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Estimating the nutrient supply from agriculture in Scotland

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Responses to the Scottish Government commitment to Net Zero⁽¹⁾ will increase the demand for land from multiple sectors in Scotland and potentially take land out of food production. Choices about where and what foods are produced is important for nutritional security, but has rippling consequences for land use, rural populations and across the food system. To support choices about where and what might be produced, we present an estimate of the nutritional value of agricultural commodities produced in Scotland.

Building on a Scottish Government-built model, annual agricultural census data were used to identify commodities for human consumption, which were matched to the minimally processed foods from each commodity. We focused on the value of the least processed form of each commodity, before food processing and ingredients from elsewhere are incorporated. For example, wholewheat flour and hulled barley. Nutrient data for each food were drawn from the UK Composition of Foods Integrated Dataset⁽²⁾ and the energy and 27 macro and micronutrients were extracted for each food item. Using average yield and production data, the supply of nutrients was estimated.

Cereals could provide many nutrients, but are mostly used for non-food products (approximately 1% of barley and 12.5% of wheat are for human consumption⁽³⁾) so their realised contribution is attenuated. Vegetables are an important source of nutrients despite relatively little hectareage, however, their contribution to the nutrient supply is largely driven by large yields of potato and carrot (particularly for vitamin A). Given the quantity produced, milk is the largest source of nutrients, but livestock meat, which uses a significant proportion of agricultural land (including fodder crops, animal feed and grazing) has a disproportionately small contribution to nutrient supply. However, recognising nutrients vary between products which needs to be considered. Energy (71% of population needs), fibre (64.1%), iron (68.5%), selenium (59.7%), niacin (90.5%) and vitamins D (21.1%) and E (55.8%) all have a low supply from Scottish land.

These results are based on a nutrient supply from production of commodities on the land in Scotland, and the supply from primary production is not always what consumers have access to and the supply of nutrients often changes in food processing along the whole food chain. The supply of nutrients for human consumption is not only from domestic production and about half of the diet in Scotland is from imported foods (especially fruit and vegetables)⁽⁴⁾. However, the aim of this study was to estimate the potential of supply from current agricultural production. Understanding the potential and realised nutrient supply from domestic agricultural production helps to evidence a discussion about how agriculture is valued, the opportunities to reimagine food production to maximise the supply of nutrients across Scotland and consider uses of land.

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