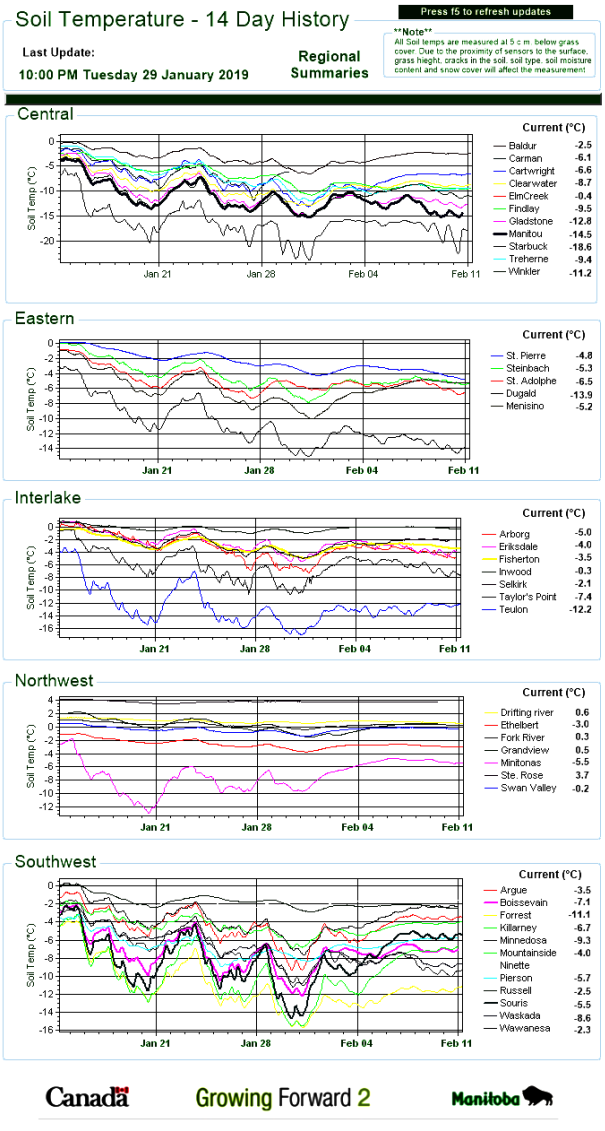
Soil Temperature Update

By John McGregor, MFGA Extension Support

Barely a year goes by that I don't get the question on whether or not my alfalfa stand will survive the winter. The answer is always "maybe". The reason for that is there are a number of factors that go into whether or not your stand has a chance of surviving.

Some but not all of them include:

- Nutrient storage in the root
- Fertility (especially potassium for winter hardiness)
- Age of stand
- Snow cover
- Soil temperature



This past month has been especially cold with temperatures dipping below -30C on quite a few occasions. For alfalfa a soil temperature of -12C is considered to be critical. Below this temperature, water left within the alfalfa taproot and crown cells freezes and forms ice crystals that puncture the cell membranes. When the alfalfa roots thaw, the plants die because water and cell contents leak from the cells. Looking at the most recent soil temperatures we see that for the most part soil temperatures are remaining above that critical temperature (CT).

The major factor that is preventing temperatures from dropping lower is snow cover. Looking at the map below you can see that for most of Manitoba we have 8-16 inches of snow cover that is insulating the ground from these extreme temperatures. If your fields have a good layer of snow they should be at a similar temperature as the Mb. weather stations in your area. One note: if your station is extremely different than

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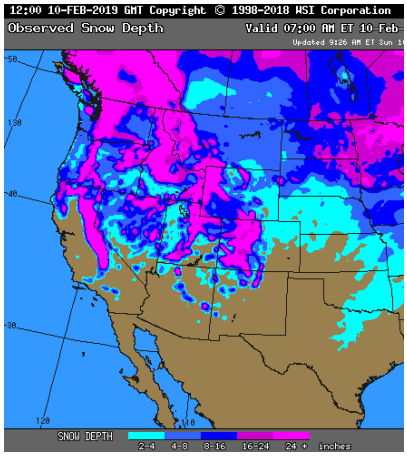

stations in your region it could be due to where it is situated and may not reflect actual field temperatures.

If we can get thru the rest of winter with soil temperatures remaining above the CT, and adequate snow cover continues, the next big hurdle will be smothering from the spring thaw-freeze cycle that we sometimes experience.

For more information on understanding and reducing the risks of winterkill to your alfalfa click on Winterkill Risks.