

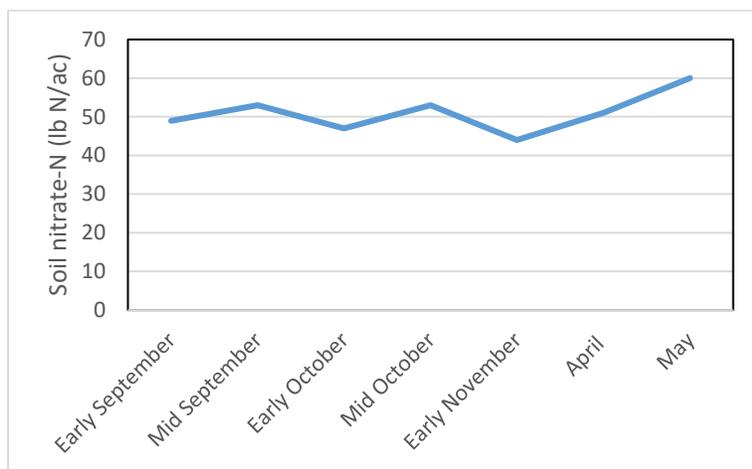
Is it too early for fall soil sampling?

Currently the traditional and most reliable method of measuring available N for the crop is the nitrate soil test. Fall sampling is most common, and to be effective, it should reflect the amount of N available at planting time. Manitoba recommendations have traditionally been to “delay sampling until soils have cooled to 5°C” so that all the N that will mineralize during the fall will be detected. This has historically been in early to mid October.

But earlier fall sampling may be desirable for number of reasons:

- sampling is more likely to be done
- analysis is available for fall fertilizer prescriptions and N application
- sampling before tillage gives more consistent /reliable sample depths
- volunteer crop regrowth is less likely to hide available N from test
- can be used as an audit of the soil’s N supplying ability (after taking into account starting soil N, applied N and N removal)

We evaluated soil sampling times at 8 sites following cereals in Manitoba in 1999-2000, with average levels shown in the figure below. On average, there was little change.



Soil nitrate levels did start to increase rapidly once spring sampling was delayed into May, due to mineralization in warm soils.

There were 2 instances where fall N levels did change from early fall sampling:

- 2” of rain on a sandy soil in late October leached some 20 lb N/ac below the 24” sampling depth
- Aggressive fall tillage (2x) on a high organic matter loam soil, increased soil N by some 25 lb N/ac

So early fall sampling is generally reliable on cereal stubble, but there remain known environmental and management factors that can still influence soil nitrate levels. We might expect to see more N mineralized during the fall following canola or peas crops.

Reference:

Heard, J and J. Lee. 2001 The Influence of Sampling Time on Fall Soil Nitrate Levels.
Manitoba Agronomist Conf.

http://www.umanitoba.ca/faculties/afs/MAC_proceedings/2001/pdf/heard4.pdf