We present an article by Colombian agronomist Jairo Restrepo that discusses the benefits of soil cover with pastures and the necessity to reevaluate and change our approach on spontaneous species, often vulagarly and erroneously called as "weeds." The author prompts us to consider more sustainable management practices for this group of plants.

Although it is not the only one, rational pasture grazing is a management that can help deal with spontaneous species without resorting to chemically synthesized herbicides.

What we know as “weeds” are generally pioneer species in many ecological successions, that is, plants adapted to proliferate in disturbed areas such as degraded soils or recently bare soils (which resemble the conditions of a soil under formation). For this reason, they are species of rapid growth, exponential reproduction and low nutritional requirements. This puts crops (plants later in ecological succession) at a competitive disadvantage. The presence of “weeds” is an indicator of a soil in degradation, a soil that is going against the direction of ecological succession. Rational grazing that includes

the consumption of these species is a good alternative for immediate control, but it is necessary to rethink what we are doing wrong with the chemical and physical fertility of our soil to address the root problem.

And how do you deal with these species?

WEEDS: 39 Benefits of having them

By Jairo Restrepo Rivera

Source: La Mierda de Vaca

"Constant soil cover represents a safe, effective, simple and fast system that guarantees the reconversion of the conventional predatory agricultural model towards organic agriculture and rational grazing in peaceful coexistence and not in confrontation with nature".

When a term has become ingrained in the customs, it is a titanic task to change it. Nothing is more conservative than a speaker with his learned words. This is the case of what agribusiness began to call "weeds" to justify the juicy business of poisons, herbicides and other synthetic inputs. We have insisted on calling it "good weeds", in line with the vision of organic agriculture that we promote.

Below are the main benefits of rational grazing on protected soils with a pasture mixed with good grasses.

1. They conserve soil moisture and reduce evaporation.
2. They dampen temperature changes between day and night (thermal delta).
3. They avoid the direct impact of water on the soil, both from rainfall and irrigation, by regulating a gradual absorption, both by organic matter and by the green cover itself.
4. They prevent soil disaggregation, avoiding the formation of impermeable surface crusts and constantly initiating the generation of an excellent biophysical structure in the soil.

5. They protect soils from dehydration or drying out caused by sun and wind, especially in clay-expansive soils. In the Brazilian Northeast, during a year, a hectare is capable of losing more than a thousand millimetres of water, due to the influence of winds and solar exposure.

6. They become a constant source of food for microbiology, and mainly for macro biology, represented by dung beetles and earthworms; and permanent input of processed organic matter for soils, and then transcend to humification.

7. They reduce the velocity of surface water runoff: more than 75% of the total volume of a rainfall can be immediately retained.

8. They improve the infiltration and drainage rate of soils, mainly vertically, which facilitates constant mineral renewal in the formation of "new or future" layers (fattening or renewal of surface horizons).

9. They favour the biostructure, lump formation and stability of soils.

10. They increase the effective cation exchange capacity of the soil (CEC).

11. They improve the malleability and permeability of soils, aeration, porosity, depth and horizontal inter-root relationships.

12. They fix atmospheric nitrogen and promote its supply to the soil, other plants and microbiology.

13. They improve the capillarity of soils.

14. They serve to perforate compacted layers both vertically and horizontally, and have the behaviour of a biological subsoiler, together with earthworms and dung beetles.

15. They serve to extract water and solubilise minerals from the subsoil, increasing their availability in the uppermost layers of the soil for fodder crops.

16. They produce organic substances or phytostimulant acids, hormones and other bio-allelopathic substances.

17. They support the formation of organic acids, which are essential for the mineral solubilisation process (biochemical reactions and metabolites).

18. They can be used for both animal feed and human consumption.
19. They are an alternative energy source (firewood, charcoal, fodder, etc.). In the case of the management of agroforestry and grazing systems.
20. They are excellent economic sources of petroleum energy, minimising dependence on soluble fertilisers as a source of crop fertiliser.
21. They favour the colonisation of the soil by macro and micro life, both horizontally in the shallowest layers and vertically in the deepest layers.
22. They serve as a constant source of biomass and seed production (perennials and annuals), in many cases increasing the economic income to producers from their harvesting and marketing.
23. They favour the biodiversity of fauna and flora, contributing to environmental stability in a natural way (birds, insects and small rodents).
24. They are a source of soil nutritional enrichment and recycling of mineral compounds, many of which are locked up.
25. They serve to solubilise nutrients unavailable to animals and crops.
26. With their plant synthesis, they keep the nutritional "cycles" in the soil/macro and micro life/plant and livestock relationship in constant activity.
27. They reduce leaching and loss of nutrients in deeper soil layers.
28. They gradually favour the formation of a soft, workable soil, due to the constant weathering or gradual weathering of the parent rock, mainly by roots, organic matter, macro- and microbiology.
29. They become a constant heterogeneous and dynamic source of organic matter production, directly or indirectly influencing the physical, chemical and biological properties of the soil: colour, structure, plasticity, moisture retention and availability of soluble macro and micronutrients.
30. They provide the soil with a constant and high rate of permanent microbiological humus formation.

31. They allow farmers greater economic options with their crops (seeds, flowers, honey, firewood, fertiliser, food, etc.).

32. Their rotation, associates and management in the form of bio refuges, favour the control and natural biodiversity of insects.

33. They are a constant source of biodiverse genetic renewal and improvement, through their flowers and seeds.

34. They naturally assist in the control of nematodes by self-regulating their populations, mainly among the roots, through the microbiological diversification that is regenerated.

35. Combat desertification, when they control the factors that cause erosion (increased resilience).

36. They contribute to more secure, abundant and efficient harvests, mainly of water, soil, shade, meat, milk and fodder biomass.

37. They serve to control many insect species with the "symbiotic trap effect", while attracting other beneficial species, mainly pollinators such as bees, bumblebees and wasps, among other species.

38. Many plants present in ground cover and fodder improve the health of livestock, as they contain active principles with deworming effects.

39. A balanced mix of good grains in the pasture helps to balance and improve the protein content for animal nutrition.

The management of a pasture, associated with good husbandry, cannot be considered an ecosystem that we can define and limit to a space in which a defined or precise set of physical, chemical and biological relationships or simple relationships between plants take place. The microbiology of a diversified pasture is neither casual nor causal, nor can it be described or narrated, step by step, including activities and interactions between living organisms in the lithosphere, hydrosphere and atmosphere.

In a laboratory, the presence of a certain population of micro-organisms and some functional groups can be quantified for an instant and in a very limited way, but it is difficult to reach a definitive conclusion on all the aspects that involve qualitative relationships that vary at every moment between the

environment and the presence of micro-life in a changing soil, managed and subjected to the laws of thermodynamics and constant grazing in which, in general, only litres of milk and kilos of meat extracted are measured or considered.

As long as a farmer's conscience is not able to recognise that he does not produce meat or milk and that he is only an extractor, he will not be able to establish and understand what true rational pastoralism is.

"We must remember that before a cow learned to relate to a pasture, micro-organisms from deep in the soil made it possible for the phenomenon of rumination to take hold in her belly about 55 million years ago".

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