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Slow-Release Fertilizers for Home Gardens and Landscapes

Slow-release fertilizers are now readily available to home gardeners. Trade names such as Scotts, Osmocote, Schultz, Miracle-Gro, and Vigoro all have slow-release products on the garden center shelf, attractively packaged in 2 to 8 pound containers. Less expensive, traditional granular fertilizers are becoming harder to find.

How do you compare and choose slow-release fertilizers? First, find one in the proper ratio based on your soil test and/or crop. A 1-1-1 ratio fertilizer (such as 10-10-10 or 8-8-8) is standard for gardens if soil test phosphorus levels are low. If phosphorus levels are high or very high, look for a no- or low- phosphorus fertilizer such as a 1-0-1 or 4-1-4 ratio. For landscape plants, a ratio of 3-1-2 or 3-1-1 is more appropriate than a 1-1-1. Turf fertilizers such as 18-6-12 or 24-8-16 are examples of 3-1-2 ratios which can be used for trees and shrubs as well, as long as they do not contain any herbicide (avoid weed-and-feed fertilizers).

Compare the percent of slow release nitrogen in each available product that suits your needs. Usually in very small print beneath the guaranteed analysis one can find a statement to the effect that *x% of the nitrogen* (expressed as a percentage by weight of the package contents) *is in slow-release form*. The words *water-insoluble*, *slowly available* or *slowly available soluble nitrogen* also indicate slow-release sources of nitrogen. If, for example a 10-10-10 fertilizer says it contains 5% slow-release nitrogen, divide the 5% by the total % N in the product and multiply by 100 to get the percentage of nitrogen that is in slow-release form. In this example it is 5/10 x 100=50%. The state fertilizer law requires that at least 15% of the nitrogen be in slow-release form in order to be sold as a slow-release fertilizer. UNH Cooperative Extension recommends that at least one-third to one-half of the nitrogen be in slow-release form.

Compare the cost of the fertilizers based on the cost per pound of nitrogen. For example, an eight pound container of 10-10-10 fertilizer contains 0.8 lbs of actual nitrogen. If the price is $12.00, the cost per pound of nitrogen is:

$12.00 x 100 / 8 x 10 = $15.00, or the cost of the bag times 100, divided by the weight times % nitrogen

Slow-release fertilizers may be ten to fifteen times as expensive per pound of nitrogen, compared to soluble, granular forms. Part of this higher cost is due to the lack of availability of slow-release fertilizers in 25-50 lb bags. Like most consumer products, fertilizers are cheaper per unit in larger packages.

Weigh the benefits of slow-release fertilizers against the cost. The benefits are that a small but steady supply of nitrogen is available to your plants all season long, so nitrogen is not apt to be limiting to growth. Since the amount of nitrogen available at any one time is small, the risk of leaching is also relatively small, so these fertilizers are considered more environmentally-friendly.

Natural organic fertilizers provide the same benefits and can be compared cost-wise using the same procedure. You are not restricted by the manufacturer’s available ratios, either. For instance blood meal (12-0-0) can be used as source of nitrogen without phosphorus or potassium, which may not be needed.

If using soluble nitrogen fertilizers (i.e., not slow-release or natural organic) for vegetable or flower gardens, apply approximately half the recommended rate at planting or in early spring, then the other half in one application in midsummer, or in two applications 6-8 weeks apart. This will help prevent large doses of nitrogen from possibly burning the plants or being leached from the root zone. Another option is to use two fertilizers — provide part of the nitrogen from a soluble source for rapid initial availability and part from a natural organic source for long-term availability. It's up to you whether the additional cost of slow-release fertilizer is offset by the convenience of making just one application.

Comparing Fertilizer Costs: Worksheet						
	Sample products				**Your examples here**	
Product	Example 1 (granular)	Example 2 (slow-release)	Example 3 (slow-release)	Example 4 (blood meal)		
Analysis	10-10-10	10-10-10	17-17-17	12-0-0		
Ratio[x]	1-1-1	1-1-1	1-1-1	1-0-0		
% N in SRF[y]	0	80	88	100		
Weight of container	40 lb	8 lb	3 lb	2.5 lbs		
Cost of container	$5.98	$11.98	$6.97	$4.96		
Cost per lb of N[z]	$1.50	$14.98	$20.50	$16.53		

[x] *Ratio is the analysis, expressed in the lowest common terms. Divide the analysis by the lowest common number.*

[y] *% N in SRF = percentage of nitrogen in slow-release form. This is the % slow-release nitrogen (from label statement) x 100, divided by the % nitrogen (the first number in the fertilizer analysis).*

[z] *Cost per lb of N = (cost of bag x 100)/(%N x weight of bag)*

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