We've finally had our first real snow and as it melts, a slick layer of ice. There are many products on the market for ice removal, but no two products are the same. Ice melts vary widely in effectiveness and while they can be helpful for safety, they can also be harmful to landscapes, homes and animals.

The most common types of de-icing products are chloride based. The efficacy of chloride-based products depend on temperature. Although the chloride makes these the most effective at melting ice, it also makes them potentially toxic to plants and animals, as well as having corrosive properties. The following are chloride-based products for ice removal.

Calcium Chloride: This product works as extremely low temperatures, minus 25 degrees F, and won't harm plants as long as it isn't applied in excessive amounts. As the product combines with water it creates its own heat, which is how it melts the ice. This same process can also create a slippery, slimy surface after the ice melts. It can also be corrosive on metal and concrete.

Sodium Chloride: Also known as rock salt, this is the least expensive product and is often combined with sand. Although most commonly found, it is only effective in temperatures above 12 degrees F. It can be especially harmful to plants, soils, metal and concrete surfaces.

Magnesium Chloride: This salt is effective in temperatures above 5 degrees F and works faster than the other chloride products. Magnesium chloride can be damaging to plants if applied in a high volume but has not been found to be corrosive to metal or concrete.

Potassium Chloride: This salt is the least effective, only working when temperatures are above 20 degrees F and working much slower than other products. Potassium chloride can also be especially harmful to plants (especially when splashed on leaves) and newer concrete surfaces.

With all de-icing products, only use enough to get the job done. Excessive application increases harm to plants, animals and can damage manmade surfaces. Excessive applications also will *not* increase efficacy. You may store your ice melt in a coffee can by the back door, but make no mistake, it is a potentially dangerous chemical. Follow package directions, keep it out of reach from children and pets, and use appropriate caution.

The following non-chloride based products can also be used in ice treatment, but each has their own set of drawbacks.

Calcium Magnesium Acetate: Although this product doesn't contain the potentially toxic chloride, it is only effective in temperatures above 20 degrees F.

Fertilizer: Some homeowners use fertilizer to melt ice, but it is not encouraged. Amounts needed to melt ice are at toxic levels for plants. Fertilizer applied to hard surfaces will also run off into storm drains and is detrimental to the environment.

Wood Chips/Ash/Sand/Bird Seed/Cat Litter/Sunflower Seeds: None of these products melt ice, but they can help to provide traction on slippery surfaces. Ash can raise soil pH, although the likelihood is low if it is not directly applied to lawn and garden areas. Cat litter can have varied results depending on the product. Clumping litter may cause more of a mess than it's worth.

Ice melt damage on plants will show itself in the spring. Poor or stunted growth of plants or grass near driveway or sidewalk edges are likely from high soil salt. Browning evergreens or scorched leaves on shrubs or trees can also be indicators of salt damage. If salt damage is suspected, soak the soil (1 inch of water) 3-4 times in the spring to leach the salt out.

Each method for ice removal has its drawbacks. Whichever product you choose, removing as much snow and ice as possible first is key to success. Adding a de-icer to snow will be much less effective than applying it to the thin layer of ice underneath. Many times, mother nature may do the work for you. Look at the forecast to see if a sunny afternoon is ahead. This is the most effective, least harmful, method of removal, although the timing may not work within your schedule.