

Title: Sampling to gain insight into the microbial contamination with VTEC, *Salmonella* and *E. coli* during primary production of lettuce in Belgium

In te dienen in topic:

A-1. Foodborne pathogens

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Abstract: (Your abstract must use 10pt Arial font and must not be longer than this box)

In order to assess the microbiological status of butterhead lettuce (*Lactuca sativa* L. var. *capitata*) at primary production level in Belgium, a systematic approach in sampling and microbial analysis was elaborated vertical through the production cycle including sampling of lettuce crops, irrigation water and soil at four different moments. Samples were analyzed for VTEC and *Salmonella* by GeneDisc and cultural confirmation and enumeration of *E. coli*. More than one year sampling is under execution with the aim to visit four greenhouse and four open air farmers (three crop cycles per farmer) to obtain a helicopter view on the microbiological status of the process. Preliminary results represented four greenhouse farmers (one visit) and one open air farmer (two visits).

First results indicated no high contaminated levels of *E. coli* (all < 10 CFU/g) on lettuce, nor the detection of any VTEC or *Salmonella* on the lettuce crops (n = 18). The soil of the seedling showed high levels of *E. coli* for all farmers (2.2 – 3.9 log cfu *E. coli*/g). For the greenhouse farmers, in most cases (11/12) the initial *E. coli* levels in the soil were below detection limit (< 10 CFU/g). In function of time (growth of lettuce), the *E. coli* levels in the soil increased, probably due to the cross-contamination with the soil of the seedling (15/36 > 10 CFU *E. coli*/g). For the open air farmer, the initial soil quality showed higher levels of *E. coli* due to the applied cow manure before planting the seedlings. Nevertheless, the levels decreased in function of time. The irrigation water of three greenhouse farmers complied to the potable water criteria except for farmer 2. The open pond irrigation water of the open air farmer showed higher levels of *E. coli* with levels up to 3.6 log CFU *E. coli*/100 ml. This may be attributed to the surrounding pastures with cattle.

Although no pathogens or elevated levels of *E. coli* were identified in the lettuce, it may be concluded that there is a potential environmental pressure from soil of seedlings and the need for attention to good agricultural practices.

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