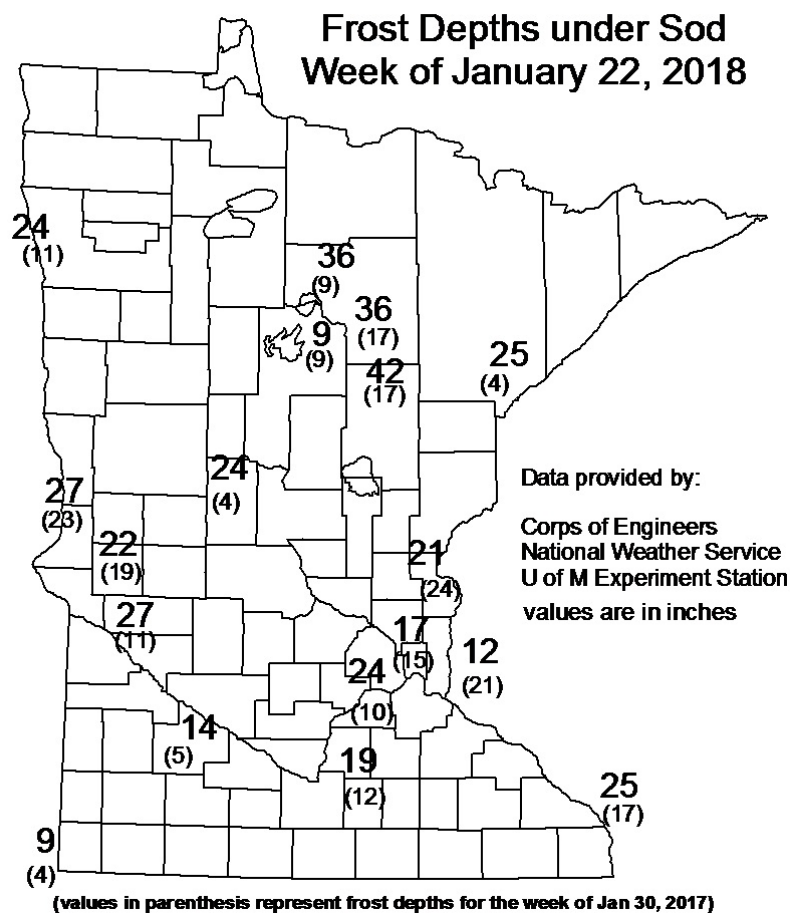


[dnr.state.mn.us](https://www.dnr.state.mn.us)

# Frost Depth in Minnesota for Winter 2018

3 minutes



*Frost Depth in Minnesota for the week of January 22, 2018*

*Courtesy: Minnesota State Climatology Office*

Frost depth varies across the state in January 2018, but is generally deeper than it was last two years.

The map on the right depicts the depth that the ground is frozen under sod across the state. The frost depth is measured by a simple instrument called a frost tube. The liquid freezes in the tube as the ground becomes colder. Frost tubes were installed by the National Weather Service and the US Army Corps of Engineers (USACOE) at various places around the region. Frost depth readings are updated by the USACOE on a weekly basis.

There are also temperature sensors that can be placed in the ground and measure the temperature and this way one can approximate the depth of the frost. The North Dakota Agricultural Weather Network (NDAWN) has sensors along the border with Minnesota. This information can be seen [here](#)

Snow can insulate the ground from the air above it and studies have shown that about four inches of fluffy snow will form an effective layer of insulation. When there is a deep snow pack, there can be little to no frost in the ground. Where the landscape is free of snow, the frost can penetrate much deeper.

Below is a history of Frost Depth Information from a volunteer site in Maplewood, MN just north of St. Paul.

Frost under sod at Maplewood MN 55109

Year	Frost In	Frost Out	Deepest frost
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2000-2001	Nov 22	April 4	29.3 inches

2001-2002	Dec 21	April 12	17.0 inches
2002-2003	Nov 13	April 11	32.3 inches
2003-2004	Dec 2	March 28	29.3 inches
2004-2005	Nov 24	April 10	31.2 inches
2005-2006	Nov 30	April 2	19.5 inches
2006-2007	Nov 29	April 9	30.0 inches
2007-2008	Nov 23	April 18	35.2 inches
2008-2009	Nov 10	April 7	33.8 inches
2009-2010	Dec 4	March 16	10.0 inches
2010-2011	Nov 23	April 2	5.0 inches
2011-2012	Dec 1	March 16	26.0 inches
2012-2013	Nov 24	April 18	32.5 inches*
thawed from Early Dec to Dec 24			
2013-2014	Nov 23	April 12	19.3 inches
2014-2015	Nov 28	April 4	30.5 inches
2015-2016	Dec 19	March 9	9.5 inches
(shortest duration)			
2016-2017	Dec 8	March 29	16.0 inches
2017-2018	Dec 19		17.5 inches (as of
March 5, 2018)			

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Median	Nov 23	April 8	26.5 inches
2000-2001 to 2014-15			

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For more information contact: [climate@umn.edu](mailto:climate@umn.edu)