

Technical Note

Potato Peel (Calcium) Sampling Protocol

1. Overview

Calcium (Ca) is a critical nutrient for potato tuber quality and storage. Maintaining suitable levels of **Ca in the potato peel** will have direct benefits on:

- (1) Stress Tolerance- plants with higher levels of **Ca in the potato peel** show less stress during heat, cold or windy conditions;
- (2) Skin Finish- Skin blemishes such as powdery scab and black scurf are significantly lowered when a sufficient level of **Ca in the potato peel** are maintained;
- (3) Disease Tolerance- Ca is vital in plant cell strength and subsequently increases the tolerance of plants to disease; and
- (4) Storage Qualities- potato tubers can be stored for longer periods of time with less bruising when there are higher levels of **Ca in the potato peel**.

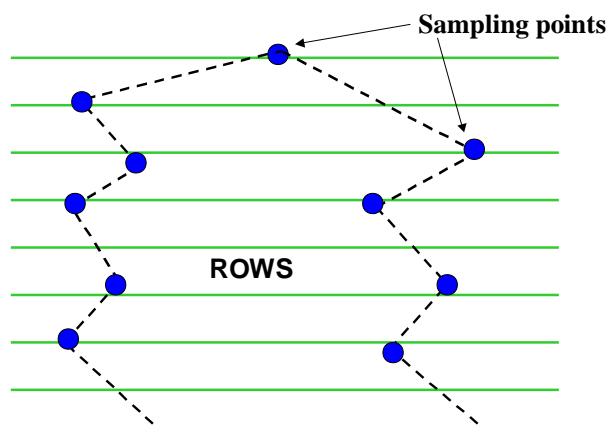
These quality issues affect the storage potential and can limit the profitability of production.

Phosyn Analytical has access to the specialised method for determining **Ca in potato peel**. By using this specialised method, **Phosyn Analytical** can determine the **Ca in potato peel** and by comparing it to the critical value relating to the quality issues discussed above, allows you to benchmark the quality of your potato crop. An example report follows:

| CUSTOMER | | | DISTRIBUTOR | |
|---------------|-----------------|-------------|------------------|-------------|
| POTATO GROWER | | | AUSTRALIA | |
| Order Number | Date of Receipt | Crop | Sample Reference | Sample Type |
| BXYZ | 01/11/03 | POTATO PEEL | PADDOCK 12 | PEEL |
| Analysis | Result | Guideline | Interpretation | |
| Calcium | 0.03 % | 0.15 % | Very Low | |

2. Collecting Potato Tubers for Calcium Peel Analysis

In designing your sampling plan try to select tubers of the same variety along the sampling path whilst excluding diseased or otherwise abnormal tubers. Do not sample fields within 3-5 days after being sprayed with pesticides or foliar nutrients. A typical random sampling pattern is shown below:



3. Sampling Instructions

(a) For field sampled tubers

Send tubers as early as possible with a target weight of between 30-50g per tuber though this will vary with variety. For each individual sample, select 20 plants along the sampling path and take two tubers per plant to give a total of around 40 tubers. Remove any soil particulates by washing in water and blot dry with a paper towel. Place in a Phosyn sample bag, label the bag and submit these for chemical analysis. The contents of the bag represent a single sample.

Each individual sample should contain around 40 tubers with a weight range of between 30-50g per tuber. This will reduce proportionately to a maximum of 20 for fully mature tubers.

(b) For other investigative applications (e.g. breakdown in storage etc)

The laboratory requires at least 100g fresh weight for each individual sample. This can be in the form of single or multiple tubers.

Note –The sampling and analysis of individual tubers may lead to some variability, as they may not be fully representative of the collection being investigated.

For all applications, the characterisation and measurement of elemental levels of N, S, P, K, Ca, Mg, Cu, Zn, Mn, Fe, B & Na can be determined and reported on a dry weight basis using established laboratory techniques. Please contact the laboratory for further details.

For further information contact Phosyn Analytical or your local agronomist or consultant.

Contact details:

Phosyn Analytical

PO Box 2594
Burleigh MDC
QLD 4220

Tel 07 5568 8700

Fax 07 5522 0720

Email phosynanalytical@phosyn.com