

Global challenges for fertilizer production technologies

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Global challenges

A. Environmentally sustainable agriculture and industry

- Matching nutrient input with plant uptake
- Prevention of soil depletion
- Optimization of crop quality
- Safety of production processes and final products

B. Response to the demands of sustainability and efficiency

- Raw material use
- Energy consumption
- Transport
- Agronomic performance
- Overall economic performance



Sustainable farming

- The fertilizer industry is strongly committed to responding to the following concerns:
 - To better inform stakeholders on the responsible use of fertilizers
 - To forward appropriate information to policy makers, contributing to a better integration of fertilizer specificity in the regulatory process
 - To address the concerns of the general public related to food safety and food quality, with the objective of correcting misunderstandings or erroneous beliefs concerning the role of fertilizers in food production
 - As a competitive alternative to organic farming, to help developing sustainable farming systems which can address the whole farming community, and justify the sustainable use of chemical fertilizers

Sustainable nutrient balance

- A. All nutrients in fertilizers are not taken up by plants
- Potassium is not known to have any undesired effects
 - Phosphorus lost from fertilizers is often immobilized in soil or during transport through river systems
- B. Three pathways for easing reactive nitrogen load
- Reduce the amount of reactive nitrogen that is created
 - Recycle existing reactive nitrogen back into the food production process
 - Reconvert reactive nitrogen into the inert dinitrogen form

Sustainable fertilizer production

European policy initiatives

- Registration, Evaluation and Authorization of Chemicals (REACH) programme
 - Valid for both EU producers and importers of fertilizers
 - International cooperation welcomed to keep costs acceptable
- Kyoto protocol
 - Unequal position in global competition
- Integrated Pollution Prevention and Control (IPPC) directive
 - Emissions to air, water and land
 - Generation of waste, noise
 - Use of raw materials
 - Energy efficiency
 - Prevention of accidents and risk management
- Occupational and product safety

Sustainable value chain

- Role of product stewardship
 - Goal to ensure that fertilizers and their raw materials, additives and intermediate products are processed and manufactured, handled, stored, distributed and used in a safe way with regard to health, occupational and public safety, the environment, and security
- EFMA members' commitment
 - Common programme signed by member companies

Conclusion

- Throughout mankind's history, technology and technological breakthroughs have changed its course. I believe this will also be the case in feeding the increasing numbers of people worldwide. But we must first recognise and clearly address the challenges this entails.

Thank you for your attention!