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the early crops than usual. In March, we planted kale, lettuce, snap peas, and lentils. Last week, a new 25-sq-ft section of tree collards and some red mustard went in. This week we are planting seed lettuce, Jerusalem artichoke, potatoes, garbanzo beans, and cabbage—if it doesn't rain! And the onions and alfalfa are ready to go, as well. We're looking forward to some extra hands!

NEW GOPHER CAGE

Gophers are an on-going challenge for us. Over the last ten years, we have gradually installed six 25-sq-ft, 27-inch-deep gopher cages in two beds. This month, Dan installed another one in a different bed. Fortunately the dry weather made the digging relatively easy for him. The upper 12 inches of soil in the 5-ft-by-5-ft area is dug out and put in a pile; the lower 14 inches of soil is put in a different pile. The gopher cage is put together with 1/2-inch-mesh hardware cloth/aviary wire, with 1x2 boards attached around the top for stability. Making the cage 27 inches deep allows subsequent double-digging when necessary. The soil is replaced, the lower soil first, then the upper. We usually end up with extra soil because of the increased aeration, but as much of that soil as possible should be replaced in the bed, since the soil will sink as it is watered. Dan planted Jerusalem artichoke in the new gopher cage last week! (See photos on page 3)

RUTABAGA

Rutabaga is a less-common crop that we are quite fond of. We plant it in the spring for summer harvesting as well as in the summer for late fall and winter harvesting. It usually does well for us. Last year, we planted four sections in the spring, with yields at the rate of 123.6 to 185.4 lb per 100 sq ft, 1.8 to 2.7 times the U.S. average of 68.0 lb per 100 sq ft. The two sections planted in the summer produced at the rate of 102.0 to 129.4 lb per 100 sq ft, 1.5 to 1.9 times the U.S. average. The variety we are planting is Mary, originally from Peters Seed and Research but now from our own seed. It is tasty both raw and cooked.

February snow on the Upper Knoll

PARSNIPS

Over the years, we have tried different varieties of parsnips. We have found the varieties with longer roots somewhat difficult to dig out in the winter when the soil is wet and heavy; the shorter, fatter ones come out more easily. Our favorite variety was originally sold as White King. We were unable to find it in any of last year's seed catalogs, but we found out that it is also called White Gem. Thompson and Morgan very kindly helped us get some seed from England. We grew it last summer and chose some of the best roots to replant for seed. In spite of the fact that it is shorter, it has produced the best yields for us, at an average rate of 95.7 lb per 100 sq ft and a range of 122.3 to 49.4 lb per 100 sq ft. The second best variety is The Student, with an average rate of 81.8 lb per 100 sq ft and a range of 133.7 to 29.3 lb per 100 sq ft. We have planted parsnips in both spring and summer, like rutabaga; similarly, the spring planting is more productive than the fall planting. One disadvantage of parsnips is that the seed is very short-lived; for good germination, it should be grown out every year.

SOIL FOODWEB SOIL TESTING

Every fall, we take soil samples from several beds and areas in the garden for testing at Timberleaf Soil Testing (www.timberleafsoiltesting.com). Timberleaf tests mainly for the chemical components of the soil: major and trace minerals. We have also been sending soil samples to Soil Foodweb (www.soilfoodweb.com www.oregonfoodweb.com), "a laboratory measuring the life in your soil" (in their words). While it is important to have the right balance of nutrients in the soil for optimal plant growth, it is, in fact, the beneficial soil microorganisms in the right balance that help the plants obtain the nutrients from the soil, as well as protecting plants from pathogens, breaking down harmful compounds, and improving soil structure. These organisms constitute the soil food web.

A Soil Foodweb analysis measures the active bacterial biomass, the total bacterial biomass, the active fungal biomass, the total fungal biomass and the relationship among them. Protozoa (flagellate

amoebae, ciliates) consume bacteria, thereby releasing nutrients. The analysis estimates their population in the soil as an indication of internal nitrogen cycling and may indicate anaerobic conditions that need to be addressed. Population diversity is as important as numbers.

We have been testing the soil in the One-Bed Unit ... The active and total bacterial biomass numbers have been designated as "excellent"; the active and total fungal biomass numbers have been improving and were both "excellent" ... Our numbers for the different protozoa are "amazingly good", in the consultant's evaluation—over three million amoebae in one gram of our soil! We have just sent another sample of soil ... to see how the populations of spring microbes differ from those in the fall ... It is exciting to be gaining these insights!

We have been testing the soil in the One-Bed Unit on the Upper Knoll and are gradually coming to understand what the Soil Foodweb numbers are telling us about our soil. The active and total bacterial biomass numbers have been designated as "excellent"; the active and total fungal biomass numbers have been improving and were both "excellent" in the last analysis done in Fall 2006. The ratios—total fungal: total bacterial, active:total fungal, active: total bacterial, and active fungal:active bacterial—have been mostly categorized as "low". The Soil Foodweb consultant who discussed our Fall 2006 results with us explained that these categories will need to be re-evaluated and that we should not worry about them for now. Our numbers for the different protozoa are "amazingly good", in the consultant's evaluation—over

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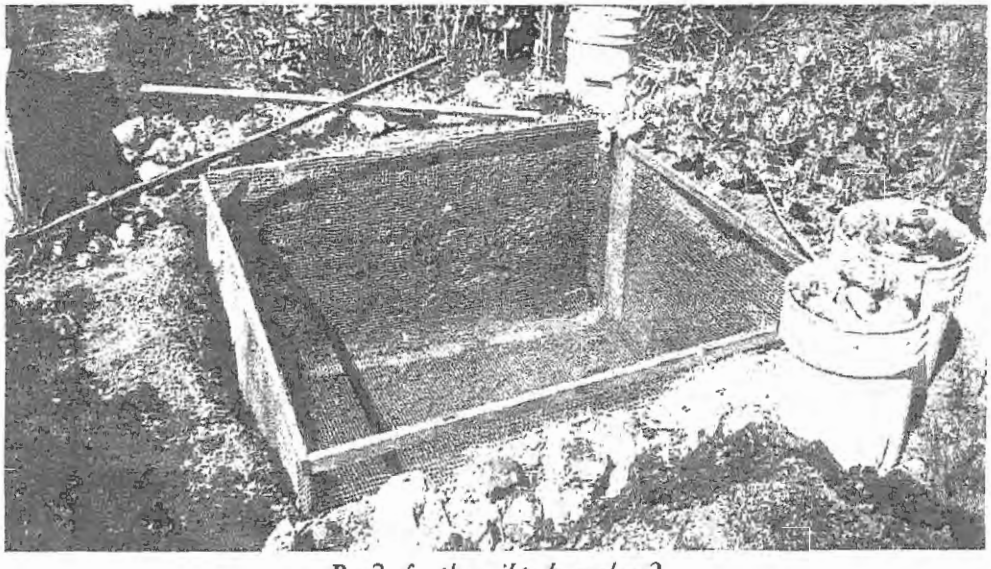
– INSTALLING A GOPHER CAGE –

Dan digging out the lower 12 inches of soil for the new gopher cage

The new gopher cage about to be installed



Ready for the soil to be replaced