



Problems from harvesting biomass with disregard to nature

Bush encroachment is a symptom of rangeland degradation, not its cause.

Nature uses bushes to try repairing water and mineral cycles.

Bushes are fertility pumps, extracting soil minerals with their deep roots to grow leaves, wood and more roots, which all feed animals and microbes that cycle minerals through the top soil.



If rangeland resources are harvested for sale off the land, be it milk or beef or hay or wood, then the minerals in those products can no longer cycle there, reducing the soil's fertility.



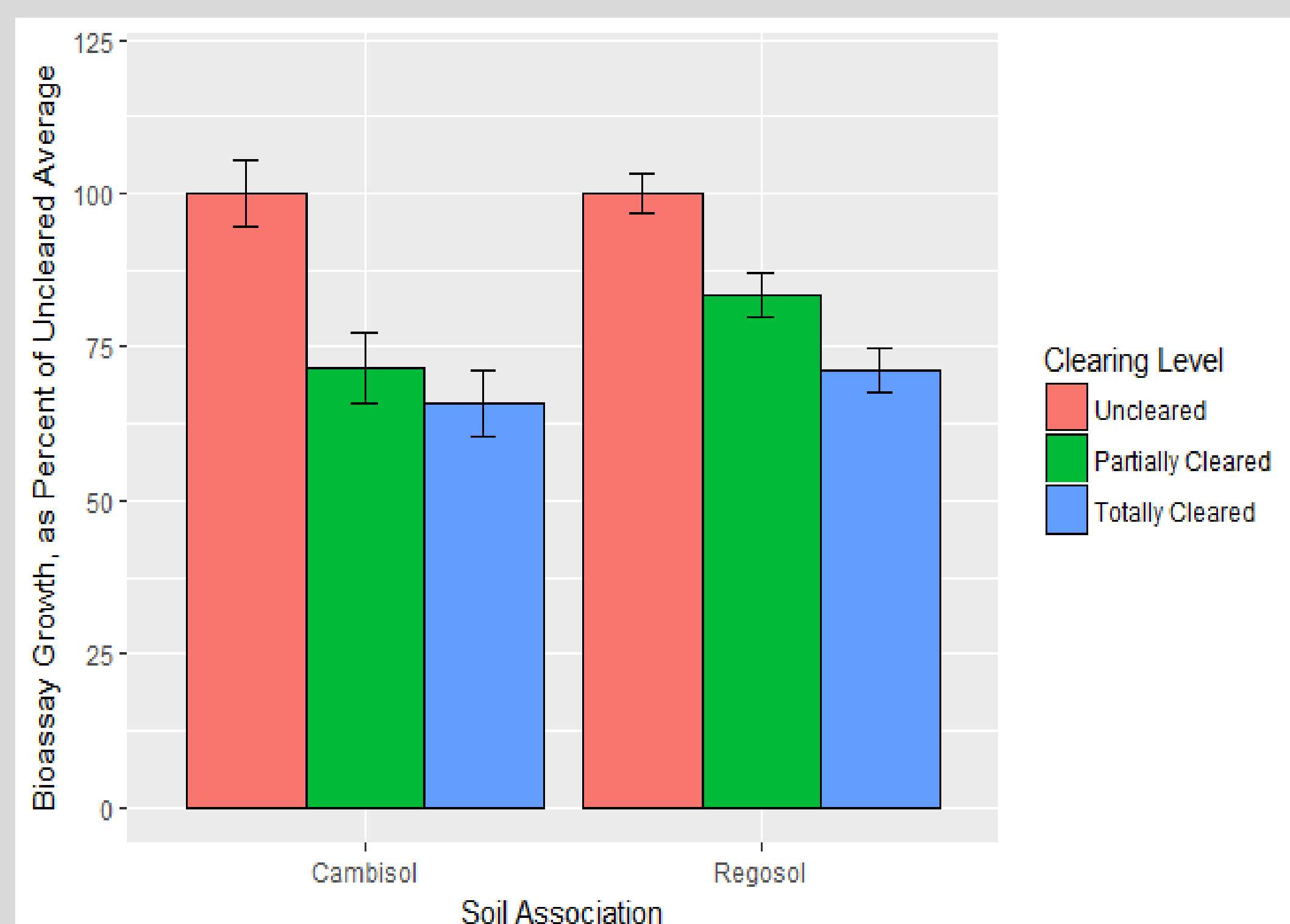
Some minerals may be returned through animal licks, but these often have excess sodium that spreads in dung and urine, slowly poisoning the soil.



The reduction in bush cover often leads to more loss of rain water to runoff from loamy soils and wind erosion of sandy soils.

A study at CCF, downloadable from <https://www.nje.org.na/index.php/nje/article/view/volume1-zimmermann1> found a sharp decline in soil fertility as debushing intensified (Figure 1).

Figure 1. Mean seedling growth at five weeks as percentages of the mean from uncleared sites, to represent relative fertility in soil with different levels of debushing on each soil association. Error bars show standard errors.



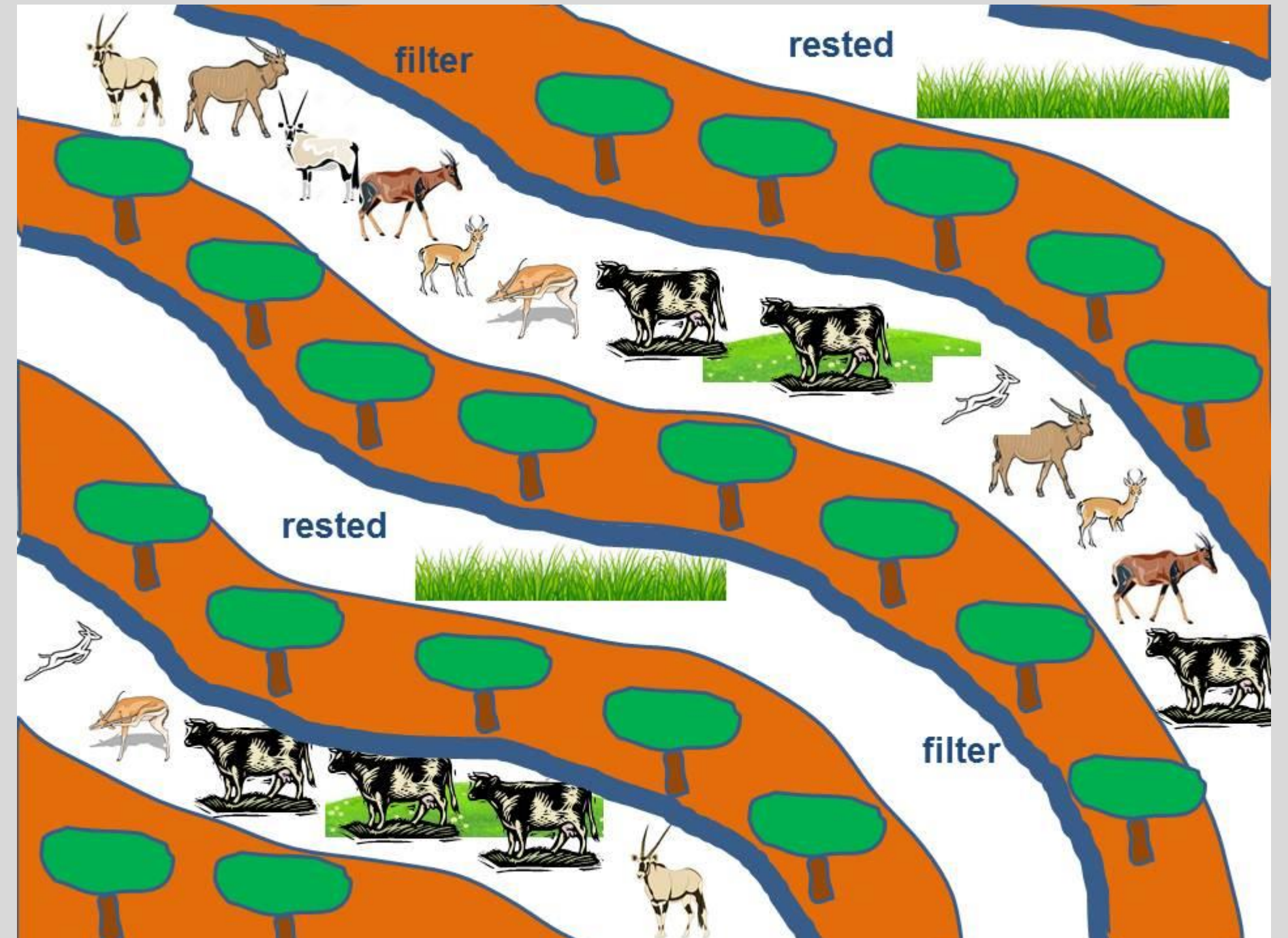


A solution to harvest biomass regeneratively

If bushes are harvested along contour strips, with some cut branches placed as filters along contour, then:

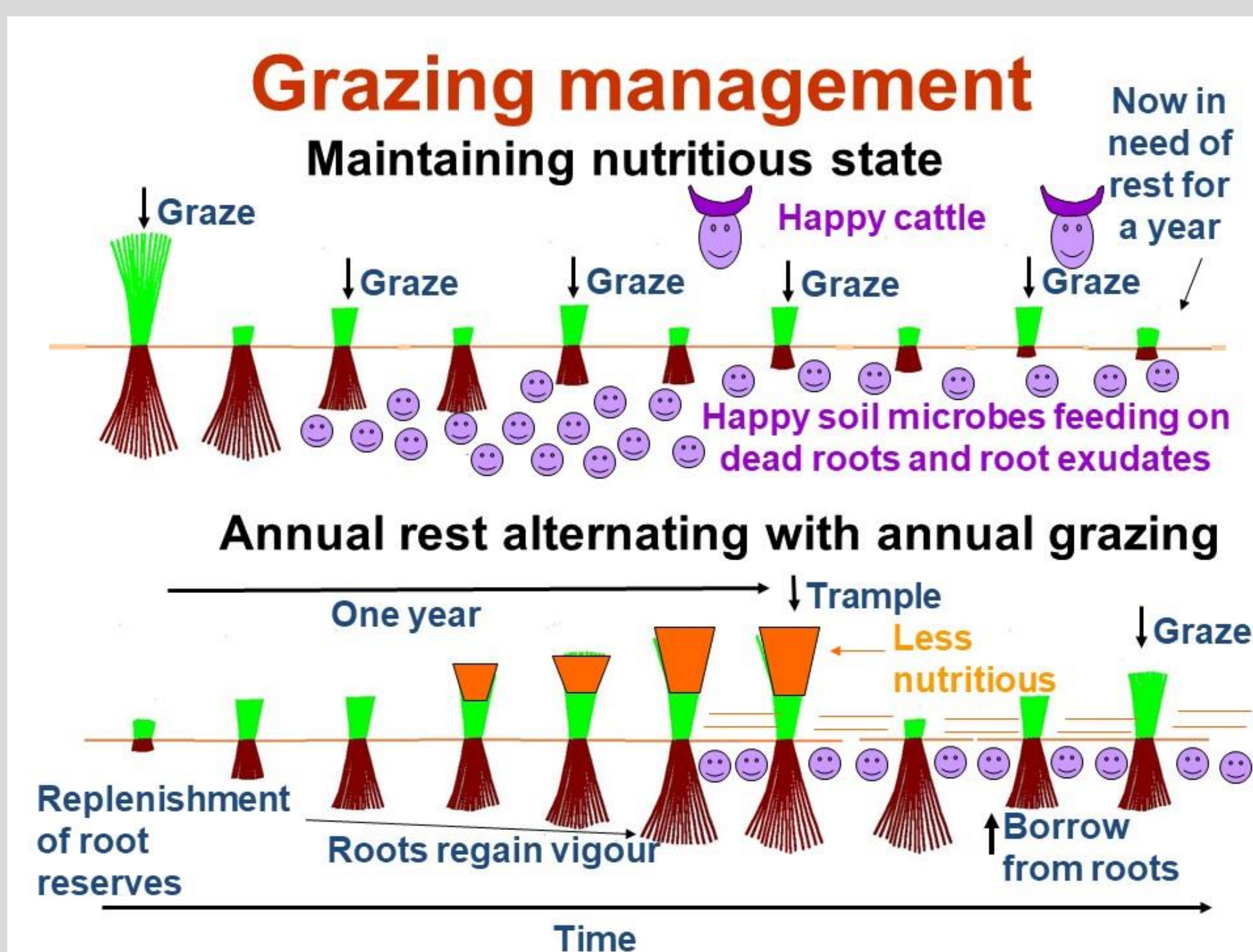
Uncleared contour strips infiltrate rainwater, grow fertility and break wind.

Cleared strips produce abundant grass if provided with sufficient rest as part of an appropriate grazing strategy.



The Split Ranch Grazing Strategy divides the grazing area into two, for year-long grazing to maintain grass in a nutritious state, and year-long resting to rebuild grass vigour for subsequent fast growth.

The year-long rest allows grass to both recover nutrients released by microbes during pulses of rain early in the rainy season, and replenish root reserves late in the rainy season.



Bush filters along contour cool the soil, trap seeds and mulch, and encourage a dense growth of grass underneath, which slows runoff, enhancing infiltration.

Minerals could be replenished along filters or through dung and urine of animals supplemented with e.g. seaweed.



Old bush filters attract termites that puff up the soil underneath, which ponds rainwater over a wide strip on the upper side and eventually infiltrates to support abundant growth of grass if appropriate grazing strategy is applied.

