

Organic Agriculture in Europe: EU Sets Goal of Growing Organic Farmland from 10% to 25% by 2030

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ABSTRACT

Historically, Europe has been the locus of key developments in the founding and growth of organic agriculture. A century ago, in 1924, the Austrian New Age philosopher Dr. Rudolf Steiner called for an agriculture differentiated from the prevailing direction of agriculture and one reliant on natural biological processes rather than synthetic chemicals. The European Union (EU) has set the goal to be of 25% organic by 2030. Organic agriculture presently accounts for 9.6% of EU agriculture (cf. the world figure is 1.6%). For the past two decades, the tally of EU organic agriculture hectares has grown at 6.7% pa to reach 15,639,063 ha (cf. the world total of 76,403,777 ha). At this historic rate of growth (of 6.7% pa), organics will account for 17.5% by 2030 (c. 28.2 m ha), which is well short of the goal. To reach 25% by 2030, the growth rate needs to be ramped up to 10.7% pa growth (and reach a total of 40.6 m ha). About half ($n = 15$) of the 31 countries committed to the 25% goal, comprising the EU, EEA, and EFTA, have more than 10% organic agriculture. That offers a good foundation on which to build to the goal. The other half ($n = 16$) each have less than 10% organic agriculture; they offer opportunities for substantial uptake of organics. The EU has a 'Farm to Fork' strategy (F2F) with an 'Action Plan' comprising three 'Axes' and 54 'Actions' to achieve the 25% organic goal by 2030; however, milestones and waypoints are lacking. The EU goal is bold, but not as bold as the 100% organic goals of Sikkim, which has achieved its 100% goal, and Bhutan, which has not, and is stalled at 1% organic.

Keywords: European Economic Area (EEA), European Free Trade Area (EFTA), European Union (EU), Organic farming.

Submitted: December 27, 2023

Published: February 13, 2024

 10.24018/ejfood.2024.6.1.769

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1. INTRODUCTION

Organic agriculture is the quest to produce pure food. Certified organic food is produced without synthetic fertilisers, synthetic pesticides, genetically modified organisms (GMOs), antibiotics, irradiation, and engineered nanotechnology [1].

The European Union has declared the goal of achieving 25% organic agriculture by 2030 [2]. The present paper considers the longitudinal data of organic agriculture in Europe over the past two decades, the historical growth rate of the sector, and the prospects of achieving the 25% goal.

Europe has a firm claim to be 'Organics Central'. Europe has hosted key foundational milestones in the history of organic agriculture, and Europe is presently the home of major organics institutions. It was Austrian New

Age philosopher Dr. Rudolf Steiner (1861–1925) in 1924 in the village of Koberwitz (then Germany, now Kobierzyce, Poland), who first proposed a differentiated agriculture focussed on biological rather than chemical processes and eschewing synthetic chemicals [3], [4] (Fig. 1).

Steiner's call came in the wake of the work of two German industrial chemists. Fritz Haber (1868–1934) and Carl Bosch (1874–1940) had demonstrated in 1909 their process to fix nitrogen from the air. Their Haber-Bosch process enabled the production of cheap and abundant explosives for World War I (WWI), 1914–1918 [5], [6]. After the war, the manufacturing was promptly repurposed to produce cheap and abundant synthetic fertiliser [7].

In parallel with the rapid growth of the synthetic fertiliser industry post WWI, the Experimental Circle of Anthroposophical Farmers and Gardeners were testing



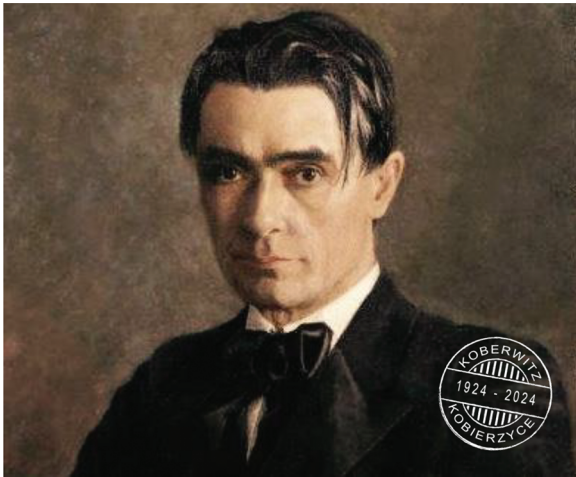


Fig. 1. New Age philosopher Dr. Rudolf Steiner laid the foundations in 1924 at Koberwitz for an agriculture differentiated by a reliance on biology rather than synthetic chemistry (Image artist: D Huschke, 1906, photo: J Paull, Koberwitz centenary logo: Wiki Commons, CC-BY-04).

Rudolf Steiner's ideas. In 1938, the German scientist, Ehrenfried Pfeiffer (1899–1961), an acolyte of Rudolf Steiner and lead researcher at the Natural Science Section of the Goetheanum, at Dornach, Switzerland, published 'Bio-Dynamic Farming and Gardening'. The book presented the world with the freshly coined name and the tested differentiated agriculture derived from Steiner's ideas [8], [9].

Soon after the appearance of Pfeiffer's book, the British biodynamic farmer, Lord Northbourne (1896–1982), taking his cue from Steiner's characterisation of 'the farm as an organism', coined the term 'organic farming', and he paved the way beyond biodynamics, and published his manifesto of organic agriculture 'Look to the Land' in 1940 [10], [11]. The ideas and terminology took root around the world. In 1972, Frenchman, Roland Chevriot, president of Nature et Progrès, founded the International Federation of Organic Agriculture Movements (IFOAM), (now IFOAM - Organics International) at Versailles, France (now headquartered at Bonn, Germany) [12], [13].

Major organics entities are presently based in Europe. The Research Institute of Organic Agriculture (FiBL: Forschungsinstitut für Biologischen Landbau) is headquartered in Switzerland ([fibl.org](https://www.fibl.org)). The International Society of Organic Farming Research (ISOFAR) is based in Germany (isofar.online). The Biodynamic Federation Demeter International is based in Echterdingen near Stuttgart, Germany. The open access archive of organics research, Organic ePrints (orgprints.org), is managed by the International Centre for Research in Organic Food Systems (ICROFS) based in Denmark (icrofs.dk). Europe is well represented in the world map of organic agriculture (Fig. 2).

Eating organic is a sound proposition as a strategy to avoid and reduce the intake of synthetic pesticides [15], [16] (Fig. 3).

Europe is a somewhat fuzzy concept. The external and the internal mosaic of borders in Europe have morphed over centuries. The geography of where Europe begins

and ends has long been contested and never unequivocally resolved. Europe's domestic violence ignited two world wars in the twentieth century. European countries have shape-shifted many times, and countries have variously appeared and disappeared. After centuries of Euro-squabbles, many Euro-borders are settled, and others are not. As alliances and perceived self interest continue to evolve, we can take it that the 'Europe' and the 'European Union' of the present are not necessarily identical to the Europe and the European Union of the future, nor perhaps even of 2030.

The present paper considers the present accounting of EU organic agriculture and the past performance of the growth of the sector over the past two decades vis a vis the growth required to meet the Green Deal goal of 25% organic farmland by 2030.

2. METHODS

The goal of 25% organic by 2030 is set by the European Commission (EC) for the European Union (EU) [2]. The goal is an element of the Farm to Fork strategy (F2F). The EC is the governing body of the EU, which comprises 27 countries. The European Economic Area (EEA) and the European Free Trade Area (EFTA) have also jointly endorsed the Farm to Fork Strategy [17]. The EEA comprises 30 countries, the 27 EU countries, plus three non-EU countries: Iceland, Liechtenstein and Norway. The EFTA comprises four non-EU countries: Iceland, Liechtenstein, Norway and Switzerland. Thus, the goal is presently set for 31 countries. The United Kingdom was formerly a member of the EU.

There are a further eight candidate countries seeking to join the EU: six Balkan countries (Albania, Bosnia and Herzegovina, Moldova, Montenegro, North Macedonia, Serbia) plus Türkiye and Ukraine. There are a further two territories (Georgia and Kosovo) which seek to become candidate countries.

The historical data of the EU is for 28 countries (the existing 27 member countries plus the departed UK) (statistics.fibl.org). Organic agriculture in the UK accounts for 2.8% of UK agriculture compared to the EU's 9.6%, so the UK leaving the EU effectively shifts the EU closer to its goal of 25%.

3. RESULTS

Annual certified organic agriculture data are available from 2000 to 2021 (statistics.fibl.org). The longitudinal data (2000–2021) of the EU are presented in Fig. 4. The agricultural land of the EU is 9.6% organic in 2021. The annual growth over these two decades has been compounding at 6.7% pa. There were 3,805,916 certified organic hectares in 2000, and that has grown to 15,639,063 ha in 2021 (from 2.2% to 9.6% of agricultural land).

If the rate of growth of the past two decades continues through to 2030, the total of certified organic hectares will grow to circa 28.2 million hectares, accounting for 17.5% of agricultural land (Fig. 4). To meet the 25% goal, the total EU certified organic needs to reach circa 40.6 m ha, and

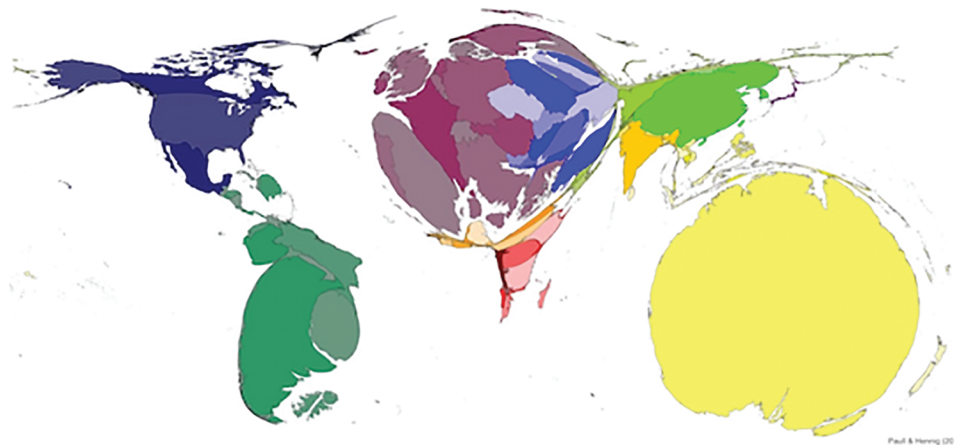


Fig. 2. World Map of Organic Agriculture, cartogram with countries resized proportionate to their organic agriculture hectares [14].

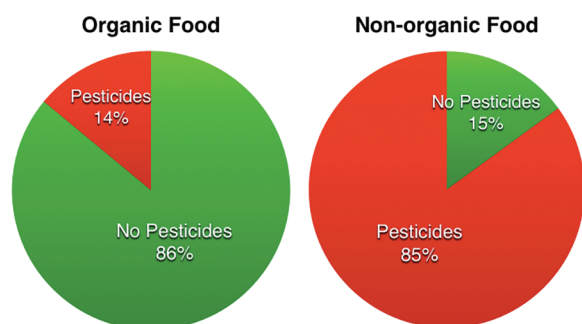


Fig. 3. Eating organic food reduces the probability of consumers ingesting pesticides [16].

the rate of growth of organics needs to increase to 10.7% pa (Fig. 4).

The 27 countries of the EU and their current percentage of certified organic agriculture are as follows (ranked from high to low) (data: fibl.org for 2021):

- Austria (26.5% organic)
- Estonia (23.0% organic)
- Sweden (20.2% organic)
- Italy (16.7% organic)
- Czech Republic (15.8% organic)
- Latvia (14.8% organic)
- Finland (14.4% organic)
- Slovakia (11.7% organic)
- Denmark (11.4% organic)
- Germany (10.8% organic)
- Spain (10.8% organic)
- Slovenia (10.8% organic)
- Greece (10.2% organic)
- France (9.6% organic)
- Lithuania (8.9% organic)
- Croatia (8.1% organic)
- Portugal (7.8% organic)
- Belgium (7.5% organic)
- Hungary (5.9% organic)
- Cyprus (5.7% organic)
- Luxembourg (5.2% organic)
- Romania (4.3% organic)
- The Netherlands (4.2% organic)
- Poland (3.5% organic)
- Ireland (1.9% organic)

- Bulgaria (1.7% organic)

- Malta (0.6% organic)

The 31 countries comprising the EU ($n = 27$), EEA ($n = 30$), and EFTA ($n = 4$) have jointly adopted the Farm to Fork (F2F) strategy of the EC. The European Economic Area (EEA) comprises the 27 countries of the EU along with Iceland, Liechtenstein, and Norway. The European Free Trade Association (EFTA) comprises Iceland, Liechtenstein, Norway, and Switzerland; their current percentage of certified organic agriculture are as follows (ranked from high to low) (data: fibl.org in 2021):

- Liechtenstein (40.2% organic)
- Switzerland (17.4% organic)
- Norway (4.6% organic)
- Iceland (0.4% organic)

The eight countries that are candidates for membership of the EU and their current percentage of certified organic agriculture are as follows (ranked from high to low) (data: fibl.org in 2021):

- Montenegro (1.7% organic)
- Moldova (1.3% organic)
- Ukraine (1.0% organic)
- Türkiye (0.9% organic)
- Serbia (0.7% organic)
- North Macedonia (0.6% organic)
- Bosnia and Herzegovina (0.1% organic)
- Albania (0.1% organic)

Two further countries aspire to join the EU, and their current percentage of certified organic agriculture is as follows (ranked from high to low) (data: fibl.org):

- Kosovo (0.5% organic)
- Georgia (0.2% organic)

By 2030, the countries responsible for meeting the 25% organic goal could possibly total 41 (viz. 27 current EU countries + 4 EFTA countries + 8 EU candidates + 2 EU aspirant countries). In the interim to 2030, other EU-aspirants may appear, while others may exit the EU, EEA or EFTA, or relinquish their EU aspirations.

To meet the goal of 25% organic agricultural land by 2030 the annual growth of organics needs to increase from 6.7% pa to 10.7% pa. This is a growth rate of almost 60% per annum faster than the historical rate of growth of the sector. The goal is thus ambitious.

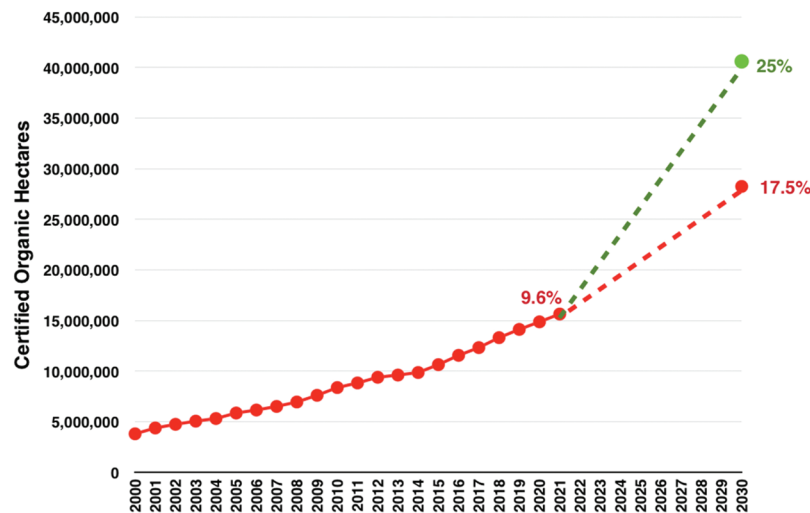


Fig. 4. Organic agriculture of the European Union (certified hectares) has grown at 6.7% pa in the years from 2000 to 2021, the historical growth rate is projected to 2030 (appears as red dotted) and growth to achieve 25% organic by 2030 (appears as green dotted) (data 2000–2021: [fibl.org](https://www.fibl.org/)).



Fig. 5. The EU logo for certified organic product (with at least 95% certified organic ingredients) in use since 2010 (image source: agriculture.ec.europa.eu).

The EU ‘Action Plan’ comprises Axis 1, 2 and 3 detailed in ‘An Action Plan for the Development of Organic Production’ (perhaps an unfortunate lexical choice of terminology evoking the Axis powers of WW2):

- Axis 1: Consumers: Stimulate demand and ensure consumer trust;
- Axis 2: Producers: Stimulate conversion and reinforce the entire value chain;
- Axis 3: Sustainability: Improve the contribution of organic farming to sustainability [18]–[20].

Axis 1 envisions “*Promoting organic farming and the EU logo ... secure an ambitious budget ... for boosting the consumption of organic products ... stimulate a greater uptake of organics in public canteens ... increase further the distribution of organic products in the school schemes ... increase the distribution and sale of organic products*” [18] (Fig. 5).

Axis 2 envisions “*Encouraging conversion, investment and exchange of best practices ... develop courses on organic farming as part of the general curriculum ... intensify the collection of market data ... forming or joining specific organic producer organisations ... raise awareness and provide better information about group certification ... foster local and small scale processing ... support the*

development of and the implementation of ‘Bio-districts’ ... adopt an algae initiative ... Reinforcing organic aquaculture” [18].

Axis 3 envisions “*set up ... a pilot network of climate positive organic holdings ... support the preservation ... and the availability of organic seeds ... set up EU demonstration farm networks ... strengthen farm advisory services ... support research and innovation on improving organic yields ... further improve animal welfare in organic production ... adopt a Framework on bio-based and biodegradable plastic ... Making more efficient use of resources*” [18].

4. DISCUSSION

Goals for organic agriculture have a mixed history of reification. The Indian hill state of Sikkim set the goal in 2003 of being 100% organic. Neighbouring Bhutan set the goal in 2006 of being 100% organic by 2020. Sikkim achieved its 100% organic ambition in 2016. Bhutan only managed to achieve 1% organic by 2020, and progress towards the goal appears stalled [21]–[24].

Organic currently accounts for 9.6% of agriculture in the EU. The establishment and growth of organics has largely been a ‘bottom up’ movement, driven by a cadre of ‘true believers’, both farmers and consumers (rather than government). Historically the growth could be characterised as ‘organic’, driven by dissidents and contrarians, often in defiance of bureaucrats who sometimes appear in the thrall of agrochemical advocates.

Organics is the creation of civil society. Enthusiasts in associations and societies have advocated over the past century for their version of agricultural sanity [13]. In the digital era, many associations, societies, and membership-based organisations are in decline, have ceased, or have transitioned into certifiers. Perhaps the impetus for progressing organics can be successfully flipped from the ‘bottom-up’ of civil society of times past to the ‘top-down’ of government?

Could EU ‘top-down’ momentum carry the organics movement forward to the 25% milestone? The wide-scale

uptake of organic agriculture would manifest substantial progress towards the dream of the organics advocates of the past century of an Otopia (100% organics) [25]. Whether the actual experience ‘on the ground’ proves to be one of ‘the dead hand of bureaucracy’ or of a ‘hand up’ from government and an invigorating impetus for the sector remains to be seen.

The growth of the organics sector, to date, has largely been driven by civil society. Could the baton now be passed to EU bureaucracy, can the organics achievements of the past now be sustained and surpassed by the government, and can the organics sector retain its integrity?

Two European countries have already realised the 25% organic goal. Austria has 26.5% organic agriculture, and Liechtenstein has 40.2%. Which are the ‘easy’ candidates for an uptick of organics? Which are the ‘low hanging fruit’? Is it the present organic leaders (15 of the 31 countries have already achieved 10% organic or greater) or is it the organic laggards (16 of the countries have achieved less than 10% organic)?

The EU Action Plan for the Development of Organic Production presents multiple opportunities for organic leader countries to reinforce their leadership, to grow their organic sectors further, and to share their expertise with organic laggard countries. The Action Plan may offer the organics laggards the opportunity to ‘grasp the nettle’, to learn from their neighbours, and perhaps to be Europe’s nouveau organics leaders when the organics statistics for 2030 are tallied.

Unfortunately, the EU Action Plan has the appearance of a grab-bag of dot points from the white-board of a brain-storming focus group—perhaps more thought bubble than strategic plan? There are 54 nominated actions [18]. Whether it is a coherent plan or can be kludged into a coherent plan remains to be seen.

The brave new world of F2F makes no mention of listing the pesticides used in food production on the label at the point of sale. A listing of multiple, perhaps dozens, of pesticides, herbicides, insecticides, miticides, arachnicides fungicides et alia on food products would offer consumers some truth, and may give consumers some pause for thought and some insight into the toxic smorgasbord that has been applied to the product. Pesticide declarations might even slow down some chemical enthusiasts if they knew that their chemical spraying regimes were to be exposed to consumer scrutiny. Perhaps it is a step too brave even for F2F?

There is no mention in the Action Plan of creating an improved organics logo (for the EU, or the world). Europe is famous for design [26]. Europe has produced stylish, versatile and internationally recognisable product logos (MG, Mercedes, Renault, VW and Citroen logos come to mind). The European flair for design seems to have left the stage while the present EU organics logo was developed; it is a pallid green coloured star-spangled banner, an insipid and lacklustre effort that appears (to the author) more suited as a flag or a tablecloth than a logo (Fig. 5).

The Action Plan seems to have turned a blind eye to genetically modified organisms (GMOs). While the EU has generally not approved the uptake of GMOs, there is a lack of harmony across the EU states for GMO

approvals and restrictions. This needs addressing as GMOs are excluded from organic production, and they are an existential threat to organics [27].

There is also the contentious issue of whether EU policies, demand, and purchasing power (e.g., for bio-fuels, bio-diesel and bio-ethanol) are driving demand for GM canola (e.g., from Australia). Australian farmland bears EU-destined GMO canola, and this off-shored GM canola for the EU replaces non-GM food crops in Australia. The F2F strategy could consider the perverse extra-territorial outcomes of EU policies on non-EU countries.

In the EU, farmland is a zero-sum game. Increasing the organics share from the present 9.6% to 25% must necessarily be achieved at the expense of the chemical agriculture sector, with its corresponding shrinkage from 90.4% to 75% for the chemical agriculture sector (although an unmeasured number of farms may be de facto organic but not certified organic). While the demise of chemical agriculture would be welcomed in many quarters (and is the essence of the F2F strategy), how will the chemical behemoths respond? Are they expected just to sit back and applaud?

The three biggest agrochemical companies in the world (Bayer, Syngenta, and BASF) are Euro-based companies. What is their ‘Action Plan’, or perhaps ‘Reaction Plan’, to fight back against the EU F2F strategy? The pesticide and GMO agrochemical giants can hardly be expected to stand aside and watch their market share of agriculture be whittled away, down to 75% by 2030, to 50% by some future time, and perhaps even to 0% by 2050 [28].

Lord Northbourne characterised agriculture as a contest of “organic versus chemical farming” [10], and he foresaw that the contest might last centuries [10]. He stated that organics advocates “will be fighting a rearguard action for many decades, perhaps for centuries” [10]. The F2F strategy can be expected to be just as forked and impaled as the agrochemical giants can manage.

5. CONCLUSION

Europe’s goal of 25% organic agriculture by 2030 is bold and ambitious. Virgil declared that ‘Fortune favours the bold’ (Audentis fortuna Iuvat) [29], and perhaps Fortune will favour the EU? The goal is a worthy goal. Perhaps ‘peak pesticides’ can be behind us? The questions remain: is the EU’s ‘Action Plan’ an actionable plan, if so, will it be actioned, if so, will the actions bear fruit or be thwarted, and finally, will the Action Plan achieve its stated goal? Only time will tell. In the meantime, key milestones and waypoints, which would be useful to determine if the plan is on track to achieve its stated goal, are absent from the EU Action Plan.

CONFLICT OF INTEREST

The author declares no conflict of interest.

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