



**WE RECOMMEND ...**  
McGill Soil Builder



Thanks to funding provided through the NC Dept. of Environment and Natural Resources (NCDENR) Division of Pollution Prevention and Environmental Assistance's Organic Wastes Recycling Grants, guidelines for the use of compost in strawberry production have been developed for use by the North Carolina strawberry industry. The guidelines illustrate how best to use compost in the production experiences of North Carolina farmers.

Research completed at Vollmer Farms in Bunn, NC, illustrated that a compost-based growing system could favorably compete, both in economics and yield, with a chemical-based growing system.

High quality compost products supply stabilized organic matter, nutrients, and beneficial microbes to the soil, reducing the requirement for additional inputs while increasing yield and fruit quality and reducing disease incidence and severity. The *Compost Use Guidelines* for strawberry production follow the same format used in a series of landscape and nursery guidelines developed through the U.S. Composting Council (USCC) during the mid-1990s. The compost use guidelines were developed using both peer reviewed research and the practical farmers.

This is a condensed version of the original article which appeared in the July 2002 issue of *The Strawberry Grower*, the monthly newsletter of the North Carolina Strawberry Association, written by Ron Alexander, and reprinted by permission.



## Compost use guidelines for strawberry growers

Compost to be used for strawberry production should meet all state and federal health and safety standards (e.g., EPA's Part 503 regulations), as crops are being grown for human consumption. Compost with a pH range of 5.0 to 8.0 may be used for cultivating strawberries. However, products with a pH of between 5.5 and 7.0 are preferred since this narrower pH range is consistent with the optimum soil pH for growing strawberries. The use of composts that are both stable and pass growth-screening tests is essential to optimize plant growth and yield. Soluble salt content of the compost should be low, as strawberries are considered a salt sensitive species. The soluble salt content of the amended soil must be below 1 dS/m to prevent growth suppression and yield reduction. The soluble salt content of the compost/soil blend can be reduced through leaching (irrigation practices). The compost should also be free of weeds. To help determine appropriate preplant and ongoing fertilizer application rates, the content and availability of macronutrients contained in the compost, particularly Nitrogen, should be identified.

Although composts with high nutrient contents have been successfully used as the sole source of pre-plant nutrients in strawberries production, they should be used with care.

Composts containing enough micronutrients (trace elements) to meet the crop's annual requirements are also preferred. To improve the handling and application of the compost, its moisture content should be between 35 and 55 percent. Compost passing through a one-half inch screen, or smaller, is preferred to minimize the content of large foreign matter or carbonaceous material in the finished product.

However, the preferred product particle size may be somewhat dependent upon the soil texture, the compost feedstock, application rates and the type of spreading equipment used.

Composts produced from both manure and yard trimmings have been used in strawberry cultivation, both in actual field use and research.

### APPLICATION METHOD

Compost may be applied using a traditional manure spreader (flail/rear discharge or side discharge) or other specialized equipment. Approximately five to 15 tons/acre of compost are typically used on conventionally grown and eight to 20 tons/acre on organically grown strawberries.

Directed applications of compost within the area of the field to be bedded can reduce the application rate in half. Lower rates of compost are typically being used as "maintenance" applications as a nutrient supplement or media for microbial growth and humus formation.

Application rates of 10 to 20 tons and higher are used to modify soil physical properties and as a primary nutrient source in short terms. The product should be uniformly surface applied, then incorporated to an approximate depth of five to six inches using a roto-tiller, disc, or moldboard plow, or other tillage equipment. Existing soil conditions and compost characteristics will influence appropriate compost application rates. Once the compost is incorporated, raised beds may be established using a bedding machine.

The raised beds may then be mulched using organic materials or covered with plastic to assist in weed control. If drip irrigation is to be used, the drip tubing should be laid before or at the same time as mulch is applied.

Fumigation of the beds, if desired, can be performed in conjunction with laying the plastic.

Fumigation may be eliminated by the use of specific compost products, as some research and field experience has shown a reduced dependency on fumigation where biologically active (disease suppressive) compost has been applied.

Once planted, the strawberry plugs or bare root plants should be irrigated and soon after fertilized, as necessary.

If the soluble salt content of the compost or the soil blend is identified as potentially damaging to the crop, one or more thorough watering prior to planting should follow incorporation of the compost.



**RELATED MATERIALS**

Fertilizer programs should be designed based on the requirements of the crop, taking into account the cultural practices being used, soil fertility, nutrient content of the compost product, and the availability and release rates of these nutrients. For best results, the amended soil should be tested prior to fertilization. Often, fertilizers used to prepare the soil before planting may be reduced or even eliminated when using rich, stable compost.

Usually, both pre-plant and ongoing fertilizer application rates can be adjusted (reduced) based on the nutrient content of the compost.; Irrigation should be applied based on plant needs, soil moisture, and climatic conditions. Frequency of irrigation may be reduced during both plant establishment and the growing season due to compost addition. Compost may affect soil pH, so pH of the compost-amended soil should be determined before pH adjustment is performed.

**LONG-TERM MAINTENANCE**

Compost may be reapplied when new raised beds are established. If applied at suggested rates, specific composts may supply nutrients to crops planted after the initial growing season (multiple cropping). Therefore, fertilizer programs must be adapted to account for this residual nutrition.

**HEALTH/ENVIRONMENTAL**

Compost with moisture content less than 40 percent tends to be dusty, which may be irritating to the eyes and respiratory tract. Protective eyewear and a dust mask should eliminate any such nuisance. Inert and foreign materials contained in the compost may cause minor lacerations if sharp. If hand labor is used during planting and harvesting, sharp materials in the compost should be minimized.

**BIBLIOGRAPHY**

1. California Integrated Waste Management Board, Agriculture in Partnership with San Jose: *A Demonstration Project on the Use of Yard Trimmings Products*. 1997.
2. Ferguson, L. *Methyl Bromide Transition in the Southeastern United States*. NCSU. 2001.
3. Goldstein, J. *Compost Suppresses Disease in the Lab and On the Fields*. *Biocycle*. November 1998.
4. Cinches F.V. and E.R. Ingram, *Conventional and Organic Alternatives to Methyl Bromide on California Strawberries*, Pacific Ag. Research and Oregon State University. *Compost Science and Utilization*. Spring 1997.
5. Sherman-Huntoon, R. *Compost as an Alternative to Methyl Bromide*. *Biocycle*. September 2001.
6. Vollmer, J. *Alternative Strawberry Production with Compost*, NCDENR. 1999.

**McGill Soil Builder** is the base ingredient of all McGill product formulations. This compost product has been sampled and tested as required by the Seal of Testing Assurance Program of the United States Composting Council (USCC). Test results are available upon request by calling McGill at 910-532-2539, on our website, or by contacting a McGill representative. The USCC makes no warranties regarding this product or its contents, quality, or suitability for any particular use.

**Compost is a soil amendment, not a fertilizer. McGill does not guarantee nutrient content of this product. Analyses are provided for information purposes only.**



**Compost is a concentrate**

Compost should always be blended with soils and potting media in ratios that result in no more than 30 percent compost in the mix. Pure compost is a concentrate. Do not use “full strength” in potting mixes or planting beds. For transplants, mix compost in with the backfill before filling the hole. Growers report applications as low as 1/8 inch (about 15 cubic yards per acre) improve yields in both open field and plasticulture growing systems. Ask your McGill representative for a current lab report.

**COMPOST SALES**

**Southern Coast**  
910-532-2539

**Southern Piedmont**  
919-362-1161

**Mid-Atlantic**  
804-832-8820

