Ozone in Agri-Food

Ozone (O_3) application is an emerging technology in agriculture and the agri-food industry, offering a sustainable alternative to conventional chemical treatments. As a powerful oxidizing agent, ozone exhibits strong antimicrobial activity and the ability to degrade organic contaminants, making it suitable for applications across the entire food chain.

Ozone is used for seed and crop protection, post-harvest preservation, and sanitation of process water.

In particular, ozonated water has shown potential to reduce pesticide use and limit cross-contamination in processing environments while maintaining product quality and safety. It also supports the safe reuse of water in agriculture, in line with regulations such as EU Regulation 2020/741.

Despite proven effectiveness and industrial availability, its adoption remains limited by heterogeneous regulatory frameworks, especially for direct food contact. Overall, ozone application represents a promising solution to improve food safety, reduce environmental impact, and support sustainable agri-food practices.

WEBINAR SERIES

11 September 2026

10:00
12:00

1. Introduction

C. Carboni, IOA President, IOA EA$_3$G President, Business Development Manager - De Nora Water Technologies, Italy

The President of the International Ozone Association will give a brief introduction to the International Ozone Association, ozone, and its potential uses, with a quick overview of its applications, particularly in wastewater reuse in agriculture in compliance with the new European directive on wastewater reuse (Regulation (EU)2020/741). The President of the International Ozone Association will give a brief introduction to the International Ozone Association, ozone, and its potential uses, with a quick overview of its applications, particularly in wastewater reuse in agriculture in compliance with the new European directive on wastewater reuse (Regulation (EU)2020/741).

2. Ozone in Agriculture and Agri-Food: Applications and Regulatory Frameworks

F. Violleau, Associate dean for Research - Ecole d'Ingénieurs de PURPAN Toulouse, France

Ozone is of major interest in agriculture and the agri-food sector. It is widely recognized for its antifungal and antibacterial properties, but also as a powerful reactive agent capable of degrading specific molecules or stimulating biological mechanisms.
As a result, ozone offers numerous applications, ranging from the protection of seeds, plants, and crops to the post-harvest treatment and conservation of raw or processed agricultural products. Although the effects of ozone are well documented and industrial systems for fruit and vegetable treatment are already available, the regulatory framework governing the direct contact of ozone with fruits and vegetables remains highly heterogeneous worldwide.
After a brief overview of the main types of applications, this presentation will provide an overview of existing regulations across the world, with a specific focus on Europe.

3. The OZOVIVER project: use and distribution of ozonated water on open field vines

C. Salone, CEO - Ozone Green Solutions srl, Italy

In viticulture, the intensive use of pesticides has negative effects on biodiversity. The goal is to identify alternative defense strategies with low environmental impact. Ozonated water can inactivate microorganisms without leaving residues. However, obtaining water with a stable ozone concentration in open fields represents a technical challenge.
The project has produced a new mixing process and an effective spraying system. The experiment has demonstrated that, by stabilizing the optimal ozone concentration in the water, the use of synthetic chemicals can be significantly reduced.

4. Process Water as a Cross-Contamination Vector in the Agro-Food Industry

C. Khrulova, Ozone application specialist Food and Beverage - ArrowLake AB, Sweden

Process water is one of the most underestimated yet critical vectors of cross-contamination in the agro-food industry. This presentation will reposition water from a passive utility to an active risk factor that directly impacts food safety, shelf life, and overall process performance.
Based on industrial trials and data generated at the MAF Water Excellence Centre (MWEC), the session will illustrate how microbiological and chemical contamination can propagate through water systems, especially under dynamic processing conditions. It will further demonstrate the limitations of conventional approaches and present ozone as a controlled, adaptable solution when properly integrated into the process. Key parameters such as system design, ozone concentration, mass transfer, and contact time will be addressed to ensure consistent and measurable outcomes.

5. Conclusions

S. Baig, IOA Treasurer, IOA EA$_3$G Vice-President, Head of Scientific Innovation - Suez International, France

INTERNATIONAL OZONE ASSOCIATION
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Fees ≤ 40 €
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