



# Foodneted

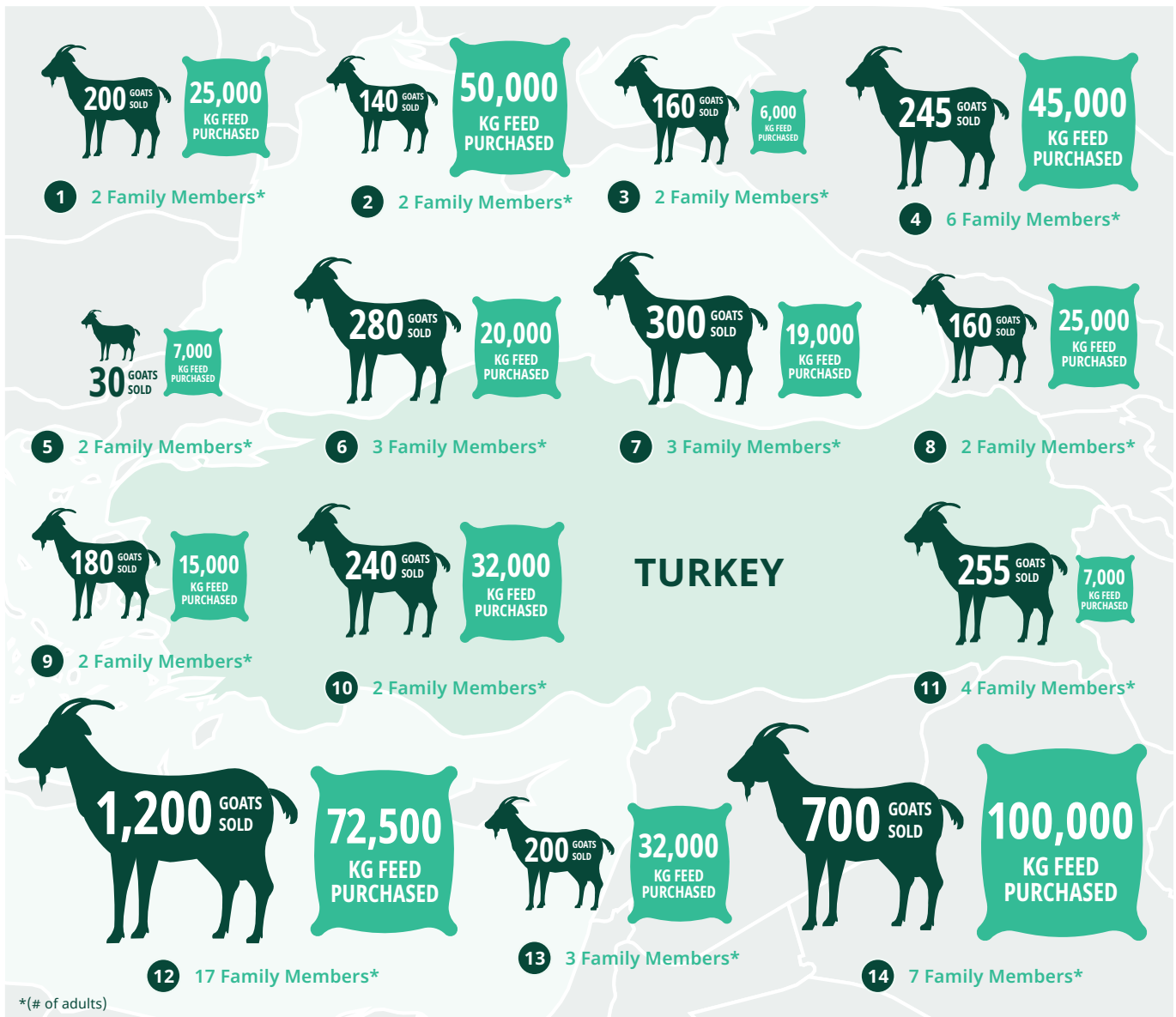
## Ecological Footprint: goat meat from Sarıkeçili nomadic pastoralist families in Turkey



© Sarıkeçililer-Cem Türkel

We set out to calculate the Ecological Footprint of goat meat produced by 14 families from the Sarıkeçili nomadic pastoralist community in Turkey. We then compared the average results with national figures for conventionally produced goat meat. The study showed that not only does the nomadic pastoral model place a significantly lower pressure on the environment than conventional production, but in some cases it even produces net environmental benefits.

### THE FAMILIES



## THE YOLDA INITIATIVE

The [Yolda Initiative](#) is an international nature conservation organization. It recognizes that humans are an integral part of ecosystems, and focuses on the value of traditional cultural practices that benefit biodiversity and contribute to climate change mitigation and adaptation. With this in mind, it works with local communities to develop effective ways of setting nature on the path to recovery.

All the families in this study are affiliated with the Sarıkeçili nomadic pastoralist community in Turkey, with which Yolda collaborates.



## Ecological Footprint

The Ecological Footprint (EF) is a method created by [Global Footprint Network \(GFN\)](#) to measure human demand on natural capital. In this context, the Ecological Footprint is used to measure how much of the planet's natural resources are required to produce a kilo of goat meat and make it available to consumers.

Biocapacity (BC) is the other side of the ecological balance sheet. It tracks the natural assets available to us, and their productivity.



[EF greater than BC] = Ecological deficit



[EF smaller than BC] = Ecological reserve

## Calculating a herd's Ecological Footprint: a new perspective

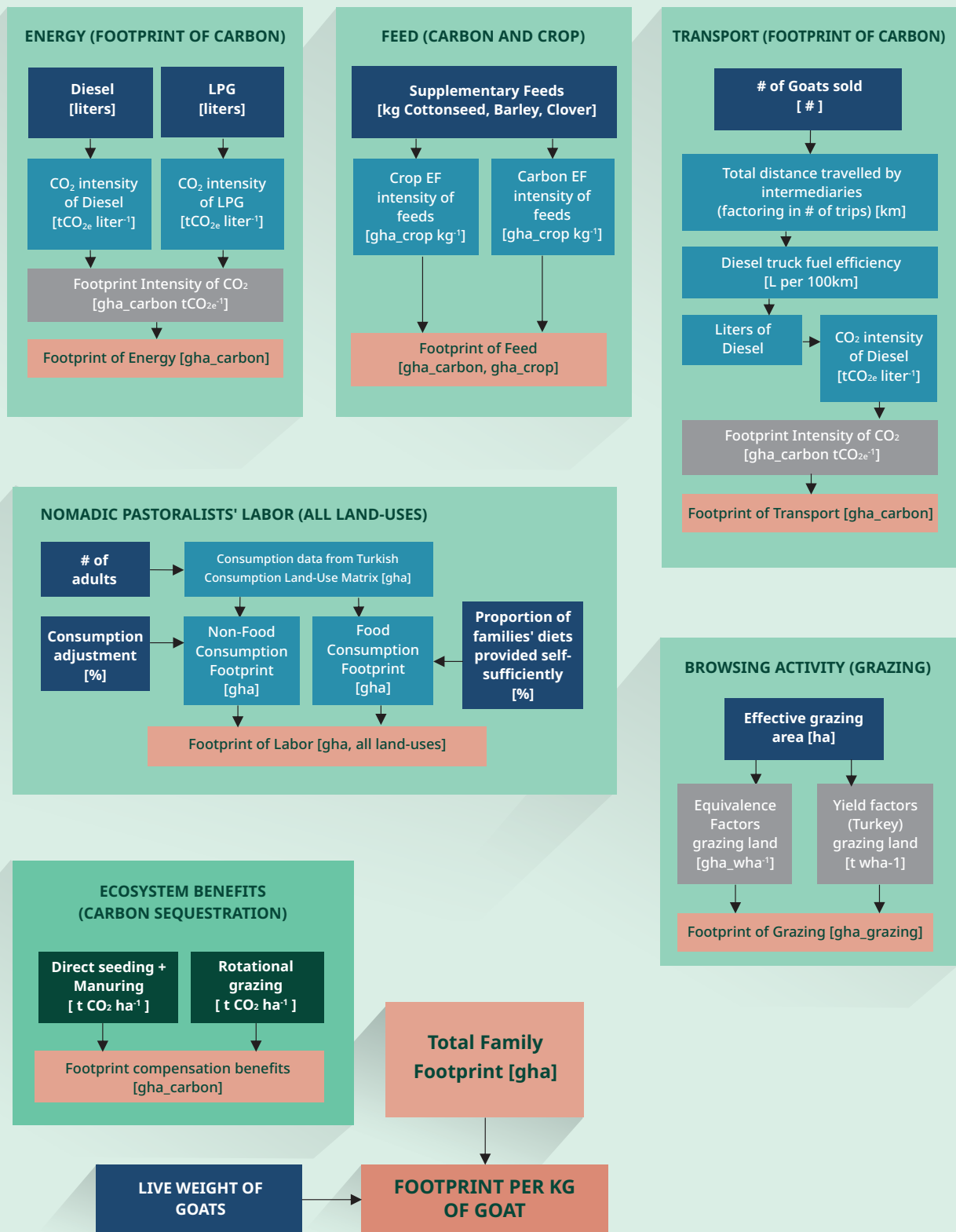
This assessment is among the first to be applied at the level of the herd to quantify both the carbon emissions and the land appropriation due to the production of goat meat. It's also the first to quantify the positive impacts of the land stewardship practices of mobile pastoralism, reflecting the contribution that they make to the biocapacity of the local ecosystem. Direct seeding and rotational grazing, for example, both have regenerative benefits.

We calculated each herd's total net Ecological Footprint by quantifying the Footprint of all its inputs and outputs over the course of a year – this includes everything from the food needed to feed the farming families, to carbon emissions resulting from transporting goats to market, to the land over which herds graze and browse. The Yolda team collected the data from the field in collaboration with Sarıkeçililer Survival and Solidarity Association and Geççi.

Once a herd's total Ecological Footprint has been quantified, it is divided by the total amount of goat meat sold in a given year to calculate the Ecological Footprint associated with the sale of a kilogram of goat meat to consumers.

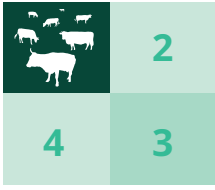


**Figure 1: Calculating the Ecological Footprint of a kilo of goat meat, using the herd-centric approach**



## Nomadic pastoralism: multiple benefits

Nomadic pastoralism is a traditional cultural practice in Turkey that can strengthen both biodiversity and community wellbeing. It provides multiple benefits:



**Rotational grazing:** Rotational grazing can offset carbon levels by stimulating plant growth, reducing soil erosion and sequestering carbon in the soil.



**Circular bioeconomy:** Herds can be moved to fallow areas to make use of crop residues for feed and to distribute animal manure as fertilizer, recycling nutrients as part of a circular bioeconomy.



**Direct seeding:** Nomadic goat herds disperse forage seeds in native pastures without the need for tilling the soil. Direct seeding minimizes soil disturbance, thus reducing erosion, increasing soil organic matter, and improving soil health.



**Food security:** Pastoralism provides affordable, high-quality proteins and nutrients to meet local demand, and can help reduce a country's reliance on imports.

## Results

### Average Footprint of 1kg of goat meat



\*Footprint is expressed in global square metres (gm<sup>2</sup>), representing the area of bioproductive land required to produce 1kg of goat meat.

†Raising goats via nomadic pastoralism practices brings more benefits to the ecosystems than the resources and ecosystems services it demands from the ecosystems, through the entire year and all grounds they pasture on.

Producing goat meat using Sarikeçili nomadic pastoralist methods has an Ecological Footprint that requires 135% less of the planet's biocapacity than the goat meat that is conventionally produced in Turkey. The large difference is explained by the fact that nomadic pastoralism brings multiple environmental benefits to ecosystems.

If goat meat were produced worldwide via traditional nomadic pastoralist practices like those of the Sarikeçili nomadic pastoralists of the Taurus mountains, it would move Earth Overshoot Day by 2.2 Days. Further research, however, is needed to assess the feasibility of satisfying the current demand for goat meat via nomadic practices.

