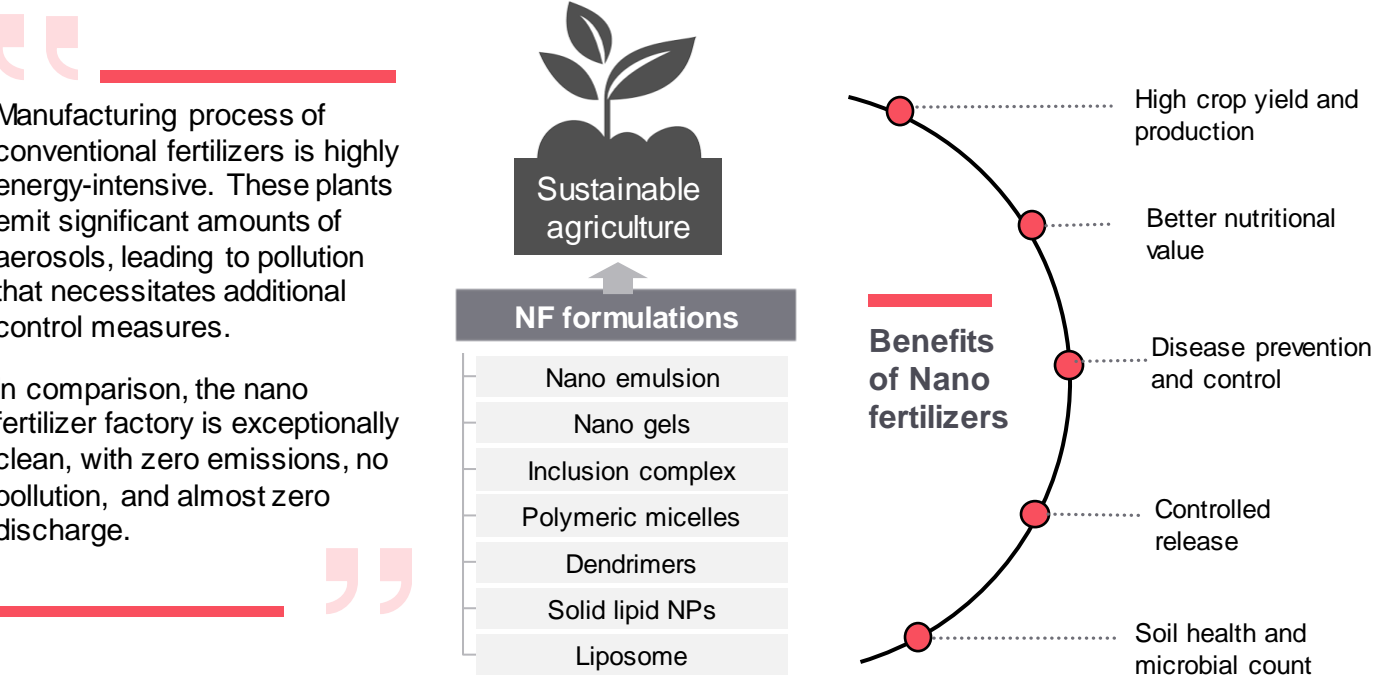


Nano Fertilizer for Sustainable Agriculture

Nitrogen use efficiency in agriculture continues to fall below 50%. Relentless drive to achieve targeted crop yields has resulted in excessive application of Nitrogen, highlighting a pressing global economic and environmental concern.

Nano fertilizers (NF) are considered one of the most promising engineered materials



Promising Innovations in Nano Fertilization

**Sustainable fertilizer from biomass waste**

**Stony Brook University** and **University of Queensland** are collaborating on a project to demonstrate a novel form of **nanocellulose-enabled bio-nano fertilizer** for agricultural applications.

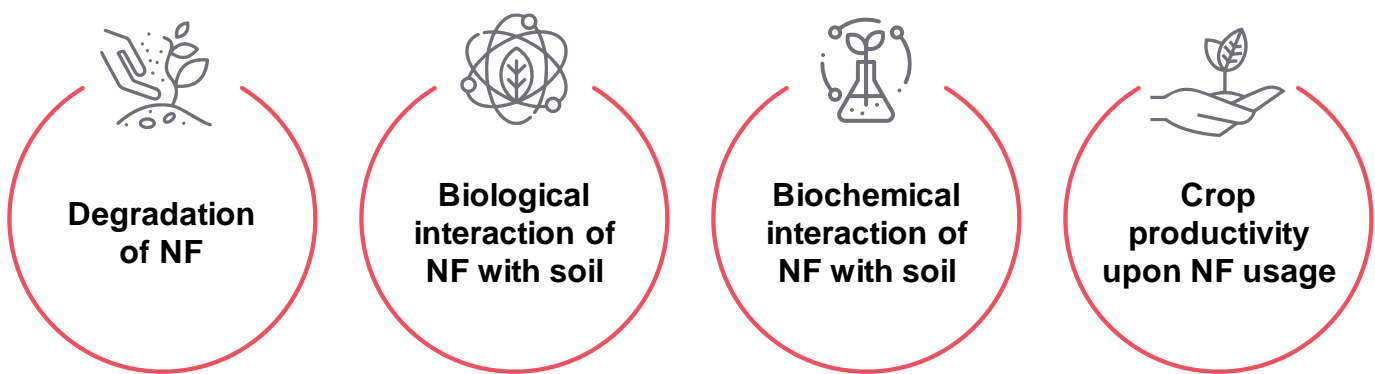
**Phosphorus Nano fertilizer**

A team of Danish scientists is currently endeavoring to **encapsulate phosphorus in biodegradable nanoparticles**, which can be directly absorbed by plants through their leaves.

**Nano liquid Technology**

**Aqua-Yield® nano-liquid technology** works as a delivery system for crop inputs. **Aqua-Yield** patented nano-based technology enhances plant uptake of traditional liquid fertilizers.

Future research perspectives for the application of Nano fertilizers



CONCLUSION

- The economic benefit of reducing leaching and volatilization of conventional fertilizers using nano fertilizers is highly appealing
- The efficiency of conventional fertilizers is notably low, with nitrogenous fertilizers ranging from 20 -50%, phosphates ranging from 10 - 25%, and potassium ranging from 35 - 40%
- Nano fertilizers have the potential to be a disruptive technology in the agricultural sector soon. However, there remains uncertainty regarding the environmental fate of nanomaterials
- Policies concerning major nano fertilizers are primarily formulated in developed countries such as the USA and Europe. In contrast, developing countries lag in terms of policy development and implementation in this sector

About FutureBridge

FutureBridge tracks and advises on the future of industries from a 1-to-25-year perspective. We keep you ahead on the technology curve, propel your growth, identify new opportunities, markets and business models, answer your unknowns, and facilitate best-fit solutions and partnerships using our platforms, programs, and access to global ecosystems and players.