Soil Amendments and Fertilizers

Knowledge Check **KEY**

In the **GB Learning Library - Core Preparation Sessions**
this is Section 5.2 in Module 5: Management Strategies

1. Name a few reasons why a gardener might use a cover crop.
   - Suppressing weeds
   - Protecting soil from rain or runoff
   - Adding active organic matter to soil
   - Improving soil aggregate stability
   - Reducing surface crusting
   - Breaking hardpan
   - Fixing nitrogen
   - Scavenging soil nitrogen
   - Suppressing soil diseases and pests

(From Soil Amendments and Fertilizers presentation)

2. Using the online cover crop tool for vegetable growers, http://covercrops.cals.cornell.edu/index.php, provide a recommendation for a cover crop that can help minimize winter soil erosion.

Cover Crop Decision Tool

Management Goal	Planting Time	Duration	
Winter Erosion Protection	Early Autumn	4-10 mo	Submit

Crop	Oats	Wheat Spelt Triticale
Seeding Rate	80-140 lb/ac	70-200 lb/ac
Seed Cost	2007 price: $8.00/32lb.bu	2007 price: $0.10/lb
Seeding Dates	Mid April-mid May and again August-September	Mid-late September
Time Until Control	4-6 weeks	When growth resumes (early May)
Seed Suppliers	Local farm seed dealers, Lancaster Agricultural Products	Local farm seed dealers, Lancaster Agricultural Products
Management Goals	Reduce weeds (fall) Stabilize soil aggregates Summer erosion protection Winter erosion protection	Reduce weeds Reduce Root Rot Stabilize soil aggregates Nitrogen scavenging Winter erosion protection
Management Tricks	Plant with legumes such as Field Peas.	Drill if possible. If broadcasting increase the rate by 30%. For weed suppression, increase the rate 30%. Triticale can be seeded before the Hessian fly-free date.
Unavoidable Problems	Soil crusting from heavy rain can stop emergence	Excess growth in warm, damp spring.
Avoidable Problems	Use clean seed if buying from farm	
Classic Uses	Nurse crop with peas and vetch. With Legumes for forage. Killed winter cover for early planting.	Winter cover for spring plow down. Green manure and weed control.

3. What valuable information can a soil test provide about a specific site?

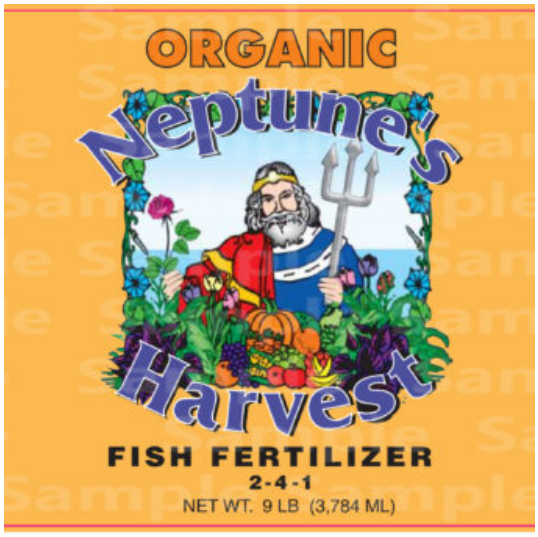
The soil pH, organic matter and availability of nutrients such as potassium and phosphorus. This valuable information will help a gardener determine if they need to make adjustments to meet the needs of their desired plants.

Some soil tests can also provide valuable information on soil contaminants. (From Soil Amendments and Fertilizers presentation)

4. Why add organic matter to existing soil? What are some sources of organic matter?
The person has had the soil tested and the report states the soil is deficient.
Organic matter is added to the soil to improve soil properties by increasing the water and nutrient holding capacity, improving aeration and drainage, feeding microorganisms and providing some nutrients.

Common organic matter sources include composted manure, peat moss, plant-based compost and plant and animal by-products. Cover crops
(From *Getting the Most out of Your Vegetable Garden Soil Test Report and* Soil Amendments and Fertilizers presentation)

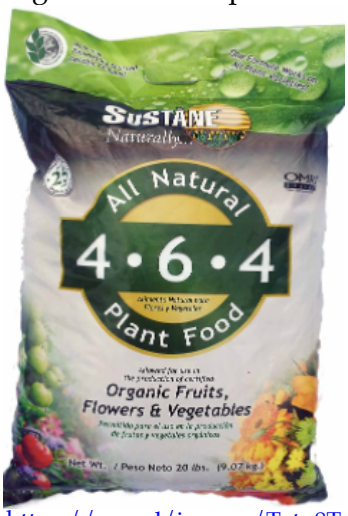
6. On the following label, what do the numbers 2-4-1 indicate?



https://goo.gl/images/FMbw1D

The first number indicates the percent of nitrogen (N), the second number is the percent of phosphate (P2O5) a source of phosphorus, and the third number is the percent of potash (K2O) a source of potassium. They are simply referred to as N-P-K. (From Soil Amendments and Fertilizers presentation)

7. How many ounces of Nitrogen are in a 20-pound bag with the following label?



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A 20-pound bag of 4-6-4 contains 0.8 pounds (12.8 ounces) of Nitrogen, 1.2 pounds (19.2 ounces) of P_2O_5 a source of phosphorus, and 0.8 pounds (12.8 ounces) of potash (K_2O) a source of potassium. The rest of the material is made up of other inert material, such as sand or clay granules to help spread the fertilizer. (From *Reading and Understanding Fertilizer Labels* activity)

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