

VETIVER SYSTEM FOR EFFLUENT DISPOSAL

Volume 1



THE VETIVER NETWORK INTERNATIONAL

High N and P removal: With high capacity of removing N and P in polluted water, vetiver cleaned up blue green algae in 4 days

Sewage effluent infested with Blue-Green algae due to high Nitrate (100mg/L) and high Phosphate (10mg/L)

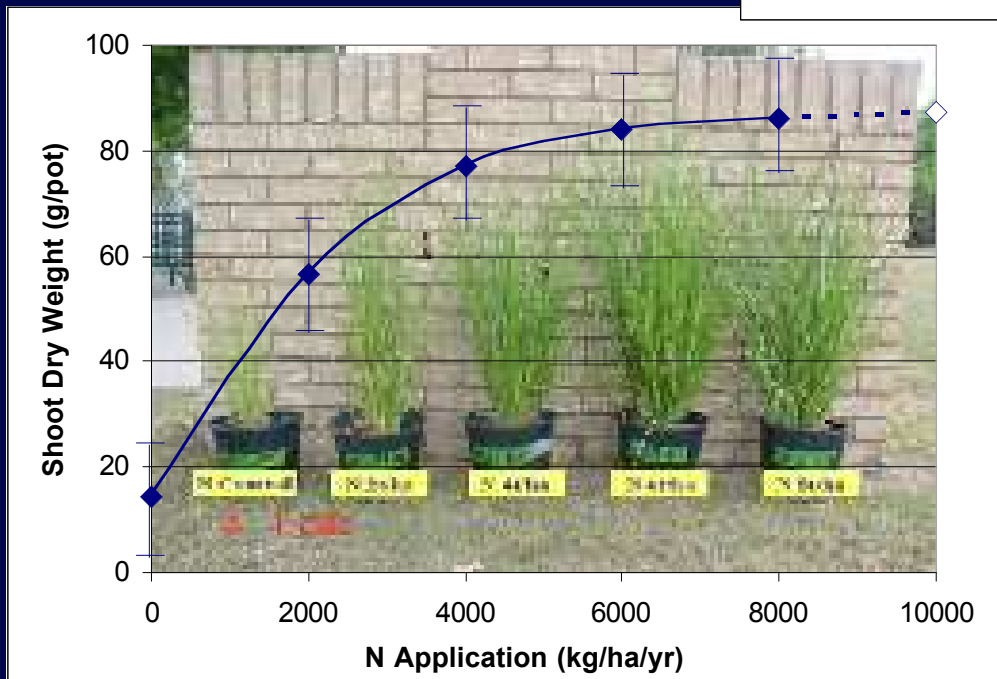
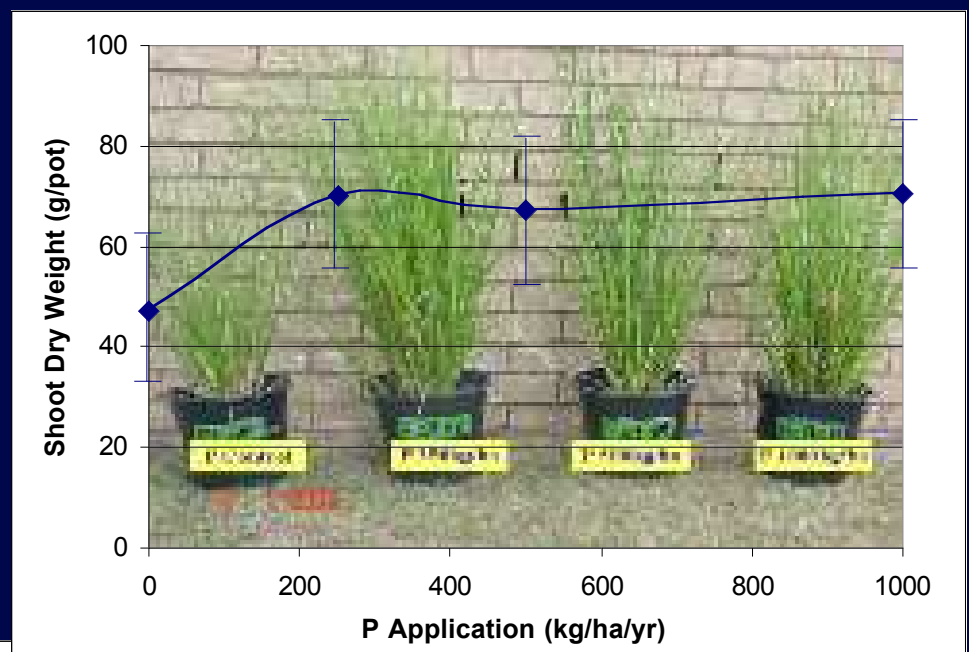
Same effluent after 4 days after treating with vetiver, reducing N level to 6mg/L (94%) and P to 1mg/L (90%)



08/12/00



Tolerance to extremely high levels of nutrients

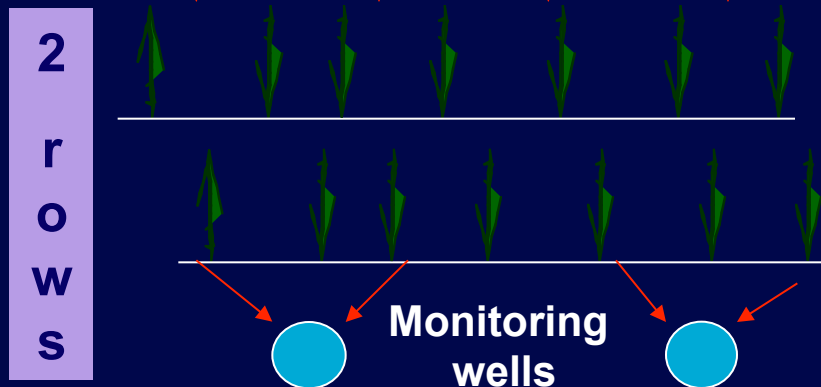


ABSORBING POLLUTANT: Much higher capacity for N and P absorption as compared with other plants

Plant species	Nitrogen (kg/ha/year)	Phosphorus (kg/ha/year)
Vetiver hydroponic	13,688	1,026
Vetiver pot trials	2,040	153
Vetiver field trial	1,142	149
Rhodes grass	600	90
Kikuyu	500	90
Green Panic	430	70
Forage sorghum	360	70
Bermuda grass	280	30-35
Eucalypts trees	90	15
Rye grass	200-280	60-80
Wheat (6)	23-208	3-27

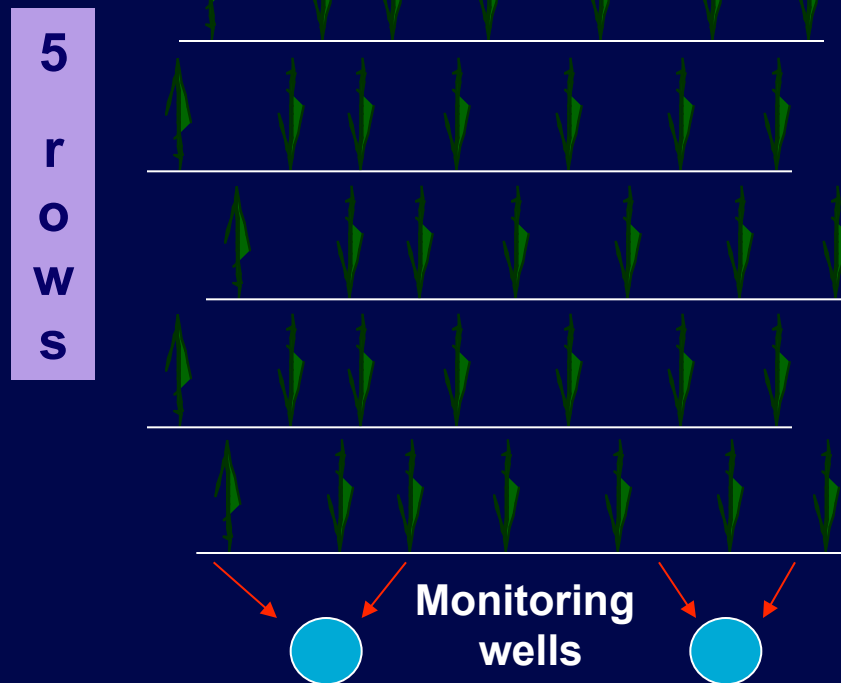
Effectiveness of vetiver in reducing N level in domestic blackwater

Entry: Total N level at 95.2mg/L



Exit: Total N level at 16mg/L
or a **reduction of 83%**

Entry: Total N level at 95.2mg/L



Exit: Total N level at 1.2mg/L
or a **reduction of 99%**



Australia Vetiver planted to dispose effluent discharged from a public toilet block in a park in Brisbane



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Australia **Vetiver** planted to dispose effluent discharged from a municipal sewage treatment plant in Queensland



Australia Hydroponic treatment of a municipal sewage effluent pond



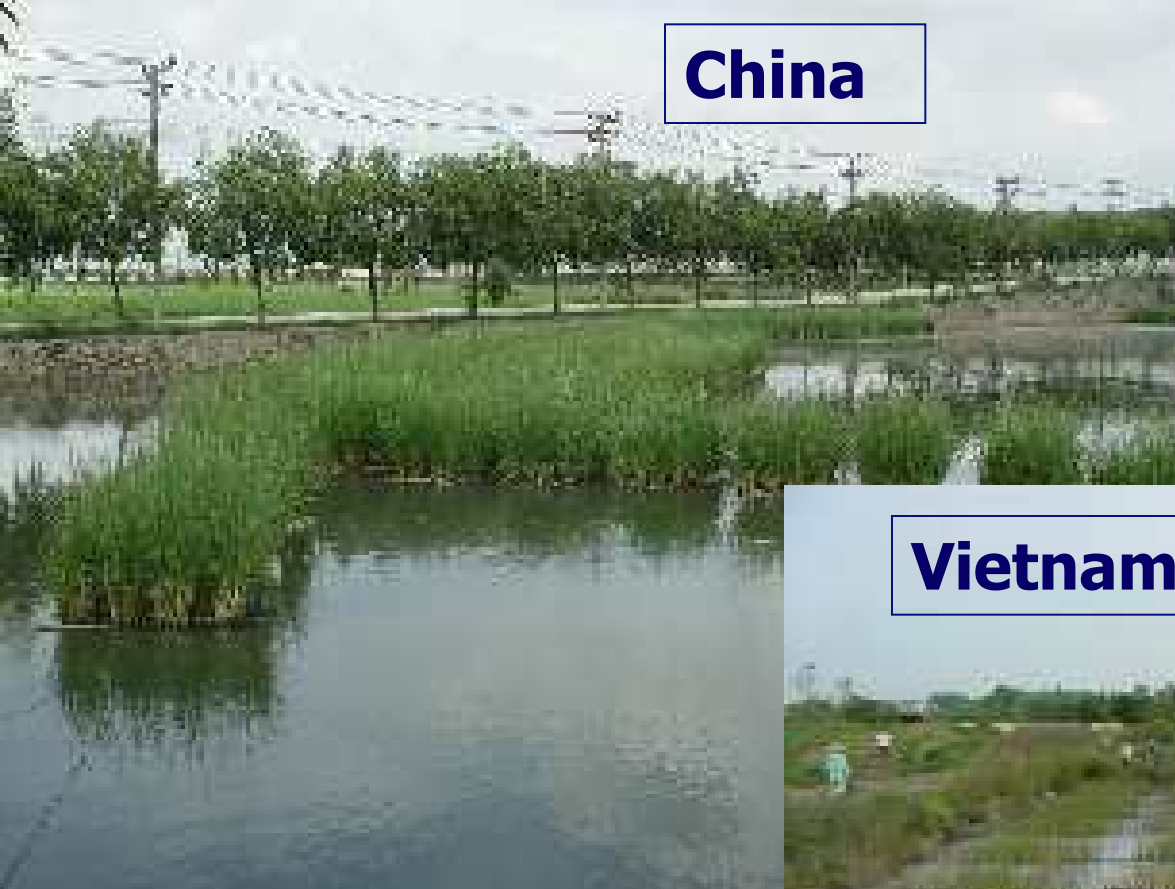
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Australia Industrial wastewater disposal at a food processing factory in Queensland



China

**Hydroponic treatment of
piggery effluent**



Vietnam



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SEWAGE EFFLUENT DISPOSAL FOR A SMALL RURAL POPULATION IN AUSTRALIA



The Vetiver System was used to create a small constructed wetland in Australia. The sewage can be seen in the left hand picture bubbling out of a pipe (center). The effluent passes through the hedgerows. This vetiver wetland was so effective that the hedges at the lower end of the wetland rarely received any effluent and as a result showed much poorer growth to that closer to the outlet. This system could be easily used for a rural school, small hospital, or any other disposal needs.

