

Deicing Materials Can Harm Plants

Over the years the amount of salt and related deicing materials used for roads and walks has increased. For example, heavily traveled highways receive 40 to 80 tons of salt per lane mile per year during heavy snow seasons.

Excessive salt amounts may injure plants. Salt may accumulate in the soil near the root system. Salt harms plant's root systems even when the ground is frozen. This happens when salt-laden snow and ice are moved from walks, drives and streets onto

lawns and landscape beds. Rock salt absorbs much of the water that would normally be available to roots. Even when soil moisture is adequate, large amounts of salt can cause a drought-like condition in the soil.

Overall, plants vary greatly in their tolerance to high concentrations of salts. Shrubs that are sensitive to high salts in the soil include roses, hollies, cotoneaster, podocarpus, photinia, and viburnum. Moderately tolerant shrubs include pivet, juniper, pyracantha,

boxwood and taxus. Eynonymus has good tolerance to salt.

Trees that are sensitive to high calcium chloride salts include the American elm, basswood, red and white pine, hemlock, red and sugar maples and shagbark hickory. Moderately tolerant trees include Austrian and pitch pines, birch, red and white oak, black cherry, white ash and poplar.

Trees with good tolerance include Russian olive, thornless common honey locust, Japanese black pine and black locust.

Airborne salt may also become a problem. When salt is deposited on plant parts, buds and small twigs of some species can lose their cold hardness, and they are more likely to suffer winter injury. Evergreen plants are particular susceptible.

PREVENTION

The best way to prevent salt injury to plants is to avoid their use around landscape plants. When possible, use calcium chloride to melt ice. It costs more than common rock salt, but it is far less toxic. When salting areas near shrubbery and trees use up to one half pound of rock salt or calcium chloride per square yard of surface. Don't be tempted to apply more unless it is actually needed. Also, allow time for the material

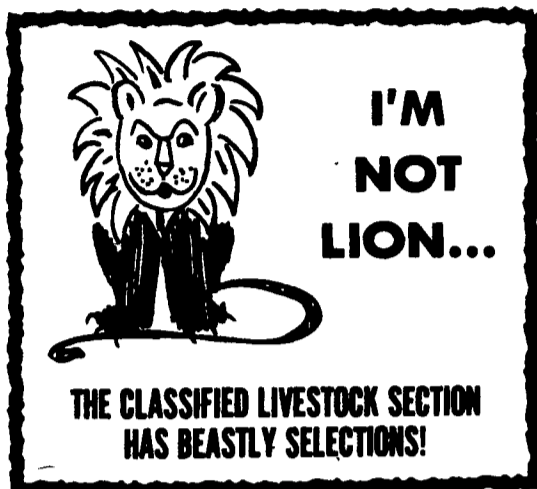
to work properly.

DEICING ALTERNATIVES
Gypsum, or calcium sulfate may be used in conjunction with sodium chloride to reduce plant injury. Gypsum also helps relieve soil compaction caused by salt. Fertilizers can also melt ice and snow. A large amount of fertilizer is needed to achieve the same affect as calcium chloride. For example, urea fertilizer will melt ice and snow when surface temperatures are above 11 degrees Fahrenheit. Urea can be applied at rates of 10 pounds per 100 square feet. This will also supply about 4.5 pound of nitrogen per each 100 square feet area.

Complete fertilizers also provide melting and traction materials. The nitrogen and potash in fertilizers serve as melting agents, and the phosphate, generally in the

form of superphosphate, will provide traction. Two to three pounds per 100 square feet will help control ice and snow accumulation.

Sand, cinders, sawdust, ash or lights gravel can all improve safety for pedestrians and vehicles. Combine these materials with a melting chemical for faster melting. For example, sawdust can be combined with calcium chloride for fairly-lasting sidewalk control of ice and snow. Over the years, Penn State has tried a mixture of one part calcium chloride and three parts sawdust. It can be hand-mixed when needed and applied with a small shovel. The absorbent sawdust holds the calcium chloride while it provides traction. The mixture remains on the surface well and can be swept in the morning. Rain also helps to disperse and flush sodium in the soil



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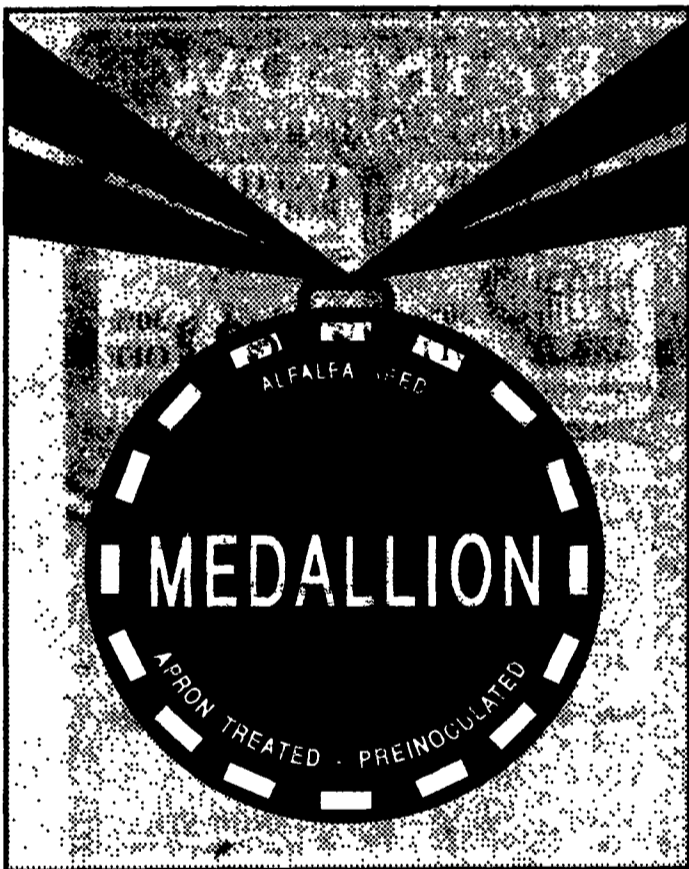
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