



Arable farmer Dirk Swart:

“Thanks to this new method for soil analysis, I now know exactly what the soil variation is in my field.”

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**Arable farmer D. Swart**

- Family business
- St. Annaparochie (Netherlands North)
- Agriculture
- Grows: potatoes, sugar beets, onions, corn and wheat
- Soil type: clay
- Total plot size: 60 hectares, including rented fields
- Field size pilot project: 3.25 hectares

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**Needs:**

- More insight into the soil variation in the field
- More knowledge about the efforts to improve soil

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**Solution:**

- 17 soil samples taken with a quad bike on a potato field with a size of 3.25 hectares

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**Results:**

- Insight into the soil variations on the field
- Visible results of soil improvements already applied
- Optimal use of fertilizer
- More insight into the long-term opportunities for soil improvement

The farm of Dirk Swart is located near St. Annaparochie in the North of the Netherlands. On this 60 hectare area of land, Dirk Swart is growing potatoes, sugar beets, onions, corn and wheat. He participated with one of his fields in a pilot project set up by HLB, a partner of SoilCares and George Pars Graanhandel B.V. (Pars). A number of soil samples from his field were analysed in the Lab-in-a-Box (LiaB). This is a sensor lab developed by SoilCares (now part of AgroCares) that allows fast and cost-effective soil analyses. Thanks to his participation in this pilot project, he now knows exactly what the soil fertility variation is on his field. He also has more insights in the results of his efforts to improve the soil.

**Participating in a pilot project by HLB and Pars Granen**

The invitation of Pars Granen & HLB for this pilot project was a perfect opportunity for Dirk Swart to get acquainted with a new technology for taking and analysing soil samples. “Over the past few years I have put a lot of effort into improving the soil on my farm by adding organic fertilizers and minimizing disturbances in the soil. I was therefore very curious to understand what the condition of this field was,” says Dirk Swart.

**Combine soil sampling for Potato tuber worms with SoilCares soil analysis**

Dirk Swart: “Normally, we carry out soil analyses every four years and I thought that was enough. However, HLB offered to combine their potato tuber worm sampling analyses with a comprehensive soil test using their new sensor lab developed by SoilCares. They collected 5 soil samples per hectare with a quad bike on one of my fields. The total size of this sampled area was 3,25 hectares”.

## Detailed insight into the plot quality

A few weeks later, a comprehensive HLB advisory report followed. In the report, data from the SoilCares sensor lab was processed. Dirk Swart: "HLB created a data card illustrating the soil quality of my field. Various colours from green to orange and red gave me very detailed insights into the soil quality in my field. I was amazed to see that the soil quality was very good. My field was almost completely green. This is a very good sign. It means that on the whole field there are enough nutrients for the crops."

Monster		Adviesgift (kg per ha)				Analyseresultaat		
		P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O	MgO	zbw-advies	pH	OS %	Afslib. %
33072	1	49	200	0	0	6,9	1,7	36
33073	2	45	146	0	10174	6,4	1,8	42
33074	3	58	184	0	3699	6,5	1,9	35
33075	4	80	304	0	1877	6,7	1,9	36
33076	5	117	159	0	3648	6,7	1,7	40
33077	6	54	227	0	2794	6,6	1,8	34
33078	7	59	224	0	2538	6,5	1,7	32
33079	8	85	184	0	1867	6,7	1,8	35
33080	9	74	233	0	0	7,0	1,9	37
33081	10	58	215	0	2777	6,6	1,7	35
33082	11	85	203	0	0	7,1	1,8	35
33083	12	86	217	0	0	7,1	1,7	37
33084	13	70	229	0	0	7,2	1,7	33
33085	14	81	130	9	0	7,4	1,7	39
33086	15	87	142	18	0	7,4	2,0	39
33087	16	59	181	3	0	7,2	1,8	36
33088	17	48	190	28	0	7,3	1,8	37
33089	18	65	169	77	0	7,2	1,8	38
33090	19	75	161	63	0	7,3	2,0	40
33091	20	67	236	9	0	7,1	1,8	34
Variatie		45-117	130-304	0-77	0-10174	6,4-7,4	1,7-2	32-42
Gemiddelde		70	193	0	0	6,9	1,8	37

Example data card

## Data card shows results of efforts to improve soil

Dirk Swart: "We are working very hard to improve the soil on our farm, however this is not always visible to the naked eye. Sometimes you want to see the concrete results of your efforts. Of course we noticed that the crops grew very well, but we never knew exactly what the impacts of our improvements were. With this data card we truly know what the results of our efforts are."

## Site-specific fertilization

Dirk Swart expects that his farming equipment will be able to read these data cards soon. "The developments are occurring so quickly that I expect our equipment to be able to process these cards in the near future. Our equipment will then be able to address weak areas in the plot by applying extra fertilizer. This will improve our soil even more."

## Comprehensive soil analysis of all plots

In this project Dirk Swart had soil tests done on one of his fields with this new technology. In the future, he would like to map the rest of his fields in this way too. "We are also optimizing the soil on other fields. After land reparcelling, a lot has changed on my fields, soil has been moved, and canals have been filled up. I have seen examples where these activities had a clear influence on the soil quality. Therefore I would like to know the condition across my entire farm. This will give me more insights into the quality of my entire farm and how to improve it. This will ultimately lead to higher yields."

## More sustainable crop growth

Dirk Swart: "For more sustainable crop growth we need homogeneous soil with a proper nutrition balance rich in organic matter. To accomplish this we need a better understanding of soil quality and how we can improve it. This new technology can make an important contribution and that is what this is all about."



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