

Legacy Phosphorus Management in Agricultural Lands and Potential for Environmental Losses in Fraser Valley of British Columbia



Speaker: Sylvia Nyamaizi

Abstract: Phosphorus is the second essential nutrient for plant growth. In BC, mineral and manure phosphorus applications in excess of plant needs to support a diverse and intensive peri-urban agriculture have contributed to legacy phosphorus accumulation in the soil. A provincial survey recently showed that 89% of fields have legacy soil phosphorus in the excess class. This largely presents a great potential of pollution to water resources. Therefore, the pressing need is to identify a better match of phosphorus applications to different cropping system needs to maintain or drawdown excess soil test phosphorus and reduce phosphorus losses to water resources. Firstly, silage corn as a major cropping system across the Fraser valley will be considered in this research and later on expanded to others. The main research objective is to improve understanding of the mechanisms controlling phosphorus cycling in high phosphorus testing soils in order to reduce the risk of phosphorus losses to water sources while building resilient cropping systems in BC. Various rates of phosphorus inputs (starter and manure phosphorus) and their effects on phosphorus risk indicators on farms and direct analysis in the field and laboratories experiments will be tested. The main research output will be a simple agri-environmental phosphorus saturation index and environmental P risk classifications for reference. Besides significant improvement in phosphorus fertilizer use efficiency through detection of risks to water contamination in BC, the production costs for farmers will also be reduced.

Bio: Sylvia Nyamaizi is a Graduate Research Assistant pursuing her PhD in Soil Science at the University of British Columbia in collaboration with Agriculture and Agri-Food Canada (AAFC) at Agassiz Research and Development Centre (ARDC). Sylvia's main research goal is to provide appropriate recommendations in phosphorus fertilizer usage as well as provide insights to limit legacy phosphorus build up and pollution in the Lower Mainland of British Columbia. More information can be found at <http://sal-lab.landfood.ubc.ca/people/sylvia-nyamaizi/>