The benefits of organic farming

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Organic farming means working with nature. Overall it delivers the highest levels of animal welfare, far more farm wildlife, severely restricted pesticide use, no manufactured fertilisers and lower greenhouse gas emissions.

Organic certification is different from other farm assurance schemes in the UK because:

- it is supported by longstanding, independent and robust scientific evidence demonstrating the delivery of environmental and public benefits from organic systems;
- of the requirement of a detailed, independent, government-approved auditing process - all organic farms and food companies are inspected at least once a year;
- organic standards for food and farming are set out in legislation - the EU Organic Regulation.

Because of this, organic certification functions as a gateway to farm payments; if a farmer is certified organic, if they apply receipt of organic conversion or maintenance payments is automatic.

Evidence for the many benefits of organic farming continues to grow. Recent scientific reviews and meta-studies find that organic farms deliver:

1. **More wildlife**: organic farms have 50% more abundant wildlife, with a third more species on average, including almost 50% more pollinator species and 75% more plant species. [1] [2]
2. **Healthier soils:** organically farmed soils have on average 44% higher levels of humic acid[3] - the component of soil that stores carbon over the long term - and perform better against other soil health indicators too, such as abundance of soil microbes and resilience against flooding and drought.[4]
3. **Climate mitigation**: organic soils sequester up to 450kg more carbon per hectare than non-organic farms, and soil organic carbon stocks are up to 3.5 tonnes higher per hectare than non-organic farms.[5] Organic farming prohibits the use of manufactured nitrogen fertiliser – a major contributor to agricultural greenhouse gas emissions.
4. **Protection against flooding**: healthy soil reduces the risk of floods and droughts by storing as much as 3,750 tonnes of water per hectare, the equivalent of one and a half Olympic swimming pools.[6]
5. **Clean water**: 35-65% less nitrogen and no persistent pesticides leached from organic arable fields.[7]
6. **Lower pesticide use**: organic farmers can only use (under strict conditions) a small number of pesticides, all of which are naturally occurring and carefully selected and approved.[8] If all farming was organic, research suggests that pesticide use would drop by 98%.[9] [10]
7. **Low antibiotic use**: the routine use of antibiotics is banned and optimising animal health and welfare mean that organic systems use far less antibiotics than non-organic indoor or extensive systems.[11]
8. **More jobs**: including for younger people, women and new entrants to the farming industry.[12]

9. **Food security**: modelling by the UN Food and Agriculture Organisation (FAO) and others has concluded that organic farming can play a major part in increasing global food security and feeding a global population of over 9 billion sustainably by 2050.[13] [14]

There is nothing to stop other farmers using some organic methods, and more are taking up organic techniques, for example, to improve their soils and tackle problem weeds.

However, it is because organic farmers cannot use manufactured fertilisers and use almost no pesticides, and are independently checked, that they are obliged to adopt a wide-ranging system of ecological practices that scientific research demonstrates reliably deliver environmental benefits and other public goods.

These farming systems, regulations and assurance provide a package that is trusted by consumers, creating a market that supports the delivery of a wide range of public goods, supported by significant scientific evidence on its impact.

Targeting specific public support at organic conversion and maintenance is the simplest and most cost-effective way to leverage that market to deliver public benefits. It also recognises that increasing consumer demand for organic food[15] will otherwise be met by imports – an opportunity cost to the delivery of public benefits in the UK and to farm businesses.

References

[1] Bengtsson, J., Ahnström, J., & Weibull, A. C. (2005) 'The effects of organic agriculture on biodiversity and abundance: A meta-analysis' Journal of Applied Ecology, 42(2), 261–269. http://doi.org/10.1111/j.1365-2664.2005.01005.x

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[3] Ghabbour, E. A., et al (2017) 'National Comparison of the Total and Sequestered Organic Matter Contents of Conventional and Organic Farm Soils', Advances in Agronomy, 146, 1-35 https://doi.org/10.1016/bs.agron.2017.07.003

[4] Müller, A. et al (2016) 'Organic farming, climate change mitigation and beyond: reducing the environmental impacts of EU agriculture' IFOAM EU and FiBL, available online at: http://www.ifoam-eu.org/sites/default/files/ifoameu_advocacy_climate_change_report_2016.pdf, pp 45-46

[5] Gattinger, A., Muller, A., Haeni, M., Skinner, C., Fliessbach, A., Buchmann, N., Niggli, U. (2012). Enhanced top soil carbon stocks under organic farming. Proceedings of the National Academy of Sciences of the United States of America, 109(44), 18226–31. https://doi.org/10.1073/pnas.1209429109

[6] European Commission Joint Research Centre, 'Key Facts About Soils' available online: http://eusoils.jrc.ec.europa.eu/projects/Soil_Atlas/backup/Key_Factors.html [Accessed February 2017]

[7] Niggli, U. (2015) 'Sustainability of organic food production: challenges and innovations' Proceedings of the Nutrition Society, 74:1 83-88, DOI: https://doi.org/10.1017/S0029665114001438

[8] IFOAM States that the reason only natural pesticides are allowed is: *The precautionary principle acknowledges that our understanding of the impact of synthetic pesticides on our agroecosystems, the wider environment and human health can never be exhaustive. In contrast to synthetic substances there is a longer experience of natural substance use within the natural environment. Therefore unpredictable risks coming from the release of molecules (e.g. "synthetic" pesticides) and organisms (from genetic engineering), not existing in nature, are rejected by the organic sector. As a result inputs in organic production are only limited to naturally occurring substances.*

[9] Jones, P., Crane, R., & Centre for Agricultural Strategy University of Reading. (2009). England and Wales under organic agriculture: how much food could be produced? CAS Report 18. Retrieved from https://www.researchgate.net/publication/242130448_England_and_Wales_under_organic_agriculture_how_much_food_could_be_produced

[10] Over 300 different pesticides are permitted in non-organic farming and in 2015 over 17,800 tonnes of pesticides were applied on British farms (See: Fera Ltd (2016) Pesticide Usage Statistics (PUS STATS), available online at: https://secure.fera.defra.gov.uk/pusstats/surveys/2016surveys.cfm). In contrast, organic farmers are only allowed to use a tiny proportion of the full array of pesticides available to farmers, and organic farmers are not permitted to use any herbicides. The small number of pesticides that organic farmers are permitted to use are naturally occurring and are carefully selected and approved at EU level.

[11] Sustain (2015) 'At least 10 times less antibiotics used in organic pigs' published online on 30 March 2015 at: https://www.sustainweb.org/news/20150330_132021/ or see: http://www.ft.dk/samling/20131/almdel/flf/spm/495/svar/1156714/1401964.pdf (Danish). See also Veterinary Laboratories Agency (2006) 'Investigation of persistence of antimicrobial resistant organisms in livestock production' Project OD2006, available online at: http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&C%20ompleted=0&ProjectID=9902

[12] Soil Association (2006) 'Organic Works: Providing more jobs through organic farming and local food supply' Summarised in written evidence to EFRA committee: https://publications.parliament.uk/pa/cm200708/cmselect/cmenvfru/544/544we25.htm

[13] Scialabba, N. (2007) 'Organic agriculture and food security' Presented at FAO International Conference on Organic Agriculture and Food Security, Rome, 3 - 5 May 2007 https://www.usc-canada.org/UserFiles/File/organic-agriculture-and-food-security.pdf

[14] Mueller, A et al (2017) 'Strategies for feeding the world more sustainably with organic agriculture' Nature Communications, 14 November 2017: https://www.nature.com/articles/s41467-017-01410-w

[15] UK Organic Market Report, 2017, available online at: https://www.soilassociation.org/certification/trade-news/2017/uk-organic-market-tops-2-billion/