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A Primer on Farm to Fork: European Agriculture in Transition?

For the last several years, the European Union has begun integrating industrial, agricultural, transportation, environmental, and health policies into an overarching initiative to make Europe the first carbon emissions neutral continent by 2050. It is called the European Green Deal. The agricultural component of this carbon neutral initiative is called Farm to Fork (F2F).¹

The Farm to Fork initiative is what the European Commission has described as nothing short of "...an opportunity to reconcile our food system with the needs of the planet."²

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About this Issue Report
This Farm Foundation Issue Report provides an overview of the EU’s Farm to Fork initiative, its possible impact on agricultural production levels and food prices, and examines some of the issues that will need to be addressed if Farm to Fork is to secure its multifaceted objectives.
Currently Farm to Fork is a proposal of the Commission of the European Union. Its multiple policies will only become "law" after the Council of the European Union adopts them. That is not a formality. Even some member states that support Farm to Fork’s objectives will consider specific proposals on a case-by-case basis. And several specific proposals will need to be presented for Council consideration to secure F2F’s six overlapping, and possibly difficult to secure simultaneously, objectives.

The Six Farm to Fork Objectives

**Objective #1**

The first F2F objective is to ensure Europe’s food is produced sustainably. This involves tripling the land under organic production, so that it accounts for 25 percent of land in agricultural use. Achieving that will not require major adjustment for some member states, such as Italy, but will require more adjustment in agricultural producing states such as France, Germany, and some Eastern European EU members. However, adjustments can and most likely will vary by member state since the “25 percent organic” figure is an EU target; not every member state is expected to have 25 percent of agricultural land in organic production.

Securing this sustainability objective also requires reducing pesticide use by 50 percent by 2030, reducing sales of antimicrobials for farmed animals by 50 percent, and reducing the use of fertilizers by 20 percent. The intent is that widespread implementation of Integrated Pest Management and precision agricultural practices will enable production levels to be maintained despite reductions in pesticide and fertilizer use. Reductions in animal protein output are to be offset by declining consumer demand for such products.

**Objective #2**

A second objective is to reduce European agricultural greenhouse gas (GHG) emissions. Agriculture is responsible for 10.3 percent of EU GHG emissions, and 70 percent of that is from the animal sector. So, it is expected new restrictions on land use for animal production are likely. Wessler, citing Barreiro-Hurle et al., 2021 and Henning, et al. 2021, finds that F2F could reduce Europe’s agricultural GHG emissions by 20 to 35 percent, most of that coming from reduced fertilizer. But those calculations don’t always consider the effects changes in EU chemical and land use could have on deforestation and agricultural practices outside the EU. If those are considered, Farm to Fork could reduce GHG emissions in Europe by about 3 percent, but could increase greenhouse gas emissions on Earth.

**Objective #3**

Maintaining farmer income and food affordability are key objectives. When announcing the initiative, the European Commission explicitly stated that “ensuring a sustainable livelihood for primary producers...is essential...” In Europe, the average EU farmer earns half what the average EU worker earns, so it is a priority to ensure F2F...
Objective #6

Building a **resilient and secure food production and delivery system** is critical. To achieve this objective, F2F must not cause reduced production and increased prices. Accomplishing that will require more rapid approval and adoption of new technologies, as well as, especially in the case of animal protein products, a shift in consumer demand. Most importantly, it will require augmented farmer technical assistance and training, so that new technologies may be implemented in ways that maintain yields with fewer conventional inputs.

Objective #4

**Protecting biodiversity is a key component of the Farm to Fork initiative.** This could result in binding targets for habitat restoration on sensitive lands in agricultural areas, as well as incentives to increase pollinator populations and forest health. Securing this objective requires defining what biodiversity means and how it will be measured, and also requires identifying what sort of biodiversity is desired. For example, if land is reforested it might provide more biodiversity than land left fallow, or it simply might provide different diversity.

Objective #5

**Enhanced worker safety** will be secured by reducing use and exposure to pesticides and increasing pesticide application training. Securing this objective also involves implementing labor rights proposals and linking certain Common Agricultural Policy (CAP) payments to compliance with labor standards.

Impacts on Agricultural Production Levels and Food Prices

Whether it is possible to radically reduce pesticide and fertilizer use, to triple the land in organic production, and to set aside some agricultural land to preserve or restore biodiversity without reducing yields or increasing prices, is questionable. A report by USDA’s Economic Research Service concludes that under the Farm to Fork policies, European agricultural production would decrease by as much as 12 percent and that food prices could rise by 17 percent or more. European farmer income could decline by 16 percent. Multiple European studies come to similar conclusions.

Depending on the study and the crop being considered and varying assumptions on land use, European models and papers suggest European cereal...continued on page 4
production could decrease by 15 percent (Barreiro-Hurle et al.) or by as much as 26 percent (Noleppa et al.). Oilseed production could be reduced by 7 percent (Henning et al.) or plummet by 24 percent (Noleppa et al.). Production of fruits, vegetables, beef, and dairy products all go down and consumer prices for many commodities go up. These findings are confirmed by the European Union’s own analysis of the impact enforced sustainability practices will have on European farmers and food prices:

...introducing sustainability requirements for foods and food-related operations is expected to bring about extra costs for manufacturers, retailers, the food service sector, and particularly primary producers. This could result in higher prices for public authorities (e.g. in the context of public procurement) and consumers...

The cost of agricultural land, as more is set aside to meet biodiversity objectives and for carbon sequestration also increases.9 In the case of Denmark and the Netherlands, the cost of agricultural land could increase by as much as 200 percent. Supporters of F2F point out that while these models are useful, they are not necessarily predictive. Models are based on assumptions, and many assume minimal adoption of new technologies. The European Commission believes adoption of innovations such as plant breeding techniques, implementation of Integrated Pest Management and precision agriculture, combined with changes in consumer dietary preferences will deliver a more desirable outcome.

Issues to Address

1. Food Security

The war in Ukraine caused energy prices to rise, raising the price of some inputs and commodities. The skyrocketing costs of natural gas and fertilizer exacerbate a reticence on the part of some member states to implement measures that could further increase production costs or reduce production. That is why, this past spring, the EU permitted some land that was to have been set aside to meet biodiversity or carbon sequestration objectives (in exchange for CAP subsidy payments) to be put back into production. Some of the current circumstances might be temporary, but that response betrays a reluctance to embrace policies that decrease food production and increase consumer costs.
Concerns regarding food security stretch beyond Europe, into other countries that could be hurt by reduced European exports. U.S. Department of Agriculture analyses suggest that a reduction of certain exports from Europe could result in increased food insecurity in some African countries. Of course, that conclusion assumes a reduction in European production and exports. If the EU embraces new agricultural technologies, it might maintain production with fewer conventional inputs, protecting its own food security and that of other countries.

2. Sustainable Use of Pesticides (SUR) Regulation

One Farm to Fork policy that could affect production and export levels is the EU’s new pesticide regulation. On June 22, 2022, the European Commission adopted a proposal for a new pesticide regulation, for which legislative negotiations between the European Parliament and the agricultural ministers are about to start. This European-wide regulation was considered necessary because member states unevenly implemented the current pesticide directive, undermining the core of the internal market. The new regulation imposes legally binding pesticide targets that are to be set in national law.

The new pesticide regulation has four objectives that cumulatively encapsulate the objective of the larger Farm to Fork initiative. The first is to increase agricultural sustainability by reducing pesticide use by 50 percent over the next seven years, to increase the implementation of Integrated Pest Management (IPM) practices and to increase the use of less hazardous chemicals and non-chemical alternatives. The second objective is to improve monitoring of chemical use. The third is to ensure greater uniformity in the use of agricultural plant protection products and in enforcement of regulations restricting their use. Critically, the fourth objective is to “promote adoption of new technologies, such as precision farming...with the aim of reducing overall use and risk of pesticides.”

Member states are required to develop National Action Plans that include quantifiable means of measuring progress toward those four objectives. Measurements are to be taken and reported annually. Every two years the Commission will report on Union-wide progress toward the targeted objectives. Pesticide reduction targets may and likely will vary by member state. For example, while the EU-wide goal is to reduce pesticide use by 50 percent by 2030, not every member state will be required to reduce pesticide use by that amount. Those member states that have a very low use or have recently lowered use of pesticides may set smaller targets. However, while some member states will need to do more to meet pesticide reduction targets, it is unclear whether the amount a member state receives under the Common Agricultural Policy will in any way be related to this need.

Whether the member states that must reduce pesticide usage the most will have the funding needed to implement programs, without raiding income stabilization payments, is not clear. This has raised a concern that in the absence of
sufficient compensation for reduced pesticide use in member states that do not have funds to broadly implement alternative technologies, production could fall at a time when food security is a priority. To avoid a reduction in production, some speculate that unauthorized use of certain pesticides could increase.

However, funds alone will not help secure reduced pesticide use. Successfully maintaining production levels with fewer plant protection products will require commercially available new technologies and innovations (e.g., plant breeding), rural internet access, as well as grower education and technical assistance services. Whether such investments are included in CAP-2023-27 national strategies will reveal the depth of commitment to securing this objective.

3. New Technology

The European Union’s expectation is that research and innovation (funded by programs such as Horizon Europe) will provide the technical solutions needed to secure Farm to Fork objectives while maintaining production levels.¹²

The approval and application of new technologies will be critical to Farm to Fork’s success. In the absence of approvals for new technologies and access to commercially viable alternatives to pesticides and fertilizers, European farmers will be compelled to transform their production practices without the tools that transformation requires. Before the end of 2022, the announcement of new policies regarding certain new technologies should indicate whether there is or likely will be a shift toward greater acceptance of emerging technologies in agricultural production. Pending policies regarding introducing genetically modified microorganisms (GMMs) into plants, as a means of increasing their immunity to certain pests or diseases, and reducing the need for pesticides, might be one indicator. Over the next months, the approval process for GMMs might be reformed. If it is, the nature of those reforms might signal whether the EU is prepared to adopt and integrate new technologies in exchange for removing more conventional tools.

4. Technical Training, Advisory Services, Rural Development

Farm to Fork’s technology needs exceed innovation. The initiative compels farmers to begin adopting Integrated Pest Management and precision agricultural practices, and requires electronic monitoring and reporting of those practices. That will require investments in rural broadband accessibility, integration of computer and satellite monitoring and reporting, and farmer technical education and advisory services.

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The national CAP 2023-27 strategic plans should provide for farmer training on how to integrate new production practices, and also on how to master the digital tools precision agriculture often relies upon and that new monitoring regulations are likely to require. Programs such as Agricultural Knowledge and Innovation Systems (AKIS) are designed to facilitate such knowledge exchange.\textsuperscript{13} The models suggest that without such investments and adoption of new technologies, it is unlikely farm income, production levels, and consumer prices can be maintained. And maintaining farmer income and production levels is the objective of the Common Agricultural Policy (CAP).

### 5. CAP 23-27 and F2F

Member states are in the final negotiations with the Commission over their CAP 2023-27 programs, targets, and budgets. The aim is to have all member state CAP strategic plans agreed upon (between the member state and the Commission) before January 1, 2023. Most likely these national strategic plans will integrate Farm to Fork with traditional CAP objectives.\textsuperscript{14} For example, 25 percent of CAP income support payments must be connected to an environmental program and 35 percent of rural development funds must be spent on programs supporting climate and environmental objectives.

In 2017, the European Court of Auditors found that many environmental measures in the CAP, such as diversifying crops and some land use policies were more intended to support farmer income than improve the environment. Some have suggested that the integration of Farm to Fork policies into the CAP represents a shift from environmental programs being used to support agricultural income, to agricultural production being used to secure environmental objectives. But this is not a uniformly held view.

While there is a recognition that agricultural practices need to complement environmental objectives, there is also a commitment that the CAP’s objective is to provide income support payments to offset fluctuations in market prices, and to stabilize farmer income. Member states holding this position will, as they are obliged, spend 25 percent of CAP Pillar I payments on compensation to farmers who adopt specific environmental and climate related practices. As was the case before Farm to Fork, the vast majority of funds (up to 75 percent) in those member states will be allocated to supporting farm income, not to achieving climate and environmental objectives. The success of Farm to Fork will depend upon its integration with the CAP, so that supporting farm income, maintaining production and prices, and achieving climate and environmental objectives are not competing objectives.

That integration of Farm to Fork with CAP 2023-27 will require a level of coordination between the Commission’s directorates for Health, and for Agriculture that wasn’t apparent at the announcement of the new pesticide regulation. Commissioner Stella Kyriakides (Health) reportedly passed on a question about how Farm to Fork would be integrated into the new CAP. That integration is critical since much of the funding required to implement the new pesticide regulation comes from CAP’s budget, which is managed by the Directorate-General for Agriculture and Rural Development.

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EURACTIV in its coverage of the SUR’s announcement mentioned the absence of Agricultural representation noting it is Agriculture’s budget that must fund the program, and posted:

_We expressed our bewilderment in a tweet asking why EU Agriculture Commissioner Janusz Wojciechowski was not there. And it seems we aren’t the only ones wondering, as Wojciechowski himself retweeted our doubts._\(^\text{15}\)

Coordination will also be required if Farm to Fork is to secure its biodiversity objectives. Some might consider those objectives to include habitat restoration and measure success by the population levels of certain species, while some in the Agriculture directorate, which will be responsible for the CAP’s environmental policies, might consider soil health and land use sufficient measures.

Some of this might simply require a bit of bureaucratic sorting, but it does underscore how interlinked Farm to Fork and the CAP are, and how bureaucratic coordination between the Commission’s directorates of Agriculture, Environment, and Health will be imperative if Farm to Fork is to secure its multi-faceted objectives.

**Trade Partner Impact**

While bureaucratic coordination will be imperative within the Commission, coordination with trading partners, the World Trade Organization (WTO), and the Food and Agricultural Organization (FAO) will also be essential to Farm to Fork’s success.

As long as Farm to Fork is implemented domestically consistent with the European Union’s WTO obligations there will be little cause for trading partners to involve themselves. However, an area where Farm to Fork might contravene WTO obligations is the implementation of the new pesticide regulation.

If the European Union wants, for environmental reasons, to ban the use of a chemical within its borders, it has every right to do that, but in the absence of a science-based health risk, under the WTO’s Sanitary and Phytosanitary Agreement (WTO/SPS) the EU cannot prohibit the importation of a product that contains an internationally accepted residue of that chemical. Basing maximum residue levels (MRLs) on environmental considerations outside the importing country’s jurisdiction would not excuse violations of the WTO/SPS Agreement. Nonetheless, in statements such as the one below, it appears that is precisely what the European Commission proposes doing.

> Until now, the focus when setting MRLs for pesticides, including for import tolerances, has been only on good agricultural practices and the protection of EU consumers. This requirement will continue to apply. In addition, however, in line with the commitments in the F2F Strategy, environmental aspects will also be considered in the process of setting MRLs, including import tolerances.\(^\text{16}\)

Apparently, the European Commission wants to base MRLs not only on the protection of health, as is required under the WTO/SPS, but also on environmental standards unilaterally set by the European Union, even where there is no health basis. This is not hypothetical; it is happening.

On July 6, 2022, the European Union notified that permitted use of two insecticides would be withdrawn,
despite these insecticides having internationally accepted MRLs.\textsuperscript{17} The justification for the revocation is to protect pollinators, specifically bees. While the EU has every right to ban the use of these chemicals within its jurisdiction, under the WTO/SPS, in the absence of a science-based health concern, it cannot prohibit the importation of products treated with these chemicals if the products are in compliance with FAO/Codex international standards.

In a June 3, 2022, report, the European Commission assured Parliament that GATT Article XX permits the EU to impose its environmental standards on other countries and cited two WTO cases in support of that position.\textsuperscript{18} GATT XX allows countries to impose import restrictions to conserve exhaustible natural resources. The two cases cited are commonly called Tuna-Dolphin,\textsuperscript{19} and Shrimp-Turtle.\textsuperscript{20}

In the Tuna-Dolphin case, the United States was prohibiting the importation of tuna caught in dolphin-unsafe nets. The European Economic Community (EEC) and the Netherlands argued the United States could not impose conservation practices outside its jurisdiction.\textsuperscript{21} The U.S. argued GATT Article XX enabled it to impose its net standards beyond its territorial waters on tuna imported into the United States in order to protect dolphins. In that case, the panel agreed with the United States finding no specific jurisdictional limitation on measures aimed at conserving exhaustible natural resources.

In the Shrimp-Turtle case, the US was challenged for prohibiting the importation of shrimp caught in nets harmful to turtles that were threatened with extinction under the Convention on International Trade in Endangered Species and Fauna (CITES).\textsuperscript{22} In that case, the US was allowed to restrict the importation of shrimp caught in turtle-unsafe nets as long as it applied the measure evenly and not arbitrarily.

Interestingly, in the Shrimp-Turtle case, the European Community (EC) argued international cooperation, rather than unilateral measures, was a most effective way to address global environmental problems. The EC recognized the need to protect turtles because the species was included in Annex I of CITES, but argued, “The appropriate way for Members concerned with the preservation of globally shared environmental resources to ensure such preservation is through internationally agreed solutions.” The EC went on to suggest that unilateral measures, a last resort, should only be taken if its measure was 1) no more trade restrictive than necessary to protect the species, 2) directly linked to the species protection, 3) did not go beyond what was required to limit the environmental harm, and 4) was imposed after the member had made “genuine efforts to enter into cooperative environmental agreements.” The EC argued that it could not support the U.S. position since the United States had not entered into international negotiations prior to implementing the import ban on certain shrimp and shrimp products.

Given the Tuna-Dolphin and Shrimp-Turtle cases, despite the European position when those cases were being heard, under GATT XX the EU might be able to justify imposing a ban on products compliant with international health standards but that are harmful to bees. However, that bees reside within another country’s jurisdiction not in the global commons, and whether bees need to be covered by an international agreement such as CITES to justify a unilateral measure, could be issues. If it comes before the WTO, it would be an interesting and important case.

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But if the EU, as it moves to reduce pesticide use by 50 percent, revokes import tolerances on plant protection products that have internationally accepted MRLs, without specifying what exhaustible natural resource it is protecting, and linking the use of that chemical to the depletion of that exhaustible resource, the WTO inconsistency of the EU’s measure would be clearer. As the EU moves to reduce pesticide use, F2F would be well served by it carefully weighing the position it took regarding international engagement in the Shrimp-Turtle case.

The EU’s interest in regulating production practices around the world will reach beyond pesticides. By the end of 2023, the EU intends to revise its animal welfare legislation. It is anticipated this legislation will propose phasing-out cages, pens, and stalls for animals raised for protein, and most likely require that animals raised for protein products, that are imported into the EU, must have been raised under equivalent conditions.

Additionally, by the end of 2023, it is anticipated the EU will pass a new Sustainable Food System Framework imposing “requirements governing the sustainability of foods produced or placed on the EU market...” And, a new directive on corporate sustainability due diligence might require importers to only source goods that comply with EU sustainability standards, regardless of whether the goods meet international standards.

An Ambitious Strategy

The EU’s Farm to Fork initiative is an attempt to reimagine agriculture’s role in protecting our environment and the health of consumers. As a result, implementation will require close bureaucratic coordination on environmental, agricultural, and human health policies and budgets.

Farm to Fork not only requires moving away from conventional agricultural practices, but also adopting new ones, and that requires new technologies being approved and farmers having the knowledge and tools needed to implement the new technologies. If new innovations and technologies are not adopted and implemented in the field, it is possible certain models will be predictive, and that production will fall. That, as the Commission has acknowledged could result in higher food prices and those higher prices could undermine popular support for the overall initiative. The key to F2F’s success is maintaining the EU’s agricultural productivity and competitiveness even as it transitions away from traditional inputs. That will require integrating new technology into its production.

Inconsistency with WTO obligations could also inhibit Farm to Fork from securing its objectives. While the European Union’s policies are not motivated by protectionism, an overly broad interpretation of Article XX could enable other countries to “greenwash” protectionist measures. That would undermine the multilateral approach needed to collaboratively reduce GHG emissions on Earth.

The key to F2F’s success is maintaining the EU’s agricultural productivity and competitiveness even as it transitions away from traditional inputs.
Trade was negotiated, nor were they contemplated in the 1980s and 90s when this author and many others worked on drafts of the SPS Agreement. While a WTO case involving the protection of pollinators could be interesting, it could also take years before a final report was adopted. An alternative would be for interested parties to negotiate new language under Article XX that enabled action on climate change, biodiversity, and deforestation while preserving the “balance of rights and obligations among contracting parties, in particular the right of access to markets.”

The European Union’s Farm to Fork Strategy is an ambitious attempt to integrate sustainable agricultural practices into commercial food production. Realizing this ambition will require bureaucratic coordination beyond what is normal, aggressively integrating new technologies and innovations into food production, and leading on revising international agreements to meet the challenges of a new era. It is an evolving strategy, and one that could benefit from ongoing input from European and non-European producers.

ENDNOTES

1 Other EU policies will also affect agriculture, such as the circular economy action plan, and waste and recycling programs.


4 Some ministers of agriculture have expressed reservations about reducing pesticide use this much so quickly.

5 Wesseler, J. (2022, March 18).

6 Wesseler, J. (2022, March 18).


10 Beckman, J. et al. (2021, March 1).

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ENDNOTES (continued)


14 European Commission. (n.d.). Supporting farmers to reduce the use of chemical pesticides with the CAP. Retrieved 2022, from https://emis.vito.be/sites/emis/files/articles/91/2022/Facsheet_Supporting_farmers_to_reduce_the_use_of_chemical_pesticides_with_the_CAP.pdf


