

Firstly, thus, the nutritional requirements of cows for their own development and health should be identified. The following elements should be borne in mind:

Energy (kJ)
Proteins (g)
Lipids (g)
Carbohydrates (g)
Minerals (mg)
Vitamins (mg)
Water (l)

The aim of agroecological livestock farming in the context of food sovereignty, is to jointly satisfy these needs as well as possible with those resources available on a given farm. As such, grazing and/or harvesting the forage from fields on a given farm is vital. Once the nutritional elements these fields can supply are identified, (a) the need to introduce other forage species (not local but capable of adapting to local conditions) can be assessed, as can (b) the need to supplement dairy cow fodder with raw materials imported to the farm and which of these would be the most appropriate bearing in mind all the above-mentioned objectives in terms of agroecology in the context of food sovereignty and (c) a comparison can be made between dairy cattle feeding regimes based mainly on local forage and those feeding regimes that depend on intensive use of imported feed or concentrates.

With regards to the information offered below, it should be borne in mind that the concentration of the different nutrients found in fodder (feed and forage) depends on the interaction of various factors, particularly: the type of bedrock and soil, each species of plant, the stage of maturity of a plant, meadow and pastureland management, fertiliser application, weather conditions, season and the distribution of mineral elements within a plant: Thus, for example, the concentration of proteins, energy, calcium, phosphorus, and digestible dry matter fall as a plant matures, whilst the concentration of fibre increases. For these reasons the values quoted throughout the present document are average values, unless otherwise indicated.

In the specific case of the Vista Alegre farm, the dairy cows graze the farm's pastures all those months that the weather permits (March/April to November) and fresh green grass and a hay and silage crops are also taken from some of the same fields for the animals' winter feed. The soil structure of many fields (but not all) has been actively altered to a greater or lesser degree over the years, mainly because they have been sown periodically with perennial rye-grass

(*Lolium perenne*) and white clover (*Trifolium repens*). In this sense the fields on the Vista Alegre farm do not differ greatly from the fields on many other farms in the Basque Country: grasses and leguminous species (the pea family) dominate, the two families of plants that jointly provide cows with all classes of nutrients in an optimum fashion.

White clover



Perennial rye-grass



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