

AGRICULTURE, FOOD AND WAR IN UKRAINE: ANALYSIS IN 11 QUESTIONS

**Responding to the challenges of food
sovereignty through another approach
to the debate**



MAY 2022

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CCFD-Terre Solidaire is the main French NGO for international solidarity and development. It has been working for 60 years alongside those who fight daily against all the causes of hunger and who face the injustices of the current development model. In order to confront these scourges, CCFD-Terre Solidaire was one of the first NGO to choose to act differently and sustainably, by supporting local partner associations so that they can carry out their own development projects. It is currently supporting more than 500 local organizations in 70 countries for a total of 3.1 million beneficiaries.

The Fondation pour la Nature et l'Homme (Foundation for Nature and Mankind) is a French apolitical non-profit organization declared of public utility. Our mission is to work towards a more united and fairer world that preserves both the environment and the well-being of mankind. The FNH is committed to accelerating behavioral changes at the individual and collective level towards an enjoyable ecological transition of our societies. Our levers are to propose solutions aiming to transform our societies by actively taking part to the public debate, to support and leverage promising initiatives, in France and abroad and to engage the general audience through targeted educational tools and awareness campaigns.

The federation of Friends of the Earth France is a non-profit environmental and human rights network, independent from any religious or political influence. Created in 1970, they helped build the French ecological movement and helped found the world's largest grassroots environmental network, Friends of the Earth International, uniting 75 national groups with over 2 million members and supporters around the world. Friends of the Earth France forms a local network gathering 30 autonomous local and associated groups that act according to their own priorities and support the national and international campaigns with a shared vision for social and environmental justice. Friends of the Earth France promotes solutions at the local, national and international level that will help to create environmentally sustainable and socially just societies.

Greenpeace is an international organization. It is present on all continents and all oceans thanks to its 28 national and regional offices and its three ships. It has more than three million members around the world who support it and act with it. Greenpeace is an organization independent of States, political and economic powers. Greenpeace is not endorsed by or endorses any party.

Action Against Hunger was created in 1979. It is a non-Governmental Organization (NGO) fighting against hunger in the world, in almost 50 countries. Its mission is to save lives eradicating hunger through the prevention, detection, and treatment of malnutrition, in particular during and after emergency situations caused by conflicts and natural disasters. Action Against Hunger advocates to tackle the root causes of hunger and malnutrition: conflicts, the climate crisis, and inequalities. We promote the transformation of food systems, with agroecology at the heart of this transformation.

FNAB is the first French farming association specialized on organics with 10 000 organic farms members. Our main missions are encouraging the development of organic agriculture in France; defending high level standards for organics; defending French organic farmers regarding public agriculture policies. So we are both a development organization and a union, but we do not participate in union elections. As a network we are organized in local associations and regional associations, FNAB is the national network head, all of us are employing 400 people all focused on organic farming.

Foreword

We would like to remind that the main victims of the war in Ukraine are the country's citizens, to whom we offer our full support. We would also like to reiterate that, as associations, we advocate for a model that is fair to all, to farmers who produce our food and to persons who consume it, whether it be in France, in Europe, or in third countries. We believe that a fair transition of our agricultural and food models is both possible and necessary, and that this goal can only be reached by working hand in hand with farmers. While scientific and economic evidence leads us to aim the reduction of agricultural inputs, animal production, and animal consumption as necessary steps forward, we should not ignore the financial, technical, moral, and psychological difficulties faced by farmers. Furthermore, we should also acknowledge their worldwide efforts conducted over the years to find solutions in order to adapt and mitigate climate change, as well as fight against biodiversity loss.

Context

The hunger issue is deeply structural. While we currently produce more than enough food to feed the whole planet, our globalised agriculture and food system is triggering hunger. Over the past six years, food insecurity has been increasing around the world. In 2020, nearly one in three people (2.37 billion) were faced with food insecurity and 768 million people were undernourished. This is a reality affecting both the North and South: 10% of Europe's population is suffering from food insecurity, 41% in Latin America, 60% in Africa, and 26% in Asia. This issue mainly affects countries that have handed over their food to international markets (70% of people suffering from hunger lived in those countries last year).

Along with the inability to sustainably feed the planet, the current globalised agro-industrial system is not resilient to shocks. The many crises we face (health, climate, energy, or geopolitics) emphasise its weakness, whether it be in France, Europe, or the rest of the world. COVID-19 has thus pushed an additional 320 million people into food insecurity. The pandemic's economic consequences have had major impacts on our globalised agricultural and food system, contributing to a sharp rise in prices over the past two years (+30% between January and December 2021). This price rise, which existed prior to the Ukrainian crisis, was also fuelled by increasing extreme weather events due to climate change, the increasing use of agrofuels, or the energy price crisis (food prices are highly dependent on energy costs, especially for freight and the chemical input production).

Today, the war in Ukraine and its consequences prove once again the fragility of our globalised agricultural and food systems. Russia and Ukraine account for 12% of all calorie exports traded internationally. These two countries represent 23% of global wheat exports (1st and 5th largest producers in the world), which represent 7% of global consumption, as well as 16% of global corn exports, which represent 3% of global consumption. They also account for 73% of sunflower oil trade (mainly from Ukraine). Russia is the world's largest fertiliser exporter, the world's 2nd largest oil exporter, and the world's 1st natural gas exporter. The country accounts for 10% of global nitrogen fertiliser

exports, 10% of global phosphate fertiliser exports and 17% of global potassium fertiliser exports (33% if we add Belarus, also affected by sanctions given its role as co-belligerent).

Europe's dependence on Russia

European countries are particularly reliant on Russia:

- in the European Union, around 45% of imported gas came from Russia in 2021 — around 20% for France and over 50% for many other European countries;
- at least 33.5% of nitrogen fertilisers imported to the European Union between 2018 and 2020 came from Russia and Belarus;
- up to 30% of Europe's oil supply comes from Russia.

Thus, any disruption of the Ukrainian and Russian economies leads to important consequences on global food security, which mainly depends on the price of synthetic fertilisers and fossil fuels (to manufacture fertilisers and pesticides, run tractors, heat greenhouses, etc.).

Moreover, this crisis is taking place in a complex political and commercial context. For several years, France has been facing fierce competition from cereal production in many countries on international markets, including Ukraine and Russia. France is therefore concerned about its loss of international market share — markets it wants to recover at all costs. Simultaneously, as we need to engage now more than ever in an agroecological transition, industrial agriculture representatives are fighting all around the world against the little environmental progress that has been made. This was the case last year at the United Nations Food Systems Summit, and is the case today for the European Green Deal (Fork to Farm strategy). Every single new crisis and disruption of the global agriculture and food system is an opportunity to set aside environmental standards to "produce more to feed

the world". Conversely, the COVID-19 pandemic has stressed the urgent need for each country to develop its own food sovereignty to feed its population and protect itself against global economic and climate shocks.

Our current agricultural and food system is unable to feed the world and pay adequate salaries to farmers, who are the first affected by food insecurity in many countries. Today's system is also unable to effectively fight against climate change (agriculture and food are responsible for a third of anthropogenic greenhouse gas emissions) and significantly worsens environmental degradation. Land-use change, mainly due to livestock, is the world's leading factor in biodiversity loss, with pesticides listed as one of the main causes of the collapse of biodiversity. This structural situation undermines our current and future ability to produce and feed ourselves, in Europe and elsewhere. Long before the Russian assault, the almost unanimous view of the international community was that we needed to deeply transform our globalised agricultural and food system to make it more local, diverse, and resilient. All these elements must be taken into account in today's food crisis.

As such, it was particularly important for us to cover various questions that have emerged in recent months with regard to food and agricultural issues related to the Russian assault. To set the terms of the debate in a fair and efficient way, this document offers a topic breakdown in eleven questions.

→ Check out 44 short- and medium-term proposals to respond to the impact of the crisis in Ukraine on agriculture while pursuing the necessary agricultural and food transition.

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1. What are the consequences of the Russian assault in Ukraine on agriculture and food around the world?

The consequences are numerous and will be noticeable over a lengthy time frame. It is crucial to neither limit ourselves to a short-term vision nor to narrow down the impact to simply a maize or wheat production issue.

1 Cereal stocks are no longer exported.

War broke out at the end of the Russian and Ukrainian agricultural season. Many cereal stocks can therefore not be exported internationally.

In Ukraine:

- As Ukrainian ports have been blocked by Russia, the export of several million tonnes of Ukrainian cereal¹ has been compromised since the beginning of the assault. Export by land is complicated due to fighting and fuel needs, especially since Russia is now targeting Ukrainian wheat stocks.
- All Ukrainian wheat, sugar, and meat exports have come to a halt due to a temporary cessation, announced on 9 March 2022 by the Ukrainian government, in order to feed its population in times of war.

¹ Including 6 million tonnes of wheat.

In Russia:

- Even if Russia's economic sanctions do not currently affect food, they have decreased the country's export capacities by disrupting its logistical capacities.
- Because of political will, hunger is a geopolitical weapon used by Russia. After having stopped all cereal exports to former USSR countries, it currently monitors and limits its food exports to countries deemed "unfriendly".

2 The upcoming cereal season in Ukraine is highly compromised.

- Most cereal fields are located in eastern Ukraine — in a conflict zone — and both fuel and some agricultural machinery are requisitioned for the war effort.
- Because of fighting as well as the disruption in fertiliser and synthetic pesticide supplies, Ukrainian farmers will not be able to sow products in spring that would have been harvested in the coming months. The United Nations Food and Agriculture Organization (FAO) and the Ukrainian Minister of Agriculture have announced a 30% drop in the 2022 spring harvest compared to last year's.

3 The price of cereals is soaring.

- As a result of export disruptions, the prices of wheat and some cereals are rising on international markets. However, it should be noted that the total volumes of wheat and maize traded on international agricultural commodity markets has not radically changed compared to last year. Other supplier countries are compensating for the lack of Russian and Ukrainian exports.
- This rise in prices is mainly due to and amplified by a strong speculative reaction of stock markets, which particularly benefits many private speculators and large wheat and maize trading companies.

- Financial speculation is so far the main reason for the surge in cereal prices, causing high price volatility. Since the beginning of the conflict, the price for a tonne of wheat has fluctuated between 200 and 440 euros, exceeding time and time again its highest levels in 14 years (so far, the record was 438.25 euros, reached on Monday 16 May 2022). Maize prices are at an all-time high. There is a direct correlation between the purchases and sales of private speculators and the peaks observed in global maize and wheat prices.

4 Energy prices are also on the rise.

- Since the beginning of the conflict, energy prices have been particularly volatile (+6.6% in February 2022) and had already been on the rise for a year (+35.3% between February 2021 and 2022), particularly oil prices (the barrel rose from \$84 to \$124 between January and March, and lowered to \$102 in April).
- Gas prices have clearly been increasing since the Russian assault (+69% in three months).
- This has directly affected the agricultural production capacities of many countries, which rely on these energies: oil to run agricultural machinery, gas to dry cereals for livestock farmers or to process raw materials (e.g. milk powder or sweet production). The increase in energy prices has therefore directly affected producers and processors alike.

5 Synthetic fertiliser prices are increasing sharply, and the world market for fertiliser production is undergoing a reorganisation.

- This war has worsened a pre-existing bullish trend in fertiliser prices as a result of a halt in Russian fertiliser exports (which account for 15% of the global nitrogen fertiliser market). This has reduced global supply and increased prices accordingly. In March 2022, some fertilisers had seen their prices multiplied by 3 or 4 compared to January 2021.

- As both production and energy costs have risen, fertiliser production from other countries cannot compensate at this time for the decline in supply caused by the halt in Russian exports.
- As a result, some countries (especially the United States and Brazil) have decided to strengthen their national production with, for example, a 250 million dollar investment plan in the United States.

6 Production costs for farmers and breeders are increasing around the world.

- This is happening due to the rise in fertiliser prices, which particularly affects cereal producers.
- Production costs are increasing as a consequence of the rise in energy prices, which is affecting all farmers and cattle breeders. The most energy-intensive production systems are particularly affected. This was the case in France for farmers who grow tomatoes in winter in heated greenhouses.
- The rise in cereal prices has had a direct impact on the production costs of many farmers, particularly poultry, pig, and dairy farmers, who rely on cereal consumption to feed their livestock. The price increase of this animal feed (whether locally produced or imported) has therefore led to a direct decrease in farmers' income.

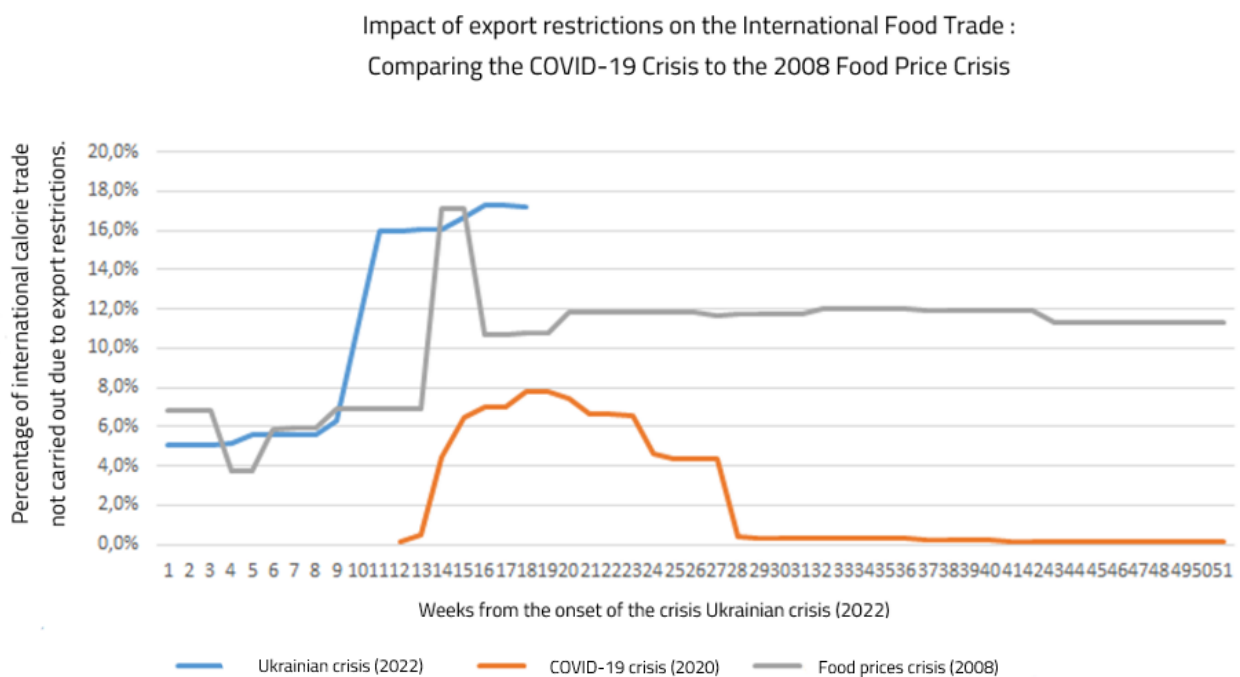
7 This situation had led to counterproductive reactions by many actors regarding global food security.

- More and more States are taking unilateral measures to ensure their populations' food security by, for example, preemptively stopping their food exports (e.g. Algeria, Benin, and Côte d'Ivoire or, more importantly, India) or by building up food stocks (e.g. Morocco or even China, which should possess by mid-2022 62% of public reserves of maize, 60% of rice, and 51% of wheat). While such measures to ensure a country's food security are understandable from a national point of view, they strongly

contribute, in times of a price crisis, to a general upward trend. These strategies were among the major factors contributing to the 2009 hunger riots.

- In May 2022, 18 countries had established food export restrictions, representing 17.2% of the international calorie trade. The international market disruptions, related to this type of measure, are equivalent to the peak experienced during the 2009 hunger riots.

Figure 1: Impact of export restrictions on the International Food Trade: Comparing the COVID-19 Crisis to the 2008 Food Price Crisis



Source: Food Security Portal, 2022

- Similarly, fertiliser export restrictions by some States (mainly Russia) fuel the strong upward trend in fertiliser prices on international markets. In May 2022, these restrictions affected 21.5% of nitrogen fertilisers

traded on international markets, 20.6% of phosphate fertilisers, and 20% of potassium fertilisers.

- Some fertiliser manufacturers, enjoying an oligopoly situation on the global market, can also unilaterally stop their production because of gas prices. This is what Yara did, the world's leading mineral fertiliser manufacturer, which stopped manufacturing fertilisers for three weeks in March in its factories located in Le Havre (France) and Ferrara (Italy). This type of shutdown can amplify and fuel pressures on international fertiliser prices.
- With wheat reaching record prices, some farmers are turning toward this crop's production. For instance, Canadian farmers are setting mustard seed crops aside to grow wheat. While this move can be profitable for those farmers, it will upset the global food balance of other foodstuffs and escalate their rise in prices.
- Other products are diverting from their original purpose and directly transformed into bioethanol. While selling products for bioethanol is more profitable for farmers during this energy price crisis, and more attractive to consumers in a context of rising fossil fuel prices, it is greatly magnifying food price volatility on international markets.

8 The odds of replicating the 2009 hunger riots have never been higher. Not only has the Russian assault in Ukraine led to a surge in some cereal prices, but it is also disrupting international agricultural and food markets and will cause a worldwide surge in all food prices in the coming months.

- This surge in all food prices will be the direct result of rising production costs (i.e. increase in fertiliser, energy, and raw material prices), as well as financial speculation on international markets and the growth of counterproductive responses all over the world.
- With all food items affected, this price surge will have far greater and more devastating consequences than the rise in wheat or maize prices alone.

- In May 2022, international food prices had already risen by 16.9% since the beginning of the conflict. Some product prices, like vegetable oil (+28% between January and March 2022), have already exceeded their historical highs and the FAO expects greater increases to come.
- In a situation where the price of food has been high for almost two years now, added to economic insecurity following the pandemic, this surge in prices will have disastrous consequences on the poorest populations.

2. Which countries and populations will be most affected in the coming months by this war's impact on agriculture and food?

Countries that historically import large amounts of cereal to feed their populations may have been the first to be concerned by the impact of the Russian assault, but the surge in all food prices is going to affect every single country on Earth. The consequences will be more significant in the poorest countries and in areas already experiencing an economic crisis.

Regarding the price of cereals (especially wheat):

1 The surge in wheat prices will considerably impact countries that are structurally net wheat importers and where this product represents an important part of the human diet.

Such is the case for many countries in North Africa and the Middle East, where wheat is a traditional product, mainly used for human consumption. These countries are major importers — in North Africa, over 50% of the wheat consumed is imported and in the Middle East, over 35%.

2 This surge in wheat prices is also a major challenge for countries in conflict and dependent on global food aid.

Last year, 50% of wheat distributions by the World Food Programme — the UN's emergency agency — came from Ukrainian production.

Regarding all food prices:

3 The surge in food prices will have a global impact. However, the following countries will particularly be affected:

- The most indebted countries as debt repayment reduces their purchasing capacity on world markets. The end of the moratorium on debt repayment (January 2022) has plunged them into a critical budget situation.
- Countries affected by extreme climate change: countries in the Middle East for example, such as Iraq, which suffered severe droughts last summer and whose production was directly impacted.
- Countries experiencing or having experienced a significant national or regional economic shock. For example, some countries in Latin America and Asia are currently experiencing a record-level inflation.

Regarding the affected population:

4 Regardless of the affected countries, the disadvantaged population groups, particularly women, will be the first victims of this food price surge.

In many developing countries, agricultural workers and urban poor populations will be on the front lines, with the most precarious among them already spending 60% of their income on food. In France, the war in Ukraine will cause the inflation to speed up, directly burdening household budgets and contributing to increasing the important pre-existing food insecurity (in 2020, between 5 and 7 million people relied on food aid to eat).

Focus on France:

In France, the current situation is likely to exacerbate difficulties in relation to soaring prices, a challenge also experienced by other sectors, such as the catering industry. To date, purchasing food for mass catering is 10% more expensive, depending on the type of catering (Restau'Co network, 2022), with risks that this inflation will impact the consumer price.

Russian assault against Ukraine: is this crisis global?

"What we've always found is that in times of high volatility, high prices and high volume is when we have the opportunity to make the most money" - *John Nepl, Bunge chief financial officer, one of the world's leading cereal trading companies on 28 April 2022.*

While most agri-food and energy multinationals presented record financial results in 2021 (5 billion in net revenues for Cargill, an all-time high), 2022 also promises to be a very profitable year. The recently published Q1 2022 financial results and forecasts for 2022 clearly suggest that the crisis is not affecting everyone in the same way:

- Energy sector: Total (one of the world leaders in fossil fuels, especially oil) announced an adjusted net income of \$9 billion in the first quarter of 2022, three times more than its adjusted net income for the first quarter of 2021.
- Fertilizer sector: Yara (world leader in nitrogen fertiliser production) quadrupled its earnings per share by offsetting higher energy prices and lower volumes sold with higher selling prices.
- Cereals sector:
 - The giant Bunge (one of the world leaders in grain trading) saw its profits increase by 19% and its earnings per share by 36% in the

first quarter of 2022 compared to the first quarter of 2021. Bunge has also increased its estimates by 20% regarding the financial results for 2022.

- Giant Archer Daniels Midland (ADM) (another world leader in grain trading) also saw its net profit increase, from \$1.1 trillion to \$1.539 trillion between the first quarter of 2021 and the first quarter of 2022. Earnings per share increased by 52% between 2021 and 2022.

At a time when the food security of millions is at stake, hunger is primarily a financial issue. Many States are already facing financial difficulties in feeding their populations. The financial results of these multinationals are clearly questionable, especially since there seems to be a consensus that they will keep on increasing.

In March 2022, the European Commission opened up the possibility for Member States to create an exceptional tax on profits in the energy sector in order to redistribute them to households affected by rising energy prices. The International Energy Agency also recommends taxing the excess profits of energy companies and redistributing them to consumers, noting that these additional profits could be worth \$200 billion in 2022.

For now, the Commission has not proposed a similar mechanism for the excess profits of agri-food multinationals, even though the coordinator of the Agriculture Committee in the European Parliament criticised, on 20 April 2022 during a session of the European Parliament, the increase in the value of Yara's shares.

3. Do we need to produce more in Europe to "feed the world"?

Rather than "feeding" other countries, Europe is actually a net calorie importer. Moreover, hunger in the world is structurally not the result of a lack of production, but of a lack of access. Similarly, the current food price crisis is not due to a production problem, but to a need for international regulation and coordination. Repeating like a mantra that, to solve the crisis, we must "produce more in Europe" is in no way responding to the reality of the situation. It locks us into a deliberately biased understanding of food insecurity mechanisms and jeopardises our ability to fight climate change and biodiversity loss.

1 Wheat shortfall linked to the halt of Russian and Ukrainian exports are likely to be replaced by production from other countries in 2022 and by the release of cereal stocks following the last good harvests.

Despite the conflict, the FAO predicts that global wheat production will increase in 2022. The global cereal stock-to-use ratio currently stands at 29.9% (on 6 May 2022), the same as the 2020 and 2021 ratios. For wheat, this ratio is 39% (38.2% last year), 36.7% for rice (36.6% last year), and 23% for coarse grains (23.4% last year). While the cessation of Russian and Ukrainian exports is pushing the market to reorganise itself and therefore leading to temporary supply problems at local level, there is currently no global cereal shortage. As mentioned in question 1, we are experiencing a situation where soaring prices are mainly linked to financial market speculations and

counterproductive responses from many States. To date, cereal prices are not correlated with available volumes. Promoting "producing more" to lower international prices is grasped as an opportunity on behalf of some European politicians and trade union actors, rather than the reality of the markets. As in 2008, the linearity between available volume and price, which traditionally governs international markets, is not the right metric to consider to lower prices and address this crisis: the crisis is experiencing a significant market distortion. Producing more in Europe will affect international prices only to a negligible extent.

2 Overall, we already produce enough food worldwide.

The "net" amounts of calories available worldwide are sufficient to meet the dietary needs of the planet's population. While between 1800 and 2600 calories on average are needed per day per person, the amount of calories produced per capita has never been higher. The equivalent of 5935 calories per person per day is grown each year around the world:

- 934 calories go for non-food purposes (mainly agrofuels);
- 1738 calories are used to feed farm animals (whose consumption, in turn, will yield 594 calories);
- 1329 calories are lost or wasted.

In theory, an average of 2530 calories remains per capita per day, well above the WHO recommendations for living a healthy and active life. These figures show that the global hunger problem is not a question of the amount produced, but of economic access and distribution. In short, a question of social justice.

3 Yet, at each global food crisis, this "producing more" argument is put back on the table.

The "hunger riots" in 2008 did not demonstrate a lack of global production, but a lack of regulation, international coordination, and the absence of food

sovereignty for the affected States. While the structural causes of this crisis were already widely documented and analysed by international researchers and experts (i.e. lack of food sovereignty in countries of the South, speculation, lack of market regulations, and counterproductive unilateral States responses), only the official and highly contested message of the FAO was echoed: "Global food production must increase by 50-70% by 2050." Since then, most States have continued to entrust their food security to international markets, and we are currently experiencing our third global food price crisis since 2008.

4 If we consider the total volume of imported and exported calories, it is obvious that we are not feeding the world, the world is feeding us.

While the European Union is currently among the main value exporters thanks to its high-value products (e.g. spirits, wines, cheeses, and other highly processed commodities), it imports the equivalent of 33% of its usable agricultural area. It is thus a net calorie and protein importer, respectively 11% and 26% of what it consumes. One reason for this is that the European Union imports more than 30 million tonnes of soybeans per year for animal feed.

France is also a net exporter of wines and spirits as well as cereals and dairy products, but relies on many imports, both food and agricultural. In France, excluding profits made within the wine and spirits sector, the agricultural trade balance is in deficit (of 6 billion euros in 2019):

- France imports 1/3 of poultry and 1/4 of pork consumed within the country, and has a total deficit of 1.4 billion euros in meat and meat products.
- To feed its farm animals, France imports each year:
 - Millions of tonnes of soybeans from Latin America (35 million tonnes of soybean meal, seeds, and oil in 2017). Most often, this soybean is genetically modified and has contributed to the degradation and destruction of ecosystems.

- Nearly one million tonnes of sunflower cake (933,000 tonnes/year on average — [FranceAgrimer data](#)), mainly from Ukraine (around 600,000 tonnes per year).

5 The challenge is not to produce more in Europe but to relocate production as much as possible, both in the North and in the South, to rethink trade and food exchanges, and to enable poor populations to financially access food.

Developing sustainable agricultural and food systems requires, above all, supporting developing countries in achieving their food sovereignty. This is one of the main demands of peasant organisations in the South. Macky Sall, President of the African Union and President of the Republic of Senegal, recalled² in an interview in March 2022 that the war in Ukraine "*reminds us of the urgent need to win the battle of [African] food sovereignty by investing massively in agriculture and the processing of our agricultural products.*"

6 Rather than producing more in Europe, we could produce and consume differently to contribute to global food balances while preserving the climate and environment.

A significant part of European land and agricultural production is intended for purposes other than human food:

Most agricultural land and production is intended for animal feed:

- 1/3 of global calories are used to feed farm animals³;

² See the declarations of ROPPA, the main agricultural union in West Africa on this subject: <https://www.alimentationre.org/system/files/ressources/pdf/1064-declaration-tenkodogo-fr.pdf>

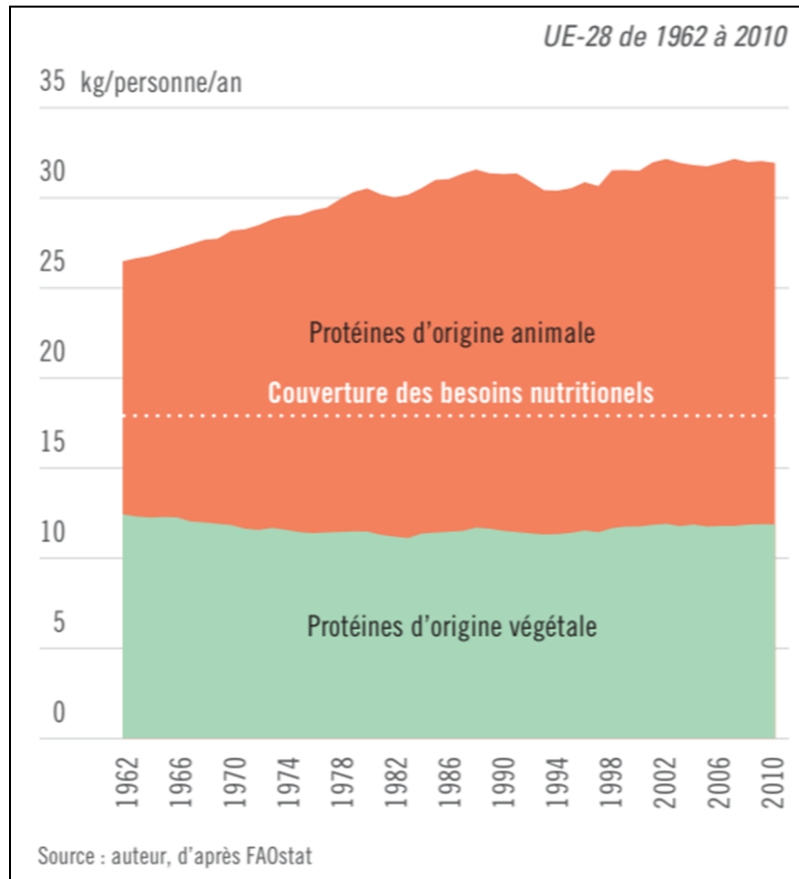
³ Cassidy et al. (2013).

- 66% of cereals produced in the EU, 70% of barley and oats, 19% of wheat and 61% of maize⁴ produced worldwide are intended for animal feed;
- 63% of European arable land (excluding permanent grassland) is intended for animal feed;
- the richest countries overconsume animal protein far beyond their populations' nutritional needs, to the detriment of health and the environment;
- 1/3 of the total (total = 160 million tonnes) of cereals used in the European Union to feed livestock would be sufficient to compensate for the fall in Ukrainian exports⁵.

⁴ In France, it would be possible to convert some of the 1.5 Mha of maize silage surfaces for animals into grain maize. Converting 20% of the current 1.5 Mha of maize silage into grain maize would produce 3 Mt of grain. This implies several measures: reducing cattle herds, primarily herds based on maize/soybean feed, and increasing the share of grass and fodder from temporary grassland or mowed permanent grassland, replacing maize silage.

⁵ Out of a total of Ukrainian exports estimated at 57 million tonnes of cereals in 2019 (FAOStat).

Figure 2: Annual protein consumption by European Union member States (kg/person/year).



Source: IDDRI, according to FAOStat (TYFA, 2018).

In green: Proteins of vegetable origin in kg per person per year

In orange: Proteins of animal origin in kg per person per year

Dotted line: nutritional requirements

Agricultural land is used to produce agrofuels:

- Cereals grown for industrial purposes, mainly agrofuels, represent 5% of the total cereals produced by the European Union (15 million tonnes) and France (3.4 million tonnes) combined, and over 44% of the total cereals produced in the US (about 137 million tonnes). 19% of the global maize production is used for non-food purposes, mainly to produce fuel ethanol.

- Europe burns 10,000 tonnes of wheat on a daily basis to produce bioethanol for cars (the equivalent of 15 million 750g-loaves).
- According to Transport & Environment, reducing the share of wheat in European biofuels:
 - by a little less than 1/3 would compensate for Ukrainian wheat losses and protect European farmers and consumers from possible shortages;
 - to zero would compensate for over 20% of Ukrainian exports and ensure support for food security in third countries dependent on Ukrainian wheat.

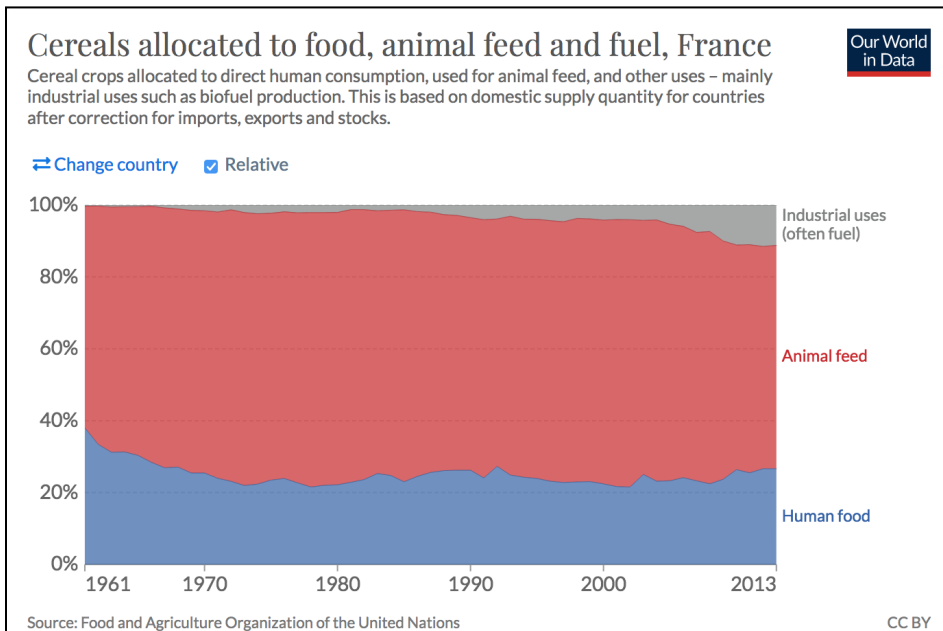
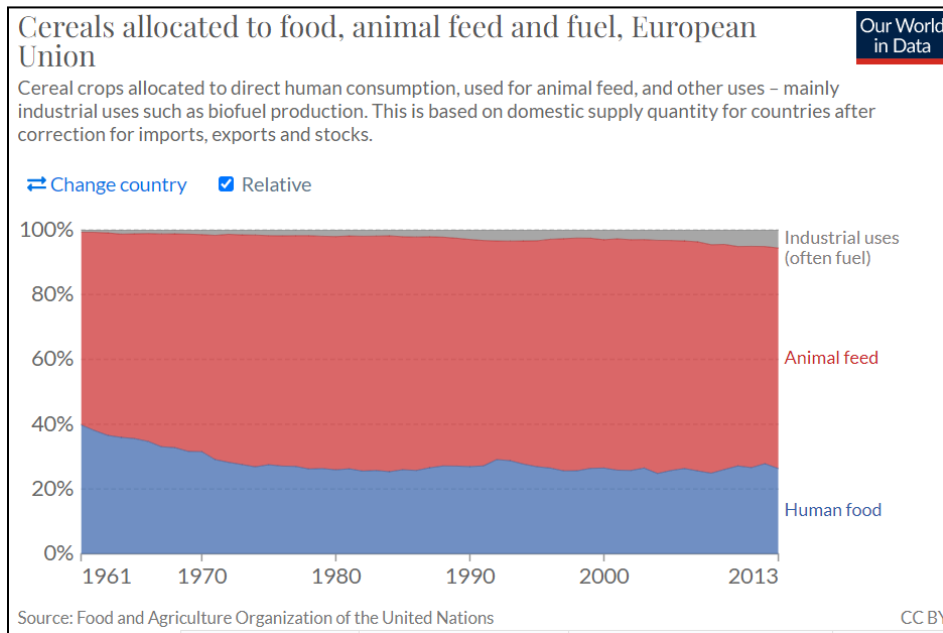
Agricultural land is also used for methanisation:

Crops dedicated to methanisation only accounted for 0.05% of Utilised Agricultural Area (UAA) in France in 2015. They could increase to between 5% and 17% of the total UAA, in the event of biogas representing between 30% and 100% of consumed gas in France, equivalent to around 1.5 and 5 million hectares, which represents 2.5 to 8.5 French departments.

Substantial land is disappearing because of artificialisation:

In France, artificialisation has increased by nearly 600,000 ha between 2007 and 2017 (+13.9%), three times more than the increase in population. In Europe, between 2000 and 2018, almost 2 million hectares — mainly agricultural land — were concreted or paved (slightly less than the size of Slovenia).

Figure 3: Cereals allocated to human consumption (blue), livestock feed (red), and other uses (mainly agrofuels, grey).
From left to right: European Union, France.



Source: [Our world in data](#).

4. Is it worth allowing production on ecological focus areas (including fallow land)?

To receive the green direct payment (part of Common Agricultural Policy's first pillar), establishing ecological focus areas is a set obligation, including fallow lands, which are a long-standing source of tension. On 2 March 2022, a week after Russia invaded Ukraine, the FNSEA called to start cultivating fallow lands, a request which was then relayed by the French government at European level. At the end of March, the European Commission announced the possibility of obtaining a derogation for member States in 2022. France has therefore issued a decree to that effect. According to our organisations, this measure is not relevant for several reasons:

1 Fallow land (land left to rest) and more generally, ecological focus areas, are essential for soils to function properly and to preserve biodiversity:

- They contribute to maintaining good yields and the proper functioning of our agricultural systems by allowing the preservation of a significant pollinating insect diversity, which is necessary for plant reproduction and therefore for agriculture through pollination (2/3 of our diet depends on this mechanism).
- They ensure that some areas are free from any pesticides or fertilisers. This is necessary to fight against biodiversity loss, as intensive agricultural practices are the first cause of this phenomenon. According to the French National Centre for Scientific Research (CNRS), bird

populations in the French countryside have declined by a third in the space of 17 years (2018). Intensive agriculture is singled out, mainly by ending fallow lands and overusing nitrates. Although fallow lands alone are not sufficient to reverse the trend, these areas are an absolute must to fight against the sixth mass extinction.

- Moreover, fallow lands in France have been experiencing a sharp downfall in the past 40 years. While areas dedicated to arable crops have considerably increased over that timeframe (+2.6 million ha), permanent grasslands have fallen (-2.3 million ha) as have fallow lands and temporary grasslands (-2.1 million ha).

2 Due to their low surface, putting ecological focus areas back into cultivation would not significantly increase production volumes:

- Today, according to the French Ministry of Agriculture, only 1% of UAA in France (2% of arable land, or nearly 300,000 hectares) is classified as fallow land.
- The current Common Agricultural Policy (CAP) does not require keeping land out of production as such. However, the set condition to access the green direct payment is to establish a certain surface of ecological focus areas (fallow land or trees, hedges, buffer strips, certain types of crop) equivalent to at least 5% of the arable land area. The new CAP (2023-2027), as part of cross-compliance, offers farmers the choice between dedicating at least 4% of their area to agroecological infrastructure (fallow land, hedges, ponds, trees) or 7% of ecological focus areas (catch crops and/or nitrogen-fixing crops free from pesticides), including 3% to agroecological infrastructure.
- Often, resting land is not very productive or poorly located land. Returning it to cultivation would only have little effect in increasing the production volumes or yields. The few quintals gained for wheat or maize are unlikely to change the global situation. In France, an increase of 20 quintals of maize in yield would produce an additional 3 Mt, which represents only 0.3% of world consumption. Putting ecological focus areas back into cultivation would also be at a very high environmental

cost due to the necessary high increase in input and water consumption (irrigation generalisation on the entire maize production) and the destruction of agroecological infrastructure.

3 It should be noted that fallow land is a long-standing point of tension within the agricultural world, in France as well as in the rest of Europe.

Fallow land is a measure that was launched in 1988 by the EU-12 and made mandatory by the CAP in 1992 in response to overproduction, which triggered a wave of anger among French farmers. Each crisis has been, and still is, an opportunity for the biggest producers to request the removal of this measure. The war in Ukraine is used as an excuse to reiterate this demand (and win the case). More than anything else, fallow land is a symbolic battle.

Survey. Bringing fallow land back into cultivation doesn't seem like an appealing idea for French farmers.

85% of people who took part in France Agricole's survey say they will not put their fallow land back into cultivation. Beyond the potential low or no yield (when the land is not exploitable) and the modest contribution that fallow land production could represent in global trade, this survey shows to what extent this re-cultivation is mainly a favour for agribusinesses rather than an effective measure on behalf of France in response to the consequences of the war in Ukraine.

5. Does the "farm to fork" strategy imply degrowth, and should it be questioned?

The Farm to Fork (F2F) strategy, launched by the European Commission, is the agriculture/food component of the European Green Deal. Using the term "decreasing", as the critics do, stems from an analysis that is both biased and partial. Considered a long-term strategy, it is necessary to ensure our food security and is in line with many scientific agroecological transition scenarios with a systemic approach to the issue (economic, health, social, environmental, and climatic issues). Challenging it would therefore be counterproductive for the following reasons:

1 Responding to the war in Ukraine with an urgent, short-term scale-up of production represents a risk for food in the future:

Organising production without considering the long-term impact will contribute to depleting our soils. It will also undermine the biodiversity needed for production and could thus lead to a sharp drop in production. Over 650 scientists worldwide have urged not to reverse environmental progress, arguing that this will not solve the crisis and would even further us from a resilient agricultural system, capable of ensuring healthy and sustainable food in the long term. According to FAO: "*Human-induced deterioration of land, soil and water resources reduces production potential, access to nutritious food and, more broadly, the biodiversity and environmental services that underpin healthy and resilient livelihoods.*"

2 Farm to Fork is a unique strategy as it presents a systemic approach (considering both changes in supply and demand) aiming to ensure sustainable production conditions.

This strategy includes the necessary environmental targets to produce over the long term. For the 2030 Agenda, it is a question of reducing the use of pesticides by 50%, the use of fertilisers by 20%, and devoting a quarter of cultivated land to organic farming. Rather than being weak, this strategy points towards a different type of production and a model that is more resilient to geopolitical, economic, and climatic shocks (mainly because it is less dependent on synthetic inputs). Frans Timmermans, Executive Vice-President of the European Commission, pointed out during his hearing in the European Parliament, that the F2F strategy is "an attempt to save agriculture, not punish it".

3 According to IDDRI and INRAE, due to a reduction in animal protein consumption and the relocation of plant protein production, if the European Union applies the F2F and Biodiversity strategies for 2030 objectives along with those of the TYFA scenario for 2050, the European Union could become a net food exporter and export up to 12% of what it consumes and therefore significantly contribute to global food balances.

This is not presently the case (the European Union is a net calorie importer, see 3. *Should we produce more in Europe to "feed the world"?*).

4 The F2F strategy had been criticised by COPA-COGECA and FNSEA well before the crisis in Ukraine. War is a new excuse to overturn environmental ambitions before they become fully binding under the next CAP or through any resulting regulations.

Industrial agriculture representatives take the lead and use every single opportunity to highlight short-term risks to destroy any possible long-term evolution in the agricultural world. This is in line with Julien Denormandie's positioning in favour of transforming the CAP to put fallow land back into production and Emmanuel Macron's wish to adapt the F2F strategy.

5 It is important to treat the figures given with caution regarding the risk of a production drop with the Farm to Fork strategy.

These figures are based on three studies: the first by the US Department of Agriculture, published in November 2020, which announces production reduced by 7% to 12%; the second by the Wageningen University (2021), which presupposes a drop in production of 10% to 20%; and the third by the European Commission's Research Centre, also published in 2021, which establishes a risk of a production drop of 10% to 15% depending on the sector. It should be noted that these results consider the effects of the Farm to Fork strategy along with those of the Biodiversity strategy (and not only the impact of F2F as sometimes mentioned). As pointed out by the Scientific Research Centre of the European Commission, these results should be treated with great caution and cannot be considered definitive. Indeed:

These three studies have major limitations and cannot be considered as impact studies:

In December 2020, the INRAE published a note detailing the many limitations of the American study. According to the authors of this note, the study considered only part of the elements taken into account by the Farm to Fork and Biodiversity strategies. It did not consider key factors in the yield and production calculation, such as the transition towards a more plant-based diet, the reduction of food waste, the development of crop rotations, or

technological innovations. However, many scientific studies have repeatedly pointed out that these factors are essential to consider the evolution of agricultural systems in the medium term and to improve the efficiency of the production systems in question. Indeed, a paper published in 2019 shows that it is possible to reduce the use of fertilisers by 70% by restoring soil health in intensive maize production without reducing production.⁶

Both studies by the Wageningen University and the European Commission's Research Centre present similar limitations (see the summary of the EU study by the European Commission's Research Centre, which clearly shows this study cannot, as such, be considered an impact study).

These studies do not consider the health and environmental benefits associated with biodiversity conservation and pesticides and synthetic fertiliser reduction, nor do they take into account the negative impacts of the latter (on health and the environment, but also on future yields, as synthetic fertilisers contribute to global warming which will have more and more significant negative effects on the productivity of agricultural systems).

Two of these studies are biased:

The study by Wageningen University was funded by CropLife, a powerful European agribusiness lobby, and the American study by the US Department of Agriculture, which is known for criticising any attempt at an ecological and agricultural transition at international level.

Finally, according to the Corporate Europe Observatory, these studies supported an aggressive lobbying campaign by agribusiness representatives against the Farm to Fork strategy.

⁶ Oldfield EE, Bradford MA, Wood SA. Global meta-analysis of the relationship between soil organic matter and crop yields. *Soil*. 2019;5(1):15-32. doi:10.5194/soil-5-15-2019

6. How is the industrial and globalised agricultural and food system counterproductive in the fight against hunger?

The current dominant industrial agricultural and food system is unable to sustainably feed the world and is running out of steam. Even before the Russian aggression against Ukraine, it was inadequate to sustainably feed the world's population and presented major deadlocks, undermining global food security.

What is the industrial agricultural and food system?

An agricultural and food system covers all the actions and ways in which humans get organised in space and time to cultivate the land and feed themselves. It therefore includes all stages of food (production, transformation, displacement, storage, consumption, etc.).

The industrial agricultural and food system, currently dominant (it benefits from the main international political and financial support), is defined here as a highly mechanised system based on intensive use of capital and inputs (pesticides, mineral fertilisers, etc.). It is a labour-poor system, based on international sectors and markets operating on a just-in-time basis. This system is characterised by a high concentration, imbalance of power, and overproduction and overconsumption of processed or even ultra-processed

products. In France, the productive aspect of this system is similar to what is called "conventional agriculture".

1 Economically speaking, the industrial agricultural and food system operates mainly through globalised economies of scale. Given the cost of investments and inputs required for production and marketing, profit is only possible for larger farms.

This profitability is also only possible as the costs generated by damage (to the environment, climate or human health) due to the use of inputs are borne by society. Once again, this is true only in countries where industrial agriculture is subsidised (e.g. in Europe, the United States, or Japan) or in countries that have significantly lowered their social, economic, or environmental standards to be competitive. This leads to a sharp reduction in labour protection standards, short and precarious contracts, and an increase in informal agricultural work. These practices, which are becoming more and more widespread, aggravate the impoverishment of workers in the agricultural sector. As a result, while economic inequality is one of the major causes of increasing hunger worldwide, over 50% of people suffering from food insecurity are themselves producers or agricultural workers.

Time and time again, the debate over productivity gains in industrial agriculture raises many questions:

These profits are not sustainable: they are based on a non-renewable use of resources (water, phosphorus, oil, etc.). Research over the past two decades has shown that yields from major crops subject to an agricultural "modernisation" dynamic have begun to stagnate in several parts of the world, as illustrated by the examples of maize in Kansas and rice in

Hokkaido. A meta-analysis⁷ of this research on worldwide yield evolution from 1961 to 2008, revealed that in 24% to 39% of the world's maize, rice, wheat, and soybean growing areas, yields did not improve, eventually stagnated or even declined (after an initial profit period).

They lead to pesticide resistance, a phenomenon which has been growing rapidly in recent decades. Resistance was observed on the seven main herbicides used in 2000, one to two decades after their introduction. This has led some researchers to say that "each defense sows the evolutionary seed to its own demise."⁸

They are by no means fair: since 1945, productivity gains of industrial agriculture have not benefited farmers but actors further down the chain, mainly the agri-food industry and mass distribution:

- Between 1978 and 2005, there was a divergence between higher food prices for consumers and lower global prices for agricultural raw materials (divided by 2 to 5 on the main global commodities). This phenomenon was substantiated in France by the work of J-P Butault at the INRA who compared the evolution of agricultural and food prices between 1978 and 2005 using the same methodology.⁹
- As explained by the research unit BASIC in its report *Who's got the power?* (2015), "The benefits that accrue to the actors of global supply chains are skewed in favour of the lead firms in the chain. Value is increasingly allocated not primarily to those who supply a physical product but to those who can bring to bear the information needed to make the global food chain work successfully"¹⁰ (evolution of prices, logistics, quality standards, etc.).

⁷ Ray, D. K.; Ramankutty, N.; Mueller, N. D.; West, P. C.; Foley, J. A., "Recent Patterns of Crop Yield Growth and Stagnation", in *Nature Communication*, 2012

⁸ Tilman, D.; Cassman, K. G.; Matson, P. A.; Naylor, R.; Polasky, S., "Agricultural Sustainability and Intensive Production Practices", in *Nature*, 418 (6898), 671–677, 2002. Heap, I. International Survey of Herbicide-Resistant Weeds by WSSA Code, <http://www.weedscience.org>

⁹ Butault J.P., "La relation entre prix agricoles et prix alimentaires", in *Revue française d'économie*, 2008

¹⁰ In 2015, in France, out of 100 euros spent by consumers on food, agriculture received only 6.50 euros, even though it represents 15% of jobs in the agri-food chain. On the other hand, food industries received 11.20 euros, catering 13.30 euros, services 14.40 euros, shops 15.20 euros and other industries 3.20 euros.

2 Climatically and environmentally speaking, the industrial agricultural and food system is also counterproductive.

This industrial system is responsible for a third of global greenhouse gas emissions, 50% of methane emissions, and 60% of nitrous oxide emissions which have a warming potential, which is respectively 25 and 298 times greater than CO₂. While extreme weather shocks are the leading cause of worldwide agricultural loss, our agriculture in this case is both victim and executioner. If the status quo is maintained, it is estimated that emissions from the agriculture and food system could increase by 30 to 40% by 2050. In addition, this system has devastating impacts on cultivated biodiversity (75% of seed diversity has been lost in 50 years), which has direct consequences on the diversity of the world's diet and on the increase in malnutrition, but also on wild biodiversity (mass extinction of insect populations and culture auxiliaries). It also drastically contributes to deforestation and the depletion of natural resources, especially soils.

The impact of drought and heat waves on European yield losses has tripled in 50 years.

This is shown in a study published in March 2021. Between 1964 and 1990, yield losses across all crops combined accounted for an average of 2.2%, before rising to 7.3% between 1991 and 2015. The consequences are worse for cereals (from -3.6% to -9.8%). According to this study, droughts have reduced yields by 9% and heat waves by 7%. The authors also focused on other extreme events such as cold snaps and floods, but the effects were less explicit.

3 Socially speaking, this industrial agricultural and food system fuels conflicts along the food chains.

Repeated violations of human rights, criminalisation of whistleblowers and advocates of change, gender discrimination (women are the first victims of hunger: they have little access to resources and less decision-making power), over concentration of power in the hands of a few companies (e.g. four multinationals manage 70% to 90% of world grain trade). All these elements perpetuate inequalities, poverty, and a sense of social injustice. Breakthroughs in industrial agriculture also goes hand in hand with land concentration and land grabbing, evicting peasant, indigenous and traditional communities from territories they historically occupied. Between 2000 and 2020, investors handled at least 30 million hectares of agricultural land worldwide. In Brazil, around 579,000 people were affected by agricultural land conflicts in 2019. As such, French agribusiness is the ninth-largest land grabber in the world.

4 Nutritionally speaking, the industrial agricultural and food system provides a poorly diversified diet with limited nutritional quality.

In a system that promotes ultra-processed, standardised, and industrialised foods, malnutrition (under and overnutrition) is on the rise, increasing the number of people who are overweight or obese or suffering from hypertension, diabetes, micronutrient deficiency, and chronic undernutrition. This has led many people to be particularly vulnerable in a global pandemic situation, as was the case with the coronavirus. In addition to the low nutritional quality of diets induced by this system, it poses a global threat to the nutritional quality of the food produced. Climate change, in which this system plays a huge role, leads to a decline in plants' nutritional quality (protein, iron, zinc and calcium deficiency, etc.). This can lead to nutritional deficiencies or exacerbate them in populations, already experiencing significant malnutrition, and lead to metabolic disorders, stunted growth, cognitive and motor stunting, and poorer immune system efficiency.

These negative externalities (economic, social, environmental, and climatic) are structural and intrinsic to how this industrial agricultural and food system is organised and operates. Far from being resilient, it is particularly vulnerable to

economic and climate shocks, which are likely to sharply increase in the coming years. While there is a consensus at international level that this system is not able to sustainably feed the planet and is instead contributing to chronic food insecurity, there is also a scientific consensus on the need for an in-depth transformation to build a sustainable agricultural and food system, resilient, nutritious, and healthy.

7. How can agroecology be a long-term solution to fight food insecurity and protect ecosystems?

Agroecology can be defined as an approach combining three significant complementary fields, which cannot stand alone: a science of agricultural ecosystems based on peasant know-how and scientific knowledge, a set of environmentally friendly agricultural practices, and a social movement defending local agricultural and food systems. Through its transformative approach, agroecology promotes local production with less product transformation. With food sovereignty as its main goal, agroecology works towards sustainable and resilient food systems that are economically viable, more nutritious, accessible to all, and fairer. Agroecology is therefore an approach providing new ways of organising and distributing value, as well as of working within agricultural value chains.

1 Agroecology is a solution which provides our food systems with greater sustainability and resilience.

Through shared benefits for the ecosystem, agroecology reduces the environmental and climate impact of our agriculture and food, preserves biodiversity and offers better resilience to the consequences of the climate and environmental crisis. Agroecology also contributes to greater social justice by placing farmers back at the heart of the production system, allowing them to regain both knowledge and production tools. It is economically viable for farmers, ensuring them better wages, and makes it possible to increase agricultural yields as part of a virtuous circle. Last but not least, it participates in the creation of socio-economic activities in a given territory and structures local and resilient food systems.

2 The agroecological transition has many climatic, economic, nutritional, and social co-benefits that make it particularly relevant in the fight against food insecurity.

The HLPE (High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security) pointed out in its 2019 report — *Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition* — that agroecology's capacity has significantly contributed to 10 of the United Nations' 17 Sustainable Development Goals. Regarding its contribution to the fight against food insecurity, the HLPE has clearly highlighted the link between the positive social, economic, and environmental impacts of agroecology and a marked improvement in the food security of households, especially the poorest. Of all the agricultural "innovations" studied by the HLPE, agroecology, with its transformative approach to agricultural and food systems, was by far the most effective and relevant as it acted directly on the structural causes of food insecurity. Agroecology also allows a real consideration and enhancement of interactions and interdependencies between human health and biodiversity.

3 Generalising agroecological systems would reduce our strong dependence on synthetic inputs and thus develop farm resiliency.

Dependence on raw materials would also be reduced. Since the demand for animal products would be lower, we could develop extensive livestock farming, for example by using more pasture and locally produced plant protein (protein peas) for cattle rather than imported concentrated feed.

In France, organic farming contributes to achieving a high level of biodiversity.

On average, 30% of species and 50% of living beings are found on organic farming land. Up to 37% more brood, 20% more adult bees, and 53% more honey are also observed in colonies surrounded by organic land compared to areas around conventional agricultural land.

4 Many renowned scientists state that Europe can be fed with a generalised agroecological system, free from pesticides and synthetic fertilisers:

- A 2017 study published by Nature stated that it was possible to convert the entire European agriculture to organic farming provided that food waste and the consumption of animal protein were reduced.
- The European TYFA scenario, developed by the Institute for Sustainable Development and International Relations (IDRI), came to similar conclusions in 2018. According to its authors, agroecology generalisation must reduce by half the production and consumption of animal products and cut down on processed products and food waste.
- The French National Centre for Scientific Research (CNRS) also published in 2021 a study projecting an agroecological system that would

feed Europe in 2050. The scenario is based on three levers: changing diets towards a lower consumption of animal products, applying agroecological principles to manage without synthetic fertilisers and pesticides, and bringing crops and livestock farming closer to reuse animal waste as manure.

- A recent study conducted by researchers from the École Normale Supérieure (ENS) and the CNRS, published in March 2022, shows that it is possible to feed Europe without synthetic fertilisers and without importing food thanks to three levers: reducing livestock and converting to crops, engaging in agroecological practices on farms in order to organically fertilise soils, and promoting human urine.

5 This is also the case in France:

- Solagro's Afterres2050 scenario suggests halving agricultural greenhouse gas emissions by 2050 as well as reducing other negative environmental impacts by dividing phytosanitary treatments by three, the use of synthetic fertilisers by 2.5, and by adopting agroecological practices on 90% of agricultural land (half of this 90% would be converted to organic farming and the other half would use an "integrated production", i.e. direct seedlings, plant cover, and very careful use of chemical inputs). France's trade balance would remain positive and soybean imports would come to an end. To reach these goals, livestock farming would be reduced (-46% for cattle, -35% for pigs, -47% for poultry) and almost self-sufficient in food, overconsumption of calories and protein would be reduced by a third, losses and waste divided by two, and diets would be more plant-based (2/3 vegetable protein and 1/3 animal, the opposite of the current ratio).
- According to the Parcel website established by BASIC, FNAB, and Terre de Liens, it is estimated that "only 19 million hectares" would be necessary to relocate all food production to France (included the necessary area to feed each farm, excluding alcohol) by entirely converting them to organic farming and by halving animal product consumption. The remaining 8 million hectares would gradually turn into forest, be exploited for non-food but ecological crops, or used for food

that will be exported. Furthermore, these calculations were based on the current organic agriculture system in France, which leaves room for improvement through virtuous practices that would strengthen organic yields.

8. Is France contributing to the growth of sustainable agricultural and food systems in developing countries?

In terms of agricultural development, France is destroying what it is building, whether through its agricultural investments, the destabilising burden of food exports to the economies of the South, or through the indirect impacts of its agricultural model. Unfortunately, France is not contributing to the development of sustainable agricultural and food systems in developing countries.

1 Despite its many pledges on the subject¹¹, it cannot be said, overall, that France is contributing to creating sustainable and resilient agricultural and food systems in the South.

Between 2009 and 2018, only 13.3% of French agricultural financing allocated to developing countries has really sought to promote an agroecological transition (a figure that is increasing by eight million euros per year) and most financing does not take into account the establishment of food sovereignty in the recipient countries. Quite the opposite: more and more French public investments in these countries are built around the financial interests of French companies. Over the last 10 years, 24% of French financing in these countries has been entirely dedicated to developing a predominantly export-oriented agro-industry. Indeed, agro-industrial financing has been increasing by nearly 18 million euros per year.

2 France's responsibility in food dependency is historic:

Through colonisation, Western countries have promoted, in some African countries, consumption habits of eating imported foods such as refined flours, to the detriment of the eating local cereals such as sorghum or millet, or traditional pulses such as cowpea.¹² Colonisation has also contributed to the establishment of intensive agricultural production oriented towards export, instead of developing nourishing and resilient local systems.¹³

3 Largely subsidised European — and mainly French — exports are disrupting the economies of third countries.

This particularly applies to milk powder and frozen chicken offal that France exports to Africa. Landing on markets at very low prices, as they are

¹¹ LOPDSI since 2014, LOPDSIM since 2021, French food security and sustainable agriculture strategy since 2018.

¹² Bjornlund, V., Bjornlund, H. & van Rooyen, A, Why food insecurity persists in sub-Saharan Africa: A review of existing evidence. Food Sec. (2022). <https://doi.org/10.1007/s12571-022-01256-1>

¹³ Bjornlund, V., Bjornlund, H. & van Rooyen, A, Why food insecurity persists in sub-Saharan Africa: A review of existing evidence. Food Sec. (2022). <https://doi.org/10.1007/s12571-022-01256-1>

subsidised, they compete with equivalent local products and slow down, or even prevent, local sectors from developing. Milk exported to West Africa costs up to 30% less than local milk and, as it contains added vegetable oil, is of lower nutritional quality.

4 The industrial agricultural and food system in Europe is significantly contributing to climate change, which in turn is affecting agricultural productivity and production in third countries.

According to the IPCC, over the period 1974-2008, due to climate change, maize and wheat yields have fallen respectively by an average of 5.8% and 2.3% in sub-Saharan Africa. Yet it is one of the least emitting regions in the world. Extreme weather events are also the main source of agricultural production loss worldwide. As average temperatures are rising, the drop in cereal yields is expected to continue. The climate crisis is also affecting the nutritional quality of food.

9. To what extent is agriculture in France independent, sustainable, and resilient?

We need to analyse the key components that are independence, sustainability and resilience to grasp the ongoing discussions about the agricultural consequences of the war in Ukraine. Although complex and discussed within the international scientific and political community — especially today — it is important to recall a few points on the matter:

1 In terms of independence, the Haut-Commissariat au plan itself describes French agriculture as having many "strategic dependencies". The French agricultural model is indeed very much dependent upon:

- Synthetic fertiliser imports. According to the Haut-Commissariat au plan office, France's cereal power is made possible only by the use of soil fertilisation, which presupposes, among others, nitrogen and phosphorus inputs. It also points out that France imports 95% of its minerals, 100% of its phosphorus, and 60% of its nitrogen to manufacture fertilisers (in 2019, the total deficit on synthetic fertilisers was of 1.46 billion euros).
- Gas imports, to produce synthetic fertilisers on French soil.
- Oil imports, necessary for agricultural machinery.
- Agricultural machinery imports. According to the Haut-Commissariat au plan, France has experienced a deficit of 1.33 billion euros in agricultural machinery in 2019.
- Software and robot imports. As was highlighted during the closure of borders during the pandemic, some agricultural sectors are also highly dependent on foreign labour.

2 In terms of sustainability, France is far from perfect.

- According to the study published by the Economist Intelligence Unit (EIU), even though France is ranked among the best in the fight against food waste (16th out of 78 countries) and leader in 'nutritional challenges', it comes only 33rd out of 78 for agricultural sustainability.
- According to the CNRS, bird populations in the French countryside have declined by a third in the space of 17 years (2018). Pesticides are singled out, as well as the suspension of fallow land by the CAP in 2009.
- France ranks second in terms of the amount of pesticides sold in Europe and 1st for the use of synthetic nitrogen fertiliser (2.3 million tonnes used per year). Among other European Union countries, France is

experiencing the highest increase in the volume of pesticide sales (along with Cyprus, Finland, Austria, and Latvia). In relation to UAA, 3.7 kg of pesticides per hectare were used in France in 2018, which places France 9th in Europe, among the countries that use them the most. According to Agence Bio's report on organic farming in Europe, France counted 2,548,718 hectares of organic farming in 2020. This represents only 9.5% of the UAA and places it 14th in Europe (in terms of organic agricultural land share). For instance, Austria has reached 26.4% of UAA.

3 In terms of resilience — the ability to adapt to disruptions or to return to a routine system in a changing environment — the matter is complex as it depends on many factors as well as on the system considered (farms as such, the entire agri-food system, etc.).

When considering French farms, here are a few elements to bear in mind:

- From an economic and geopolitical point of view, given its many dependencies on imports and public subsidies, it is clear that French agriculture is highly unreliable (see previous paragraphs).
- From a climate point of view, the situation is becoming more and more difficult. Extreme weather events are varied and multiplying, flood risks increasing, precipitation and temperatures changing. This impacts harvest, yields, cultivation opportunities, etc. Part of the French production, such as maize (2nd most cultivated plant crop in France) requires large amounts of water in summer. Even if many actors in the agricultural world are gradually adapting, it is clear that the model in France is anything but resilient.

10. Is it possible to rapidly reduce livestock in France and the EU, and what would be the long-term consequences?

Among short-term responses to the agricultural and food crisis, suggestions have been made to rapidly reduce livestock in Europe in order to relieve the pressure on cereal demand. This response raises questions about the feasibility, the necessary supporting measures, and the consequences of such an orientation. The answers below show not only that this reduction is technically possible but also that other countries have already put in place socio-economic measures to support livestock farmers, and that it would be beneficial for the food system's sustainability. They also recall the need to support sustainable livestock farming in the European Union and in third countries.

1 In the short term, rapidly reducing enclosed breeding of poultry and pig is technically possible in Europe to limit the pressure of livestock on the cereals market.

Several measures can thus be taken. For poultry, a lower renewal of batches could be established (for chickens in industrial systems, these renewals take place every 40 days). It is also possible to stop building, expanding, and transferring factory farms (which would then be dismantled by the State). From a socio-economic point of view, it is possible, just like in the Netherlands, to compensate for the losses with a bonus for reducing the density per holding and/or for planning to transition from livestock to more sustainable production.

2 Several European countries have already acknowledged or initiated a transition for farms.

- Germany has pledged to end all cages for pigs and laying hens (by 2025). The decision is backed by a substantial part of its recovery plan. It also recently announced a four-year, €1 billion plan to transform livestock farming, including financial support for investments in livestock buildings with access to open-air, natural light, and a higher level of animal welfare.
- In the Netherlands, a major European animal product producer, unprecedented measures have been established to reduce livestock in the dairy, pig, and poultry sectors. In 2021, a plan to reduce the amount of livestock by 30% has been put in place, along with 25 billion euros to support the sectors. The measures adopted are as follows: financial penalties for farms that have increased their herds, a 1200 euros bonus granted for each head of cattle removed from the herd, the introduction of a new system of manure quotas, a binding measure to reduce herds in the event of over intensive breeding, buyout by the State, then dismantling of large intensive farms.

- Belgium announced in February 2021 a plan to reduce its pig herd by 30% by 2030, with a public purchase programme for farms to encourage farmers to quit production. The significant investment costs are to be set against regular rescue plan costs for the industrial livestock sectors and against the environmental externalities induced by livestock farming.

3 In the long term, this livestock reduction in France and Europe to maintain and develop peasant livestock farming would be highly beneficial to our agricultural and food systems' sustainability:

- Livestock farming is central to environmental challenges. It accounts for 32% of methane emissions and 19% of global greenhouse gas emissions.
- With regard to their size and animal density, their dependence on imported proteins or the management of effluents, industrial livestock systems have a major environmental impact: air, soil, and water pollution, biodiversity loss, deforestation and overconsumption of resources. They are also incompatible with animal welfare and have negative effects on human health. Reducing livestock would enable more extensive and sustainable production methods, such as mixed livestock farming, and thus preserve permanent grassland, which is essential for carbon capture and preserving certain animal and plant species associated with open environments.

11. Is it beneficial to reduce agrofuels in the midst of an energy crisis?

Alongside growing pressure of the use of agrofuels on global food insecurity (competition for use) and on land (see Questions 1 and 3), there are many economic and ecological arguments in favour of stopping the use of agrofuels.

1 While converting your vehicle to bioethanol can be appealing to drivers in the short term, biofuels are not as green as they look.

If we include emissions related to land-use change, the environmental balance of agrofuels is poor:

- In a major comparative study published in 2021, the International Council on Clean Transportation (ICCT) estimated that, over the entire life cycle, biofuels used in Europe have a carbon footprint only 2% lower than fuel.
- No bioethanols meet the sustainability thresholds set by the European RED II directive (at least 50% reduction compared to fossil fuels).
- According to the European Commission, a litre of rapeseed-based biodiesel represents 1.2 time more greenhouse gas emissions than a litre of diesel, soybeans-based biodiesel twice as many, and palm oil-based biodiesel three times more.
- Agrofuel production tends to favour intensive agriculture and pesticide use, to the detriment of biodiversity, health, water resources, soils, and

a more sustainable agricultural model. This is the case with the return of neonicotinoids on beet cultivations.

- It has also been noticed that crops for agrofuels are grown instead of crops originally intended for food production. Food production then shifted to deforested land or cultivated grassland. This is called indirect land use change. This has greatly increased the environmental footprint of agrofuels (greenhouse gas emissions and ecosystem degradation).

2 Biofuels are therefore false solutions to climate change:

In addition to encouraging an unsustainable agricultural model, they do not effectively reduce greenhouse gas emissions and contribute to biodiversity loss.

3 Similarly, it does not benefit economic results.

The agrofuels' deposit is limited and competes with food production:

- The sector would be tempted to strongly increase its production, which represents a risk of increased competition on the use of agricultural land, while there are pressures on food prices. The increasing use of agricultural land for agrofuels contributes to the rise in food prices and their volatility for households in the countries of the North and the South.
- During the past decade, their production has reached its limit in France and the increase in consumption is fuelled by imports. The import balance of biodiesel was 343 million euros in 2020 (origin: Belgium, Netherlands, Spain).
- Agrofuels consumption will plateau: while the European Union has set a 7% limit the share of agrofuels from food crops for transport energy, France had already reached 6.8% in 2019.

4 Even in the midst of an energy crisis, the production and use of agrofuels should be limited and even reduced.

8% of fuel in France is made with products of agricultural origin (35% wheat, 30% maize, 30% beetroot). Announcing a reduction in fuel would send a signal to the speculative markets that additional cereal volumes for human consumption would be available and thus have an effect on limiting the price surge. We should not forget that the rise in food prices in the past two years is partly explained by the development of agrofuels. The expansion of agricultural production for bioethanol could lead to the rise in food prices "to spiral out of control".

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