

# RESEARCH WITH IMPACT

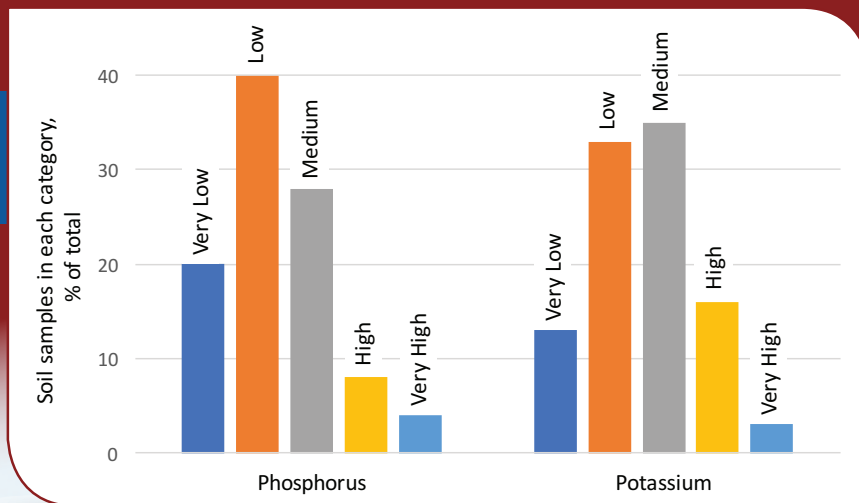
## THE CHALLENGE:

*Strategic planning for future fertilizer demands requires knowledge about where nutrients and soil amendments are currently lacking. Farmers are encouraged to sample soil from their fields on a regular basis to assess if any nutritional factors are limiting crop yields. But compiling all these separate pieces of data into a comprehensive survey is needed to get a full understanding of the state of soil fertility. Brazil has lacked the data for creating a soil fertility survey that could be used for planning.*

## THE RESEARCH SOLUTION:

IPNI has conducted a periodic soil test summary in North America since the 1960's. The most recent summary included the results of over 7.5 million soil samples. However, a comprehensive survey has not been done in other parts of the world.

The IPNI Brazil Program partnered with the Agronomic Institute of Campinas and São Paulo State University to collect and produce a soil fertility survey, starting with the state of São Paulo. Soil analysis from 26 laboratories and from 501 cities were summarized into articles, which are presented on the IPNI Brazil website. This collaboration was only possible as a result of the trusted bridge between academic and industry partners provided by IPNI.



The frequency of soils falling into various categories of nutrient concentration for phosphorus and potassium. The categories indicate the probability of a crop response to applied nutrients.

## Diagnosing and Mapping the Need for Soil Improvement in Brazil

### THE RESULTS:

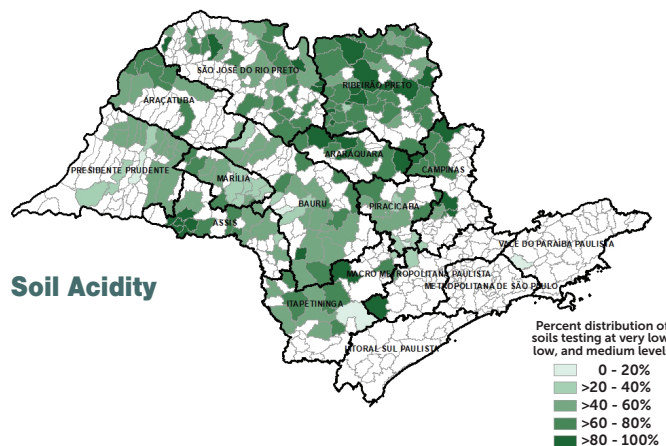
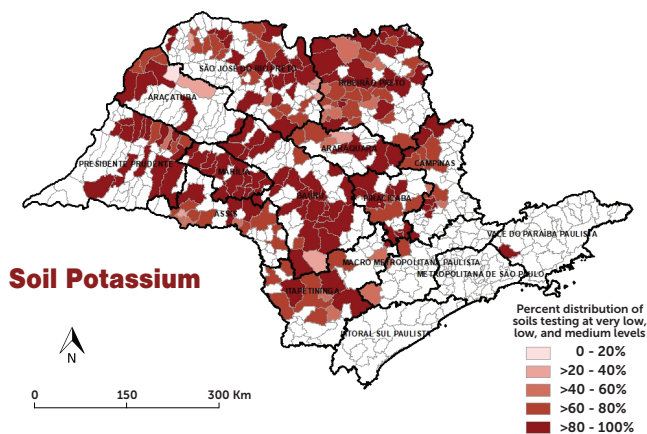
The survey revealed that 88% of the analyzed soil samples in the state of São Paulo, Brazil are classified between "very low" and "medium" for phosphorus. For potassium, 81% of the soil samples were in this same range. This demonstrates the great potential for improving crop yields by amending fields with the proper application of nutrients.

A summary of soil pH analyses shows that 30% of the soil samples are extremely acidic and that crops growing in these fields would show a high yield response to the application of lime. Crops cannot

effectively recover applied nutrients when their growth is limited by low soil pH.

Maps were created to visually represent the extent of the nutrient and acidity problems. These maps are arranged by municipality to provide local information for identifying areas most likely to benefit from additions of fertilizer and lime.

The data are published in an article available for download (<http://info.ipni.net/artigo/lfs-sp>) and are also accessible on our website for additional consultation and interpretation (<http://info.ipni.net/dados/lfs-sp>).



The occurrence of potassium soil concentrations (left) and soil acidity (right) in very low, low, or medium categories where crops would benefit from potash fertilization and lime, respectively, in the state of São Paulo, Brazil.



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