Where's the Soil???
Quick Notes on Our February 2006 Program
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As in business and real estate, "location, location, location" is a major consideration when planting roses in our area. A key requirement at any planting site are soils which have the texture, structure, and pH conductive to growing roses. Sufficient macro- and micro-nutrients also need to be present.

A good soil for roses is friable so that roots can spread out evenly to create a larger 'feeding' zone for fine hair roots. A good soil is spongy and, when watered, can absorb and hold water, yet drain freely enough to keep from drowning the roses. To make a soil friable and spongy enough for roses, it usually consists of 25-35% organic matter. A good soil is not sterile. It supports bacteria that convert fertilizers and minerals into forms the rose roots can absorb. Ideally the soil's pH should be between 6.5 and 7.5 (near neutral). A good soil ideally also has a temperature above 50°F. This also promotes the effectiveness of fertilizers (for organic fertilizers, 60°F).

Outside the Tahoe Basin, our unamended, nutrient-poor native soils fail to meet those requirements. If you look around at the surrounding undeveloped areas, you can see what the soils and climate will support. At best you will see sagebrush, other smaller high desert plants, junipers in the foothills, and saltbrush in the low areas. A few wild roses grow in very small areas along creeks where the soils are different. The native soils are low in organics (<0.5%) and highly alkaline (pH >8 at least outside the Tahoe Basin) and were developed in great part because of our low (<8 inches) of annual precipitation. No wonder new homeowners cry out "Where's the soil?" when they start digging holes for planting roses!

Locally, homeowners may have soils which require different solutions to create a soil good for roses. The low parts of the valleys, which includes Double Diamond, Hidden Valley, lower parts of Stead, Cold Springs, and Washoe Valley, have different soils than the higher areas along the foothills which include Somerset, Caughlin Ranch, and Arrowcreek. The soils in all these areas are also relatively thin (<8 inches).

Soils in the lower areas are high in sodium (Na), highly alkaline, low in organics, and nutrient-poor. These may have supported only plants like four-wing saltbrush before houses were built. These areas may also have poor drainage and have impervious hard-pan and caliche layers. The higher areas also have alkaline, nutrient-poor and organic-poor soils. At least, the soils in the higher areas do not tend to have a sodium problem. Soils in both areas range from elastic clays to somewhat sandy types, but most are high in fine silts and clays. This often means poor drainage. A further complication exists in th Virginia Foothills and around Double Diamond. The groundwater has a very high boron content which might be fine for asparagus and tomatoes, but is certainly not okay for roses and most trees including junipers.

Knowing all this, the next question is what can be done to make these soils into something to support vigorous, healthy rose growth? First clue: NEVER - NEVER add ashes unless you are absolutely sure the pH is less than 7. Adding ashes will increase the alkalinity and drive the pH even higher. Second clue: no matter where you are locally, you will need to

mix in lots of organic material. The best beginning point is to have your soil tested to determine things like pH, salt content, texture, sodium, boron, and nutrients. The Washoe County Extension Service (784-4848) performs many of these tests for free. For other tests, they can recommend a lab. Their experts may be able to give you some general guidelines for your local area particularly if there has been a lot of previous testing in the area.

No matter where you are in the area, you will undoubtedly need to add organic material. This can be in the form of manures, compost, mushroom mulch, or similar materials. Whatever you add, make sure it is low salt (i.e., thoroughly leached manure). Too much salt can poison the soil. Ideally, you would prepare the planting area several months before you need to plant. This allows the material to soften, absorb water, and come into chemical balance with the pre-existing soil. When you mix in the organic material is also a good time to examine the soil texture to see if you need to add a bit of sand, silt or clay. Really sandy soils drain very well, in fact, too well to hold nutrients for the plants. Clayey soils are usually hard and drain poorly. They have a platy texture and expand and contract depending on how much water they contain. Oh yes, and they do hold onto nutrients very well. A more ideal soil would be closer to a silty loam which has a mix of soil particle sizes. The experts at the Extension Service and at some of the local garden centers/nurseries can help you with this.

Because of our alkaline tap water (>8 pH), the monitoring and correction for alkalinity can be an ongoing problem for roses. You will have to continue to test the pH each year to make sure that your soils stay within the 6.5 to 7.4 range. High alkalinity can be treated by using a fertilizer containing sulfate such as ammonium sulfate, or by using agricultural sulfur (chipped or powder form). Warning — do not add the sulfur all at once—it is combustible in larger concentrations! Also note, because you will be adding a significant amount of organic material, do your pH testing a couple weeks after you have added you organics.

If you find that you have a soil that tests high in sodium, you may be told to add a 'bit' of gypsum to get rid of the problem. You may not be told that you need 5 pounds per square foot. After mixing it in, you will need to add lots of water to cause an exchange of calcium in the gypsum for the sodium in the soil. The liberated sodium then needs to be leached from the soils with lots of water. You might also care to know that adding compost does the same thing and actually does it better!

Soils in the Tahoe Basin are different than those down in the Reno-Sparks area. The Tahoe soils are more acid and often contain more organic material. This is due to the presence of rotting pine needles and other duff and the higher rainfall. Soils there should also be tested and then amended to bring them into the 6.5-7.5 pH range, the silty loam texture, and the 5-10% organic content range.

Roses' need for sufficient macro- and micro-nutrients is an entire subject onto itself and will be covered in articles on fertilizing and mineral deficiencies. Look for these in later newsletters and handouts at the pruning demonstration. Most successful rose growers do the year's first fertilizing at the same time they prune hybrid teas and other modern rose classes.