

## Media Release

*Bühler builds partnerships with science to address mycotoxin risks*

### **Advanced grain cleaning solutions significantly reduce mycotoxin levels**

**Uzwil (Switzerland), March 1, 2017 – Mycotoxins, produced by fungal mold, are a growing health threat to people and animals. With a quarter of the world’s agricultural produce currently contaminated, according to the FAO. Mycotoxins ranks a third most important threat after bacteria and pesticides, which is why maximum tolerance levels permitted in food and feedstuff are becoming crucial for food and feed producers. Meeting these requirements is possible with the right processes in place. Academic studies within the European project MycoKey and practical experience confirm that a very effective means to significantly reduce mycotoxin levels is via cleaning and optical sorting processes. Bühler solutions improve food and feed safety and product quality, helping customers adhere to regulatory requirements while achieving higher margins.**

The need to protect the health of humans and animals by limiting exposure to mycotoxins from grains is increasingly imperative, particularly in light of a recent United Nations (UN) report which confirmed the impact of climate change on food safety and security. It’s evident that extreme environmental conditions such as drought and rising temperatures have triggered an upsurge in toxic crops. This dangerous progression was identified as an “emerging environmental issue of our time” by UN Environment Programme (UNEP) in a 2016 report (Toxic Crops and Zoonotic Disease). Previously more prevalent in tropical and sub-tropical regions, mycotoxin contamination is now on the rise in temperate regions – meaning it will increasingly become a food safety issue for Europe even if global temperatures can be limited to an increase of only 2-degrees Celsius, which UNEP deems unlikely. Climate change is increasing the prevalence of aflatoxin, one of the most poisonous mycotoxins.

Mycotoxin scares have already been making headlines in Central Europe, such as a scare caused by aflatoxins in 2012-2013. At that time, headlines were dominated with the news that unsafe levels of the toxin were found in milk intended for human consumption as a result of dairy cows feeding on contaminated maize. For example, aflatoxins have been found in Italy, Hungary, and Romania. Mycotoxin levels in grain are a frequent reason to reject raw material for food and feed processing. Scarcity of raw materials, on the other hand, requires the industry to look for new solutions along the value chain.

Knowing that just a few highly mycotoxin-contaminated kernels could make an entire grain lot unsafe for further use, it’s essential to implement post-harvest measures which reduce mycotoxin levels to ensure safe products, while ensuring economical yields and reducing losses. “Ultimately, it’s the prevention and reliable removal of mycotoxins as early as possible in the value chain that ensures the safety of

foodstuffs produced for all consumer groups,” explains Matthias Graeber, expert in mycotoxin reduction and data analytics within Bühler’s Corporate Technology Group.

Finding solutions to mitigate such food and feed safety issues is of critical importance to Bühler. The company invests roughly 5% of its turnover in research and development every year – creating breakthrough technologies and market-specific solutions to help its customers achieve long-term commercial success despite growing regulatory requirements and regardless of incoming product quality. Bühler has been partnering with science and applied research for many years in order to learn more about the value of integrating cleaning measures along the value chain. One such collaboration is with the experts from the European Horizon2020 project, MycoKey, which was initiated in mid-2016 to develop solutions for reducing major mycotoxins in economically important food and feed chains. The 6.4-million-euro project has partners from 32 organizations from a total of 14 countries in Europe, Asia and Africa. Together with Bühler and some of our customers, MycoKey, has run multiple, large-scale field tests to collect valuable data on the performance of grain cleaning solutions.

A recent research activity specifically looked at the case of ergot alkaloids: To support its industrial milling customers in managing the growing risks associated with mycotoxins, Bühler initiated a study performed at two German rye mills to establish how the level of EA’s can be influenced by grain cleaning and milling processes. The study was carried out by Bühler with two industrial partners, a large milling group and an independent food safety laboratory. Applying the official sampling guidelines of the European Union, 10 rye lots at 12 tons each were tested at two mills. “Effective reductions of EA concentrations were found for the processing steps: separation by size (Combi cleaner, rotary screen), optical sorting (SORTEX), and surface treatments (scourer with aspirator). By far the highest statistical significance of EA reduction could be obtained by optical sorting,” Graeber explains. “This confirms the central importance of optical sorting in the rye supply chain, both at grain reception facilities and in mills.”

The case for reducing levels of mycotoxins of any kind is clear considering the implications on consumer and animal health as well as to the commercial success of milling companies. Bühler technologies help achieve commercially viable yields – regardless of incoming product quality. For example, in a specific case the company has helped an Italian corn producer to recover 70–80 percent of contaminated maize and boost it from biomass to feed grade quality. Besides the obvious commercial sense of utilizing Bühler processes, they also make an important contribution to reducing post-harvest losses on a global level.

**Matthias Graeber** joined Bühler in 2010 and since then has held various positions in corporate strategic innovation within Bühler’s Corporate Technology Group. He is an expert in mycotoxin reduction, online sensors and data analytics, and currently leads the build-up of a data science team for Bühler’s Internet of Things (IoT) initiative. A physicist by education, he received his Master’s Degree

from the State University of New York at Buffalo, USA and his PhD from the University of Basel in Switzerland.

**Links:**

- [Toxic Crops and Zoonotic Disease \(UN Environment Programme Report\)](#)
- [Control of Ergot Alkaloids in Industrial Milling](#)

**Media contacts:**

Burkhard Böndel, Head of Corporate Communications,  
Bühler AG, 9240 Uzwil, Switzerland  
Phone: +41 71 955 33 99  
Mobile: +41 79 515 91 57  
E-Mail : [burkhard.boendel@buhlergroup.com](mailto:burkhard.boendel@buhlergroup.com)

Samuel Eckstein, Head of Internal & External Communications,  
Bühler AG, 9240 Uzwil, Switzerland  
Phone: +41 71 955 29 36  
Mobile: +41 79 517 52 46  
E-mail: [samuel.eckstein@buhlergroup.com](mailto:samuel.eckstein@buhlergroup.com)

**About Bühler**

Every day, billions of people come into contact with Bühler technologies to cover their basic needs for food and mobility. We strive for innovations for a better world, with a special focus on healthy, safe, and sustainable solutions. We contribute significantly to feeding the world's population, while setting the focus on food security and safety. Our solutions and technologies enable efficient and clean mobility.

We are a leader in processing grains, rice, cocoa, coffee, and other raw materials. Also, we are a leading solution provider of die-casting and surface-coating technologies in high-volume application areas, such as automotive, optics, and inks. As a leading technology group, Bühler invests up to 5% of its turnover every year in Research & Development. In 2016, its 10,640 employees in over 140 countries generated a turnover of CHF 2.45 billion. The globally active Swiss family-owned company Bühler is particularly committed to sustainability.

We want our customers to be successful. We want every human being to have access to healthy food. We want to protect the climate with energy-efficient cars, buildings, and machinery.