

Tucking the Garden Soil in for Winter

Summary: Garden soils benefit with fall care to help them overwinter and be ready for spring planting.

10/20/09 Contact: Clain Jones (406) 994-6076 or clainj@montana.edu
To: News-dailies, News-weeklies, AgMedia, News-local, News-tv, News-radio, MSU-All-News,
News-internal, NatResourcesNonmedia, Producers, Web. From Sara Adlington, (406)994-4602
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BOZEMAN – You have picked the last zucchini, dug the last potatoes, put away the hoses and are looking forward to winter activities. But remember, “a little effort now will help your garden soil overwinter and can improve soil quality and fertility for next season,” said Clain Jones, Extension soil fertility specialist in the Department of Land Resources and Environmental Sciences at Montana State University.

Fall is an excellent time to assess your garden soil’s needs for the next growing season. Soil samples can be easily taken in the fall and sent to a lab for testing. Or, a look at your plants can help indicate which nutrients were out of balance. With that information, the gardener can plan where to plant the beans and peas next year to increase soil nitrogen, and which beds can have the heavy feeders such as spinach and corn. Also, fertilizer and amendments can be added to the soil now so it is ready in the spring.

Many gardeners use organic matter such as garden compost or composted manure to add nutrients, enhance aeration and increase water-holding capacity.

“Make sure the compost is from a reputable source and free of residual herbicide to reduce the risk of herbicide damage to the garden crop,” said Toby Day, Extension horticulture specialist at Montana State University. Organic matter should be incorporated in the fall to give the material time to decompose. “Remove, rather than incorporate, plant material that had insect and/or disease problems to avoid overwintering pests and diseases,” said Day. Minimize dry, coarse materials such as corn stalks, straw or sawdust because they take a long time to decompose and will tie up nitrogen, making it less available for next year’s crop.

Fall tillage or turning is better than spring turning because the soil is generally not as wet. Working wet soil leads to compaction. Also, the important worm population usually moves lower into the soil in the fall for winter hibernation and is less damaged by fall cultivation.

Fertilizers that can be certified as organic, such as rock phosphate, green sand, and gypsum can be used to correct specific nutrient deficiencies such as phosphorus, potassium and sulfur. According to Jones, these should be applied and incorporated in the fall, as they take time to become available to the plants. In contrast, says Jones, nitrogen-containing synthetic fertilizers are best applied in the spring, before or early in the plants’ growth. If left on or in the soil well before being taken up by the plants, nitrogen fertilizers are susceptible to leaching or loss to the air, which not only doesn’t feed the plants, but can cause negative environmental and health effects.

In our clay soils, adding more organic matter can help prevent clumping and cracking. However, sometimes a garden soil can have too much of a good thing. Yearly addition of compost may create garden soil with too much organic matter and excessive levels of some nutrients. "This can actually cause deficiencies in other nutrients," said Jones. "If nutrients and organic matter are too high, you may need to incorporate sand to increase soil quality and plant growth."

Finally, tuck your garden plots in for the winter with a mulch layer of leaves and/or straw. This will reduce wind erosion, nitrogen loss to the air, and the intensity of freeze/thaw cycles, which are not good for the beneficial critters living in the soil or fall planted crops such as garlic. You may need to cover the mulch with something like old wire fence to keep wind blown material from mulching the neighbor's yard. If the garden soil is in a wet area and susceptible to leaching loss or you plan to leave an area unplanted next season, then consider planting a cover crop such as dry pea or rye in the fall to hold the nutrients in place.

MSU Extension has many publications to help gardeners in our region. The Home Garden Soil Testing & Fertilizer Guidelines MontGuide (MT200705AG) can help you gain a better understanding of garden soil fertility and how to amend your garden soil to optimize plant growth and reduce fertilizer costs. For this and other Extension publications, visit the Web at <http://msuextension.org/publications.asp>, or call Extension Publications at (406) 994-3273 for more information.