

## Rotary soil sampling probe assembly



### Market sectors

- Industrial Engineering
- Food Producers

### Solution

Soil sampling is the first step in generating field-specific information on which lime and fertilizer decisions are based on and in monitoring soil nutrient status over time. The present invention refers to a rotary probe assembly for simultaneous taking of multiple soil samples, and a single probe being used within the rotary probe. The Invention refers in particular to the rotary probe assembly with a rotational mechanism, where simultaneous soil sampling by means of at least 2 single probes and not more than 16 is made possible. Technology allows simultaneous sampling with 16 probes up to max. 60 cm depth and if just one probe is used soil sampling can be carried out even up to 120 cm depth. Present invention includes a sample collection container, intended for simultaneous taking of an average soil sample and tracing the soil fertility maps using the "krigging" method.

### Benefits

The invention improves the quality of the soil sample due to the large number of samples that can be quickly taken on a specific position, it can take 1 average sample simultaneous with 16 probes in 1 m diameter. Furthermore, rotary soil sampling probe increases the speed of soil sampling and work in general. The sampling speed is by 4-6 times higher than normally practiced and can be considered a high-performance machine that can replace 8-10 workers. Technology allows the repeatability of soil sampling in the same way and eliminates the risk of layer mixing, which is one of the most important factors in soil fertility analyses. Therefore precision sampling can significantly reduce the amount of fertilizers used while increasing yields and income.

### Applications

Industrial production of rotary soil sampling probe assembly.

### Opportunity

University of Zagreb is seeking industrial partners in order to further develop and commercialize the technology through licensing of its IPR (patent application and know-how). Research group possesses extensive expertise and hands-on knowledge and are interested in cooperation with industrial partners and additional development of innovation.

### Stage of development

The functional prototype of the vehicle has been developed and tested in field, but further automatization of product is necessary in order for the product to be ready for market placement.

### IP status

Croatian patent application has been filed on 29. October 2013. Previously, in PCT phase the European Patent Office issued an International Search Report & Written Opinion in which states that patent claims meet the requirements with respect to novelty and inventive step.