A Solar Solution

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Soil solarization is an efficient and organic way to disinfect the soil of new or re-worked daffodil beds. This process kills most harmful fungi (including fusarium), bacteria, pests and weed seeds. It also creates a more productive soil and adds beneficial organisms, without killing earthworms.

Soil solarization is a technique using sheets of clear plastic, moisture, and the sun. When you cover the soil with plastic, it acts like a greenhouse---the temperature rises. Gradually the soil will be pasteurized, or heated to a temperature hot enough to kill harmful soil organisms.

Solarization works on any soil that gets full sun most of the day. It works best on north-south level beds wider than 24", and works more quickly in hot climates.

What I do in my Zone 6B-7A garden is this: immediately after digging a daffodil bed, I rake it level, spread my soil amendments on it as evenly as I can, including fertilizer, if any, and then have it rototilled many times, until all the material is well mixed. I then rake it level, water to saturation, and cover immediately. The bed sits under plastic the entire summer and fall, until I am ready to plant. I do not add anything at planting time.

The length of time for effective use of solarization depends on your climate. If your summers frequently top 90F, four weeks will be enough. If the summers more likely average 80F, plan for at least six weeks. If the summer's average high is 70F, you will need 8 weeks or more. All climates require more time in cloudy summers. The covering can be left on longer for deeper penetration. Begin the process by mid-July to have effective results.

How to prepare for solarization? Wet the soil uniformly to a depth of 12". Moist soil does the best job of conducting heat. Dig a shallow trench all around the bed, in which to bury the edges of the plastic covering.

Cover the bed with 4 mil thick clear plastic that contains UV inhibitors, stretching it for maximum contact with the surface. Do NOT use black plastic or heavier clear plastic. 4 mil is thin enough to transmit more heat but thick enough to last, and will not tear easily. It can be re-used.

Put the edges of plastic into the trench and cover tightly with the dug-out soil. Do not use boards or stones – these do not give a tight enough seal. If the plastic becomes torn, mend with tape to prevent heat loss. Be sure to cut the plastic large enough to allow for the trench and some overlap beyond it.

Some weed seeds may germinate but will grow weakly and probably will not produce seed. If they push up the plastic, mash them flat with the back of a shovel and re-stretch the plastic tightly.

For those of you who must plant late because of very warm autumns, it will do no harm to leave the plastic on until planting time. In addition to preventing weeds that germinate in late fall, this keeps animals from digging into the fresh soil, and burying acorns.