

Coping with Salt Water Flooding

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Time of year matters. In fall and winter floods, dormant plants will probably sustain less damage than those flooded during the growing season. Salt water flooding pulls water out of plant roots. If enough roots dry severely enough, the plant can die. Root damage on surviving plants can make them less drought-tolerant in coming years, simply because the plants have fewer living roots with which to take up water.

The chlorine in salt water gets taken up into the plant and carried along with the transpiration stream. It tends to pile up at the edges of leaves and tips of twigs, resulting in edge and tip burn on leaves and dead growing tips on twigs.

The longer the water stands around the roots, the more desiccation and the worse the damage is likely to be. The salt can be rinsed out of the soil with repeated irrigation with fresh water. This is best done immediately after the flood recedes, but should be done as soon as possible.

The sodium in salt water also damages soil structure, destroying soil aggregates and impairing the function of the soil. This effect is less of a problem in sandy soil, because sand doesn't have much structure to start with, but it can be significant to long-term plant health in loamy or clayey soils. Add gypsum to improve soil structure.

Gypsum (calcium sulfate, CaSO_4) will also help move salt out of the soil because the calcium replaces the sodium on soil particles. Gypsum works best if it is incorporated into the soil, followed by irrigation to help leach the sodium out of the soil. In sandy soil, use 50 lb. gypsum per 1000 square feet. If the gypsum is spread on the surface, (as on an existing lawn or shrub border) it should be applied in smaller repeated amounts, followed by watering-in to carry the gypsum into the soil. Till in organic matter such as leaf compost along with gypsum before replanting. The organic matter will help restore soil structure and will act as additional storage for salts in the soil. Leaf compost is available from the county recycling yards and many municipal yards. See <http://www.co.ocean.nj.us/SolidWaste/> or call your municipal clerk.

Do not fertilize. Fertilizers are salts, and will therefore add to the salt load in the soil. Wait to see how the plant grows, and fertilize early in the growing season, if necessary, expect dormant plants to show less damage than those that are actively growing. Wait until you can clearly tell what's dead before deciding to remove plants or prune out dead wood. If the plant does survive, don't over-prune. The plant will need all the leaves it can grow to produce food to recover from the damage.

Lawn grasses are fairly salt tolerant and may survive with little damage. Rinse mud and debris off the lawn and irrigate to flush the soil. In flooded areas to be replanted, it will be useful to know the salt level in the soil. The Rutgers Soil Lab can test soil for soluble salts. Testing can be done close to the planting season, because rain and irrigation will rinse some of the salt out of the soil.

The soluble salts test costs \$10. If you buy the basic soil test kit in the RCE office for \$20, you can request the soluble salts test under "other" on the soil test questionnaire and pay the \$10 directly to the soil lab. You can also download directions and forms from the website, <http://njaes.rutgers.edu/soiltestinglab/>

The soil lab website has an information sheet about interpretation of salt level results. Under Soil Testing Links on the top right of the page, click on "Interpreting Results...", then on "Interpreting Electrical Conductivity for Soluble Salts in Soil."