



Since the installation of the EXB UVC modules, visible mould growth on the ceilings of the cold rooms has been significantly reduced.

How UVC air disinfection significantly extends the shelf life of fresh produce

What initially began as a solution to severe storage losses in pumpkins has become a genuine game changer for a wide range of fresh produce at Spargelhof Rafz, part of the Swiss vegetable producer Jucker Farm AG. By installing sterilAir UVR-4K recirculating UVC air disinfection units in the storage hall and sterilAir EXB UVC modules in the cold rooms, the spread of mould spores and airborne microorganisms has been significantly reduced. However, the benefits extend far beyond stored vegetables. Sensitive fresh products such as strawberries and asparagus also showed substantially improved shelf life and visibly higher product quality. According to the farm manager, berries in particular gained several additional days of marketable shelf life.

High losses during pumpkin storage

The storage hall is used for different purposes throughout the year. During spring, it serves as a sorting and handling facility for asparagus. In autumn, the same building is converted into a storage hall for pumpkins. Freshly harvested pump-

kins are placed directly into large wooden bins and stacked to the ceiling. Particularly during wet harvest conditions, this repeatedly resulted in considerable losses. Even a single mouldy pumpkin could contaminate an entire bin within a short period, ultimately requiring the complete disposal of both the bin and its contents.

Continuous air disinfection throughout the storage hall

To reduce the concentration and spread of airborne mould spores, three sterilAir UVR-4K recirculating UVC air disinfection units were installed throughout the hall. Additional circulation fans ensure continuous airflow between the stacked wooden bins. The UVC systems operate continuously, inactivating airborne microorganisms without the use of chemicals or leaving any residues. This prevents mould spores from spreading freely throughout the storage area and infecting additional produce. The concept has proven particularly effective in large-volume storage facilities with

„Even a small bruise on a freshly harvested pumpkin can promote mould growth. Before installing the UVC systems, a single mouldy pumpkin would contaminate an entire storage bin within seven days. Unless the affected bin was removed immediately, neighbouring bins would soon become infected as well.“, recalls farm manager Beni Keil.

„Berries are highly perishable and extremely sensitive. Just a few extra days of shelf life give us much greater flexibility in the market and therefore higher revenue. The exact number of additional days naturally depends on harvest timing and product quality, but even a few more days are invaluable for berries. The extended shelf life of our strawberries alone fully justifies the operating costs of the sterilAir UVC air disinfection systems.“, says Beni Keil.

high product density and works equally well regardless of whether freshly harvested or already stored products are present.

Pumpkins marketable well into the new year

The results achieved during the 2025 season exceeded even the expectations of farm manager Beni Keil. Several bins containing visibly infected pumpkins were intentionally left untouched to observe the long-term development. Today, he describes the improvement as “unimaginable”. Whereas mould had previously spread from a single pumpkin to an entire bin within only a few days, this chain reaction has no longer occurred since the UVC systems were commissioned. Continuous air disinfection effectively prevents the rapid distribution of mould spores throughout the storage hall.

As a result, the final pumpkins from the 2025 harvest remained marketable until the beginning of the following year. Since then, together with growing partners in Germany and Switzerland, the farm has been working intensively on further optimising storage conditions, with the shared objective of marketing locally

grown pumpkins until March. The sterilAir technology plays a key role in achieving this goal. Importantly, the observed benefits are not limited to pumpkins. Experience clearly demonstrates that the concept can also be successfully applied to other stored vegetables such as carrots, cabbage and similarly sensitive storage crops.

Significantly longer shelf life for fresh produce

The cooperation originally started because of the substantial losses during pumpkin storage. The advantages for fresh produce only became apparent during routine operation. Each of the three cold rooms was equipped with one sterilAir EXB UVC module. Direct UVC treatment of the evaporator coils was not possible because the refrigeration units are leased. Instead, an independent UVC air and ceiling disinfection system was installed. Depending on the season, the cold rooms store berries, asparagus, potatoes and cut pumpkins. Besides the longer shelf life, the visual appearance of the products also remained noticeably better. According to Spargelhof Rafz, strawberries remained marketable



Since the installation of sterilAir UVC systems, strawberries remain marketable for approximately three additional days.

for approximately three additional days without any loss of quality. Asparagus likewise showed a clearly extended shelf life, although this could not be quantified precisely because the produce is usually sold before quality deterioration becomes visible. Beni Keil also sees considerable benefits for occupational health. During the winter season, between 10 and 15 employees often work in close proximity in the preparation area. By substantially reducing the airborne load of viruses and bacteria, the sterilAir UVC systems help minimise the spread of infectious diseases among staff.

No more mould in the cold rooms

During the asparagus season, the cold rooms are additionally humidified. Previously, this regularly resulted in visible mould growth on joints, technical installations and refrigeration equipment. As a consequence, both the cold rooms and the evaporator units had to be cleaned frequently using aggressive chemical cleaners. Although routine cleaning remains necessary after the installation of the UVC systems, mould formation has almost completely disappeared.



The sterilAir UVR-4K inactivates 90 % of black mould spores during every single air pass, helping to preserve the quality and shelf life of fresh produce and stored vegetables.