



Snow damage to roof at Ill. Lawn.



The heavy snow was too much for this roof at Ruth Lake C.C.

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## THE WATCHFUL SCOTCHMAN'S TIMELY TURF PROBLEMS— POTASSIUM

Much discussion has centered around the use of potassium and the application rates necessary to maintain a strong healthy turf in recent years. Although potassium is one of the three major plant nutrients, of the 16 total essential elements necessary for plant growth and development, it's role in plant growth remains somewhat undefined.

While plant requirements for this element are quite high, second only to nitrogen, in tissue content, soil microorganisms also require considerable amounts of potassium, and compete with the grass for the available potassium. Most turf tissue analyses will show approximately a 3:2 ratio for nitrogen to potassium where adequate levels of potassium are available in the soil. Thus where clipping removal occurs large quantities of potassium can be removed from the soil annually.

Potassium, being quite mobile within the plant tissue, is translocated to the younger meristematic tissue first. As a result, whenever a shortage occurs, the older tissue will be the first to show a deficiency. The deficient symptoms are usually a chlorosis, differing only from iron chlorosis by occurring in the older leaves first as opposed to the younger tissue for iron chlorosis.

Unlike most of the plant nutrients, science has not determined the exact role of potassium in the plant system. However, it is thought to:

1. Aid in disease resistance.
2. Provide winter hardiness.
3. Aid in wear tolerance.
4. Promote growth of meristematic tissue.
5. Adjustment of stomatal movement and water relations.
6. Nitrogen metabolism and synthesis of protein.

Like all plant nutrients a balance must be maintained in the soil system to provide a positive interaction and uptake availability of the nutrient. Although the quantity of potassium found in most mineral soils is often quite high, frequently only small amounts may be in the available form ( $K^+$ ) as compared to the total amount in the soil. A deficiency or an excess quantity can cause an undesirable interaction with other essential nutrients, and can lead to either deficient or phytotoxic levels of other nutrients within the plant. As an example, high levels of  $NH_4^+$  can reduce the uptake of  $K^+$  or where  $NO_3^-$  levels are deficient  $K^+$  uptake will be restricted even though there are sufficient quantities of  $K^+$  in the soil. Also excessive levels of  $K^+$  can inhibit the uptake of calcium, magnesium and manganese.

When applying potassium to raise deficient soil levels, corrective applications of either sulfate of potash or muriate of potash should be made during mid to late fall or early spring when the ground is not frozen to avoid loss through surface runoff, as potash is extremely soluble. Summer applications of potash as a maintenance feeding of a complete fertilizer are recommended to maintain a strong and healthy plant system. It is recommended to have your soil tested before making corrective applications of potash, or any nutrient, so as to avoid excessive levels, and maintain the proper balance between plant nutrients.

**Credit - Turfgrass News**

If you think of giving, but never do; if you think of helping, but never come through; if you think of being encouraging, but grumble, instead; my friend, think not of dying—you're already dead.

**John M. Cline**