Cropping factors influencing the occurrence of dominant *Fusarium* species and mycotoxins in oats from Swiss harvest samples

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Small-grain cereals provide the major part of calorie intake for the Swiss population. Especially oats can contain interesting levels of health promoting compounds (HPCs). However, cereals must also be safe and therefore free of health threatening substances, such as *Fusarium* mycotoxins. For Fusarium head blight in cereals, *F. graminearum* (SCHWABE) is the most prominent species worldwide. Still, cereal types differ in their susceptibility to different *Fusarium* species and various factors, such as weather and cropping measures have an impact on their occurrence.

The main aim of this project is to reduce the contamination of small-grain cereals by *Fusarium* toxins while developing value added varieties containing higher levels of HPCs. In a first step, oat samples from all over Switzerland have been collected in 2013, 2014 and 2015, along with information on respective cropping factors. The incidence of different *Fusarium* species was obtained by using a seed health test. The mycotoxins were quantified by LC-MS/MS.

Based on the current results, the main occurring species and mycotoxins in oats were *F. poae* and T-2/HT-2, respectively. In depth analyses to reveal potential correlations between *Fusarium* species/mycotoxins and cropping factors are presently running.

Results from the monitoring and epidemiological studies will be used to extend the forecasting system FusaProg for wheat towards oats. Thus, a tool for growers to reduce the application of fungicides and to decrease the infection risk will be developed. Several partners along the food chain will contribute to implement the results for an improved safety of healthy Swiss cereals.

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