ANSWER GUIDE

MASTER GARDENER
COLORADO STATE UNIVERSITY
EXTENSION

CMG GardenNotes #253

Homework: Soils Fertilizer and Soil Amendments

WEB SOIL SURVEY

1. Log onto the **Web Soil Survey** at websoilsurvey.nrcs.usda.gov (or Google Web Soil Survey).

2. Click on the green button **Start WWS**.

3. Under the **Area of Interest (AOI)** tab, click on **Address.**

4. Enter Address

    a) Enter your home street address, city, state in the box.
    b) Make sure the **Show location marker** box is checked
    c) Click on **View**

5. The Area of Interest Interactive Map will open.

    - With the mouse, **draw a box** around the general area of the property (marked on the map with a red +). The map will refresh with a closer view

6. Select Area of Interest

    a) **Click** on the **AOI** button near the top of the window.

    b) With the mouse drag a box around the property of interest. The map will refresh with a slash filled box of the property of interest.

7. Soils

    a) **Click** on the **Soil Map** tab. This will open a listing of the **soil map unit names** on the property
    b) **Click** on the **Map Unit Name** in blue in the box. This will open the description of the soils.

    Note: If the address you entered if not found on the Web Soil Survey, please start over with the address of a friend or relative.

8. **<u>Answer the following questions about one of the soils on the property.</u>**

Address		
What is the name of the soil(s) at this address?		
What is the generic slope at this address?		
From **Map Unit Setting**	Elevation	
	Mean annual precipitation	
	Mean annual air temperature	
	Frost-free period	
From **Properties and Qualities**	Depth to restrictive feature	
	Drainage class	
	Depth of water table	
	Frequency of flooding	
	Frequency of ponding	
	Calcium carbonate content	
	Maximum salinity	
	Available water capacity	
From **Typical profile**, give depths of various soil textures.		

ANSWER THE FOLLOWING BASED ON WHAT YOU'VE LEARNED:

1. Properties and challenges with your soil.

a. Describe the properties of your soil (or soil you have access to test). What are the good properties supporting plant growth? What are the properties limiting plant growth?

b. What would you advise a neighbor moving into your neighborhood (same basic soil) about soil management when their yard is a new landscape (nothing currently on the property)?

c. What would you advise a neighbor (same basic soil) about soil management for an existing landscape with lawns, trees, perennial flower and shrub beds, annual flower and vegetable beds?

2. List eight considerations in selecting an appropriate soil amendment.

Examples of items to take into consideration include the following:

- Cost
  - Local availability
  - Cost of product
  - Size of area to be treated (quantity needed)
  - Depth of incorporation (application rate / quantity needed)
  - Transportation costs
- Need for fertilizer after amending
  - Soil organic content
- Precautions with specific products
  - Salts (manure and biosolids)
  - Weed seeds (manure and compost)
  - Plant pathogens (compost)
  - Human pathogens (manure)
- Alternatives to amending
  - Potential to incorporate amendments

    - Accepting a reduction in plant growth and vigor
    - Accepting increased maintenance requirements
    - Selecting plants more tolerant of poor soils
    - Avoid crowing plants competing for limited soil resources
    - Mulching with organic mulch to slowly improve soil over time
    - Container and raised-bed gardening
    - Preventing compaction forces

3. List eight considerations in selecting an appropriate mulching material.

Examples of items to take into consideration include the following:

- Site
    - Continual plant cover: trees, shrubs, perennials, and small fruit
    - Annual soil preparation: annual flowers and vegetables
    - Non-crop areas
    - Specialty crops (rock garden, cacti garden, alpine garden
- Function
    - Soil improvement potential
    - Frequency of reapplication
    - Depth needed for weed management
    - Depth needed to minimize soil compaction
    - Appearance
    - Heat sink
    - Off-site movement by wind, water and gravity
    - Safety (children, lawn mowers)
- Cost
    - Local availability
    - Cost of product
    - Appearance
    - Size of area to be treated (quantity needed)
    - Depth of application (quantity needed)
    - Transportation costs

4. List five considerations in selecting an appropriate fertilizer.

Examples of items to take into consideration include the following:

- Soil nutrient deficiencies
- Soil organic content (gets into application rate)
- Plant's specific need for nitrogen (high or low feeder)
- Management practices that contribute to the deficiency (like springtime over-watering for iron chlorosis)
- Fertilizer analysis and ratio
- Quick release or slow release
- Manufactured or organic
- Cost