



SEMI-AUTOMATED SOIL SAMPLING OF NEMATODE CYSTS

For more than 50 years soil sampling for the detection of nematode cysts in the Netherlands is carried out by hand using an auger. Recently in the Netherlands a vehicle-mounted sampler was developed by NAK AGRO, allowing quick and semi-automated soil sampling of nematode cysts. The semi-automated sampling device is officially approved by the Dutch Plant Protection Service for sampling prior to planting of propagation material. This sampling device is mounted on an all terrain four-wheel motorbike or quad. Next to the quad a hollow disc is attached with a spring mechanism to ensure soil contact. While driving the quad, the hollow disc breaks the soil and a small amount of soil spurts up beside the quad. With a special spoon a sample is taken semi-automatically by the driver and placed into a holder with a paper bag.

Sampling by hand

Usually per 1/3 hectare about 50-60 cores of approximately 4 cc are taken (sample size 200 cc). For certain purposes multiples of 200 cc are taken to increase sensitivity. Although potato cyst nematodes (PCN: *Globodera rostochiensis* and *G. pallida*) are the main target, also cysts from *Punctodera punctata* and lemon-shaped cysts like *Heterodera* spp. are sampled.

Sampling semi-automated

The working depth of the disc is 2.5 to 3 cm. The driving speed of the quad is roughly 15 kilometres an hour, meaning 4 to 5 meter per second. When sampling one sub sample per second (comparable with one core sampled with an auger) the amount of sampling movements by the sampling device (50 - 60), and the final sample size (200 cc), are comparable with hand sampling using the auger.

Validation experiments showed that, when sampling cysts in sufficiently loose soil, results from sampling with the semi-automated sampling device and sampling by hand using an auger are statistically the same.

