Asparagus Tissue Testing

FACT SHEET

Fusarium

Overextending Harvest

Insect and disease control

Weed competition
Soil

Mechanical Damage

Poor drainage

pH

Drought

Injury from Herbicide, Fertilizer or

amendments
Low fertility

Soil compaction

Optimum plant nutrition of asparagus is essential for good spear quality and yields.

Nitrogen has the most influence on the growth and yield of asparagus. Most early literature and research studies on the total amount of nitrogen needed by asparagus indicates that asparagus needed very little total fertilizer, including nitrogen.

Since 1980 recent studies by Gardner and Roth, University of Arizona Researchers stationed in Yuma, show that 300 - 350 units of actual nitrogen annually produced maximum yields and good spear quality. Rates of nitrogen over 350 - 500 pounds did not produce better yields. Their tests were conducted on well drained soils under sprinkler irrigation. Heavier types of soils may require less annual application but this should be determined by tissue analysis.

The availability of nitrogen to the plant is most critical during the two periods of major flush of fern growth; the spring months following the cutting period and the fall months previous to fern removal.

The best method of nitrogen application is split 3 - 4 times in equal amounts throughout the season and a heavy application prior to cutting.

Analysis of the total nitrogen content of recently mature fern tissue sampled between June through September is a good indicator of the nitrogen status of the crop.

The recently matured fern tissue in the top twelve inches of new fern growth should be sampled. Remove the top 12 inches of fern and discard the top 4 inches of immature growth. The tissue to be analyzed consists of the leaflets or "needles" only. After the samples are dried, the needles can be shaken from the stems.

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Nitrogen Application

(new hybrids requirement)

* 300 - 350 pounds per acre
* Nitrogen demand critical at two times in season
* Nitrogen levels must be monitored
* Nitrogen application must be split

Tissue Nitrogen levels in season of mature fern

June	**3.5%**
July	**2.6%**
August	**3.0%**
September	**3.0%**

Monitor Nutrient status Mid June through to end of September. Understand the nitrogen demand and maintain N status during times of Maximum growth and translocation of Carbohydrates to the crown.

Tissue Testing Guidelines

Sample from the normal appearing plants to monitor nutrient status. Fro diagnostic analysis chose fern from the abnormal plants. Sample 10 - 15 ferns per sample, sample should be taken from the most recently matured fern tissue.

Remove the top 12 inches of the fern and discard the top 4 inches. Dry the tissue or pack in paper bag and courier over night to the lab.

Yield Potential

2 - 40 spears per crown can be produced. An average planting density of 33,200 crowns per hectare. If the average yield is 2000 kg/ha this would be an average of 132,000 spears per ha. This is an average of only 4 spears per crown. This indicates that in Ontario there is much more yield potential.