

# Quick Reference Card



**WESTERN AG**  
INNOVATIONS

## Use Procedures for PRS™-probes

Please refer to the *Plant Root Simulator™ Operations Manual*, our website or contact a Western Ag R&D Coordinator for more detailed explanations of these procedures at: <http://www.westernag.ca/innov/contact>



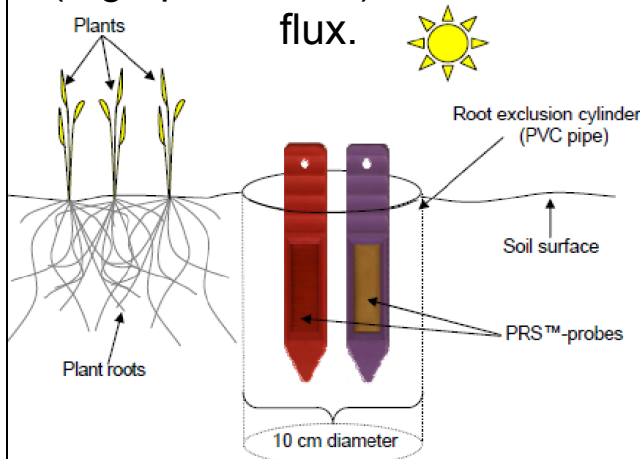
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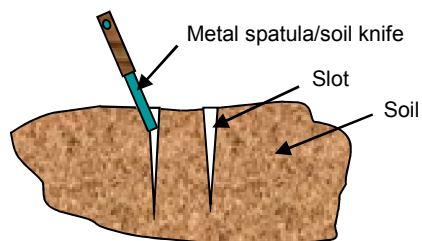
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When using PRS™-probes, measure soil moisture and temperature – keep track of burial time, and consider the effects of other competing sinks (e.g., plant roots) on nutrient flux.



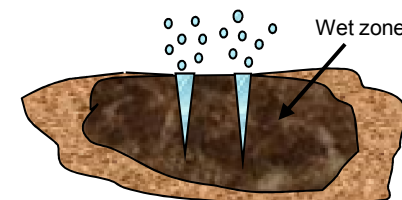
Nutrient Flux =  $fn(\text{Temp, Moisture, Time, Other Competing Sinks})$

### 1) Make slot in soil:



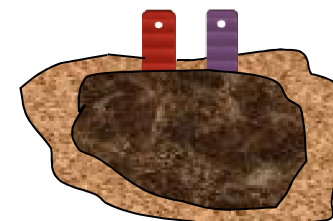
Depending on the soil type and conditions, PRS™-probes can be directly inserted into the soil; however, if the soil is heavy, dry, hard, and/or rocky, then preparing a hole prior to insertion is recommended to avoid breaking the PRS™-probe.

### 2) Add de-ionized water\*:



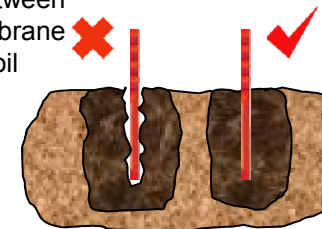
\* Moisten soil adjacent to the PRS™-probes to field capacity using water bottle or backpack sprayer. *Note: Only required for short-term (i.e., 1 – 24 hours) burials, otherwise skip to step #3.*

### 3) Insert PRS™-probes:

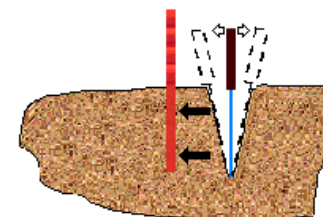


### 4) Ensure good contact with soil:

Very poor contact between resin membrane and soil



Complete contact between resin membrane and soil



Use either a spade or soil knife and apply a 'back-cut' to ensure good contact between the PRS™-probe and soil.

## 5) Leave PRS™-probes in soil for pre-determined length of time:

See PRS™ Operations Manual or our website for differences between short-term vs. long-term burials.

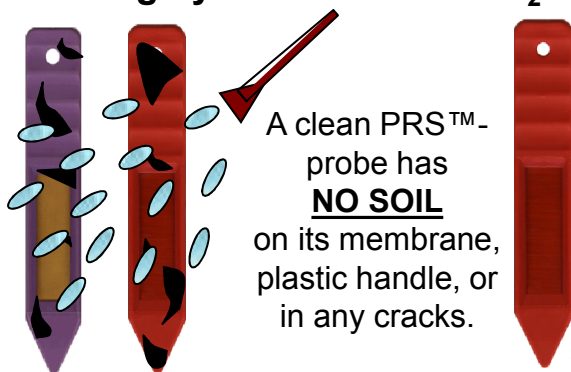
Short-term burials can be applied in lab incubations or in high nutrient supply ecosystems.



Long-term burials are useful in more tightly cycled, natural ecosystems.



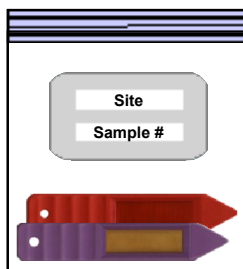
## 6) Remove from soil and wash thoroughly with de-ionized H<sub>2</sub>O:



A clean PRS™-probe has **NO SOIL** on its membrane, plastic handle, or in any cracks.

See our website for examples of 'clean' vs. 'dirty' PRS™-probes.

## 7) Place in zipseal bag:



- Shake off excess water from PRS™-probes before placing in bag.
- Combine the anion and cation PRS™-probes that are analyzed as one sample.

**Label samples consecutive**  
(e.g., 1 - 60)

## 8) Re-wash PRS™-probes in lab if NOT COMPLETELY CLEAN.

There should be NO SOIL in the bag or on the PRS™-probe.

Transfer to a clean bag if necessary.

## 9) PRS™-probes storage:

- Keep in a cool, moist state prior to use (refrigerate where possible).
- Keep away from fertilizers or other concentrated chemicals.
- Do not expose to direct sunlight or extreme heat for extended periods.

## 10) Send PRS™-probes back to Western Ag for analysis:

Please return the PRS™-probes in the styrofoam-lined box provided, along with a couple of ice packs (do not include frozen water bottles).

## 11) PRS™-probe shipment \*:

Fill out a **shipping form** and include inside the box. If necessary, also include three copies of the **commercial invoices** indicating that the **Goods RETURNING AND ORIGINATED IN CANADA; Code 066** and include with the other shipping documents (e.g., address) outside the box.

*Note: documents are sent with PRS™-probes and are available on our website.*

**\*Ground shipping across Canadian border can require a customs broker.**

Scientific papers in which PRS™-probe data have been published can be found on our website:

<http://www.westernag.ca/innov/papers/>



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