

Appendix H

Article Series for Texas Nursery and Landscape Association

Are you Using Texas Compost Yet?
Part 1 through 6

Are You Using Texas Compost Yet? – Part 1

Compost and its Benefits

Texas has taken a very aggressive approach to solving four challenges currently faced by the state. These issues are:

1. How does Texas handle the growing quantity of animal manure produced on a daily basis throughout the state?
2. How can Texas increase its recycling rates?
3. What can be done to improve soil conditions throughout the state?
 - How can Texas reduce manure-related impacts on water quality?

While these challenges have complex solutions, there is one common piece to each solution that links them all together. That common thread is **composting!**

Commercial composting has existed for a long time in both Texas and the rest of the United States. It has come to the forefront in Texas, thanks to the joint efforts of the TCEQ and the TXDOT, over the past two years as one of the key components in addressing the challenges listed above.

One of the best and most environmentally sound methods to manure management is composting. First, the composting process destroys harmful pathogens and typically stabilizes nutrients, which reduces the potential for runoff pollution. Secondly, the volume of waste material (manure) is greatly reduced. Finally, composted manure can be an excellent and versatile soil amendment that provides many benefits to both the soil and its vegetation.

This article will be the first in a series published by the Texas Nursery and Landscape Association to help its membership become more aware of the many uses of composted products, as well as the related activities taking place related to compost within the State (e.g., TXDOT usage, Composted Manure Incentive Program). These articles will teach you about these products, how to use them and how to select the appropriate compost for any given application.

What is Compost?

Compost is the end product resulting from the controlled biological decomposition of organic material. This organic matter is degraded and sanitized through the generation of heat resulting from intense microbial activity. Good quality compost is stabilized to the point where it is beneficial to plant growth and bears little physical resemblance to the organic residuals from which it came. These organic residuals may include manure, yard trimmings, biosolids, food and other related feedstocks. Compost is used primarily for its soil conditioning properties, but can also provide significant levels of plant nutrients, both macro and micro, depending on its feedstock source.

How is Compost Produced?

All compost, regardless of the original organic feedstock, is produced through the activity of aerobic (oxygen requiring) microorganisms. These “bugs” need oxygen, moisture and food in order to grow and multiply. Their activity generates heat, water vapor and carbon dioxide as they transform raw organic residuals into a stable soil conditioner. The natural decomposition process is greatly accelerated when these resources are maintained at optimal levels by controlling the compost “recipe” and properly managing the daily activities of the composting process.

Compost products are safe to use as the US EPA, and other state regulatory bodies (including the

TCEQ), have established public health and safety standards that facilities must meet in order to be approved for general distribution. These standards typically apply to specific feedstocks, including composting biosolids and mixed municipal solid waste. These product safety “checks and balances,” together with proper specification and inspection of the product, assures you that not only will you have a very safe product, but also have one that will be effective for a variety of soil conditioning uses.

Compost Benefits and Applications

The use of compost, as previously mentioned, can provide many benefits. It improves the physical, chemical and biological properties of the soil and the media to which it is blended. Some of these benefits are listed in the table below (these will be discussed in more detail in future articles).

Benefits of Compost Use

- Improves the soil structure, porosity, and bulk density — creating a better plant root environment
- Increases moisture infiltration and permeability of heavy soils — improving drainage and reducing erosion and runoff
- Improves the moisture holding capacity of light soils — reducing water loss and nutrient leaching and helping to conserve water
- Improves and stabilizes soil pH – creating a better environment for overall plant health
- Improves cation exchange capacity (CEC) of soils — improving their ability to retain nutrients for plant use
- Supplies a variety of macro and micro nutrients – reducing initial fertilizer needs in some applications
- Supplies significant quantities of organic matter – the essence of healthy soil
- Supplies beneficial microorganisms to the soil — improving nutrient uptake and suppressing certain soil-borne diseases
- Binds and degrades specific pollutants – a pollution reducing benefit

We hope that we will begin to generate a higher level of interest and enthusiasm in composted products as a result of these articles. Please visit the following websites for additional information on compost and the variety of state programs supporting compost use, <http://www.compostingcouncil.org>, <http://compost.tamu.edu>, and <http://www.tnrcc.state.tx.us/water/quality/nps/compost/index.html> . We have found that once someone uses a high quality compost product, they rarely revert to planting without it again. Compost is good for your plants, good for your soil and good for Texas!

Are You Using Texas Compost Yet? – part 2

The STA Program

This is the second article in a series published by the Texas Nursery and Landscape Association to help its membership become more aware of the many uses of commercial compost products. In this article we will explain the US Composting Councils' Seal ("USCC") of Testing Assurance Program ("STA") and its significance and impact for the landscape and nursery industry in Texas.

PROGRAM HISTORY & GOALS

In order to help compost become a mainstream consumer product, the composting industry needed to accomplish several things, including:

- Raise the professionalism of the composting industry
- Produce consistently high quality products, and
- Assist end users in purchasing appropriate products for their needs

The USCC developed the STA Program to help facilitate this process. The Seal of Testing Assurance Program began in 2000, with financial assistance provided by the US Environmental Protection Agency. The Program is seen by many as the first step towards the establishment of national compost standards. In its current form, the STA Program is a compost testing and information disclosure program that uses uniform testing and sampling protocols that were developed through a consensus of leading compost research scientists across the nation. These test methods and sampling procedures are outlined in the USCC's *Test Methods for the Evaluation of Composting and Compost* (TMECC). Some of these tests are compost specific, and did not formally exist prior to the TMECC being completed. More information on this can be found on the USCC website at: <http://www.compostingcouncil.org>.

The goal of the USCC, and its STA Program, is to allow compost buyers to more easily purchase the products they desire or require for a particular project. It is also a goal to allow buyers (and specifiers) to more systematically compare compost products, allowing for an educated purchasing decision, just as they do when purchasing any other product for their professional or home use. Both goals are achieved through the use of a uniform product label, which allows for easy comparison between products. This label contains test analyses data, end use instructions and an ingredient statement, thereby providing the information required to make educated purchasing decisions, which promotes successful utilization of compost 'in the field'.

Something even more important to the composting industry itself is that the overall program is encouraging needed consistency within the composting industry — consistency in product sampling, lab testing methodologies and product labeling. Only through this type of industry wide consistency will the 'green industry' become dependant upon the composting industry as a respected and on-going supplier of materials. Therefore, the success of the STA Program goes far beyond the success of any individual composter. It works towards the goal of bringing necessary consistency to the composting industry. This, in turn, benefits the 'green industry', since it can now depend on the composting industry to be a mainstream supplier.

The STA Program in Texas

The State of Texas has embraced the STA Program. The Texas Department of Transportation (TX DOT), has become the largest public user of compost in the nation. Texas has more STA Program certified composting facilities than any other state in the US. At last count, 20 Texas

composters and 34 compost products participated in the STA program.

Many articles have been written that illustrate the success that TX DOT has had with compost used both as a soil amendment and erosion control material. We'll explore these uses in more detail in future articles. With all of its success in using compost, TX DOT knew that receiving and using poor quality composts could ruin the success of their program. Having already established their compost specifications, TX DOT saw the STA Program as a way to assist in implementing the use of its specifications throughout Texas. Because the program requires uniform and on-going testing of compost products and uniform product labeling, it provided a means for TX DOT project engineers to evaluate potential compost products for their specific projects, as well as inform TX DOT field inspectors of the particular characteristics possessed by the products delivered to a project site.

There is both a cost and time commitment required to participate in the STA program. Composters must test their products at an approved STA laboratory anywhere from once/quarter to as frequently as once/month. Testing frequency is dictated by the volume of compost produced. There is also an annual membership fee paid to participate in the STA Program. The information that they receive from their lab analysis, as well as the other required program information (compost content and use directions) must, under program rules, be made available to any interested compost prospect. This commitment encourages composters to pay more attention to what they are producing, and hopefully, results in a higher quality and more consistent compost product.

The current list of Texas STA participating compost facilities includes the following members:

- *Aqua Zyme Services, Van Vleck*
- *Back to Nature, Inc., Slaton (2 products)*
- *Black Gold Compost, Godley*
- *Brazos River Authority, Belton*
- *City of Denton, Denton*
- *Garden Success, Houston (5 sites)*
- *Garden-Ville, San Antonio*
- *Geosource, Inc., Bulverde*
- *Letco, Inc., Houston (8 sites)*
- *Natural Fertilizer Co, Wildorado (3 sites)*
- *Nature Life, Inc., Ropesville*
- *Neches Compost Facility, Neches*
- *New Earth, LLC, San Antonio*
- *Novus Wood Group, Houston*
- *O'Neals Compost, Hico*
- *Organic Residual Reclamation, Dublin*
- *City of Plano, Plano*
- *R.J. Smelley Co., Fort Worth*
- *Texarkana Water Utilities, Texarkana,*
- *Timber Solutions, Conroe*

We hope that we will begin to generate a higher level of interest and enthusiasm in composted products as a result of these articles. Please visit the following websites for additional information on compost and the variety of state programs supporting compost use.

<http://www.compostingcouncil.org>

<http://compost.tamu.edu>

<http://www.tnrcc.state.tx.us/water/quality/nps/compost/index.html>

We have found that once someone uses a high quality compost product, they rarely revert to planting without it again. Compost is good for your plants, good for your soil and good for Texas!

Are You Using Texas Compost Yet? – part 3

The DMES Program

This is the third article in a series published by the Texas Nursery and Landscape Association to help its membership become more aware of the many uses of composted products. This article concentrates on animal manure-based products produced in Texas and the concerns about the growing volume of manure being generated, its negative impact on the environment and the limited alternatives available to help solve this problem. Converting this agricultural by-product into a valuable product, by composting it, was ultimately determined by many to be the best way to manage it where land application is not possible. The State of Texas and the federal government have supported manure composting programs in Texas. More specific information and the details of these programs are contained in the following paragraphs.

The **Texas State Soil and Water Conservation Board (TSSWCB)** initiated the **Dairy Manure Export Support (DMES) program** in an effort to bring an innovative solution to the problem of elevated phosphorus levels in the **North Bosque and Leon River watersheds**. The objective of the program is to export dairy manure from the North Bosque River watershed that would otherwise be land applied. The DMES program offers financial incentives to commercial manure haulers to support the transport of raw manure from dairy farms in the North Bosque and Leon River watersheds **to commercial composting operations**. The raw manure is then improved through a composting process, so it may be put to beneficial use outside the watershed. Public entities such as the **Texas Department of Transportation (TxDOT)** and municipalities also benefit from a compost purchasing rebate program offered by the Texas Commission on Environmental Quality (TCEQ). In addition agricultural producers, the landscape/nursery industry and the general public are potential purchasers of the composted product.

The export of this surplus manure (and the nutrients contained in the manure helps to address concerns regarding potential non-point source water quality impacts associated with traditional on-farm land application of manure in the region.

The overall program management is controlled through the TSSWCB. The TSSWCB has contracted the everyday activities to the **Texas Institute for Applied Environmental Research (TIAER)** at Tarleton State University. In April 2001, TIAER subcontracted many aspects of the program to the **Foundation for Organic Resources Management (FORM)**, which was replaced by **imanager, LLC** in July 2003. Both FORM, and later imanager, LLC, have managed the DMES program at the local level through a program office located in Stephenville, Texas.

ELIGIBILITY REQUIREMENTS

Dairies:

A part of the dairy must be located in the North Bosque or Leon River watersheds. The dairy must have (or have applied for) a valid Water Quality Management Plan or a Nutrient Utilization Plan/Permit Nutrient Management Plan.

Composters:

Each composting facility must be compliant with all state regulations regarding compost facilities and be approved by the **Texas Commission on Environmental Quality (TCEQ)** for participation in TCEQ's **Composted Manure Incentive Project (CMIP)**.

Haulers:

Haulers must attend a workshop convened by TSSWCB's contractor. They must also obtain a vendor number from the State Comptroller and authorize direct deposit.

REIMBURSEMENT PROCESS

Individual hauling jobs are coordinated through manure haulers that make arrangements with dairies and commercial composting operations. A manure hauler completes a “**job notification form**” which is then submitted to the DMES office for approval. Once approval is received, the manure hauler performs the work and submits to the DMES office an invoice signed by a representative of the dairy, accompanied by **load tickets signed by a representative of the composting facility**, and a **scale ticket for each load**. The DMES office prepares semi-monthly reimbursement request summaries, has them approved by TIAER, then submits them to the TSSWCB for payment. Because the TSSWCB is using **Clean Water Act, §319(h)** funding from the **U.S. Environmental Protection Agency (EPA)**, the TSSWCB must then request that the funds be released from EPA to the TSSWCB. The TSSWCB then issues reimbursements via **direct de posit** to the manure haulers.

FINANCIAL INFORMATION

Two sources of funding have been used for the DMES Program. Funding from three CWA§319(h) grants (1999, 2000, and 2002 fiscal years) totaling \$2,696,885 has been approved by EPA for the DMES Program. Also, an appropriation of \$1,131,726 was provided to the TSSWCB by the Texas Legislature during the 77th Regular Legislative Session. However, \$500,000 was returned to the State Treasury in the spring of 2003 due to budget cuts. There is \$729,496.75 remaining for the DMES Program.

RESULTS

The initial target amount of manure to be exported from dairy farms participating in the program was **300,000 tons** during a 36-month program period from October 2000 through October 2003. Hauling of dairy manure under the DMES program has proceeded at a much faster rate than originally anticipated. In fact, as of October 31st, 2003, over **670,000 tons** of manure, or more than double the target amount, has been hauled under this program. The average support cost is about **\$3.25 per ton**. *For more information on the DMES Program, please contact Mr. John Foster at jfoster@tsswcb.state.tx.us.*

WHAT DOES THIS MEAN TO YOU AS A NURSERY and/or LANDSCAPE BUSINESS?

There are a variety of benefits that you can derive from the program described above. Some of them include:

1. Your water and the environment in Texas will be cleaner and safer. This directly benefits you and your family.
2. The program is helping Texas dairy farmers deal with a challenge that they could not solve alone. This helps their business and the overall economy of the state.
3. You now have an abundant supply of a variety of compost products to choose from for your business needs. **Please review the list of STA compost producers that was contained in the last article.** Are any of them near you? Contact them and request pricing and compost quality data. Request a sample of a couple of products and see how they work in your business.
4. These are your tax dollars at work, both state and federal, doing something that directly benefits the environment and you. Take full advantage of the products being made and the price discounting that’s being offered to you as a result of this program. **Try some compost in your business today!**

Are You Using Texas Compost Yet? – part 4

Compost Use in Landscaping

Part 4 of this series of articles will get down to the ‘nuts and bolts’ of compost use and review specific uses, and **suggested compost application rates***, in landscaping. The use of compost in landscape applications is the largest public and private use of these valuable products in the nation. Compost is being used on a massive scale to replace topsoil, mulch and a variety of soil amendments in applications limited only by the imagination of the landscaper and the availability of compost products in the area that they are working. We hope that these articles and the information listed below will encourage you to try some compost on a landscape project soon. As we’ve stated previously, **the many benefits of compost for the soil, the plants, the environment and your bottom line will quickly become obvious!**

Soil Conditioning — On Site Topsoil ‘Manufacturing’

The classic landscape construction project usually starts with an area of land that has been stripped of exactly what it needs to grow (regardless of what it is that you wish to grow) — **the topsoil**. Frequently, the general contractor sells off or improperly stores the topsoil from the construction site, rendering it unavailable or of questionable quality. The classic remedy for this situation has been to import topsoil removed from a farm, another construction project, or from *who knows where!* Since the topsoil industry is greatly unregulated, buyers can only wonder whether the topsoil they buy is rich in organic matter, of overall poor quality (physical and/or chemical), or contaminated with herbicides and pesticides.

This purchased topsoil will then be delivered and spread, usually to a depth of about 6”, and planted with turf, shrubs, flowers or any combination of the above. In addition, more often than not, the landscapers installing the plants or laying the sod will need to continually drive over the topsoil layer, compacting it and reducing its effectiveness. We then cross our fingers after all of this occurs and hope that nature will prevail, and the plants will thrive (*provided they receive the proper care*). But there is a better way to go about doing this. **Specify compost instead!**

A general, predictable rule of thumb to use when specifying compost is *apply 2” of compost and incorporate it into 5” to 7” of site soil*

This application rate of compost has proven to be effective in conditioning a variety of soils, from the densest clays to beach sand, by over 20 years of field experience and extensive university research. Composts derived from any variety of organic feedstocks will be effective in this application. ***Always refer to the compost producer’s specific use recommendations before finalizing your application rate, and evaluate the characteristics of the product in relation to the requirements of the site soil and the plant species to be established.**

The variation in the depth of incorporation will be dictated by:

- the quality of the existing project site soil (the higher organic matter content of the site soil = the less compost you will need)
- the quality of the compost (organic matter, salt or nutrient content. Compost that is higher in salt content, for example, will need to be incorporated deeper)
- the sensitivity of the plants being installed (the more delicate and salt sensitive the plants = the more dilute the compost:soil ratio)

ALL compost, like soil, contains soluble salts (in the form of nutrients in compost). The operative word here is soluble. The salts in compost are typically leached out rapidly during the

initial few waterings. Do not be alarmed by the salt content analyses from a compost sample that may be somewhat higher than you are used to seeing in traditional topsoil analysis.

Material Reduction

You should also notice that you will be using only 1/3 of the volume of material when applying compost, then you would if laying down a 6" layer of topsoil to the landscape site. While there will be some additional handling because of the need to incorporate the compost into the site soils, but you should still be able to significantly reduce your overall project costs. Also, the finished "manufactured" topsoil (compost/site soil blend) will typically be superior to any topsoil that you could have purchased.

Compost Application Rates

Here's an easy reference table to help you determine how much compost you will need for a landscape project:

- **1 cubic yard of compost spread at a 2" depth will cover about 162 square feet**
- **6.17 cubic yards of compost will be needed to cover 1,000 square feet at a 2" depth**
- **269 cubic yards of compost will be needed to cover an acre at a 2" depth**

Off Site Topsoil 'Manufacturing'

There will be landscape projects where, due to space or operational constraints, that the above "on site manufacturing" technique will not be practical or cost effective. There is a very viable alternative in this situation. You can 'manufacture' your compost manufactured topsoil offsite and simply deliver and apply it as you would with conventional topsoil. Here's how this process works:

1. Determine how much finished soil you will need for your landscape project. Add about 15% to 20% to this figure to account for 'shrinkage' and loss.
2. Purchase enough compost to equal 20% to 30% of this volume of soil. Purchase less expensive soil products (subsoil, sandy fill or other similar products) to blend with the compost.
3. Use a front end loader, or other suitable piece of heavy equipment, to thoroughly blend the compost and subsoil together.
4. Deliver and apply your 'manufactured' topsoil to the landscape project.

Your finished product should wind up being a highly organic, pH neutral, and nutrient rich manufactured topsoil. It should also cost you no more than, if not less than, purchasing an equal amount of commercial topsoil.

Other Landscape Uses for Compost

The use of 'manufactured' topsoil is the largest use of compost in landscape applications. It is not, however, the only way to use compost. Other applications include using compost as a backfill mix, in planters, as mulch and to topdress turf areas. We'll look at each of these in the next article.

Are you using Texas compost yet? – part 5

Compost use by Professional Growers — Nursery and Greenhouse

The benefits that compost offers to the professional grower are many and varied. A superior growing medium can be produced in many cases and often at a lower cost. Care must be taken, however, to move slowly and carefully when incorporating the use of compost in nursery situations. A potted ornamental plant is far more sensitive to changes in its environment than a plant growing outside in a landscape setting. The gradual introduction of compost into growing media, while adopting the changes needed in watering and fertilizer requirements and recognizing other related handling issues, will ultimately pay off in equal or superior plant health and an improved bottom line!

The authors are NOT implying nor providing specific compost use directions in this article. That information can only come from the compost producer and through your own practical experience as you try compost products. Most of the available compost produced in Texas will have very similar characteristics, but not identical characteristics. It will only be

General Nursery Stock Compost Use Suggestions

First and foremost, compost is to be used as a soil mix component and NOT as a soil mix by itself! **Compost should NEVER be used by itself as a growing medium.**

Start Slowly — We suggest you introduce compost to your growing mix as part of an *in-nursery* trial. Isolate a few dozen plants and pot them in 2 or 3 different compost based growing mixes. Learn how to water these. Experiment with reduced fertilizer application rates. Often, when compost is introduced to a growing mix, addition of macronutrients (other than nitrogen)

and micronutrients can be reduced or eliminated. The addition of nitrogen can often be delayed. Work with your compost supplier and your County Agriculture or Horticulture Extension Agent so that you will be comfortable and operationally prepared to introduce compost amended growing media throughout your nursery.

Professional nursery growers across the country have used compost successfully at incorporation rates ranging from 10 to 50 percent by volume, by. Some of these growers prepare the mixes themselves, others specify it in a mix that they purchase from a growing media company. **The key is to start slowly and learn how the compost changes the daily needs of your nursery operation. The percentage of compost in the mix will be dependant upon the plant species (and its requirements) and the characteristics of the compost.**

Mixes to Consider — The ingredients blended with the compost will vary by region, depending on what is available and affordable in your area. **All mix ‘recipes’ are suggested on a ‘volume basis’.** Some typical compost mixes, used by nurseries across the country are listed below. They contain 20 to 50 percent compost, by volume, and would primarily be used in a container mix. Again, proceed slowly, with lower compost addition rates during your ‘compost learning curve’:

*A combination of peat moss and pine bark, or either component alone, can be used for this portion of your growing mix. A good ‘Rule of Thumb’ to follow when using compost in a growing media is that – the bigger the pot/container – the greater the percentage of compost can be used (and the coarser the compost can be).

Watering — The majority of compost products produced in Texas are manure based, which potentially leads to a material that contains a higher soluble salt concentrations than what you and your plants are accustomed to. Test the compost to determine its soluble salt concentration and compare it to your current media. Also, determine what level of salts your plant can tolerate

and in the event you discover the concentration may be too high, then there is a technique that allows you to still use this material and maintain a healthy plant. To alleviate a potential soluble salt problem, **you need to make sure to water your plants very well, perhaps more heavily than you typically do, during the first 2-3 waterings.** This practice will serve to leach out the soluble salts to a desirable concentration. You should then be able to return to your regular watering practices after this initial period of leaching. Some growers like to use a wetting agent, either as a part of their mix in a dry form, or added to their watering system to assure a thorough drenching and leaching of their growing mix.

Fertilizer Programs — Most of the compost produced in Texas, or across the nation for that matter, contains about 1% to 2% N and P. In a container mix with 20% compost or more, there should be a sufficient quantity of nutrients in the compost to supply all of your plants needs for the first 2 — 3 weeks after potting. After that, some additional nitrogen will likely be needed, and some plants may require other nutrient supplements as well. Again, make sure to carefully review the analysis that your compost supplier provides to you, to confirm this.

Most nursery stock growers that are having success with compost based media are using a low phosphorus content, slow release granular fertilizer to feed their plants. These can either be blended at the manufacturers recommended rates or applied as a topdress after potting. Sulfur coated fertilizers may be applied immediately after potting as a top dressing because they also have a delayed release period. **Make sure that there is NO fast release component in the fertilizer product that you select.**

Liquid fertilizer applications to compost amended growing mixes will typically be delayed at least 2 -3 weeks after potting. They can be applied either as part of a constant feed process, or at weekly or biweekly rates based on manufacturers recommendations.

Micro/Secondary Elements – When utilizing compost, you may find that there is no need to apply any micro or secondary elements as part of your fertilizer program. Most compost products contain an adequate supply of micronutrients, even when used as a part of a growing mix, to meet plant requirements throughout its nursery life. This is yet another instance where you will need to study the compost analysis, and even your final growing mix analysis, to make this final determination.

Weed Control — When processed correctly, compost is pasteurized, which effectively destroys all weed seeds. You do not need to sterilize it prior to blending it with the other components of your growing mix.

Fungal Pathogen Control — Research conducted at several major agricultural universities has also clearly shown that compost contains naturally occurring fungicidal properties. You may be able to reduce or totally eliminate your use of chemical fungicides when using compost in your growing mix! This is another benefit of compost that you want to explore when you conduct your nursery trials.

Greenhouse Crop Production Using Compost

Most of the suggestions listed above for nursery crop production using compost based mixes, also applies to greenhouse crops. Greenhouse crops include anything from bedding plants to poinsettias, mums, ornamental house plants, and everything in between. Their 'world' is just a little smaller than most nursery plants, and hence, they are even more sensitive to change.

All of the precautions and suggestions listed above concerning; starting slowly with a greenhouse trial, the need for higher levels of initial watering, micro/secondary element needs and weed control apply here as well. There has, however, been a different history of growing mix percentages that use less compost in the mix. **Greenhouse crops typically only use a maximum of 25 to 33 percent compost, by volume, although some growers have been successful using higher rates for more tolerant crops.** Some mixes that have been successful for greenhouse growers in other areas are listed below:

Fertilizer Programs — **You will not, as with nursery stock, typically need to apply any fertilizer to your compost amended growing medium for at least the first 2 — 3 weeks after transplanting.** Some plants may require nitrogen fertilizing ONLY after this point. Others may require a more complete fertilizer application. You'll need to look at what the compost contains, and what the plants needs are to make this determination. This should become evident during your greenhouse trial. Keep in mind that compost possesses a high cation exchange capacity (CEC) which can greatly improve the efficiency of nutrient retention and uptake by roots, further reducing the amount of nutrient supplements needed.

We hope that we have inspired you to take a serious look at the use of compost in the nursery and the greenhouse. Some research has shown that compost amended growing mixes can, through the reduced cost of mix components, fertilizer and trace elements needs, save you between \$10 to \$20/cubic yard. You will also be producing a comparable, if not a superior plant to what you have grown in traditional peat based mixes. Some studies have shown that compost amended plants may have a 'shelf life' of up to 2 -3 weeks longer than plants grown in traditional, soil less media.

There is a definite 'learning curve' that each individual must experience to become comfortable with using compost in your nursery or greenhouse operation. Your compost supplier and County Agriculture or Horticulture Extension Agent can provide technical support, and possibly even operational support, to you during this important process. You will discover, if this process is done thoroughly and accurately, that compost has a definite place in your business!

Are you using Texas compost yet? – part 6

Selling Compost through Landscape Suppliers (Garden Centers and Topsoil Dealers)

This is the final article in this 6 part series about the benefits, uses and opportunities provided to the landscape and nursery industry as a result of the increasing supply of high quality compost in the state of Texas. This article will focus more on the business opportunity of supplying compost that is now available to landscape supply centers (garden centers, topsoil dealers, nursery suppliers, etc.). There is an opportunity to increase your profitability by providing compost to fill smaller user needs, which can be quickly realized with a little work, ingenuity and product promotion. *This article deals primarily with the distribution of bulk compost, because bagged compost products are already extensively marketed by this business sector, and because mass merchants are less likely to distribute bulk products.*

The producers of large quantities of bulk compost, and there are many in the state of Texas, must establish channels of distribution in order to both accommodate the inventory constraints of their facilities and to adequately service market demand. Compost production facilities cannot, and should not, attempt to service the very small bulk customer. The potential liability of having small landscaper trucks, or worse, weekend gardeners visit a large compost production facility complete with its share of heavy equipment and visual obstacles is an accident waiting to happen. Yet, the compost producer needs to establish a business relationship with these very market segments. Two reasonable options for the compost producer to infiltrate this market are to either open a retail or small wholesale supply yard, or deal with an existing business already servicing these market segments. It is the second option that most choose to pursue.

The landscape supply center that services either or both retail and commercial customers provides the ideal link between the compost producer and the 'less than truckload' bulk compost user. A truckload is defined, for the purposes of this article as a 20 to 50 cubic yard load. For a landscape supply center to deal in bulk compost, it must have the space to accept bulk loads of this size and the loading equipment (small loader, skid steerer, etc.) to fill their customer orders. If both of these conditions can be met, then the landscape supplier has an opportunity to provide both unblended compost, and derivative products, to an array of 'less than truckload' customers who visit their facility, and reap the accompanying financial rewards.

Products and Market Segments

Products — The variety of compost products that a landscape supplier can stock and sell will be dictated by; the type of compost products that are available to them, their physical limitations (storage space, equipment, personnel) and the competitive products they already stock. Lets review some of those options and provide some guidance about what might work, assuming that certain conditions prevail.

General Use Compost — The easiest and most obvious product to carry, but not necessarily the first priority, would be pure compost as delivered to your facility by the compost producer. The assumption being made here is that the compost is stable/mature and has been screened through a ½” — 3/8” screen, making it ideal for a variety of uses, described in previous articles. The more coarsely screened, ½” size, may even be suitable for use as a decorative mulch depending upon its ‘look’ and if properly promoted.

Selling unblended compost may require more of a marketing effort on the part of the landscape supplier especially if the concept of compost use *as a soil amendment* in not

widely known in your area. Assistance with marketing, including literature, banners and technical advice, should be provided or supported by the compost producer. However, literature or technical support from the landscape supplier themselves can be very beneficial.

‘Manufactured’ Topsoil — An easier, product to market might be a manufactured topsoil which can be made by blending 25 to 33 percent compost by volume with native subsoil, or an inexpensive fill material. All market segments, both retail and commercial, already understand and use topsoil. It will require little more than a competitive price and a simple, one-page piece of literature explaining its benefits over conventional topsoil. Manufactured soil made from inert soil blended with mature compost can be promoted as weed-free topsoil with high organic matter – a very desirable combination that is difficult to achieve without compost. It is possible that you might be able to work with the compost producer to have them produce this at their facility, if they have the time and desire to do so. Otherwise, that task will be the responsibility of the landscape supplier.

Other Compost Products — You can also stock other compost products, if your space and market demands support doing so. These may be available directly from the compost producer, or may require additional handling on your part. Two options to consider here are erosion control compost and compost topdress.

The TXDOT has a specification for erosion control compost. It is, in the simplest terms, merely a coarser grade of compost that is produced to stabilize slopes and to construct filter berms on construction projects. Article #5 in this series presented a very detailed description on the uses and characteristics of this form of compost. This would, more than likely, need to be delivered to you in the proper form by the compost producer.

Topdress grade compost is merely a more finely screened grade, generally to ¼” size, of general use compost. It can be screened by either the compost producer or by the landscape supplier, if they have the equipment. This product may also be blended with sand to produce a topdressing. Topdressing is widely used on golf courses and is becoming a more accepted landscape maintenance practice on athletic fields and on commercial lawns.

Markets — If you are a landscape supplier, you already are well acquainted with the variety of potential market segments that can purchase the products listed above. They, however, may not be aware of the many benefits and uses that compost and compost-derived products offer to them. It is your job to convey this message. If you can educate your clients about compost, your market will grow and you will reap the financial benefit of your efforts.

Your market segments will include landscapers, homeowners, general contractors and more specialized users, such as golf courses and athletic field maintenance. You have the opportunity to make long-term customers out of many of these market segments by teaching them about compost and then providing them with a consistent supply of high quality compost, and/or compost derived products for many years to come. Many homeowners will respond favorably to these unique, natural or environmentally sensitive products.

The previous articles in this series included: Compost Benefits and Uses; Texas Composters and the USCC, Seal of Testing Assurance Program; The Manure Composting Incentive Program; Compost Use in Landscaping; Compost Use in Erosion Control and Compost Use in Nurseries and Greenhouses. We hope that you have enjoyed the series and have a better understanding of how high quality compost products can benefit your business.