

CAPSTONE™ METHODOLOGY

PLANT-NEEDS



Nitrogen is central to plant growth and is one of the most basic and critical building blocks of plant protein



Phosphorus supports stronger coloration in plants, enabling deeper greens and richer reds



Potassium supports a variety of metabolic functions. When lacking, leaves are yellow



Calcium is integral for plant growth. Severe absence leads to irregular shoot tip formation



Magnesium is central to chlorophyll synthesis. Deficiency results in paler leaves



Iron is used in various enzyme functions, including the maintenance of plant pigmentation



Trace elements¹ impact metabolism in subtle ways and the right amounts unlock superior form and color

TAP WATER

available in tap water?



sometimes



sometimes



sometimes



usually present



sometimes



no



no

FISH WASTE

available in livestock waste?



yes, if fishload is high



yes, if fishload is high



not significant



not significant



not significant



no



no

FERTILISER

requires dosing?



yes, unless fishload is significant



yes, unless fishload is significant



yes



generally no



yes, unless in tap water



yes



yes

OBJECTIVE



Nitrogen is the largest growth regulator besides Carbon.

In the Capstone / APT series of fertilisers, Potassium and Phosphates are available in richer levels while Nitrates are consciously kept lean (but still available in significant amounts) for 4 reasons:

1

This method prioritises quality growth. Plant growth is rapidly stimulated by available nitrogen. When other nutrients are not present in sufficient concentrations, the common result is rapid but low quality, poor coloration growth. With livestock already a source of nitrates, aquarists generally under-dose other components in comparison. A 'slower but healthier' growth unlocks richer colors and better form.

2

A more controlled (but healthier) growth rate allows less frequent trimming - the least favourite activity for folks running a planted tank. This also allows easier planning from an aquascaping point of view as plants do not out-grow their positions as fast.

3

Slight Nitrogen limitation stimulates stronger red colours for some of the most popular red plants (*Rotala rotundifolia* and its variants *colorata*/*H'ra*/etc, *Rotala Goias*, *Hygrophila pinnatifida* & *H. araguaia*, *Ludwigia arcuata* & *L. brevipes* etc).

4

Less incidence of green dust algae on glass, rocks and slow growing plants under high light, one of the most common and persistent forms of algae.

¹ These include Boron (B), Molybdenum (Mo), Manganese (Mn), Zinc (Zn), Copper (Cu), Cobalt (Co), Chlorine (Cl) etc.