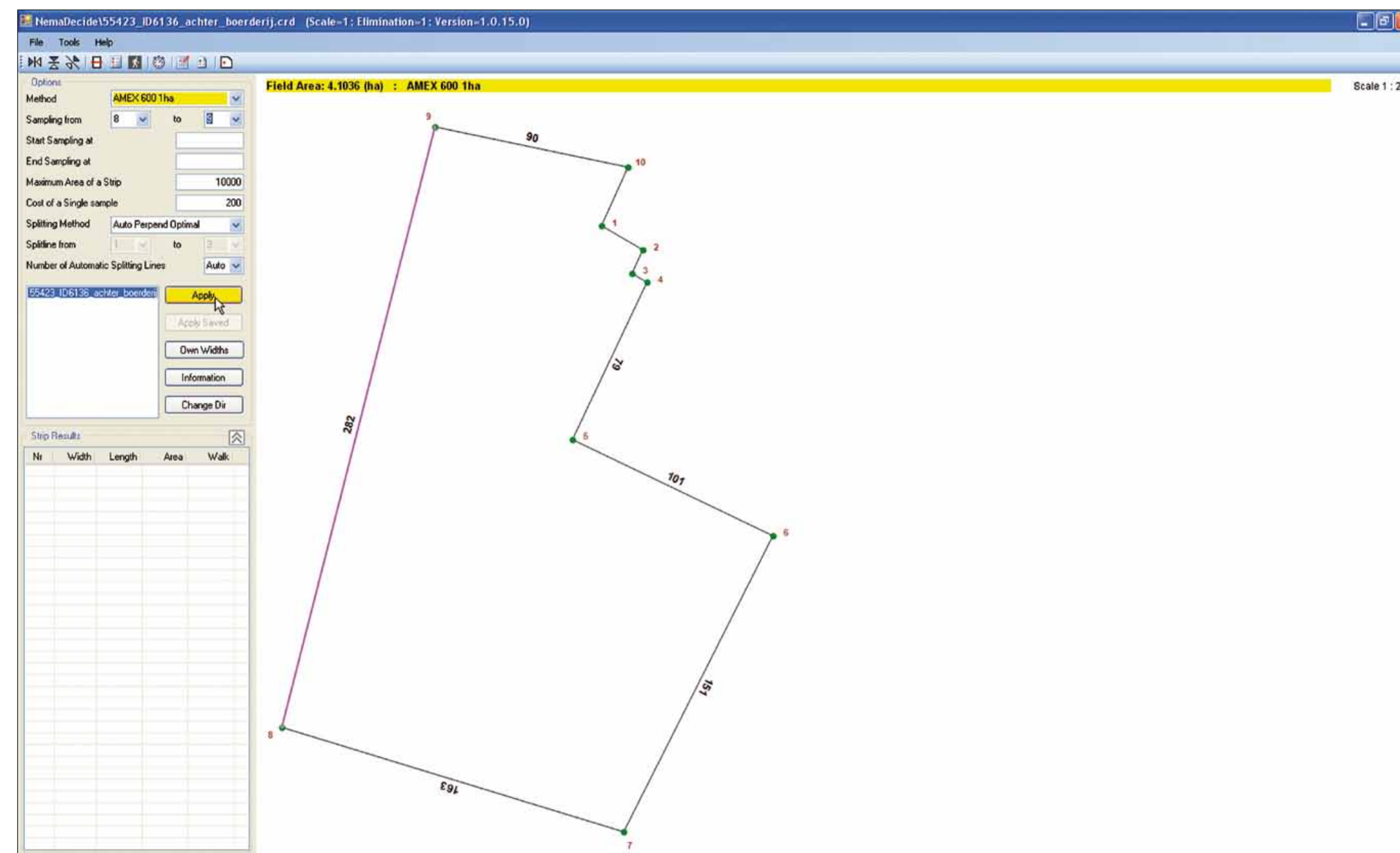




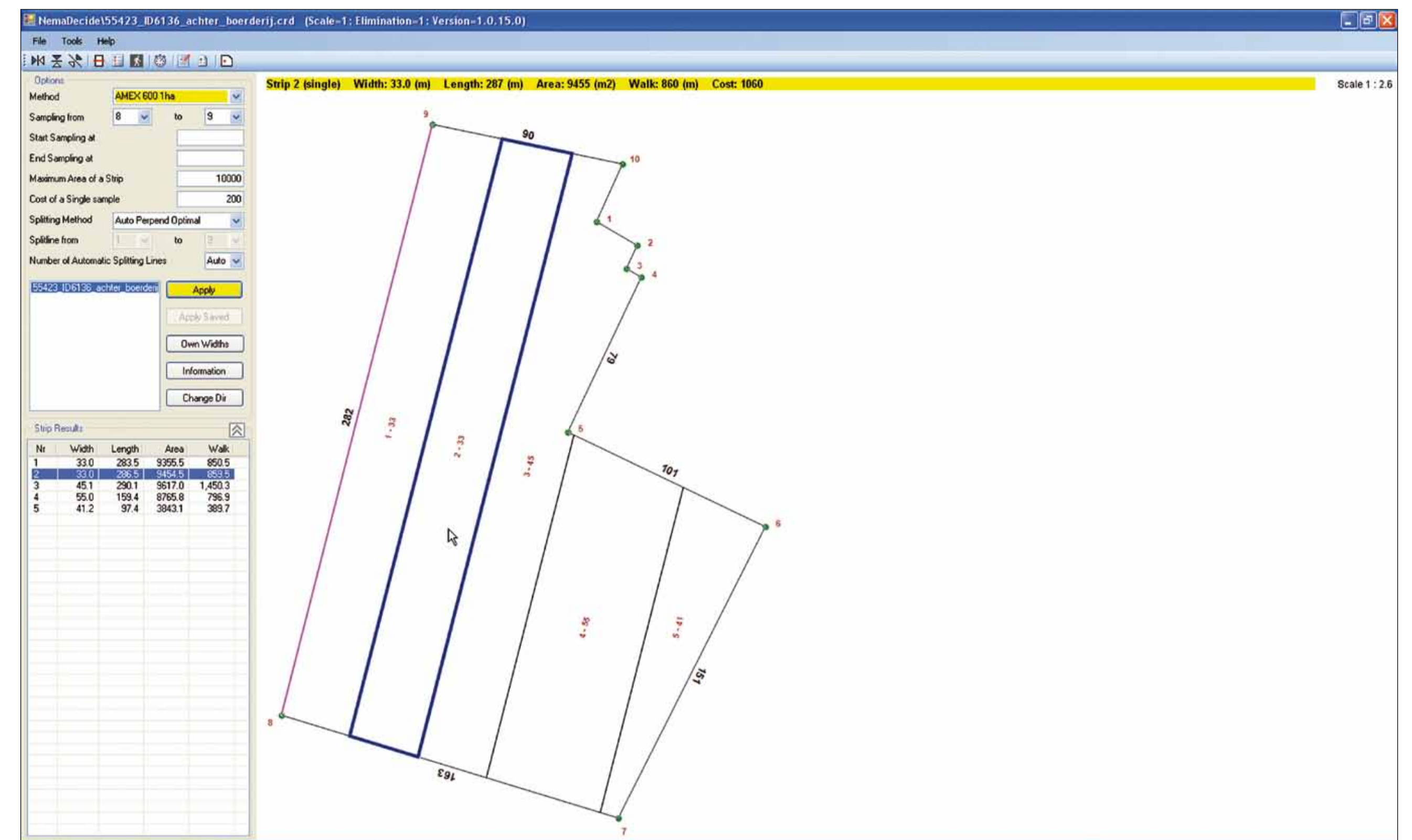
# StripBuilder, a software tool to generate geographic information for soil sampling purposes and advisory systems

Thomas H. Been & Paul W. Goedhart

In The Netherlands several private soil sampling agencies and the Dutch General Inspection Service provide farmers with information about their nematode population by collecting and analyzing soil samples taken from their fields. Soil samples can be taken voluntarily or officially, when Q-organisms like potato cyst nematodes, *Meloidogyne chitwoodi*, *M. fallax* or *Ditylenchus dipsaci* are involved. A large number of sampling methods is available for the farmer.



Field polygon is displayed in StripBuilder. Direction of cultivation is set and sampling method has been selected.

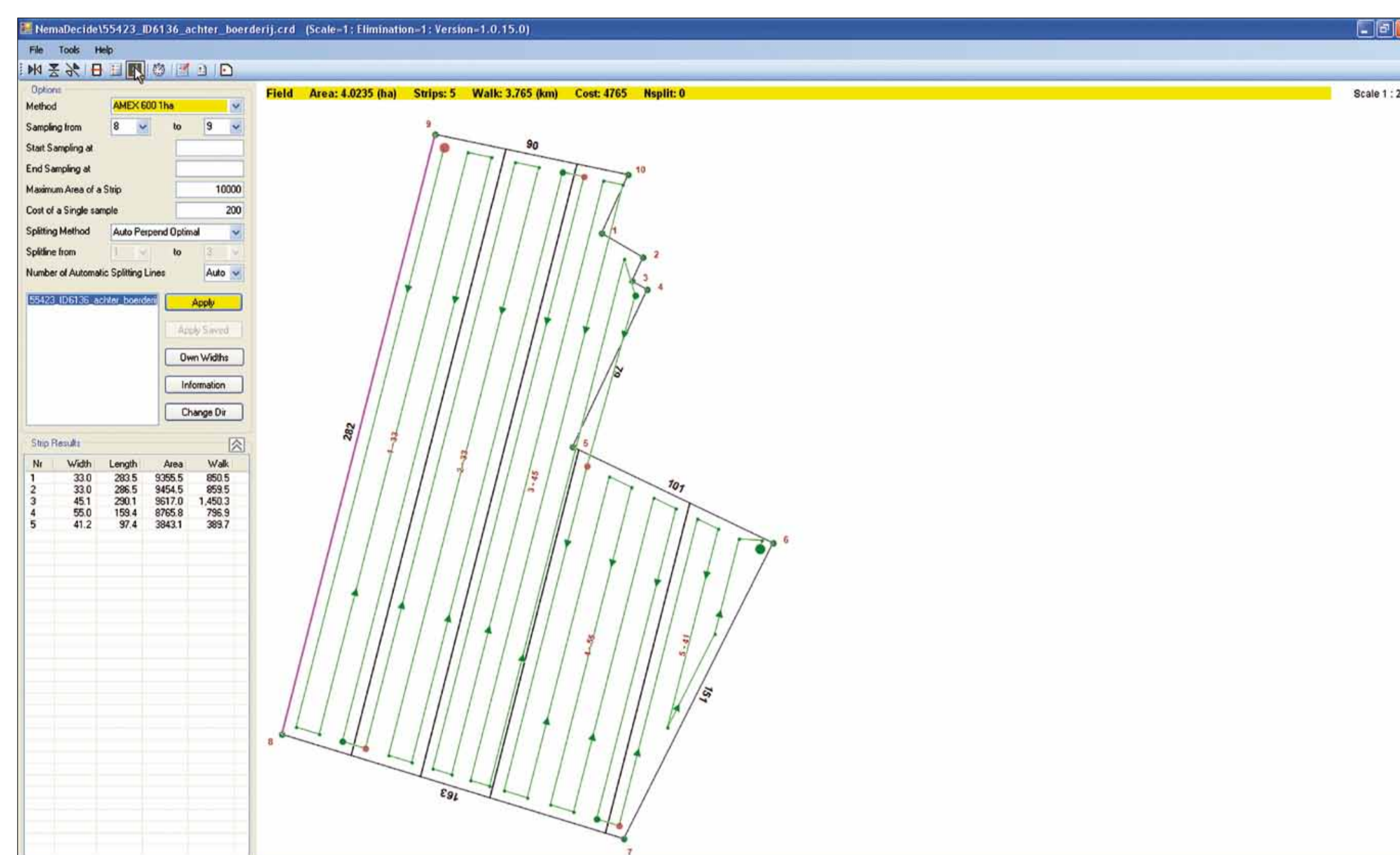


Sampling units are calculated and displayed together with general information on the dimension of each unit.

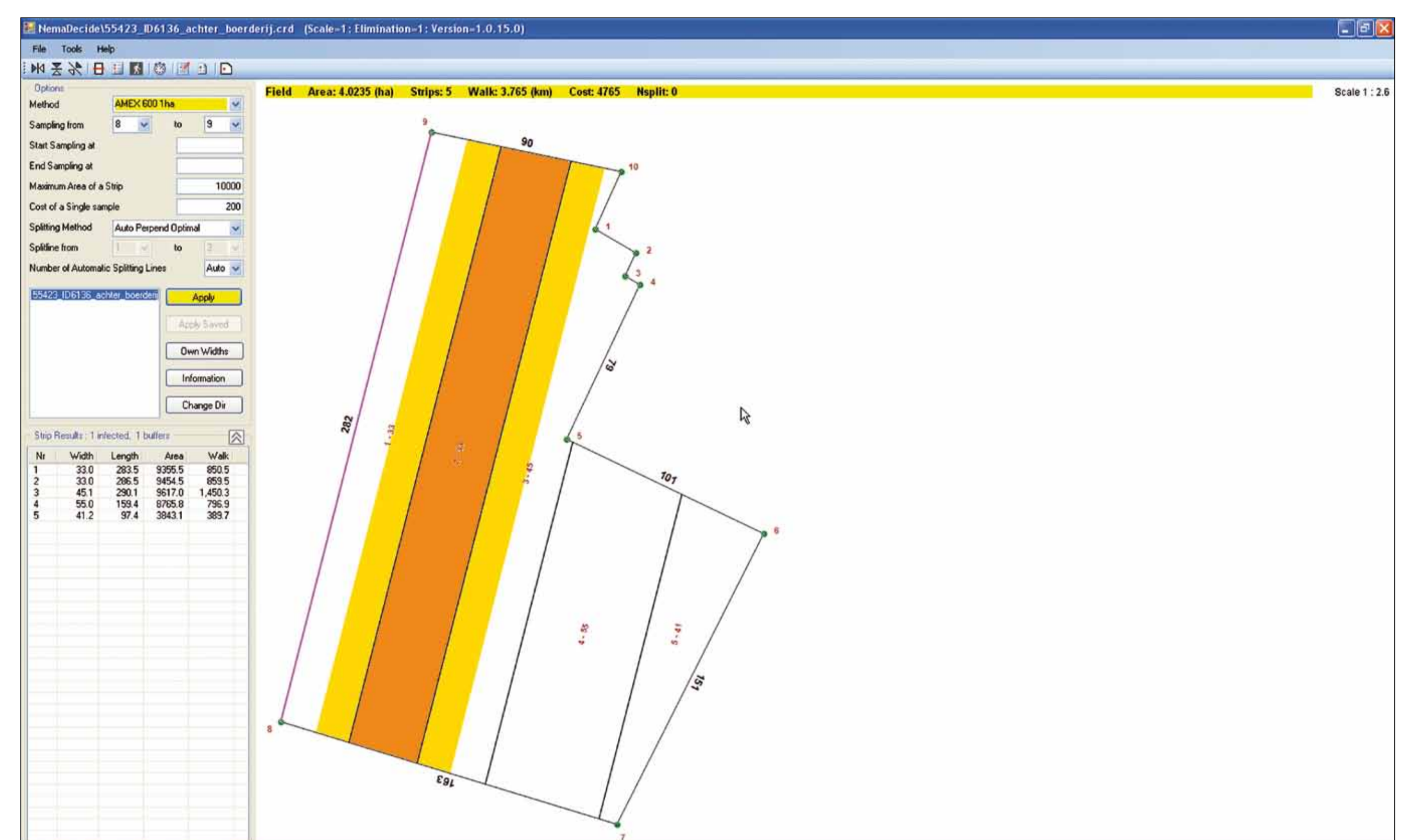
## Problem

All information is on paper. Either as a list of results, sometimes including a hand drawn map. This information is easily lost, fragmentary and difficult to use for advise to the farmer. Digital maps of fields, sampling units and infested area's are needed for several reasons:

- Soil samplers need maps to inform them about the location of the field section to be sampled and the optimized sampling units to be sampled.
- Farmers and their advisors want to use maps to visualize sampling results, generate management advice, compare the results with previous years to evaluate the results of nematode management.
- Statutory agencies need the information concerning the infested area.



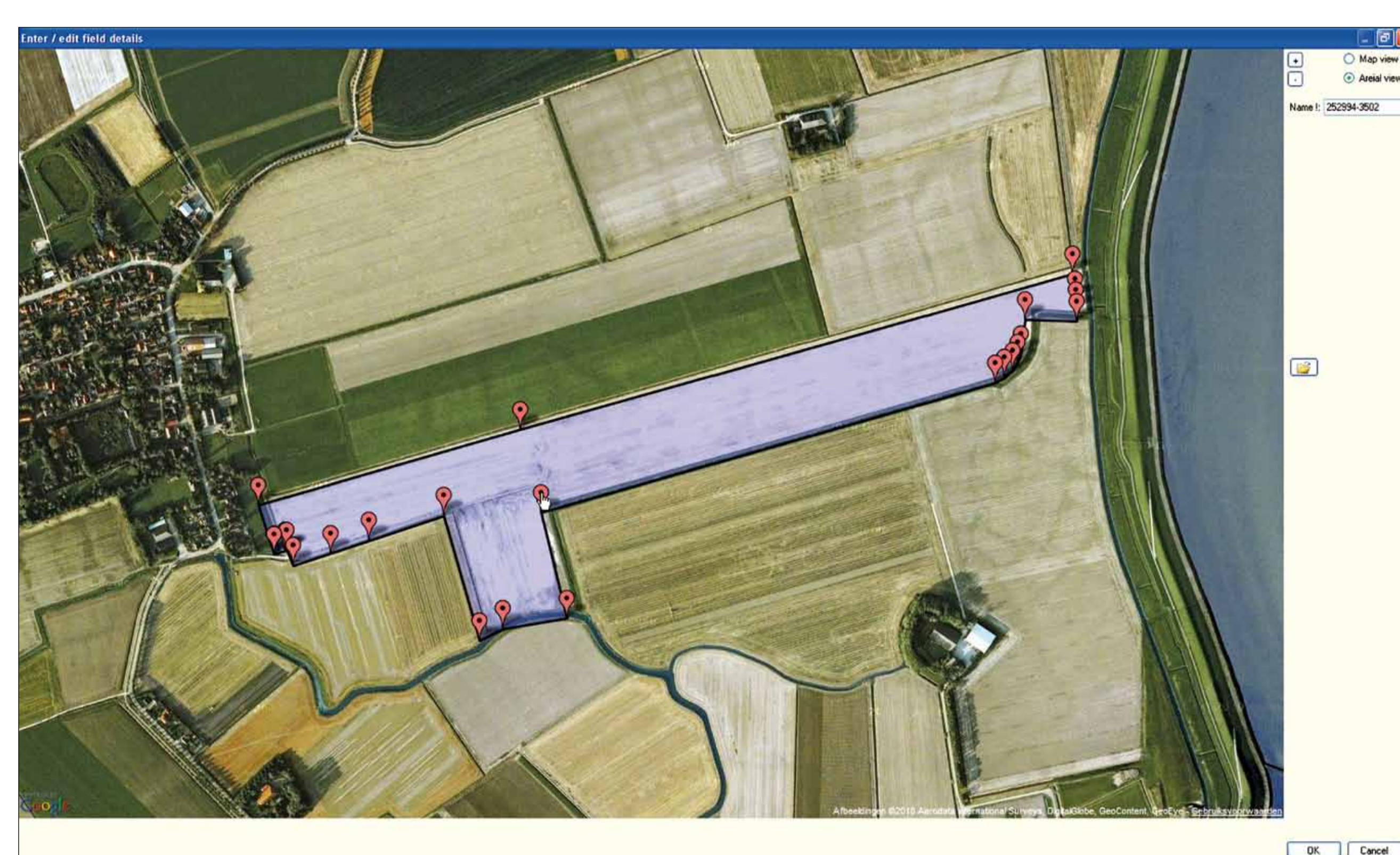
In development: Walking trail of soil sampler.



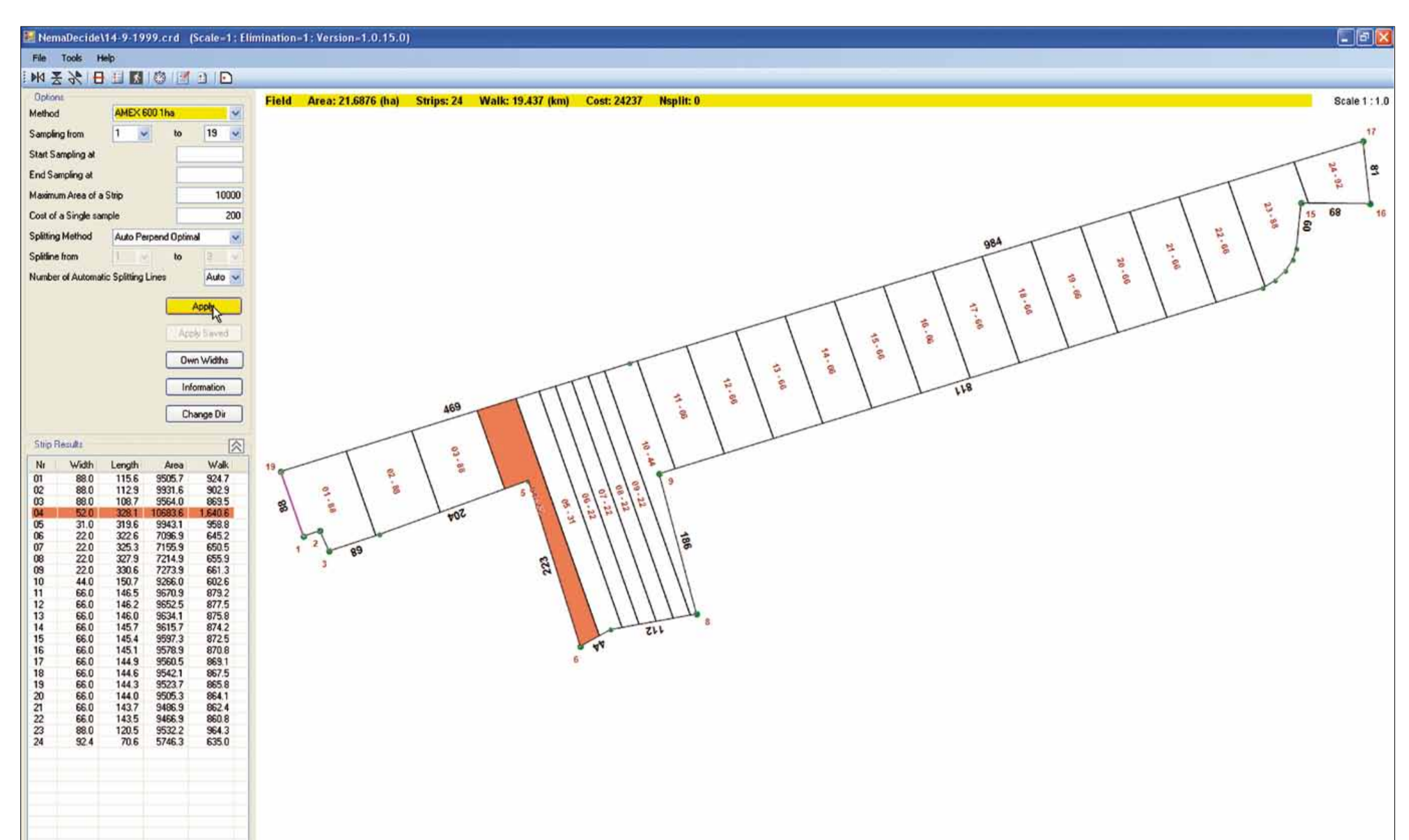
In development: Scientific buffer calculation for potato cyst nematodes according to Schomaker & Been (2010) Bulletin OEPP/EPPO Bulletin 40, 147–157

## Solution

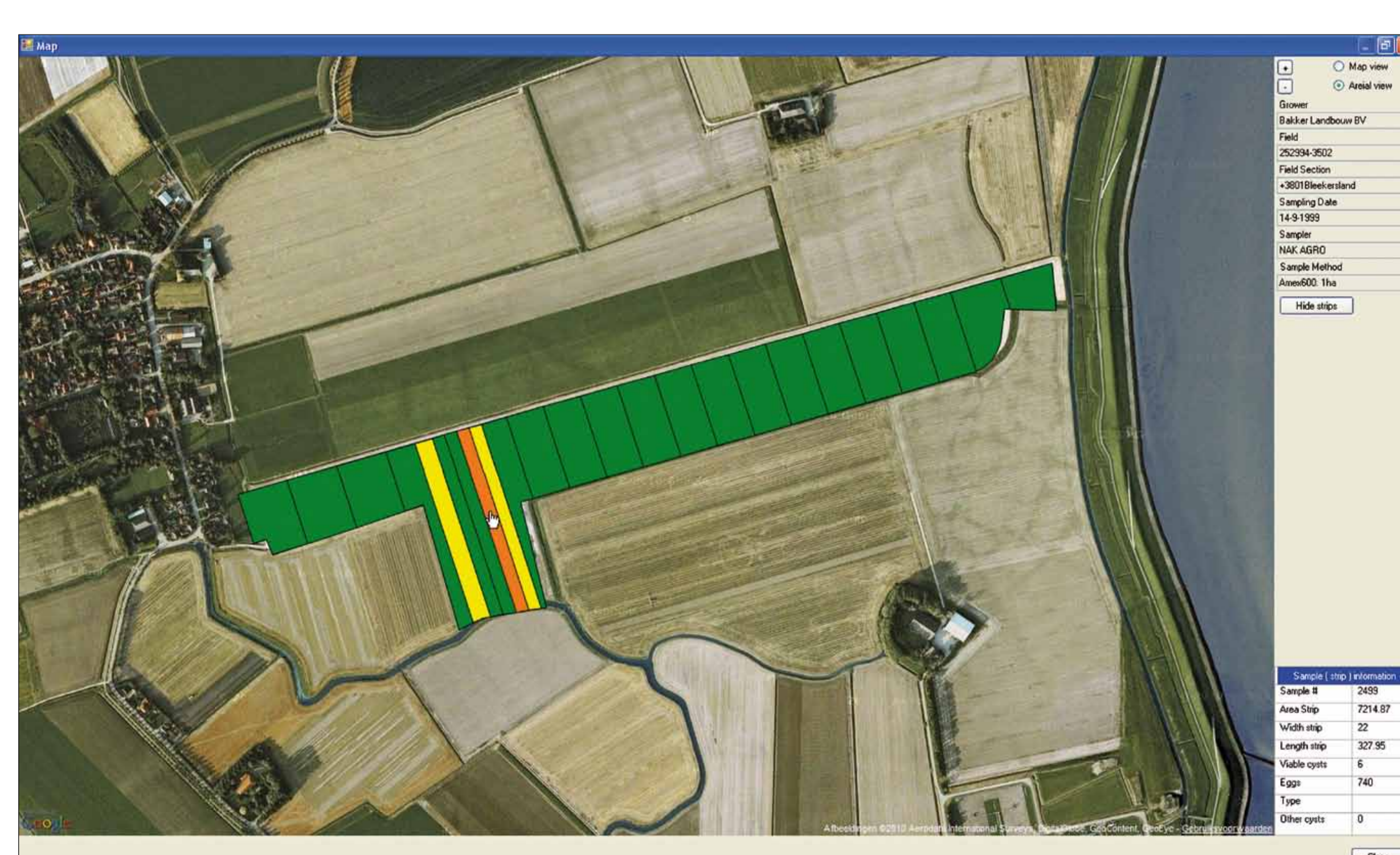
StripBuilder is a software package that enables the automatic generation of soil sampling maps. It divides farmer fields into the appropriate number of areas to be sampled based on the constraints of the utilized method. At the same time it optimizes either for the walking distance of the soil sampler or the number of samples that have to be processed. The field polygon, if not available, can be obtained using Google® maps. The program can be used from within NemaDecide®. Currently, new options are being developed e.g. walk trails can be added to guide the soil sampler or to run automated sampling machinery.



Using Google maps to obtain the field polygon. (NemaDecide or StripBuilder)



Split the fields into the sampling units required using StripBuilder



Using Google maps to display both the field polygon and the sampled strips including color coding of infested strips and context sensitive information.

## Results

- Identical way of subdividing each field makes soil sampling certifiable.
- 5% less soil samples needed according to the Dutch General Inspection Service.
- Provides information which helps extension services and advisory systems to provide better advice to farmers.