RUTGERS
New Jersey Agricultural Experiment Station

Cooperative Extension of Ocean County
Extension Center
1623 Whitesville Road
Toms River, NJ 08755-1199

njaes.rutgers.edu/extension
732-349-1227 4-H
732-349-1246 Agriculture
732-349-1247 FCHS
732-349-1247 SNAP-Ed
732-349-1152 Fisheries/Aquaculture
732-349-1245 Master Gardeners
732-505-3671 Resource Management
732-349-1210 Water Quality/Recreation
732-505-8941 Fax

Coping with Salt Water Flooding

Written by: Charlene H. Costaris, Horticulturist Consultant
Rutgers Cooperative Extension of Ocean County
November, 2012

Superstorm Sandy flooded plants as well as houses. Now those trees and shrubs look burned and dead. Pull the plants out? Cut them back? Put something on the soil?

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. Irrigate survivors regularly during coming summer dry spells.

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. Do not spread lime. Garden lime is calcium carbonate, $CaCO_3$. Lime will change the acidity level of the soil, which may not be a good thing, but gypsum does not affect the acidity of the soil.

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.

In areas to be replanted, till in organic matter such as leaf compost along with gypsum. 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, so they will add to the salt load in the soil. Wait to see how the plant grows, and fertilize as needed early in the growing season.

If there's good news, it's that the flooding took place after most plants had gone dormant for winter. We may see less damage than we would have if plants were actively growing. Wait until spring, when 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 over the winter.

The soluble salts test costs $10. You can buy the basic soil test kit at the Rutgers NJAES Cooperative Extension office, 1623 Whitesville Road in Toms River. The soil test kit costs $20, and 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 Rutgers 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."