

Table 1 Innovative fertilizer technologies for reducing eutrophication (Adopted from Lan et al., 2024)

Fertilizer Technology	Nutrients Provided	Mechanism	Suitable Crops
Slow-Release Fertilizers (SRFs)	Nitrogen, Phosphorus, Potassium	Gradual nutrient release aligned with crop uptake	Cereals, horticultural crops, turfgrass
Controlled-Release Fertilizers (CRFs)	Nitrogen, Phosphorus, Potassium	Coating controls nutrient release over time	Vegetables, fruits, ornamental plants
Nitrification Inhibitors	Nitrogen	Inhibits nitrification, reducing nitrate leaching	Maize, wheat, rice
Urease Inhibitors	Nitrogen (Urea-based)	Prevents rapid urea conversion, reducing ammonia loss	Rice, cereals, pasture
Enhanced Efficiency Fertilizers (EEFs)	Nitrogen, Phosphorus	Combines slow and controlled release with inhibitors	Various crops including cereals, fruits, vegetables
Polymer-Coated Fertilizers	Nitrogen, Potassium	Encapsulated nutrients in a polymer for controlled release	High-value crops like fruits, vegetables, ornamentals
Biochar-Enhanced Fertilizers	Nitrogen, Phosphorus, Potassium, micronutrients	Uses biochar to retain nutrients and reduce leaching	Cereals, legumes, vegetables
Struvite Fertilizers	Phosphorus, Nitrogen, Magnesium	Mineral compound with slow nutrient release	Horticultural crops, cereals