new business. More than 75 percent of new, backyard and hobby greenhouses intended to be the starting point of a business go bankrupt or cease to exist within two years due to lack of income. They are simply too small to generate the volume of sales required to stay in business. At least 20,000 square feet of growing space or

more, using traditional-style greenhouses is recommended. Buy your structure from a nationally known, reputable dealer and choose a style that best fits the crops you plan to grow.

Question 4: What experience do you have growing plants?

Most successful greenhouse owners cite one of the following backgrounds prior to starting their own businesses: 1) two to three years' experience working in someone else's greenhouse business, 2) two or more years of vocational school or state university training, or 3) a business partner with both of the above combined. Because of the many technical pitfalls to growing and selling plants, you're advised to dedicate two to three years to "learning the ropes." there are many educational opportunities available at local colleges and vo-tech institutions.

Question 5: To whom will you sell, for how much, and how?

Type of Business

You will need to decide whether to grow wholesale, retail or mail-order sales. These decisions then focus on the question "to whom do you sell?" Retail sales are people-oriented and require intense, long days in spring and fall. Customers wandering around the greenhouse, asking questions and handling plants, are real problems if you are also trying to grow a crop for wholesale sale. Wholesale may be more logical for beginners and the best way to start. You can always add a retail outlet once you have good plant production. Mail-order is fine, but it requires more money up front for statewide or national advertising and a catalog. How you "package" your business will determine who becomes your customer.

Market Research

It is 10 times harder to sell a plant than it is to grow one. Knowing what is popular, what sells, when it sells, what it's used for, and to whom it sells is mandatory! Finding high-income clients and fast-selling products does not come easy, but it can happen with planning. Follow one of the basic rules of business: ***The plants won't sell themselves.*** You must plan to advertise, and advertise often.

Marketing is not a separate function from production, but it's actually an extension of the production decision. A popular misconception of marketing is that it is limited to selling. However, the marketing process includes a wide spectrum of decisions and activities that are intended to satisfy customer desires while sowing a profit for the grower. These activities include identifying customer needs, developing products and services to meet these needs, establishing promotional programs and pricing policies, and implementing a system of distribution to the customer. It is essential to understand your market (and be sure one exists), know your competition, and find your market niche. Doing this *before* you grow the crop cannot be overemphasized.

Shipping

How are you going to get the plant to market? You must have transportation if you are growing for the wholesale market. Wholesale customers do not just show up at your greenhouse and load 10,000 flats of pansies in their pick-up truck. You have to take the plants to your customer if you want your money – or your competition will be going to the bank instead of you.

Most growers own large trucks, sometimes called box trucks, that are adapted with adjustable, removable shelves so many different crops can be delivered. Some larger growers use greenhouse carts that roll up and fit into the large trucks, thus minimizing labor. However, you must also look into expenses such as a garage and cement sidewalks for the carts to run on. Ask yourself this touch question: Who is going to drive this big truck? It may be you who becomes the driver. Be sure whoever drives the truck has the necessary training. You will also need a CDL

or commercial truck driver's license from the state and a good insurance policy.

Pricing

How much will you charge? If you set a price that is lower than production costs, you'll soon be out of business. What is your competition selling the same product for? Signing a contract to grow for a company is risky if you do not know what your expenses are and what your competition is doing. Selling a crop without including costs of overhead and insurance will likely be fatal. Go to florist shops, local wholesale greenhouses and garden centers and learn who grows the same product and learn what they charge for it.

Another rule of entering the greenhouse business: First-timers should grow high-quality crops and sell to florists and garden centers at the highest price possible. Do not try to grow for the mass merchandisers initially, because you cannot possibly grow the volume necessary to generate profits during those first, critical, cash-depleting years of your business.

Question 6: Where do you plan to set up the greenhouse?

You need land, preferably three acres or more, as well as a good water supply, access to major roads, friendly zoning laws, reasonable taxes and plenty of sunlight. Many locations will do it the above factors are favorable. Location is more critical if you live in an urban area and anticipate a retail market than in a rural area. Many current greenhouse owners are facing new zoning, pesticide use restriction and taxation problems that could easily cause concern to a new greenhouse business owner.

REMEMBER: Do your location selection homework as if your money and future depended on it.

Question 7: When do you plan to start up?

Starting a greenhouse business takes at least six months of planning the business and marketing on paper. Negotiating with bankers and ordering supplies takes another month or so. Add to this at least three months of construction and three months of production prior to your first sale. Spring is the best season to market, as it yields the highest profit margin.

The following is an example startup sequence. Plan your business on paper in January. See your bankers and order materials by March. Build your greenhouse during the summer months. Order plants/seeds in September for December/January delivery, work the bugs out of the system by November. Plan on growing plants from January to April. Plan on shipping/selling all plants by the first week of June and ordering fall crops in July.

Question 8: What is your overall financial situation?

The state of your finances is a tough thing to analyze, but it must be done. It is recommended that you have at least three years of "personal income reserve" in the bank after the greenhouse is constructed and operational, because it will require two to three years for the business to turn a profit, to establish steady customers, to earn a good local reputation, and to develop mistake-free production skills. Retirees need to be especially cautious. Never invest more than 10 percent to 20 percent of a retirement nestegg into any business. Those who are not in a position to cover his or her own family expenses during that initial two- to three-year period may be devastated if their total life's savings are required to start the business.

Question 9: What is your current employment status?

It may seem like a good idea to start a business after a person has lost his or her job.

However, opening a greenhouse requires much more capital and flexible resources than the average recently unemployed person has. Consider the next rule: ***Better to learn from mistakes using someone else's money.***

A person can gain valuable experiences by working for a low salary at an existing greenhouse for a year or two. The training received will be worth tens of thousands of dollars gained from mistakes not made. You also get the benefit of getting out of that line of work if it does not suit you, without the dream-crushing financial loss. Few people ever sell a greenhouse business that has failed. Would you buy one?

If you cannot wait two or three years to own a business, and you have a spouse who works, consider getting a part-time job at night and building and running the greenhouse during the day. The same schedule can work for those going back to school.

Question 10: Have you contacted these resources yet?

The SBDC/SBA Offices

The Small Business Development Centers and the Small Business Administration offices are there to help you get started on the right foot. They can help obtain funds, organize business plans and help you become familiar with accounting, recordkeeping and business procedures, including income tax and social security.

Your Local Bank

Banks are very cautious and conservative when it comes to funding new greenhouse businesses. If you need a loan, you must be prepared to show the loan officer you have researched the plan to the *n'th* degree. This includes production schedules, product marketing studies, advertising schedules and long-term cash-flow projections. Banks will demand you prove how you expect to handle cash flow shortages that come with seasonal sales. They will also want to know if you really know how to grow plants.

Do not try to grow too fast. Set a reasonable business plan and set a slow pace for your expansion plan when seeing a banker for a loan. Expansion always starts out slow the first two or three years, and bankers know this. Most growers in Georgia attempt to expand during the fourth and seventh years of the business, and then only by 40 percent to 50 percent of the total square feet already in production. Remember, increased size also means increased labor requirements.

Again, do not plan to sell to chain stores your first few years. It is impossible to compete with the profit margins, shipping and labeling requirements that chain stores demand. Bankers are aware of this fact also. It is better to work with florist shops, garden centers and landscape professionals. Try for high quality, low volume and slightly higher pricing. You will do better in the long run.

Your Local Chamber of Commerce

Your chamber of commerce is there to help local businesses. Local tax laws and ordinances can put a quick end to an unprepared small business, so work with your chamber of commerce and avoid pitfalls before you invest. By talking with other business owners, tips and sometimes "life saving" advice often come free of charge. Ask similar businesses about their problems and challenges. The fifth golden rule: ***Learn from other greenhouse owners' mistakes; it's like money in the bank.***

Your Tax Assessor

You can't possibly set a price on your product if you don't know how your business will be taxed. Seeing your tax assessor will help tremendously. Are greenhouses considered an agricultural business in your county? They are *not* in some counties. The taxation difference can be devastating to your profits if not taken into account when prices are set. What is the true cost of your land? Owning a piece of land near a city may be fine for a home but very expensive if you put a business on it. Do your homework.

Your County Extension Agent

Your local county extension agent can help you with cultural information, cost assessment, greenhouse design and production problem-solving. The Cooperative Extension Service has many bulletins and fact sheets on crop production, greenhouse design and cost accounting. New owners should get a copy of the more than 500-page *Georgia Pest Control Handbook* through their county extension office. It provides pest control recommendations and application rates for chemicals approved for use in greenhouses. You must be licensed in Georgia to apply many pesticides. See your county extension office for more information on these regulations and the testing required to become licensed.

Your Insurance Company

Most insurance companies *do not* insure greenhouses or crops. Find out who will insure the greenhouse business you build. Then, get several bids on the insurance needed for operating the business. Comparison shopping for insurance policies will save money. Also, remember to build the cost of insurance into your financial plan.

The Georgia Department of Agriculture

All Georgia greenhouses are inspected for insects, diseases and cleanliness, and you are required by law to get a nursery license from the Georgia Department of Agriculture. This inspection program helps keep quality high and problems small. The Georgia Flower Growers Association (GFGA) supports the inspection program, and you will find the inspectors to be more friends than foes. Contacting your local state nursery inspector prior to building your facility may provide useful information for your building plans (i.e., sanitation and pest avoidance).

Other Local Growers

Georgia growers are surprisingly open and friendly. Feel free to call several of your local greenhouse operators and get the "low-down" on the industry. Most will allow you to visit and see how they operate. Make friends with them, and you may find them helping your business to grow by sharing contracts, gossip on new mar-kets and warnings of industry problems.

The GFGA or GSFA or MALTA

Joining the Georgia Flower Growers Association (GFGA) and participating in meetings with the Georgia State Florists Association (GSFA) and the Metro Atlanta Landscape and Turf Association (MALTA) will keep you informed on what's going on, who's selling what and who's buying.

Information is a key to business success, and trade organizations are the main pipeline for industry news. Newsletters, conferences and problem-solving meetings are provided by trade associations. Fellow greenhouse growers can give you leads on less expensive products, reputable dealers and tips on getting started. The GCFGA and the Georgia Cooperative Extension Service also co-sponsor many educational meetings, seminars and conferences. Contact your county extension agent for details on upcoming events.

A Knowledgeable Attorney

Never start a new business without having loans, contracts and your business plans reviewed by a knowledgeable contract-law attorney. Subtle legal differences in how you describe and formalize your business can mean tremendous differences in taxes, inheritance and business succession.

Contract growing for other businesses, the purchase of all-inclusive greenhouse kits, or the purchase of whole business packages are areas where contract terms, guarantee and warranty agreements need to be reviewed carefully by an attorney. Beware of "We'll do it all for you" business packages. Golden rule number 6 applies: ***If it sounds too good to be true, it is.***

Be careful.

Question 11: How much will it cost to get into the business?

The capital investment required to start a greenhouse varies tremendously. The total cost of establishing a greenhouse facility – including the basic structure, labor of erecting the greenhouse, heating and cooling materials, wiring, plumbing, paving, benches, driveways and service buildings – is around $10 per square foot. Careful planning and shopping around can reduce this figure dramatically.

A well-managed business should net 10 to 20 percent return on sales over the long run. However, profit will vary considerably. Figures often quoted range from a net annual profit of $1.00 to $2.50 per square foot. A minimum of 20,000 square feet of production space appears to be necessary to provide sufficient income for a family solely dependent on the greenhouse. This size of operation should easily provide a good manager with an annual income in excess of $40,000. However, it will be difficult for most new operations to start at this level. Most will have to begin with a smaller operation and gradually increase production as they gain experience and develop market outlets.

Surveys show that 25 percent of all new businesses fail within the first year, more than half within five years, and eight out of ten within ten years. The greenhouse industry is no exception. Surprisingly, the principal cause of failure in the greenhouse industry is not the lack of technical knowledge or customers but the absence of sound business management practices. Most greenhouse operators are better growers than managers. Fortunately, less than 1.5 percent of new, licensed Georgia greenhouse owners went bankrupt between 1989 and 1992 due to very strong markets. This may not always be the case in the future.

Financial problems arise when a business does not generate enough cash flow to meet current debt commitments. There is often a significant lag from the time of the initial investment to the time when sufficient cash flow is available to service the debt created in starting the business. It is not uncommon for beginning greenhouse businesses to have total liabilities exceed net worth by five or six times. Therefore, it is particularly critical to do financial planning and analysis *before* starting a business. It is important to estimate the level of debt likely to be created and how much cash the business can be expected to generate each month (revenue above cash operating expenses) for debt retirement. Consider the following example:

Mr. Green wants to start a greenhouse business. His plans are to construct four plastic greenhouses, 36 x 108 ft, which will provide about 13,219 sq. ft. of production space (based on usable space of 85%). He plans to produce flowering pot plants and bedding plants on a year-round schedule. He estimates his initial capital outlay in Table 1 (p. 14).

He is able to finance the land and buildings at 10 percent interest for 30 years, and the environmental control system and other equipment also at 8 percent for 7 years. Based on these arrangements (assuming he finances 75 percent of the investment), his debt commitment the first full year of operation would total $21,999.

To determine the amount of cash the business might generate the first year and the size operating loan he will need, he prepares a Projected Operating Statement for the year. He estimates that sales during the first year would be 40-50 percent of what he might expect in a normal year of operation. Until an operator develops a market for his plants and a production scheme to maximize production, sales will be less than optimal. It will likely be three years until his full production potential is reached, and it could take longer to reach full market potential.

Table 1. Capital Greenhouse Cost

Four 36 x 108 ft. greenhouses (foundations & superstructure, including plastic @ $4.75 per sq. ft.)	$ 74,000
Environmental control system (heating and cooling, utilities hookup) and benching @ $4 per sq. ft.	62,208
Office & service building (2,000 sq. ft.) @ $15 per sq. ft.	30,000
Outside mixing areas	2,500
Parking & driveways	5,000
Machinery & equipment	48,500
Office equipment	2,700
Lunchroom	300
Fertilizer equipment	2,500
Sprayer	2,500
Flat/pot filling equipment	13,000
Electric generator	850
Emergency heaters	500
Fuel tank	5,500
Carts	1,500
Truck	16,800
Misc. tools & equipment	2,350
Land (3 acres @ $5,000 per acre)	15,000
Total Investment	**$237,208**

The following (Table 2) is a summary of Mr. Green's proforma first year operating statements:

Table 2. Operating Statement, Green's Greenhouse (First Year)

Cash Receipts		**Cash Operating Expenses**	
Plant Sales	$120,000	Salary & labor	$ 46,505
		Repair & maintenance	3,000
		Machinery cost	5,967
		Seeds & plants	18,038
		Fertilizer/chemicals	8,997
		Plastic (2 layers)	3,656
		Containers & soil	7,866
		Marketing	19,808
		Debt service	21,999
		Taxes & insurance	3,500
		Utilities	9,280
		Office expenses	1,931
		Misc.	475
Total	**$120,000**	**Total**	**$150,980**
Net Cash Income (receipts minus expenses)			$ -30,980
Change in Operating Inventory of Plants & Supplies (beginning of year value minus end of year value) [Some plants are carried over to the next year's profit.]			32,000
Net Operating Profit (Loss) based on first year's inventory			1,020
Depreciation (machinery & buildings - 1 year)			$ 17,100
Profit (Loss)			($15,980)

Based on the estimates, it is obvious to Mr. Green that, although he anticipates an on-paper profit of $1,020, he will need an operating loan to cover projected cash deficiencies. To anticipate his total cash position the first year of operation, he prepares the following summary:

Table 3. Cash Position - Green's Greenhouse (First Year)

Total Business Cash Receipts	$120,000
Less: Total Business Cash Operating Expenses	150,980
Less: Operator Salary (if not included above)	30,000
Plus: Interest Paid	17,063
Cash for Debt Payments (First Year)	$-43,017
Less: Debt Payments due First Year (P + 1)	21,999
Cash Deficit (First Year)	$-21,918

The operating statement (Table 2, p. 14) shows the loss that could be expected after one year of operation. However, an operation's cash position would likely be worse than shown in that statement because of some cash payments not shown on a profit and loss statement, such as the owner's draw and payments on any loan principal made during the year.

A cash deficit is likely the first year and possibly for the next several years. The business would, based on the financial arrangement for debt repayment and on the estimates of cash receipts and expenses, fail to generate sufficient cash (by about $22,000) to cover operating expenses and debt commitments the first year. This condition is not uncommon with beginning businesses; however, there are alternatives for overcoming the deficiency. In addition to arranging for an operating loan or providing more equity capital, these alternatives include increasing cash receipts, decreasing cash operating expenses, changing the repayment plan (pay only interest in the first year), or a combination of these.

Following these analyses, Mr. Green decides he should estimate his business finances for the second year of operation, which would more closely represent a normal year of business. Debt commitments in the second year, based on the previously described financial arrangements on the initial capital outlay ($21,999 annual payment) and repayment of a 12 percent operating loan ($23,456), would total $45,455. He prepares an abbreviated statement for the second year.

Table 4. Abbreviated Proforma Operating Statement - Green's Greenhouse (Second Year)

Total Cash Receipts	$240,000
Total Cash Operating Expenses	190,000
Net Cash Income	$ 50,000
Change in Operating Inventory (plants & supplies)	5,400
Net Operating Profit	$ 55,400
Depreciation (machinery & buildings)	($-17,100)
Profit	$ 16,382

His estimates indicate he could anticipate improvements in both net cash income (up $38,000) and profit. Even with the improvement, there is still a question of generating sufficient cash to meet debt obligations the second year. Consequently, he again projects his cash position.

Table 5. Cash Position - Green's Greenhouse (Second Year

Total Business Cash Receipts	$240,000
Less: Total business cash operating expenses	190,000
Less: Operating draw (if not included above)	30,000
Plus: Interest paid	18,500
Cash for Debt Payments due in Year 2	$ 38 ,500
Less: Debt payments due in year 2 (P+1)	45,455
Cash Deficit (Second Year)	($-6,955)

This analysis indicates Mr. Green would also need to borrow operating funds for the second year ($7,000) but less than in the first year. Projections into the third year would hopefully reveal higher profits and sufficient cash generation to meet both cash operating expenses and debt commitments. However, even if the third year shows a cash surplus, it might still be necessary to borrow during cash deficit months to meet certain operating expenses. In general, it

may take five years to establish a profitable enterprise.

Financial analyses like these are critical to the success of a greenhouse business and any other business where borrowed funds are a major ingredient. Preparation and use of financial statements are essential in planning and should be used on a regular basis after the business is established.

The goal of every greenhouse manager should be to produce quality crops that can be sold competitively at a profit. This will depend to a large extent on the operator's ability to manage money, materials and employees. It is essential that the operator become acquainted with business management, cost accounting and marketing. In order to sell at a profit, it is necessary to know the real costs of production, so a profit margin can be added to arrive at a selling price. Growers who do not know the actual costs of growing plants often guess at an asking price by basing the figure on last year's market or the competition's selling price. Those who do this are playing a very risky game – one that will likely end in failure of the business.

Growers often fail to consider all costs of production. Table 6 summarizes major costs (per square foot of bench area) and shows the percent, on average, each contributes to the total cost.

Labor is the greatest expense; 32 percent is not out of line and may be higher in small or non-mechanized operations. Marketing cost is usually the second highest cost. A cut flower growers who sells through a wholesale commission market easily realizes his marketing costs, but the grower who sells directly to retail outlets or direct to the consumer has his marketing costs hidden in labor, transportation and materials costs. Actual marketing cost may be as high as 25 percent.

Table 6: Selected Standard Industry Cost Factors, 1992

Costs (per sq. ft.)	**Average** (all growers nation-wide)	**Percent of Total** (rounded off)
Labor	$4.10	32.0
Marketing cost	1.95	15.0
Cultural products	1.26	10.0
Heat	1.88	15.0
Depreciation	.42	3.0
Upkeep/Repair	.27	2.0
Property tax	.29	2.0
Misc. expense	.21	2.0
Interest expense	.27	2.0
Truck operation	.26	2.0
Electricity	.15	1.0
Office expense	.18	1.0
Insurance	1.47	11.0
Water	.14	1.0
Telephone	.09	1.0
Total	$7.73	100.0

Adapted for 1992 costs from W.W. Grimmer, Greenhouse Cost Accounting, Gateway Technical Institute, 1980.

Cultural products include pots, soil and chemicals and should be charged to specific crops rather than to the general account when possible. Heat is a major cost of production with many crops but is usually much less in the Southeast than the 15 percent indicated.

Upkeep and repair should be charged off annually and not allowed to accumulate. Property taxes are determined by location and cannot be controlled but should be considered in the selection of the greenhouse location. Try to keep miscellaneous expenses to a minimum and charge them off to the proper accounts. Interest expenses are common even in established firms.

Table 7. Predetermined Cost of Poinsettia Production*

	Pot Size				
	4"	5 "	6 "	7 "	8"
Plant cost	.40	.4 0	.4 0	.8 0	1.20
Container	.0 5	.1 0	.1 5	.2 0	.35
Media	.0 3	.0 5	.0 8	.1 5	.21
Area[1]	.7 8	2.10	2.80	4.48	7.14
Material Cost	1.26	2.65	3.43	5.63	8.90
5% Loss	.0 6	.1 1	.1 7	.2 7	.44
Foil/Sleeve	.0 4	.0 6	.0 7	.1 0	.20
Production Cost	1.36	2.82	3.67	6.00	9.54
Sales Cost (25%)	.4 1	.8 4	1.10	1.80	2.82
Profit (20%)	.2 7	.5 6	.7 3	1.20	1.96
Total	2.04	4.22	5.50	9.00	14.32

[1] (cost per sq. ft. of bench space x no. of weeks in production)
* Adapted from W.W. Grimmer, Gateway Technical Institute, 1980, and adjusted to reflect 1994 costs and charges common in Georgia.

They include not only mortgage payments but also seasonal operating loans, as most firms operate at a cash deficit certain months of the year.

Own only the minimum number of vehicles required and rent others during peak periods. Use and cost of electricity will vary according to crops grown, cooling needs and other factors. Many growers keep their own business records but hire accountants for various reports; these costs should be reflected in office expenses. Insurance cost will vary with type and coverage. If city water is available, it is usually cheaper then drilling and maintaining wells and pumps.

Apportion production costs on a per crop basis, because multiple crops may be grown concurrently – some profit makers and some, perhaps, losers. A typical total cost and cash flow budget for an individual crop is shown in Appendix A. Greenhouse managers must often predetermine costs from crops grown on a contractual basis. Table 7 illustrates how this might be done. Remember that your costs will vary with crop, time of year, climate and many other variables. Accurate record keeping is invaluable for future planning purposes.

Question 12: Who do you call on if you want to learn more?

Once you have begun to organize your new business on paper, and things seem to be going well, consider the following advice. Most experienced growers will tell you that it is critical to keep learning. The most important thing for greenhouse growers to keep in mind is ***Never be afraid to ask for help.***

The most serious mistake you can make is failing to ask for help when a production problem arises. New owners should expect to make mistakes – sometimes big mistakes. All successful growers have made mistakes and still do. Contacting your county extension agent when things "just don't look right" may save your crop. If you have a greenhouse mystery, extension scientists from The University of Georgia can help. Your Georgia Department of Agriculture nursery inspector may have good advice for you also. Trade magazines are also excellent sources for plant information, new crops and marketing ideas. For the beginner, trade magazines also list numerous sources for supplies and greenhouse structures. Most trade magazines have a yearly "Buyer's Guide" for greenhouse supplies.

Partial List of Sources

The Georgia Flower Growers Association
P.O. Box 2945
Athens, GA 30240
(706) 845-0704

The Georgia Department of Agriculture
19 Martin Luther King Dr., SW, Rm. 243
Atlanta, GA 30334
(404) 651-9486

The Small Business Development Center
1180 E. Broad Street
Athens, GA 30601
(706) 542-7436

Recommended Books

Ball Redbook
Geo. J. Ball Publishing Company
622 Town Road
West Chicago, IL 60185-2698

Introduction to Floriculture
Roy A. Larson, NC State
Academic Press
San Diego, CA 92101

Wymans Gardening Encyclopedia
Donald Wyman
Macmillan Publishing Company, Inc.
866 Third Avenue
New York, NY 10022

Herbaceous Perennial Plants and *Specialty Cut Flowers*
Allan M. Armitage
Varsity Press
9999 S.W. Wilshire, Suite 124
Portland, OR 97225

Establishing and Operating a Garden Center
The Garden Centers of America
Contact: Susan S. Barton, Extension Specialist
Plant and Soil Science Department
University of Delaware

Requirements and Costs of Establishing and Operating a Three Acre Herbaceous Perennial Container Nursery
Southern Cooperative Series Bulletin #354
The Ohio State University
OARDC, Wooster, OH

Trade Magazines

G.M. Pro Magazine
Branch Smith Publishing
120 St. Louis Avenue
Fort Worth, TX 76104

Greenhouse Grower
Meister Publishing Company
37735 Euclid Avenue
Willoughby, OH 44094

Grower Talks Magazine
Ball Publishing Company
P.O. Box 9
335 N. River Street
Batavia, IL 60510-0009

SBDC Office Telephone Numbers

Albany. . . . . (912) 430-4303
Athens . . . . . (706) 542-7436
Atlanta (Georgia State) . . . . . (404) 651-3550
Atlanta (Morris Brown) . . . . . (404) 220-0201
Augusta . . . . . (706) 737-1790
Brunswick . . . . . (912) 264-7343
Columbus . . . . . (706) 649-7433
Decatur . . . . . (404) 378-8000
Gainesville . . . . . (770) 531-5681
Lawrenceville . . . . . (770) 339-2287
Macon . . . . . (912) 751-6592
Marietta . . . . . (770) 423-6450
Morrow . . . . . (770) 961-3440
Rome . . . . . (706) 295-6326
Savannah . . . . . (912) 356-2755
Statesboro . . . . . (912) 681-5194
Valdosta . . . . . (912) 245-3738
Warner Robins . . . . . (912) 953-9356

Summary

As with any new business prospect, your apparent mountain of research and detailed planning may seem both unending and unyielding. Keep in mind that this planning period is going to form the foundation of your business for the next five to ten years. The more detailed the business plan, the more likely you will see success in your new venture. Do not be afraid to say, "Wait a minute – can I really do this?" Take a few days off from the decision process. This will allow you time to assimilate new information and face new challenges to your plan. Getting into a new business is a constant cycle of "idea formulation/fact gathering/idea evaluation/new decision."

At this juncture, however, you must adopt the final golden rule: ***If you don't stay informed, you'll lose your profit margin.***

Staying informed by attending shortcourses, subscribing to newsletters and magazines, and being active in your grower organization will keep you in a position to adjust your business plan as the market and business environment

change. Remember that your county extension agent is there to help you. Keep your agent informed about how things are going. He/she may offer suggestions or let you know of programs that may save you thousands of dollars in the long run.

Should you get into the greenhouse business? From our point of view, as of the fall of 1994, the floriculture industry shows every sign of continuing to grow rapidly. If you plan carefully, market aggressively and follow the golden rules, chances are very good for long-term survival and success. If you find you enjoy working in the greenhouse business, stick with it.

References Cited

Hall, Charles. 1992. Southern Region Situation and Outlook for Greenhouse and Nursery Agriculture. Part 2. *Southern Region Outlook Conference Proceedings.* USDA/ERS.

Johnson, Doyle. 1992. The Importance and Future Direction of the U.S. Nursery and Greenhouse Industry. Part 1. *Southern Region Outlook Conference Proceedings.* USDA/ERS.

Healy, W., J. Hanson, and S. Gill. 1990. *Starting a Greenhouse Business.* University of Maryland Cooperative Extension Service. Fact Sheet 593. p. 1-7.

Stegelin, Forrest. 1990. *Entering the Greenhouse Business.* A compilation of fact sheets from the Texas Agricultural Extension Service, Texas A & M University. p. 1-47.

Taylor, R., E. Smith, D. Beattie, and G. Pealer. 1990. *Requirements and Costs of Establishing and Operating a Three Acre Herbaceous Perennial Container Nursery.* Southern Cooperative Series Bulletin 354. The Ohio State University. p. 1-29.

Barton, S., J. Haydu, R. Hinson, R. McNeal, T. Phillips, R. Powell, and F. Steglin. 1993. *Establishing and Operating a Garden Center: Requirements and Costs.* Garden Centers of America.

Appendix

1993 Flowering Poinsettia Budget
(Total Cost Budget)

Number of pots	1,000	Pots
Pot size	6	Inches
Cuttings per pot	1	
Rooted cutting	Yes	
Potting date	Sept. 15	
Weeks in production	12	Weeks
Labor cost per hour	3.75	
Number of liquid feedings	30	Times
Cycocel (spray) times	2	Times
Cycocel (drench) times	1	Times
Shrinkage	5%	
Actual bench space (percent)	85%	

	Best	**Opt**	**Median**	**Pess**	**Worst**
** Yield	995	985	950	910	905
** Price per Pot	6.25	5.50	4.75	4.00	3.50

Item	Unit	Quantity	Unit Cost	Total Cost
** VARIABLE COST **				
Materials:				
Containers	each	1,000	.12	$120.00
Fertilizer:				
Calcium Nitrate	lbs	4	.13	.49
Water Solubles	lbs	50	.95	47.50
Osmocote	lbs	13	.85	11.05
Medium: (Soil)	cu. ft.	56	2.00	111.11
Cuttings	each	1,000	.53	530.00
Chemicals:				
Banrot	oz.	8	1.29	9.68
Cycocel	oz.	182	1.03	187.72
Insecticide	oz.	10	.16	1.60
Exotherm-Termil	can	4	1.58	6.32
Variable Machinery Cost:				
Irrigation System	hrs.	5	.20	.95
Cooling System	hrs.	158	.28	44.18
Heating System	hrs.	59	2.20	130.18
Labor:				
Production	hrs.	100	6.00	600.00
Related Activities	hrs.	20	6.00	120.00
Marketing Cost:				
Sleeve	each	1,000	.09	90.00
Labor	hrs.	22	6.00	132.00
Truck	miles	300	1.20	360.00
Subtotal				2,502.78
Variable Cost per Pot Sold				$ 2.54
** FIXED COST **				
Overhead	flat	950	2.18	2,069
Direct Fixed Cost	flat	950	1.19	1,134
Total				$3,204.00
Total per Flat			**$3.37**	

Expected Break-Even Table

Item	Total Amount	Per Flat Sold
Variable Cost	$2,503	$2.63
Direct Fixed Cost	1,134	1.19
Overhead	2,069	2.18
Total Fixed	3,204	3.37
Total Break-Even	$5,706	$6.01

Expected Returns from Total Crop				
Crops	**Expected Yield/Crop**	**Volume Marketed**	**Expected Price**	**Total Returns**
1	950	950	4.76	$4,522

Risk Rated Returns over Total Cost

Net return levels *(Top Row);* ● The chances of obtaining this level or more *(Middle Row);* and ● The chances of obtaining this level or less *(Bottom Row).*

	Optimistic			Expected		Pessimistic	
* Returns ($)	-111	-471	-831	1,190	-1,537	-1,883	-2,230
Chances	7%	16%	30%	50%			
Chances				50%	31%	16%	6%

CHANCES FOR PROFIT = 5% BASE BUDGETED NET REVENUE = $-1,194

Profit is return to risk and all "zero" items in the budget.
Investment and annual fixed costs. (Fixed costs are determined for a 4-house operation.)

Item	**New Costs**	**Years**	**Depr.**	**Crop Share**
Buildings:				
Service/Office (2,000 sq. ft.)[1]	$30,000	20	1,500	44
Mix area (outdoor)	2,500	20	125	4
Parking & drives (gravel)	5,000	20	250	7
Greenhouse[2]	18,500	20	925	109
Plastic	914	2	457	54
Benches	5,400	10	540	64
Plumbing PVC pipe	3,566	20	178	21
Modine/vents/fans	4,000	10	400	47
Wiring	2,541	20	127	15
Sub-total	72,421		4,502	365
Machinery and Equipment[1]				
Office[3]	2,692	10	269	8
Lunchroom	290	10	29	1
Fertilizer equipment	2,524	7	361	11
Sprayer	2,500	7	357	11
Flat filler	13,000	20	650	19
Shop	2,353	7	336	10
Electric generator	841	20	42	1
Emergency heaters	500	7	71	2
Fuel tank	5,500	20	275	8
Carts	1,500	10	150	4
Truck	16,800	7	2,400	71
Sub-total	48,500		4,941	146
Land (3 acres)[1]	15,000		15,000	443
Interest on Average Investment	9.00%		6,116	180
Overhead[1]			**Total Cost**	**Crop Cost**
Operator's salary			$30,000	885.08
Supervisor			22,000	649.06
Utilities				
Electricity			2,888	85.20
Fuel			4,350	128.34
Telephone			2,000	59.01

General repairs and maintenance	3,000	88.51
License, dues, etc.	250	7.38
Travel and entertainment	700	20.65
Office expenses	500	14.75
Professional fees	300	8.85
Bad debts	181	5.34
Miscellaneous	475	14.01
Taxes and insurance	3,500	103.26
Sub-total	70,144	2,069.00
Total Annual Fixed Costs	$85,703	
Crop Share of Fixed Costs		$3203.53
Fixed Cost per Pot Sold		$ 3.37

[1] Sufficient to operate 4 houses W ● [2] Cost of one house ● [3] Includes computer, desk, and misc. office equipment

Annual Debt Payments

Debt Payment Calculation on New Investment: (for use in calculating fixed cash outlays on new investment)

Item	Number	Unit Cost	New Cost	Amount Financed	Years Financed	Annual Payment
Machinery and equipment						
Office[3]			$ 2,692			79
Lunchroom			290			9
Fertilizer equipment			2,524			74
Sprayer			2,500			74
Flat filler			13,000			384
Shop			2,353			69
Electric generator			841			25
Emergency heaters			500			15
Fuel tank			5,500			162
Carts			1,500			44
Truck			16,800			496
Interest rate		8.00%				1,431
Amount financed		50%				
Sub-total			$48,500	$24,250	7	$4,658
Crop share			1,431	715		137
Buildings						
Service/office[1]			30,000			885
Mix area			2,500			74
Parking and drives			5,000			148
Greenhouse (36 x 108)[2]			18,500			546
Plastic			914			27
Benches			5,400			159
Plumbing			3,566			105
Modine/vents/fans			4,000			118
Wiring			2,541			75
			---------			2,137
Sub-total			72,421	36,210	30	$3,841
Crop share			2,137	1,068		113

Land	3	5,000	15,000	7,500	30	796
Crop share			443	221	23	
Interest rate		10.00% (for land and buildings)				3,075
Amount financed		50%				
Total investment			$135,921			
Total loan				$67,960		
Total annual debt payment						$9,295
Crop share of debt payments						$ 274

Current Annual Debt Payments: (for use in totaling debt payments on existing investment)

	Amount of Loan	Interest Rate	Term	Payment	Crop Share
Loan #1	0	.00%	0	0	0
Loan #2	0	.00%	0	0	0
Loan #3	0	.00%	0	0	0
Loan #4	0	.00%	0	0	0
Loan #5	0	.00%	0	0	0
		Total Annual Debt Payment			$274.21
		Crop Share of Taxes and Insurance			103.26
					$377.47
		Total Annual Debt Payment per 1,000 Pots			$68.68

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