

# Cadmium causes headaches for food processing industry

A batch of frozen spinach from France was recently stopped because of a notification from Belgium that it contained too much cadmium. Now that the EU wants to lower the norm for cadmium in a number of crops, the food processing industry is facing a challenge.

Cadmium is a heavy metal, which we swallow in small amounts through our food, among other ways. Certain crops, such as scorzonera and spinach accumulate cadmium, resulting in higher risks. Prolonged and systematic exposure to cadmium increases the risk of developing cadmium-related diseases such as kidney disturbance or maybe even cancer. “A part is secreted after intake, but a major part will remain behind in our kidneys,” says Veerle Rijckaert from Flanders’ FOOD. “It’s therefore of the utmost that the cadmium amounts remain within natural concentrations.”

The government regularly conducts inspections to make sure vegetables don’t contain more heavy metals than allowed. It could happen that batches are rejected. To prevent economic losses by exceeding the norm, a model was developed several years ago, allowing growers to predict whether their scorzonera is at risk of exceeding the norm. Within the Flanders’ FOOD project FOODCAD, five major Flemish processing companies worked with Inagro, CODA and UGent to develop two specific calculators for spinach and carrots for two years. That the EU might lower its norm for cadmium in vegetables can have a large impact on the complete vegetable sector, and the processing companies. “The calculator is a tool that the vegetable processing industry can use to predict the chance that the cadmium content in spinach and carrots remains under the European norm.”

## Soil and weather circumstances most important factors

According to Veerle, there’s a chance that growing leafy and root vegetables might no longer be possible on certain plots after reduction. The research project mostly takes into account carrots and spinach, because both vegetables are eaten from an early age. Besides, they are also often found in baby food. Spinach also stores cadmium in its leaves. Initial goal of the project was studying the reduction of the cadmium content through cultivation techniques. It soon became clear that soil and weather circumstances are important factors. “The result was that the plot choice remained as a tool. For the development of the two calculation tools, the necessary fieldwork was required for data

collection. In addition, quite a bit of higher inferential statistics was needed to process a huge database of information. The calculation tools are now based on data from cultivations grown during just two seasons. To improve the accuracy of underlying models, Inagro, CODA and UGent will continue working on the model.”

Based on a number of soil parameters, including the cadmium content, pH (acidity) and texture (sand, loam or sandy loam), and an addition for spinach indicating whether it concerns spring, autumn or winter spinach, the chance is calculated, and expressed as a percentage, that the cadmium content of the vegetable grown on a given cultivation field might be above the European standard. Veerle mentions that the tool calculates a chance but doesn't give advice. “In the end, it's up to the grower and their buyer to decide based on a risk assessment whether or not to grow on that soil. The tool can actually be compared to a weather forecast. When 50 per cent precipitation is predicted, you'll still have to decide for yourself whether or not to erect a tent for your garden party.” She says that the first experiences with the participating companies are positive. All food companies and growers interested in the tool, can contact Inagro.

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