

# Growing Into Herbs ...Successfully

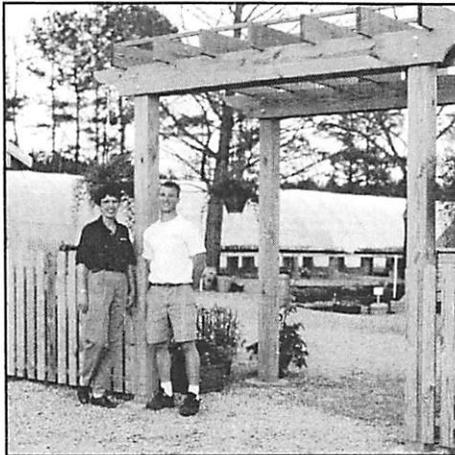
By Paul A. Thomas, The University of Georgia

Denise Smith, owner of GardenSmith Greenhouse and Nursery, which operates in Jefferson, Georgia, did not want to be featured as one of our top-notch growers here in Georgia. I can assure you this was not due to an attack of shyness brought on by latent effects of El Nino. If you have ever met Denise, you know she usually has opinions, more opinions and second opinions. She is also a very honest and professional business woman. In this case, her opinion was that her business has been talked about "way too much"....but that growing herbs commercially had not. OK...she knows where I live, my wife's work phone number, and in which closets the skeletons are hidden... so I capitulated (*pun intended*)...(Some sorry editor I am....) We are going to talk to Denise about herb production, and why it can be profitable....(even though I'd rather let you in on the humerous details of her most recent escapade involving the Georgia State police, her wallet, a trip to the bathroom, and an abduction alert broadcast over three state's worth of Police scanners....it's a story worthy of America's Scariest Police Chases....and they did find the truck....with Denise inside... in Virginia!) Guess you'll have to ask her!

## HERB PRODUCTION

Why would someone want to go from profitable bedding plants to herbs? Garden center owners and growers across the US report that wholesale herb production has doubled at their location, that they sell everything they can grow, and that prices are acceptable to good. So why aren't the big, automated mass-market greenhouse corporations turning out tens of millions of herbs now, you ask? The answer may be a silver lining to that dark mass-market production cloud that hovers over most small to medium sized family greenhouse operations. With few exceptions, most big firms avoid growing herbs because the mass market demand is still a fraction of bedding plants, hence they are reluctant to dedicate a large amount of production. Secondly, if they grow them in the same way as bedding plants, losses are high and quality is less than perfect due to their special environmental needs. Thirdly, most big firms are not interested in a very diverse inventory, and are reluctant to try to scan and label 200-300 varieties of herbs.

Family-run businesses are ideally suited to benefit from herbs because, more than likely, they have access to the ideal market outlet for herbs ...the independent garden center. Garden center owners are pushing herbs sales, educational events and even holding cooking schools to bring in customers curious about herbs. The only complaint often heard from garden center owners is that they can't get the herbs they need. Could this be an opportunity? Yes, growing herbs requires revamping production skills, upgrading greenhouses and dealing with diversity, but in the end, growing herbs may be just what you are looking for to maintain your margins. According to Denise, herbs are a 'Triple Treat'. "First,



Margaret Penrose and Ben Sanders at entrance to GardenSmith Greenhouse and Nursery in Jefferson, GA.

you can use herbs for cooking, seasoning and other culinary uses such as flavoring candy. Secondly, you can use them for fragrance, ornamentation, and texture in the garden. Thirdly, many people use them as medicinals or in tinctures and decoctions."

## Retail vs. Wholesale

How you sell and what you sell is the first decision point. "I started 10 years ago as a wholesale grower of herbs. I grew topiary, 4" and bedding herb material. Currently, we propagate and maintain over 400 varieties of herbs and up to 300 varieties of vegetables. I may sell a thousand of one thing and a dozen of another per year, so keeping records is important over the long haul. We identified interesting cultivars as we expanded our inventory and found we were successful at

propagating those specialty herbs." As the business evolved and word of mouth brought visitors, retail sales became more of an issue. The margin was good but the time and effort to handle retail sales daunting. "I decided that it would lend diversity to the business and buffer the ups and downs of wholesale landscape and garden center sales. So far it's been a very good decision."

However, Denise does not recommend starting out in retail. "You have got to know your plants," say Denise, "it's one thing to grow wholesale, and an entirely different thing to sell plants to retail customers. They expect you to be the expert. If your customers have a good gardening experience because you gave them correct information, they might come back. If you give them incorrect information, you may not see them again. Our wholesale and retail customers are very informed. When they request a cultivar or ask for herbs to fill a particular need, they already know the basics. Unlike petunias and marigolds, herb cultivars can be very different in their vigor and hardiness. You just have to know your herbs."

## Test Before You Select

There is one fact every potential grower of herbs must face. No one herb cultivar does well in all parts of the country. Selling a plant mismatched to your region can be bad for business. The truth is, to be successful in this market, you must trial or have access to trial information on every cultivar you plan to sell. Wholesale growers are often surprised that those popular, top-25 best selling herbs can be a nightmare to grow in certain regions in the U.S. According to Denise Smith, "We trial a representative selection of plants every year right here. If a buyer wants to see how a particular cultivar performs in my area, or why I recommend it highly, it's right there at their feet. What I grew successfully in Pennsylvania dies happily here in Georgia." "If I don't know my plant material, my credibility goes out the door. If I select and order hundreds of something that fails to grow, I lose money fast. We find our trial garden saves money in the long run...we rarely grow a cultivar commercially that fails. If an herb can't survive here at GardenSmith under those conditions, we don't need to sell it or promote its use."

## Basic Growing Practices

There is one golden rule about giving advice on how to grow herbs commercially: Don't...unless you've grown them commercially yourself. It's a good rule, and we'll follow it here. Denise has been growing herbs professionally for over 20 years and has established some basic guidelines in the process. We also consulted with Dr. Wayne McLaurin, Professor of Horticulture, and an Herb enthusiast at The University of Georgia. Here is a condensation of the tips we discussed.

### Soils and pH

Most herbs will require a very well drained soil. Many commercial soil mixes that work well with bedding plants are not optimal for herbs. You may adapt these products by adding 25% by volume perlite, or mix in composted bark. Increasing drainage and air circulation through the soil is your goal. Some growers add sterilized garden soil to their mixes. There seems to be some benefit to this, especially for large gallon sized containers, however, if you do not sterilize the soil, or add too much (usually less than 25% by volume is standard) you run the risk of disease and overly-wet soils.

Soil pH for herbs is different too. They prefer the same pH range as Impatiens. A pH of 6.2 to 7.0 is preferred by most herbs. Keep in mind herbs also grow more slowly and have a greater bench period than bedding plants. Now comes the tough part...maintaining pH over an 8 to 18 week cropping period. Most commercial soils will drift in pH over a 10 week period. If you do not know the direction and rate of drift, and/or you do not test your soil, the end result is to have great looking plants at week #3, and poor looking, yellow or dying plants at week #10. Herbs do not respond to pH quickly...when they do it is often too late to make changes without some permanent loss of quality or vigor. You must pre-test your soil product for pH drift, and absolutely test the crop every three weeks to verify that your water or fertility is not adversely affecting your planned pH range. Iron sulfate works well for increasing acidity mid-crop if your soil creeps into an alkaline situation, and, for pH that creeps into an acidic situation, most herbs do not mind a light application of dolomitic lime mid-crop if watered in immediately. Specific rates are dependent upon your soils tests at that time in the crops development. Always error on the light side for any application of nutrient with herbs.

### Air Flow Is Critical

If you grow herbs, you must have great airflow 24 hours per day, everyday. Most herbs are very susceptible to diseases and humid,

stagnant air will simply make the problem worse. Consider that most greenhouse plants require large amounts of air movement to facilitate water removal from the stomates of leaves, and this in turn allows the roots to draw water from the soil more rapidly. Good, constant air movement assists the grower in maintaining viable roots.

HAF fans are required equipment. For most herb growers, a 100' by 36' Quonset greenhouse requires 4 to 6 - 18" fans running 24 hours a day. Another common sight in herb houses is oversized vent fans and louvers. We are not as concerned about heat removal, as much as air exchanges and removal of humidity. If one looks at the origins of many herbs, it happens to be hot, sunny, sometimes dry, Mediterranean conditions. In fact, few, if any herbs commonly grown in greenhouses have origins in the Amazon jungle. You need only walk into your production houses to answer which conditions you currently have.

### Light Levels and Temperature

Most herbs prefer 16-hour sunny days. In fact, many herbs will stretch or stall if light levels go below 2500 fc for more than three days. For many parts of the U.S., (and I still fondly remember attempting to grow plants in central Pennsylvania without sun for three months...) this suggests supplemental lighting may be essential, especially if early spring sales are expected. HID's are preferred and are expensive, but then so are crop delays and losses. On the other side of the equation, it also means that herb houses can delay additions of shade cloth far into the spring, especially in the south. As long as airflow is high, herbs can deal with hot afternoons far better than chilly ones.

If you want most herbs to grow, your minimum night temperatures should be 65 F. Cooler conditions will slow the crop and enhance potential for disease. Herb growers will find that fuel costs are higher for their crops than for bedding plants and must price the product accordingly. Daytime temperatures between a minimum of 70 F and a maximum of 90 F are fine, again as long as good airflow and proper watering practices are maintained.

### Fertilizing

If you fertilize your herbs as you do most bedding plants, you are likely to be disappointed. Most herbs originate in geographic regions of poor, well drained soils. To grow them successfully, herbs are nutrient scavengers. Most herbs used for cooking or fragrance prefer low, consistent levels of fertility. A constant feed program of 50 ppm 20-10-20 or other high nitrate fertilizers help

## The Top 25 Herbs

The "Top 25" herb list may vary from region to region, but this list, compiled from west coast, northeast and southeast garden centers' best selling lists include as follows:

- |  |   |                     |
|--|---|---------------------|
| 1) Sweet Basil 'Red Rubin' 'Cinnamon'            | 10) Dill (any)                                    | 19) Bee Balm        |
| 2) Italian Oregano 'Onites'                      | 11) Savory 'Adamovica'                            | 20) French Tarragon |
| 3) Green Oregano 'Kalitera'                      | 12) Fennel (any)                                  | 21) Texas Tarragon  |
| 4) Chives (any)                                  | 13) Marjoram 'Santa Cruz' 'Gold Splash'           | 22) Lemon Grass     |
| 5) Pink Garlic                                   | 14) Parsley-Curly Leaf (any), Flat Leaf 'Gigante' | 23) Lemon Verbena   |
| 6) Rosemary 'Miss Jessopp Upright'               | 15) Sage 'Berggarten'                             | 24) Horseradish     |
| 7) Thyme 'Provencal' 'Broadleaf English' 'Lemon' | 16) Lavender (x intermedias}                      | 25) Nasturtiums     |
| 8) Spearmint 'Best'                              | 17) Cilantro-Coriander                            |                     |
| 9) Peppermint 'Black Stemmed'                    | 18) Lovage  |                     |

Consult with your local garden centers owners and garden clubs to find out what customers in your area are asking for.

greatly. The high nitrate fertilizers rotated in combination with 50 to 100 ppm calcium nitrate also keeps soil pH more stable and maintains elevated levels of calcium. Don't be tempted to push herbs with fertility. Consider also the watering requirements of keeping them on the dry side of moist, and you can imagine the problems that arise with high fertility levels and low water use. In addition to soil problems due to root burn from salt buildup, high fertility conditions generate very soft, leggy growth. Rapid growth may seem a good thing for commercial growers. However, keep in mind that herbs are very susceptible to disease. They are also more likely to wilt under temporary dry conditions if leaf growth is very soft. You will find that by growing herbs under these more austere conditions, they will be more compact, darker green, and hardened off more easily.

### Watering Practices

Herbs should be grown on the dry side of moist, with thorough watering in between. Automated overhead or drip watering systems do not work well with herbs unless you have a full time manager doing nothing but monitoring each cultivar. You cannot grow 23 varieties of rosemary in 4" pots on the same watering regime. Some grow slow and use little water, some use more and grow more quickly. No herb can stay wet for more than a day or two before irreversible damage occurs. Hand watering is preferred by most herb growers when more than a few herbs are being grown. Hand watering also encourages scouting and crop assessment. Both are critical to growing herbs.

### Pests, Precautions, and Regulations

You can't cheat the regulations if you grow herbs. You cannot use plant growth regulators even if your parsley is stretching. Aphids

and spider mites are common pests of herbs. Bugs are always a concern because very few pesticides are labeled for use on herbs. The same applies for plant pathogens and fungicides. Over water and you will have root rots...but you won't legally be able to drench affected crops like you do bedding plants. To spray outside the label recommendations will risk fines and liability since herbs are considered food. You will automatically face repercussions from Federal and State authorities if customer complaints are proven to be true. Be sure you check with your state department of agriculture for their expectations before getting into herbs on a large scale. Read every label of every product you use.

Regardless of what products are labeled for use with herbs, and there are a few, you'll find customers asking if your plants are "pesticide free". I'm not talking about organically grown...that is altogether another level of philosophy. We are speaking strictly of the minimal or zero use of chemical pesticides during production. That can be an imposing task for an herb grower. When growing herbs under no or low pesticide use circumstances, prevention is everything. Clean houses, insect screening, training employees on how to maintain clean conditions, scouting and a very carefully designed program for control is a must.

### Growing Hard vs. Soft

Garden center owners will tell you that shelf-life is an important problem with herbs they would like you to deal with. Once an herb is fully established and ready for sale, they are frequently moved outside to harden off. Hardening off improves shelf life by slowing growth and toughening leaf and root tissues. It also allows the plant to adapt to the greater changes in temperature and wind. Cooler temperatures at night and slower growth reduces root respiration



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and allows better storage of sugars and protein that allows the plant to 'keep' better in the garden center. Obviously this is attempted only when danger of frost is over, or contingencies have been planned to protect them from frost. If you do this, be sure to keep 'direct' rain from falling on the plants. It will allow you to have some control over soil moisture, and protects the ready-for-sale herbs from pounding downpours. Conditioned herbs last longer in the garden center, and generate fewer complaints from customers.

#### **Crop Timing and Scheduling**

Another aspect of herb production is its seasonality, and the sometime very long production schedules. Sometimes up to 80% of your year's sales income is generated between the months of March and June. Many established herb growers do fall bedding plants, vegetables and even poinsettias to smooth out the crunch. An experienced grower understands why herb propagation is popular too, since it allows production to peak between October and January. Sales of herb plug trays peak in February and March. Large stock plants are also sold in June as patio planter material. This means new stock plants are grown from June through September much like poinsettias. Many have learned that a large patio planter of full sized, well branched herbs can fetch an incredible price. Some folks like to buy their herb garden ready to eat. Scheduling production in a careful, market-based manner can help make the herb business a profitable experience.

Like many specialty hanging basket plants, some herbs are fast growers, some are slow. What this does is place far more stringent planning in the lap of the grower. According to Denise, "We spend a sizable amount of time determining production times and planning crops. No two herb cultivars grow the same way and you just have to accommodate that difference. I suggest you keep a crop-

schedule card for each cultivar to be referred to during planning and seed/plug ordering. It will help prevent backups and shortages as much as is possible."

#### **Basic Propagation Methods**

There are several different ways to grow herbs. Many are annuals grown from seed. These include herbs such as parsley, dill, fennel, coriander, and basil. Seed germination is usually carried out like most bedding plants under high humidity and soil temperatures near 65 to 70 degrees Fahrenheit. Once germinated, herb seedlings require a slow hardening off period prior to transplant. Plugs are a preferred source of some herbs grown from seed. They are especially good for slow rooting and slow growing herbs such as Rosemary, saving the grower the bench space and labor. Even larger 72 size plugs are good for mid to late season sales of annual herbs, and are usually more economical.

Propagation by cuttings work well for many herbs. Mint, rosemary, thyme, lavender, tarragon are just some of the herbs propagated by cutting. Cuttings are usually taken from actively growing shoots 2-4 inches long depending on the herb. Best propagation is between June and August, during active growth, but some herbs can be 'forced' during the winter if moist material is needed. Cuttings are stuck in highly porous peat-lite medium and placed under mist. If given bottom heat at 65 to 70 degrees, rooting can take place in two to four weeks for most herbs.

Division can be an economical way to multiply herbs, especially if you are maintaining gallon-sized material. Division is usually done in between April and June. Pulling apart herbs is better than chopping as it seems to reduce damage to tissues and yield faster regrowth. These separations are then replanted immediately back

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into gallon containers and grown under normal outdoor conditions. Herbs that can be profitably divided in this 'gallon to gallon' manner include mints, monarda, chives, and tarragon.

### Can I Make Money At This?

Denise has run a profitable business since she started in 1987 and has some strong opinions about pricing. "There is no escape from the long hours and the endless details and just having the market figured out is not enough to survive. With herbs especially, your own cost to produce factor must be a known quantity." Denise then stresses how important it is to keep prices up. "We pre-sell less than 15% of our inventory. We do many out-of-the-ordinary plants with erratic germination rates and growth rates, so it's hard to schedule exactly. We also maintain some flexibility in pricing, even on standard items, if our costs increase mid-season. The trick is to know your costs and price accordingly. We never cut prices or try to under-bid to get contracts. If buyers are looking for cheap plants, they are welcome to shop elsewhere. In turn, we don't brow-bash our suppliers on price. We want selection, quality and service, and are willing to pay a fair price to get it. Our goal is to grow healthy plants and have happy customers. They expect good selection of quality plants and should therefore expect to pay a fair price.

Most growers report herbs are a profitable line of business. How long that continues can be a matter of speculation, but given the success of TVcooking shows and the interest in health foods, it is likely a long term trend that bears consideration. It would also seem that most regions in the US, are not experiencing "herb production saturation." Given sufficient planning and some market research, specializing in herbs may not be such a bad idea.

### Falling Into Vegetables

Almost all herb growers wind up growing vegetable transplant material. Lettuce, kale, cabbage, onion, squash and even peanut plants all fit into the vegetable garden category. Garden centers

prefer one stop shopping when they place their herb and vegetable orders. Having similar containers, sizes and tags gives consistency to garden center display areas, and hence the subtle pressure to expand. Keep in mind that although most garden vegetables are a bit easier to grow, doing the trials and knowing the plants is still important. At GardenSmith, vegetables are a major component of spring sales. There are 40 varieties of lettuce, dozens of squash and cucumber, 60 something tomatoes hybrids, and as the list goes on, over 300 cultivars of vegetables. Many of them have been trialed on site. Visit the garden center there and you'll see new cultivars side by side with heirloom varieties, out in the trial garden, just waiting to stimulate new sales as visitors peruse the new entries. According to Denise, "We sell mainly six-pack units and 4", although gallons occasionally are in the mix."

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