

Soil, tissue, and water testing for greenhouse and indoor production

In order to optimize returns from greenhouse and indoor crop production, it is important to have a good understanding of the most fundamental aspects of your production system.

- A. Soil testing, through standard “field” soil analysis (chemical solution extraction) for those producers who grow directly in the soil or through water extraction analysis (e.g. Saturated Media Extract - SME, Leachate Pour-thru, and 1:2 dilution) will allow greenhouse operators to fine-tune their fertilization program or trouble-shoot when crop nutrition issues appear. The water extraction analysis is particularly useful to producers who prepare their own grow mixes, use soil-less grow mixes, want to test their media during the season or those involved in hydroponic production. Water extractions are used to assess the amount of soluble salts (electric conductivity), the pH and the nutrients readily available to the crop. Producers can conduct they own water extraction analysis through the 1:2 dilution approach if they have their own pH or Electric Conductivity meters (handheld pen style tools).
- B. Soil amendment and organic fertilizers can be analysed to determine their nutritional value. Composts and nitrogen rich organic fertilizers are often analysed in order to develop and prepare grow mixes or specialized fertilization plans.
- C. Plant and tissue testing provide the nutrient levels within the crop at a given time. It can confirm that the crop has sufficient levels of nutrients and can also be used for troubleshooting crop nutrition issues. Tissue sampling protocols are very specific to the crop grown; therefore, producers must make sure they are using the correct protocol (e.g. parts of a crop, maturity of the crop, time of day, etc). Furthermore, each laboratory may have slightly different sampling and handling protocols.
- D. Water testing is used to assess the water quality before investments are committed towards greenhouse and indoor production. In hydroponic production, water analysis is used to confirm the quality of the water and the chemical characteristics of the fertilization solutions. Water testing is used to determine the water pH, alkalinity, hardness, soluble salts/electric conductivity, several nutrients and salts.

The following laboratories are the most commonly used by New Brunswick producers:

PEI Analytical Laboratories [PEI Analytical Laboratories \(PEIAL\) | Government of Prince Edward Island](#)

Berger Analytical Services [Technical Services - Berger - EN](#)

Nova Scotia Lab Services [Animal and Plant Lab | novascotia.ca](#)

A&L Canada Laboratories [Welcome to A&L Canada \(alcanada.com\)](#)

Other resources [Soil Testing | Center for Agriculture, Food, and the Environment \(umass.edu\)](#)