

Chrysopogon odoratus Vahl
"Vetiver"

"Vetiver grass is a stout, erect, very
dense perennial grass. The
plant grows in large clumps
from a much-branched root
stock, with erect culms 0.5-1.5 m
high."
BENTON, C. and others, 1962, 1963.
"Grass Leaves of the World"

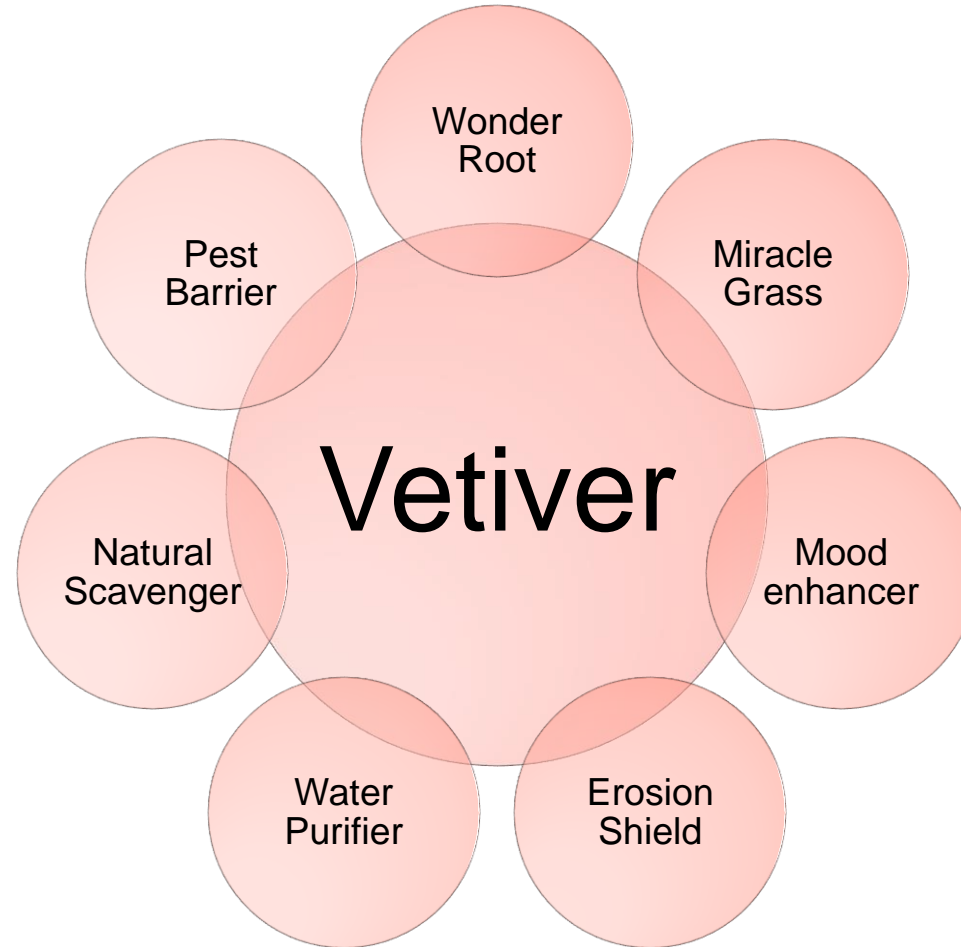
"Vetiver grass is widely used
throughout the tropics for
planting on the coast as an
anti-erosion measure, for
protective partitions in broad
fields, and as a border for
roads and gardens...."
BENTON, C. and others, 1962, 1963.
"Grass Leaves of the World"

Vetiver

A Root for Every Reason

April 11, 2016

A Plant with Many Titles



One Root, Many Uses

- Vetiver is a clumping grass.
- Ecological Climax Species -hence highly tolerant of its environmental conditions, both biotic and abiotic.
- Vetiver is not just scented roots.
- The entire plant has multiple uses



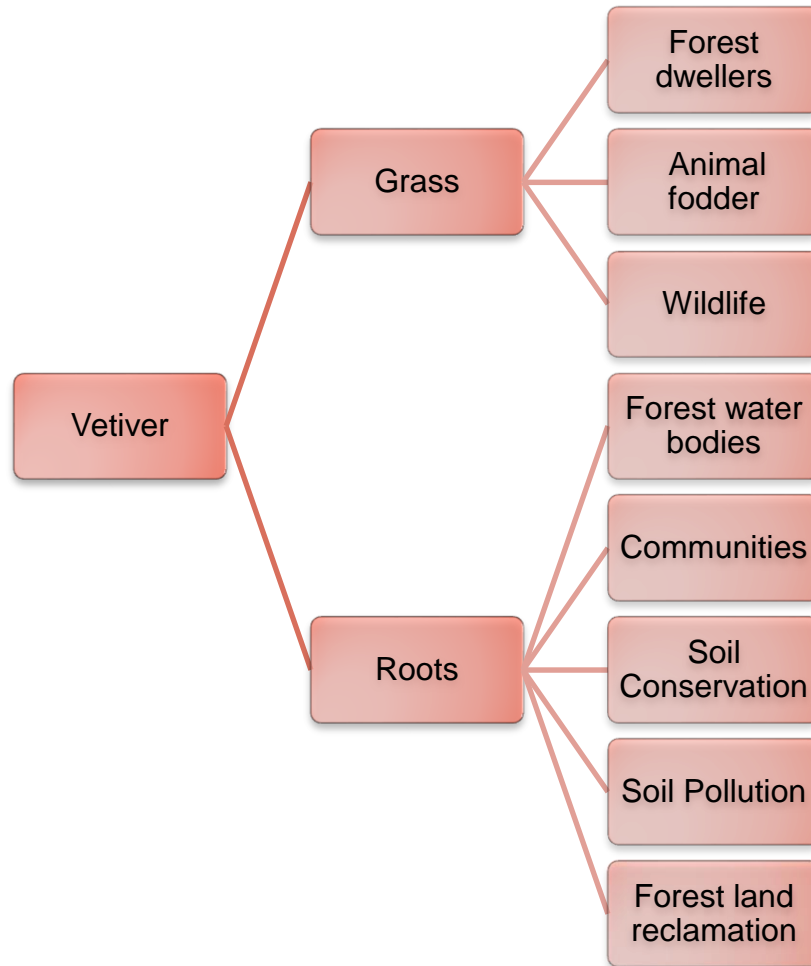
Properties of Vetiver Roots

- Natural healer
- Drought resistant
- Erosion resistant
- Flood resistant
- Fire resistant
- Grows in soils with high salin
- Grows in soils with low pH
- Grows up to 3 meters
- Aids moisture retention in so
- Absorbs contaminants
- Non Invasive Plant
- Aids watershed managemen

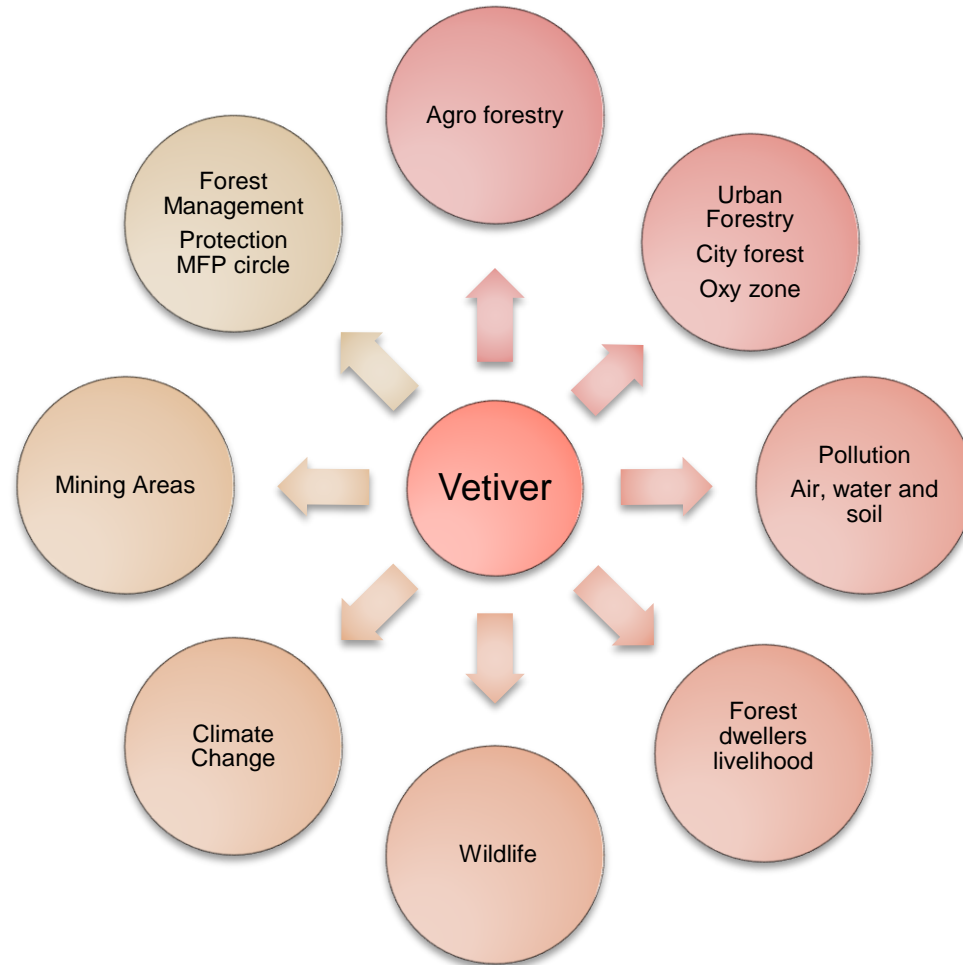


A man measures the root system of a vetiver plant after 2 seasons of growth. This plant has been dug out of a bank in Malaysia and the roots washed clean. In this case, the roots had reached 2 meters in red latosol soil.

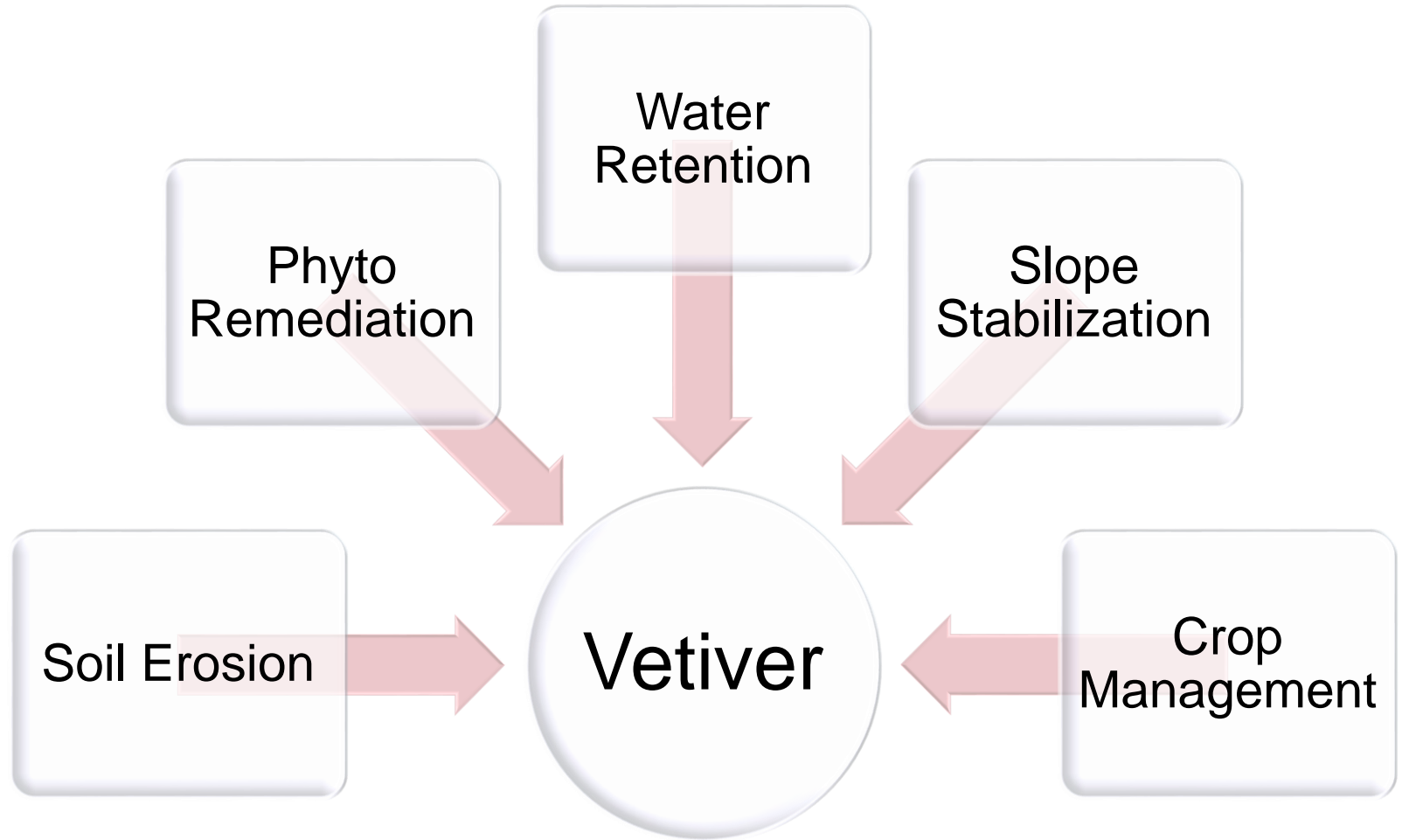
Forest and Vetiver Interconnections



Role of Vetiver in Forestry



Vetiver is a BioEngineering Tool



Vetiver and Agro Forestry

- Agroforestry combines agriculture with forestry
- It is useful as an intercropping plant



Vetiver in Urban Forestry

- Vetiver can be used in Urban Greening programmes
- As Road and Pond boundaries
- For landscaping parks and resorts
- Functions as a heat barrier and reduces heat island effect



Urban Forestry (Contd.)



Uses of Vetiver Roots

- Produces Aromatic oil
- Soil stabilisation
- Removes nitrates, phosphates, and heavy metals from soil
- Useful in land reclamation
- Absorbs pollutants from water



Benefits of Vetiver Oil

- Vetiver oil has several medicinal properties to treat:
- Acne
- ADHD
- Sleep
- Depression
- Nervousness
- Fever
- Arthritis
- Headache
- Cramps



Vetiver and Water Pollution

- Vetiver grows well on floating rafts
- It survives well in contaminated or toxic water
- It does not get attacked by pests or diseases
- It absorbs contaminants like heavy metals, nitrates and phosphates from the polluted water bodies.



Vetiver for Riverbanks Protection

- Vetiver can be used for river banks and levee stabilisation
- Embankment of the Mundeswari River in Hooghly district was planted with vetiver under MGNREGA
- Nandukani Ghat road, Malappuram district Kerala
- Fortifying river banks in Telahi, Assam
- Similar success in West Bengal and Bangladesh



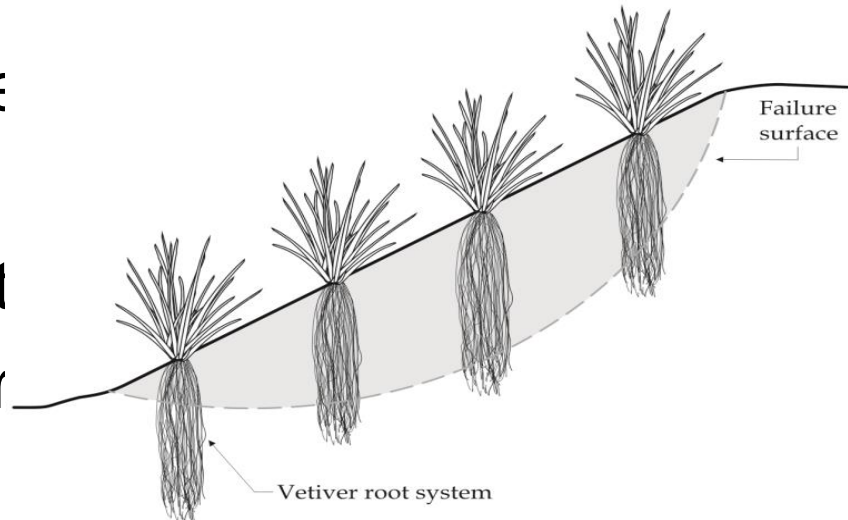
Vetiver for Soil Conservation

- Land degradation is a major environmental problem that hits productivity and creates economic burden
- Vetiver can stabilize slopes by mitigating soil



Vetiver Roots are Living Nails

- River banks with clayey soils pose engineering challenges for cemented construction. Cemented bunds develop cracks within a few years.
 - Vetiver roots move with the soil when the area gets flooded, preventing breaches.
- Vetiver roots allow water to soak into the ground and encourage moisture retention.



Vetiver removes Soil Salinity

- Vetiver grows in saline soil also
- As it grows the roots absorb the excess salt and restore the natural state of the soil



Vetiver for Waste Water Treatment

- Vetiver Phytoremedial Technology is used to treat waste water.
- It can be planted around septic tanks
- It decontaminates ground water

Pantoons in an effluent pond at Toogoolawah

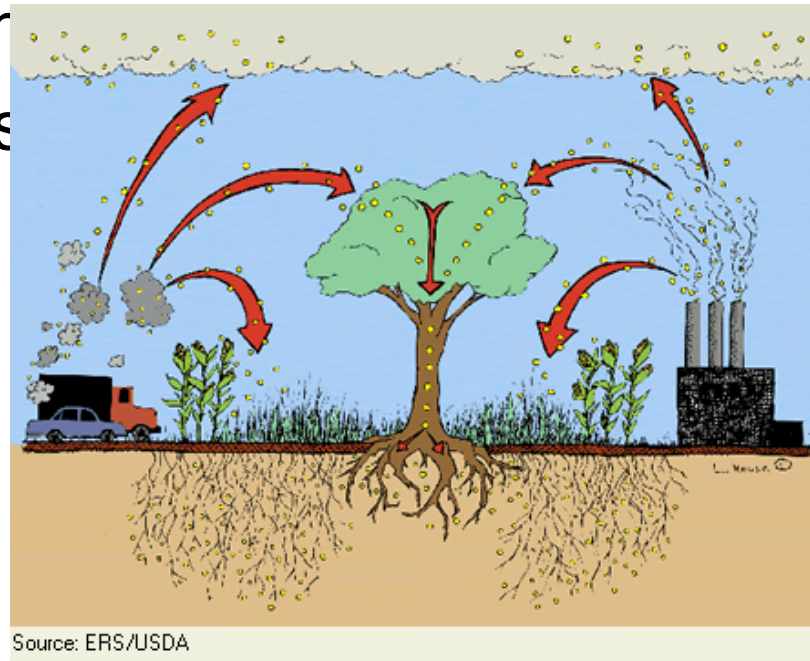


On the edge of an effluent pond, at low water level at Toogoolawah



Vetiver and Carbon Sequestration

- Vetiver grass provides effective way of carbon sequestration
- Four mature Vetiver plants will sequester as much atmospheric carbon as one fully grown tree.
- One carbon footprint is neutralised by 50-60 vetiver plants
- This equals



Source: ERS/USDA

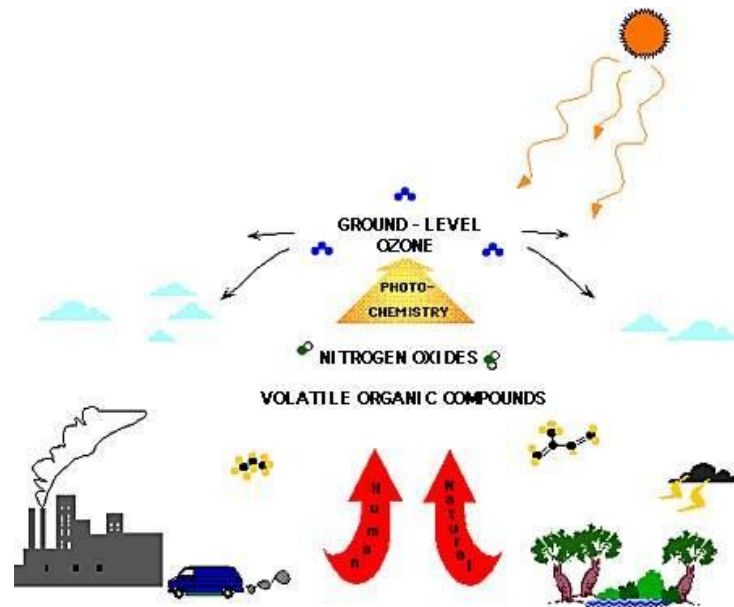
Vetiver and Climate Change

- Vetiver is drought resistant
- Climate change is leading to monsoon failure
- Vetiver grass can serve as fodder for cattle during droughts
- Vetiver also serves as wind breaks and curtails wind erosion of soil

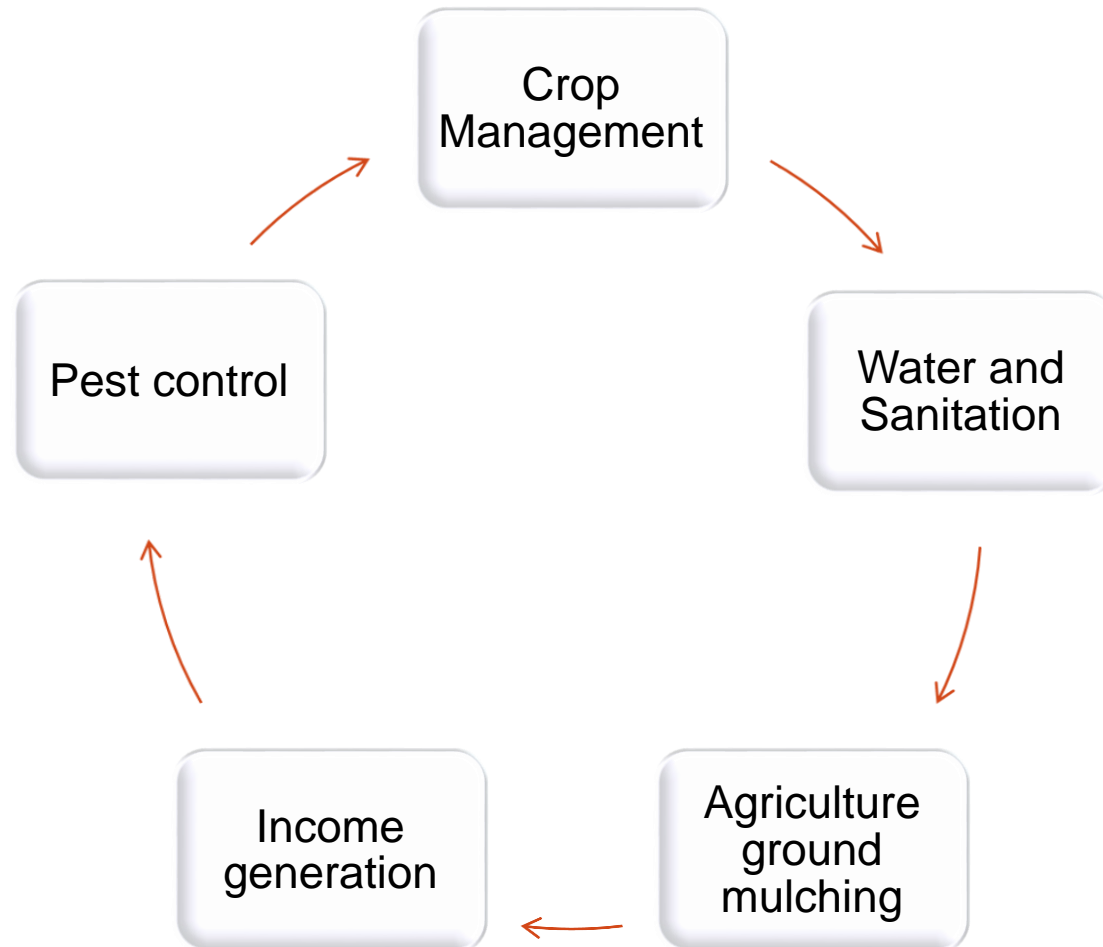


Vetiver and Air Pollution

- Vetiver improves air quality by absorbing gases like SO₂ and ozone
- Trapping fine dust, ashes and smoke particles
- Absorbing hydrocarbon emissions from vehicle exhaust



Vetiver Benefits to People



Vetiver in Crop Management

- Vetiver grass as hedgerow promotes water retention and soil stability
- It is non competitive and non invasive
- Repels rodents and other pests
- Provides structural strength to bunds



Vetiver as Termite Repellant

- Vetiver roots have termite repelling properties as proved by Louisiana State University Agricultural Center
- The roots have a chemical called nootkatone which is an effective insecticide and pest repellant. Nootkatone is nontoxic to humans
- When planted around a house Vetiver grass restricts the movement of termites towards the house, thus protecting the wood work in the house



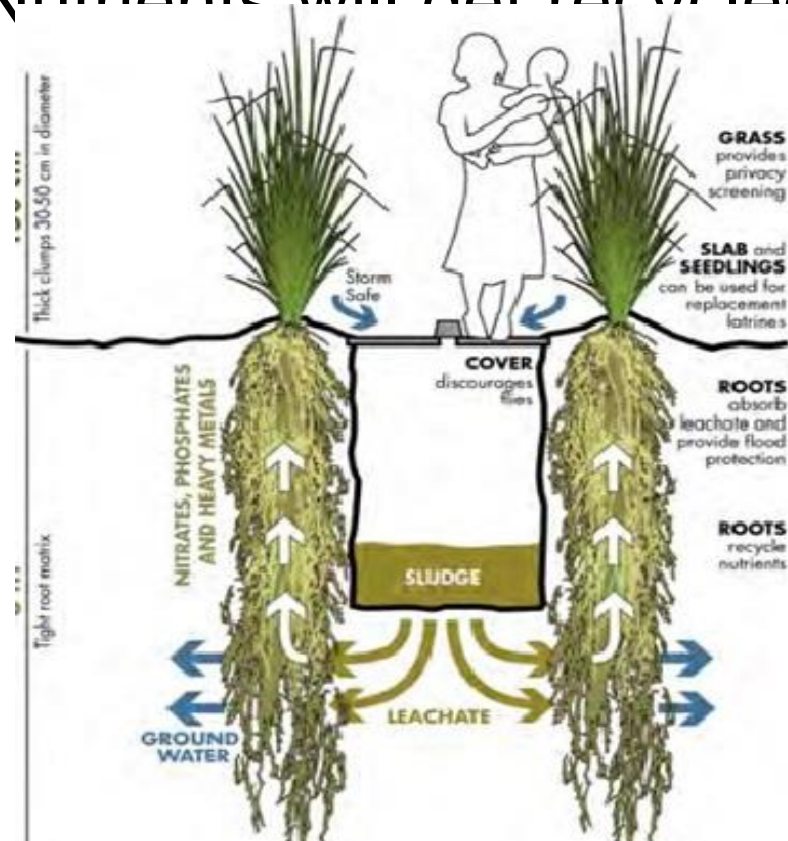
Vetiver in Malaria Control

- It can be used effectively in malaria control programmes.
- The aromatic roots are woven into screens that are used on windows and ventilation areas for homes. When sprayed with water these screens make the air cool and fragrant thus increasing repellent power of the screens.



Vetiver and Sanitation

- Vetiver can be grown around simple pit latrines. The roots will absorb the nitrates and phosphates. Nutrients will get recycled.



Uses of Vetiver Grass – Rural

- Used as animal feed
- Briquettes for cooking
- Thatch for roofing
- Ground mulch
- Handicrafts



Vetiver for Income Generation

- Vetiver oil commands a good price in the market.
- 5 ml of oil sells for nearly Rs 500 in India.
- Farmers can convert their waste, unused land for cultivating Vetiver and reap a rich harvest
- Every part of the plant has an economic value



Let us work together to strengthen the Vetiver network

JACS Rao IFS
Chief Conservator of Forests,
Kanker Circle,
Chattisgarh State
Ph: 9676995404
Email: rao.jacs@gmail.com