

Science for Environment Policy

Energy efficiency of local food distribution can match globalised systems

Some scientists have suggested that, when all potential inefficiencies are accounted for, local food distribution systems may be less sustainable than globalised systems. However, new research examining the behaviour of participants in local food networks in France suggests that they can be as energy efficient as globalised systems.

Under globalised food systems, produce is often transported long distances, requiring high consumption rates of non-renewable resources. Consequently, proposals to provide a more sustainable solution using local systems have received substantial support. However, debate over the true advantages of local food systems has been growing and some researchers suggest that there are inefficiencies in local systems that have not been properly considered. For example, there are likely to be many small vehicles on the roads, possibly not fully loaded on the outward journey, which may then return empty.

In this study, researchers examined different local distribution systems of fruit and vegetables in the Rhône-Alps region of France. These included food basket systems, direct sales from the farm and sales from shops owned by groups of producers. To understand the exact nature of each system, they examined the actual practices of producers, employees and consumers, rather than relying on estimates as many studies do.

For each system, the energy consumed across all stages of the system, from the farm to the consumer's home, was calculated for each euro's worth of food. The stages considered included: product storage on the farm; transport to the sales point; warehouse and shop maintenance at the sales point; employee travel and transport to consumer's home. Crucially, this study took into account reasons for making a journey, for example, if transport of the product to the point of sale was combined with another purpose, or if a consumer bought food at their workplace.

Energy consumption over local systems varied, ranging from 13.5 to 44.8 grams of oil equivalent per euro (GOE/€). The results highlighted the strong influence of sales point location on energy efficiency; urban food basket systems, which had the lowest energy consumption (13.5 GOE/€), was the only system which did not require consumers to use their cars.

Using different criteria (for example, excluding farm storage expenditure), to allow comparison with other studies of more globalised systems, researchers demonstrated that many local food systems had similar energy efficiency to supermarkets. For example, food basket systems consumed 10.4 GOE/€ while supermarket food consumes 8.8 - 25.3 GOE/€.

The researchers propose that the variability of the energy consumption indicates that there is room for substantial improvements in efficiency within local systems. In particular, they highlight the importance of developing urban management policies which ensure that farms are situated near cities and that urban sites are made available for local fruit and vegetable shops, enabling consumers to leave their car at home.



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