Weekly Ag Report
Tom Getts, UCCE Weed and Crop Farm Advisor
January 10, 2018

Morning this is Tom Getts from the Cooperative Extension office with your Weekly Ag Report. Today I am going to talk about soil.

Soil and soil properties are essential to agriculture. But, not just to agriculture, soil is essential for much life on this planet, because it serves as the medium for plant growth. Plants are able to photosynthesize, making the sugar and food they need to survive. Correspondingly, if you are an organism that doesn't photosynthesize, you depend on plants either directly or indirectly for your food. And plants need soil!

Many soil classes and soil tests utilized in agricultural production focus on the physical and chemical properties of the soil - particle size and composition or how much sand, silt, or clay is present. This is very important, as soil texture influences the water holding capacity of the soil, as well as the infiltration rate. Laboratory soil tests are also utilized to determine the amount of nutrients available for plants. Plants need all sorts of nutrients that they pull from the soil - the big three are nitrogen, potassium, and phosphorus - with many other important micronutrients needed.

But, there is a lot more to the soil than the physical aspects. Soil is teaming with living organisms! The first one that comes to my mind are earthworms! If you take out a microscope and zoom in there is a lot more life - nematodes, protozoa, fungi, and bacteria are in abundance!

Soil microbiologists estimate that a single teaspoon of healthy agricultural soil can contain a billion bacteria, yards of fungal filaments, thousands of protozoa and multiple nematodes. That is a lot of life in a very small amount of soil! Now think about how much life there is on a larger scale. In the top 7 inches of soil per acre, there are approximately 7.5 billion teaspoons of soil. This computes to one quintillion bacteria, let alone the amount of fungus, protozoa, and nematodes present. Every step you take in a pasture of a field is not just sand, silt, and clay. Billions of living organisms lay beneath your feet.

All of this life is a good thing for soils. They constantly feed, excrete, and die helping soil structure, stability, and the formation of aggregates. Looking at soil as a living ecosystem is referred to as soil health.

What can you do to promote soil organisms? A diversity of plants means a diversity of roots and a diversity of the soil organisms those plant roots will support. Soil organisms need food, so keep soil covered with growing plants, or dead plants covering the soil surface. Tillage and soil disturbance can negatively affect these microorganisms.

If you want to learn more about promoting living soil, Google "UC soil health" or "NRCS soil health" for a plethora of online resources.

Before I go, I just want to mention an upcoming workshop. Get ready to mark your calendars. There will be an educational meeting for agricultural producers on March 1st at the Elks Lodge here in Susanville. The speaker list is still being finalized, but talks will be given by Dan Putnam, the alfalfa/forage specialist at UC Davis; Daniele Zaccaria, a UC Davis irrigation specialist; and Rob Wilson, from the Intermountain Research Station. More information will be posted on the Cooperative Extension website shortly.