Phosphorus Availability

Rachael, Ruth, and Jeff discussed technical issues with screen sharing during a virtual meeting. They tried to resolve the problem by adjusting permissions and sharing a PowerPoint presentation. Ruth decided to email the presentation to Jeff to avoid further technical difficulties. Jeff mentioned feeling pressed for time due to upcoming work commitments.

Soil Phosphorus Management Presentation

Rachael and Ruth discussed their work with Jersey Land Organics, focusing on managing affluent waste and soil phosphorus levels. They reviewed the structure of an upcoming presentation on soil phosphorus management, with Rachael explaining her 4-minute introduction and roundtable format. Jeff suggested swapping some slides to include regional soil test data, and they discussed the need to emphasize soil testing and phosphorus management to farmers who may be nitrogen-focused.

Phosphorus Management in Farming

The meeting focused on phosphorus availability in farming, with Ruth McDougal and Jeff Nimmo providing expertise. Farmers shared their experiences with soil testing and phosphorus management, including Angela Weir from Crooked Horn Farm, Thalia Vanderholt from Kootenay Corner Gardens, and others. Jeff explained the challenges of phosphorus management, such as its limited availability to plants and the binding of phosphorus by soil minerals and clay. He emphasized that phosphorus does not move much in the soil, which affects its application and effectiveness. The discussion also touched on the environmental implications of excess phosphorus in soil, particularly its impact on watercourses.

Soil Phosphorus Management Challenges

Jeff explained the complex processes of phosphorus cycling in soil, highlighting the challenges in managing phosphorus availability for crops. He emphasized the importance of soil testing to determine phosphorus levels and the need for amendments, especially in low-input organic systems. Jeff also discussed the influence of pH on phosphorus availability and the importance of crop rotation and cover crops in accessing different soil layers for phosphorus. He concluded by explaining the limitations of soil test measurements for phosphorus and the variations between different testing methods.

Soil Phosphorus Testing and Management

Ruth discussed soil phosphorus testing methods and the importance of understanding soil test results, particularly the bicarbonate and Bray P1 methods. She explained how to convert PPMs to pounds per acre

and emphasized that moderate phosphorus levels in soil can support crop demands for several years. Ruth also shared her experience with managing soil phosphorus in the North Okanagan, highlighting the use of manure and compost as effective long-term fertility builders. She compared different types of manure and compost, noting that chicken manure and biosolids are particularly high in phosphorus, while yard waste compost can vary in nutrient content. Ruth recommended getting a manure or compost analysis to understand nutrient content and availability, and she suggested A&L Labs Ontario or Element in Surrey/Edmonton as reliable testing options.

Phosphorus and Phosphate in Fertilizers

Ruth explained the difference between phosphorus and phosphate in fertilizers, noting that phosphate values are typically inflated and must be converted to actual phosphorus by dividing by 0.43. She discussed the availability of phosphorus in manures and composts, which ranges from 25-50% in the year of application, and highlighted bone meal and rock phosphate as organic phosphorus sources, though rock phosphate has very low availability. Jeff and Ruth clarified that total phosphorus values need to be adjusted for availability, and Rachael asked about the conversion of phosphate values to phosphorus, which Ruth confirmed involves dividing by 0.43 to get the actual phosphorus content.

Phosphorus and Phosphate in Fertilizers

Ruth and Rachael discussed the importance of understanding the difference between phosphorus and phosphate levels in fertilizers and soil, emphasizing that not all nitrogen and phosphorus from fertilizers are immediately available to plants. Ruth explained that phosphorus is a nutrient that remains in the soil for a long time, and high levels can indicate past manuring or fertilizing practices. She also highlighted the value of consistent soil testing using the same lab to enable year-over-year comparisons. The discussion touched on the role of feed in introducing phosphorus to farms, with Ruth noting that 70-80% of phosphorus in livestock feed ends up in manure, effectively serving as a natural fertilizer.

Soil Phosphorus Management Strategies

The group discussed soil phosphorus management, with Ruth explaining that phosphorus is stable and not easily leachable, especially in interior BC's low rainfall conditions. Jeff presented soil test data from various farms showing wide variations in phosphorus levels, with some locations having naturally high levels due to historical animal grazing and intensive animal-based fertilizer use. Ruth shared her experience that building soil phosphorus to 35-40 ppm through organic amendments like manure, compost, and crop residues over 3-4 years is effective, particularly in areas with low initial phosphorus levels.

Soil Phosphorus Management and Testing

Ruth explained that high soil phosphorus levels are not typically a concern for crop growth, but rather for potential loss to surface water. She emphasized the importance of consistent soil testing over time to track trends, as lab results can vary significantly due to different testing methods and sample handling. Ruth also discussed the role of earthworms in moving phosphorus down to the root zone and the impact of shallow cultivation on soil phosphorus distribution. The group briefly touched on the use of compost in organic farming, with Ruth noting that yard and food waste composts are generally acceptable for organic operations, though specific requirements may vary by certifying body.

Phosphorus Availability and Soil Testing

The group discussed phosphorus availability in soil and its application through rock phosphate. Ruth explained that only 2-3% of applied rock phosphate is plant available in the first year, while other sources can provide 25-50% availability. They discussed soil pH management, with Ruth noting that a pH range of 6.5 to 7.5 is optimal for phosphorus availability. The conversation concluded with guidance on lab submissions, where Ruth recommended using Element Lab in Surrey for soil testing, with a tip that sending both soil and compost samples (2:1 ratio) would allow A&L Ontario to analyze the compost sample at no additional cost.