



Comparison of Different Nutrient Monitoring Technologies

Sensor	Measurement principle	Parameters	Advantages	Disadvantages
Ion-selective electrode (ISE)	Electrical potential between sensing and reference electrodes	<ul style="list-style-type: none">• Nitrate• Ammonium	<ul style="list-style-type: none">• Low cost• Fast response	<ul style="list-style-type: none">• Low resolution, accuracy & precision• High instrument drift• Limited shelf life• Ionic interferences
Wet chemistry	Photometer/colorimetry	<ul style="list-style-type: none">• Phosphate• Ammonium• Nitrate	<ul style="list-style-type: none">• High resolution, accuracy & precision• In-situ calibration• Fast response• Battery power possible	<ul style="list-style-type: none">• Higher capital cost• Requires reagents/site visits• Produces waste reagents
Optical	UV absorption by photometer	<ul style="list-style-type: none">• Nitrate	<ul style="list-style-type: none">• High resolution, accuracy & precision• Chemical free• Fast response• Low maintenance• Spectral data	<ul style="list-style-type: none">• Higher capital cost

