What is this research about?

- Wheat straw could replace coal in Ontario combustion processes, but high potassium content in wheat residue is problematic for soil quality and combustion processes.
- This research aims to characterize potassium concentration variability across Ontario and determine if delaying wheat collection improves residue combustion quality.

What did the researchers do?

- Collected 4 wheat and soil samples from 20 counties in Ontario in 2009 & 2010 (Figure 1).
- To test potassium concentration differences between sites, the 4 soil and plant samples from sites 1-15 were combined. Samples from sites 16-20 remained separate to test within-field potassium variability.
- Half of all samples placed back in field for 1 month and were exposed to a minimum of 75 mm of rain.
- Straw and soil was analyzed for potassium content.

What did the researchers find?

- Wheat concentration varied more across fields than between sections of one field.
- Soil potassium levels were not correlated with plant tissue potassium levels.
- Wheat potassium levels decreased by 74.6% in 2009 and 52.5% in 2010 as a result of leaching during the weathering period.

What you need to know

- Wheat straw collection should change with field-to-field or within field combustion quality variation.
- Soil potassium levels are not an accurate indicator of plant potassium levels.
- Delaying straw collection by 1 month will reduce the occurrence of potassium deposits in combustion chambers and the need to apply fertilizer to replace potassium removed in the straw.

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To know more

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