

## Industry Position on Reactive Nitrogen Loss

### The Issue

Nitrogen (N) is essential to all life: plants and animals rely on reactive N compounds (ammonia, ammonium, nitrate, proteins, etc.) to grow and survive. However, severe environmental impacts can result from high losses of reactive N from agriculture (including mineral fertilizer and manure management), sewage, fossil fuel combustion, as well as transport, storage and manufacturing of food, and food waste.

### Position / Key Messages

**Nitrogen management is a complex issue given the variety of its sources and loss pathways, and the cascading of N from one form to another. Therefore, the industry recommends distinguishing between economy-wide and agriculture-related reactive N.** Economy-wide losses may occur during N fertilizer application, animal feeding, recycling of manure and sewage, fossil fuel combustion, harvest, transport, storage and manufacturing of food, and food waste.

**For its part, the fertilizer industry has developed Fertilizer Best Management Practices for agriculture that help improve crop Nitrogen Use Efficiency (NUE) to optimize nutrient uptake by plants and minimize nutrient losses to the environment.** NUE is calculated as the proportion of organic and mineral fertilizers applied that ends up in the harvested product. These solutions include the 4R principles (applying the right nutrient source, at the right rate, at the right time and in the right place) developed by the industry to optimize nutrient uptake by plants. Others are integrated soil fertility management, conservation practices and the use of precision support tools when available. Thanks to adoption of site- and crop-specific fertilizer Best Management Practices crop NUE has been improving for three decades in developed countries, and almost a decade in China.

**The industry considers the FAO Code of Conduct for the Sustainable Use and Management of Fertilizers as a useful framework for nutrient stewardship.** An Industry Code of Practice has been developed to support the FAO Code and Industry Nutrient Stewardship Commitments.

**IFA members work with third parties in the supply chain to facilitate training of farmers.** This covers proper storage, handling and management of N products at its source, and at its application rate, time and place. Scaling up outreach to farmers requires multi-stakeholder partnerships and is a prerequisite for accelerating NUE improvement globally.

**Fertilizer industry also encourages appropriate labeling for better site- and crop-specific use of N products.** User guidelines ensure that even in the absence of training, farmers have an access to best practices.

### Background

- The UNEA-4 “Resolution on Sustainable Nitrogen Management” recognizes the importance of nitrogen for global food production and security, while acknowledging the environmental impacts resulting from losses and inefficient use of reactive nitrogen. The Resolution calls for a global assessment and better understanding of the various N sources and pathways and a better coordination and implementation of control measures.