

**Pesticide Action Network contributions to the CFS policy convergence process**  
regarding the HLPE report, “*Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition*”

27 November 2019

On behalf of PAN International, I am pleased to contribute the following comments, in response to the 12 November 2019 request from Ambassador Mohammad Hossein Emadi, Rapporteur for the Policy Convergence Process for the HLPE report, “*Agroecological and other innovative approaches for sustainable agriculture and food systems that enhance food security and nutrition.*”

Amb. Emadi has requested inputs by 29 November, including responses to five questions. Due to the limited timeframe in which to reply, we have focused our response on Question #3 and provide the following “high-level” recommendations for policy shifts needed to (a) overcome lock-ins and obstacles *preventing* country shifts towards least-toxic, climate-resilient, ecological farming as well as (b) concrete actions to *support* a system-wide transition to agroecology.

Our contributions focus on policies to enable a transition towards *agroecology* specifically because, according to the HLPE report, among all the innovative approaches examined by the HLPE report, **it is *agroecology* that offers the most transformative approach to achieving sustainable agriculture and food systems for food security and nutrition.**

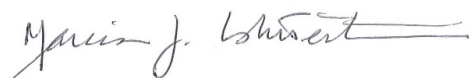
In addition, as concluded in the HLPE report and as affirmed by the UN Special Rapporteur on the Right to Food, **agroecology is the approach that is most clearly aligned with the rights-based approach to food systems change.** Of grave concern is the evidence that a number of the so-called “incrementalist” approaches reviewed by the HLPE (e.g. sustainable intensification, climate-smart agriculture, biotechnology, etc.) are not only far less effective in achieving sustainable agriculture and food system goals, but may actually *undermine* urgently needed progress towards food systems change, by cementing institutional and system lock-ins and dependencies on the input-intensive, industrial-scale, low-diversity production systems that are dominant in many countries today, due in large part to the political and economic influence of the corporations that stand to gain the most from continued reliance on these systems and their associated inputs and technologies.

We therefore urge the CFS, in its deliberations, to prioritize the policies, research and extension, market shifts and investment decisions that are most likely to enable a rapid and effective systems-wide transition towards *agroecology*, and well as policy measures to tackle the lock-ins and obstacles to transformation.

Finally, I have included an additional 19-page document detailing a number of specific policy initiatives from a range of countries around the world, designed to support transition away from reliance on hazardous pesticides and towards organic and agroecological farming instead. This document is appended, following the “high-level” recommendations from PAN International below.

We would be happy to provide more detailed contributions at a future date.

Sincerely,



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## Recommendations to the UN Committee on Food Security (CFS)

Pesticide Action Network International\*

November 2019

*\*PAN International (PAN) is a global network of 600 organizations in 90 countries, with 5 regional centers in Africa, Asia & the Pacific, Europe, Latin America & the Caribbean and North America.*

**Transitioning towards sustainable agriculture and food systems in the 21<sup>st</sup> century requires a decisive shift of institutional and policy support towards agroecology.** This is the implicit finding of the HLPE report, which recognized agroecology as the only truly transformative approach towards sustainable agriculture and food systems that enhance food security and nutrition.

This finding is made all the more urgent by mounting evidence that reliance on hazardous pesticides continues to erode agricultural system resilience in the face of climate change, weakens and harms the health, lives and livelihoods of communities around the world, and threatens biodiversity, putting entire taxa (insects, amphibians, birds), vulnerable ecosystems and the ecosystem services on which we depend, at risk.

In light of these findings, PAN strongly recommends that the Policy Convergence Process:

- **support the establishment of strong and enforceable regulatory frameworks to reverse the damaging effects of chemical-intensive, resource-extractive agriculture, and**
- **garner concrete global and national commitments by UN agencies and governments to support the transition towards agroecology, as described below.**

Concrete policy actions to support a transition to agroecology include:

### **Build local, national and regional capacity in agroecological research, extension and innovation**

- Encourage farmer-to-farmer learning and horizontal collaboration among farmers, Indigenous peoples and scientists in problem-identification, experimentation and innovation to strengthen capacity in agroecology.
- Prioritise participatory research and farmer-led innovation in agroecological practices that reduce reliance on HHPs, support adaptation to and mitigation of climate change, and integrate locally adapted seeds, cultivars and livestock breeds.

### **Support small and medium scale farmers and their organizations**

- Strengthen women's, farmers', Indigenous and community-based organizations' capacity to develop and adapt agroecology to meet their priorities, particularly for food, land, seeds, water, health, livelihood, self-determination and the right to organise.
- Bring women, farmer and Indigenous leaders into national, regional and international decision-making processes.

### **Establish supportive economic policies, financial incentives and market opportunities**

- Provide financial incentives and supports (credit, crop insurance, payment for ecosystem services) and expand market opportunities for farmers adopting agroecological practices.
- Remove perverse incentives (e.g. government subsidies for chemical inputs) that favour continued dependence on hazardous inputs and industrial-scale monocropping.
- In accord with the Polluter Pays Principle, establish independent funding mechanisms to support widespread adoption of agroecology, funded in part by contributions from polluting industries, e.g. agrochemical companies.

### **Strengthen institutional supports**

- Implement comprehensive agrarian reform that ensures equitable and secure access to, control over and ownership of productive resources by peasant and small-scale farmers and Indigenous peoples, revise intellectual property rights to uphold farmers' rights to save, breed and exchange seed, and disallow land, genetic and water grabs by corporations.
- Establish equitable local, regional and global trade arrangements that enable farmers to meet food and livelihood security needs and build relationships between producers and consumers in local markets.
- Manage the private sector to ensure alignment with equitable and sustainable development goals: reward private investment in safe, sustainable products and technologies; implement and enforce anti-trust and competition regulations to reverse current trends in agribusiness consolidation of market share.
- Evaluate and internalise the social, health and environmental costs of input-intensive production systems, to assist implementation of agroecology.

### **Establish global policy mechanisms to phase out and replace hazardous pesticides with agroecology**

- Establish a global legally binding treaty for the life-cycle management of pesticides, including the replacement of highly hazardous pesticides (HHPs) with agroecology.
- Encourage participating and member states of SAICM, FAO, UNEP, UNDP and GEF to promote, take action on and fund the replacement of HHPs and chemical-intensive farming with agroecology.



**National and state policies to support transitions  
away from use of synthetic pesticides and towards ecological farming**

**a compilation provided to the State of California in support of agricultural transition planning**

Sarah Aird, Co-Director, Californians for Pesticide Reform  
Margaret Reeves PhD, Senior Scientist, Pesticide Action Network North America

November 2019

**Preface: Global experts call for agroecological farming to sustain farming into the future**

Multiple UN bodies (FAO, UNDP, UNEP, UNESCO) and other international agencies (WHO, World Bank), along with dozens of development experts and scientists from over 90 countries, have called on nations to support smaller-scale, sustainable, regenerative and agroecological farming not reliant on petrochemical inputs, in order to facilitate transition towards sustainable food and farming systems today and for the future. These efforts should be centered around the priorities of farmers and rural communities, recognizing that farmers are not only producers of agricultural goods, but are also stewards and protectors of natural resources, scientists in their own right, and managers of agroecological systems that provide a vast number of public goods and services necessary to maintaining and/or conserving water, soil, energy, landscapes, biodiversity and culture.

The following compilation of national and state policies designed to support transitions away from the use of synthetic chemical pesticides and towards agroecological farming is intended to assist the state of California in its consideration of similar forward-looking policies to transition towards sustainable and equitable food and farming systems.

**Section I identifies policies supporting transition to organic or agroecological production.**

**Section II identifies policies enabling pesticide use reduction.**

**SECTION I: POLICY SUPPORTS FOR ORGANIC AND AGROECOLOGY**

**European Union**

The EU's main policy space to promote organic agriculture is through their CAP agreement-- **Common Agricultural Policy**. With an [annually updated budget](#) it has worked in recent years to focus on rural, smallholder farming support as one of its main "pillars." It does this in a number of ways, including: tax breaks for small family owned businesses/farms, subsidies for farmers transitioning to organic, support/tax breaks for younger (under 40) farmers, a focus on less overarching control and governance and allowing local municipalities and organizations create programs and support appropriate to the area, supporting land consolidation by multiple farmers, increasingly strict organic labeling.

In June 2017, the EU adopted a **New European Consensus for Development**, which commits the EU to “Support agroecological practices and actions to reduce post-harvest losses and food waste, as well as to protect soils, conserve water resources, halt, prevent and reverse deforestation, and maintain biodiversity and healthy ecosystems. (Nina Moeller, Michel Pimbert. [“Why food production needs to change to avoid a crisis”](#) *Independent*, March 20, 2018)

[Agroecology: How to make the very best of Europe’s Common Agricultural Policy \(CAP\)](#)

- Farmers/breeders/researcher together to decide on areas for ecological focus, e.g. use of hedgerows, etc.
- Advice services for farmers
- Shorter supply chains
- Example: in Copenhagen, Denmark, school food is Certified Organic

CAP: [Bulgarian Presidency shapes member states’ shared vision for next common ag policy \(CAP\)](#)

Under CAP, the idea is to focus on overall greater sustainability and improved quality of life in rural areas etc. To do so, it is necessary to give local organizations more power. Joint declaration by 11 member states to develop freshwater aquaculture in EU after 2020.

**United Kingdom – [Our Future in the Land Report](#) (July, 2019)**

Proposes an ambitious ten-year transition plan to sustainable agro-ecological farming by 2030, warning that the UK today ranks just 24th in the Economist Intelligence Unit’s global Food Sustainability Index. The companion publication, [Field Guide for the Future](#), showcases innovative actions and initiatives that can both prefigure and build a better future—in it many stories and insights are being shared from numerous inquiries around the UK, where people have already taken up the challenge and are bringing that future to life.

*“The actions we take in the next ten years, to stop ecosystems collapse, to recover and regenerate nature and to restore people’s health and wellbeing are now critical. In this final report, the Food, Farming and Countryside Commission sets out radical and practical ways for policymakers, business and communities to respond to the challenges.*

The report makes fifteen recommendations in three areas:

**Healthy food is everybody’s business**

- Levelling the playing field for a fair food system: good food must become good business.
- Committing to grow the UK supply of fruit, vegetables, nuts and pulses, and products from UK sustainable agriculture, and to integrating them more in everyday foods.
- Implementing world-leading public procurement, using this powerful tool to transform the market
- Establishing collaborative community food plans to help inform and implement national food strategies and meet the different needs of communities around the UK.
- Reconnecting people and nature to boost health and wellbeing.

**Farming is a force for change, unleashing a fourth agricultural revolution driven by public values**

- Designing a ten-year transition plan for sustainable, agroecological farming by 2030.
- Backing innovation by farmers to unleash a fourth agricultural revolution.
- Making sure every farmer can get trusted, independent advice by training a cadre of peer mentors and farmer support networks.
- Boosting cooperation and collaboration by extending support for Producer Organisations to all sectors.

- Establishing a National Agroecology Development Bank to accelerate a fair and sustainable transition.

### **A countryside that works for all, and rural communities are a powerhouse for a fair and green economy**

- Establishing a national land use framework in England inspires cooperation based on the public value of land, mediating and encouraging multipurpose uses.
- Investing in the skills and rural infrastructure to underpin the rural economy.
- Creating more good work in the regenerative economy.
- Developing sustainable solutions to meet rural housing need.
- Establishing a National Nature Service that employs the energy of young people to kickstart the regenerative economy”.

One innovative idea is that of Beetroot Bonds, where the suggestion is that “Every person in the UK, adult and child, would receive a Beetroot Bond with a monthly dividend to spend on fresh food.” “The Beetroot Bonds would also be shares in one’s local food system. Each person would be able to use their Beetroot ‘shares’ (and the shares of their dependents) to vote on local food policy”.

**France (with [Europe’s largest agricultural area](#)) moves toward [more sustainable farming practices](#) (Nov 2018).** This resource lists countries with the best food sustainability. Key findings and elements include:

- change is necessary to secure the ability of farmers to farm successfully into the future; that farmers must be engaged in the process; and recognizing the need to better protect the environment;
- need to have collective approaches - across multiple farms, regionally and with many stakeholders (including retailers, etc.);
- importance of biodiversity and biological controls (natural predators, healthy soils, healthy plants, etc.); crop diversity and biodiversity as guiding principles;
- priority to support the autonomy and resilience of farms so they do not need to rely on external inputs;
- importance of linking economy and environment;
- promoting these changes through education, research, on-farm pilot projects, peer-to-peer training

**France’s New Organic Ambition 2022 ([Ambition Bio 2022](#)); [France unveils new strategy for organic](#) (April 2018).** France has 26,500+ organic farmers and 2.5 million+ acres of organic agriculture. Key elements:

- by 2022, goal is to have 15% agricultural land be organic;
- by 2022, goal is to have 20% of products bought by institutions (government, schools, hospitals, nursing homes, etc.) be organic;
- in May 2018, the Ministry of Agriculture announced it will spend ~\$1.2 billion dollars (1.1 billions euros) to support organic expansion between 2018-2022 (compared to .7 billion euros for the previous period);
- will double “organic future” funds, led by the Organic Agency (Agence Bio), which will be progressively increased from 4 to 8 million euros per year;
- will extend the organic tax credit, which will also be increased from 2,500 to 3,500 euros;

**France launched Loi d’Avenir ([Law for the Future of Agriculture](#)) in 2014. Additional analysis [here](#) (2016). Key elements:**

- set a target of getting 200,000 farms to adopt agroecological approaches by 2025;
- government hired 200 agroecological experts to teach agroecology;

- incorporates agroecology into French educational institutions (more than 700 agricultural schools);
- includes new land policy intended to protect farmland from competing land uses and making it easier for young farmers to get started;
- encourages economic and environmental stakeholders to join forces and manage resources at a landscape level in cross-sector groups, called Groupements d'Intérêt Economiques et Environnementaux (GIEE);
- sets out to protect vulnerable members of the population from exposure to crop chemicals, notably the young, the old and the sick; requires hedges around fields to catch spray drift' users are required to post warnings of upcoming crop treatments in public buildings, e.g. schools, nurseries, retirement homes and clinics;
- established new certifications (Highly Energy Efficient (HEE) certification, Highly Environmentally Friendly (HEF) certification)

### **French Agroecology Plan (Launched in 2012; 2018 article on France and UK)**

- Testing tools with smaller farmers to measure practices and performances to compare with other farmers;
- Renewal of public support, e.g. subsidies for agroecological projects and young farmers;
- Communication tools;
- Agroforestry launch 2015;
- Key efforts: training, IPM, leading groups, farmer advising, assisting transition, encourage organic farming, look at specific regions, reduce antibiotics, seed saving, soil enrichment

### **French study reveals cutting pesticide use in half does not affect crop yields**

This study demonstrated that low pesticide use rarely decreases productivity and profitability in arable farms. The study analysed the potential conflicts between pesticide use and productivity or profitability with data from 946 non-organic arable commercial farms showing contrasting levels of pesticide use and covering a wide range of production situations in France.

- **Researchers failed to detect any conflict between low pesticide use and both high productivity and high profitability in 77% of the farms.**
- **Researchers estimated that total pesticide use could be reduced by 42% without any negative effects on both productivity and profitability in 59% of farms from our national network.**
- This corresponded to an average reduction of 37, 47 and 60% of herbicide, fungicide and insecticide use, respectively. The potential for reducing pesticide use appeared higher in farms with currently high pesticide use than in farms with low pesticide use.

The study findings demonstrate that pesticide reduction is already accessible to farmers in most production situations.

### **Additional Resource:**

**Conversion to agroecology: France's hopes for environmental salvation**, Peter Crosskey, Arc2020. 28 page report with useful history and analysis.

### **Germany**

**Commentary VIII: Community-Supported Organic Production: The Case of the Regional Value-added Citizen Shareholder Corporation in Southern Germany** by **Christian Hiss** (from UNCTAD, *Wake Up Before It's Too Late*, Trade and Environment Review 2013, p 301)

- The Regional Value-added Citizen Shareholder Corporation supports:
  - the creation and sustainable operation of small and medium-sized enterprises in the local production, processing and marketing of organic food through a dedicated investment strategy that assures the economic independence of enterprises through shareholder



- participation of interested citizens and consumers of the region and collaboration in existing clusters;
  - the gathering and evaluation of data on non-monetary benefits or services generated by supported farmers and enterprises on the basis of 64 social, economic and ecological indicators;
- Helps with farm succession, new and less profitable businesses, shared vision by urban and rural of kind of sustainable ag want to see, regional as opposed to global orientation, greater sovereignty and community, rural development, keeps capital in the region, raises livelihoods;
- Provides multiple benefits: economic, environmental (direct contribution of consumers to transforming, shorter transportation distances, greater soil fertility, greater biodiversity), social (better working and social conditions, increased attractiveness and accessibility of agriculture to young people)

**Regionalwert AG – Strengthening the regional economy with citizen shareholder support: introduction to the English translation**

<https://www.regionalwert-ag.de/wp-content/uploads/2016/10/RegionalWert-AG-english.pdf>

A citizen shareholder company that channels citizens' money to build up regional sustainable enterprises, from agricultural production to processing, retailing and further services. More than an enterprise, Regionalwert AG is also a social innovation. Its purpose is to create a sustainable regional economy through a participatory and sustainable approach by making it possible for citizens to hold equity shares in local ecological agriculture and food sector enterprises.

Additional resource on Regionalwert AG: <https://www.accesstoland.eu/-Regionalwert-AG->

**California:** Food Commons Fresno is similar to Germany's Regionalwert AG.

**Bulgaria:** “Relatively new to organic, Bulgaria has already adopted a national action plan.”

<https://www.ifoam-eu.org/en/bulgaria>

Of the total organic area of 39,138 hectares (2012), 45.8 % consists of arable land, 28 % permanent crops, and 20.3 % permanent grassland and grazing areas: Of this the key permanent crops are nuts, primarily walnuts and hazelnuts (5 981 hectares), orchards with temperate fruits (2 155 hectares), and vineyards (2 058).

National action plan: Bulgaria has a national action plan for the development of organic farming in Bulgaria 2007-2013<sup>2</sup>. The total budget is approximately EUR 82 million. Its goals include that 8% of agricultural land should be managed organically by 2013, and 3% of the food sold in Bulgaria should be organic by 2013.

Support under EU rural development programmes: Compensatory payments under agri-environment schemes have been available since 2008. The payments are higher during the transition period and depend on the crop. Lower payments are made for pastures and meadows (EUR 120 per hectare); the highest payments are for orchards and vineyards (EUR 729 per hectare). Payments for organic apiculture are EUR 18.5 per beehive. Additional points are given to organic farmers for investments and for the projects of young farmers.

Extension services for farmers and forest owners (Measure 143) under the national rural development programme have been implemented since the end of 2010. This offers farmers the use of consultancy services. The maximum value of the services supported is EUR 1 500 per farm for a period of two years. 80 % of the sum spent by the farmer is refunded through the programme. Only 83 farmers have applied; 12 consultancy organisations were approved by the Ministry of Agriculture and Food (including Bioselena and Agrarian University of Plovdiv).



## Denmark

**Denmark's leadership in supporting organic research** (From the report [Guidelines for Public Support to Organic Agriculture](#) IFOAM Organics International, September 2017, p. 64): [www.orgprints.org](http://www.orgprints.org), the largest repository of organic research papers, which are publicly available in a web-based, open-access format. The archive contains more than 13,000 publications from global sources.

### [Denmark is on its way to becoming an organic country 2016](#)

- Have a national organic brand-- be in business for over 25 years
- Governments 67-point plan to double organic farming and serve more organic food in public institutions by 2020
- Decreased it's food waste by 25%in 6 years --w/ help of nonprofits (Stop Wasting Food)

### [Denmark Launches “most ambitious” organic plan, 2015](#)

- Their identified keys to doubling the amount of organic farming through public sector support from 2007 to 2020
  - More cooperation b/t municipalities, regions, ministries
  - More organic items offered at schools, hospitals, daycares etc. -- Defence Ministry on board too for food at bases, ministry of education too

From the report [Guidelines for Public Support to Organic Agriculture](#) IFOAM Organics International, September 2017, p. 76-77:

#### **“Best Practice” Example 1: Free public certification for all organic operators in Denmark**

Denmark has a culture and history of public-private collaboration, and the government, with trust from the general public, has taken a large activist role on agriculture. Public support to organic agriculture in Denmark was already visible in the late 80s, when the Ministry of Agriculture recommended a subsidy program for organic farmers and a publicly funded government certification system. Approved in 1988, the first law on organic farming established the public certification system for all organic operators.

The governmental certification system is free of charge for organic operators (farmers, processors, input suppliers, packaging and labeling companies, and public and private restaurants and canteens that achieve the bronze, silver and gold organic labels), with the following exceptions:

- extra controls due to risk of fraud;
- certification for exporting to other regulating countries not covered by equivalence arrangements;
- certification to private standards that are demanded by certain EU markets.

The number of organic farms in Denmark has grown spectacularly in the decade following the installation of this system. Several recommendations for establishment of certification fees have been defeated, primarily with the arguments that extra fees for environmentally friendly production is inconsistent with the public sectors interest in more organic farming and the environmental benefits that it provides.

Because the national government has responsibility for organic inspection and certification, it has gained much technical knowledge and practical understanding of organic farming and processing. This has enhanced the quality of the public-private dialogue and decision-making on supportive policy for organic agriculture. It also frees up resources of the organic private sector/civil society to be focused on other areas to spur organic sector growth, such as consumer awareness and technical assistance in the organic value chain.”

From the report [Guidelines for Public Support to Organic Agriculture](#) IFOAM Organics International, September 2017, p. 53:

Denmark has developed so-called “Conversion checks”, which are a full day of dialogue that give the farmer a total overview of what conversion to organic would mean on their own farm -daily practice and routines, solutions to common challenges, special needs for more land or feed, changes to buildings, where he/she can get a contract for organic sales etc. Conversion checks have proven very motivating for the farmer and hugely successful in Denmark, contributing significantly to a 20% increase in organic land area in 2016. The concept worked so well that it has become financially supported by private companies (such as the supermarket chain Coop) and by the government, as well as already 25 local municipalities/counties, which support the provision of free conversion checks to farmers residing in areas of importance for nature and drinking water supplies.

The main challenge in terms of public support to organic research and extension remains the amount and continuity of support. An important challenge when setting up publicly funded organic research programs is getting the right level of stakeholder involvement in the identification of research priorities. In terms of farmer involvement, experience in European Innovation Partnership projects on organic research has been very positive because farmers’ needs are put at the center. End-user (farmers) involvement is crucial, but one should be aware that other stakeholders might also have legitimate (and not always overlapping) interests.

There is a risk that general public research programs do not factor in the time needed to bring stakeholders together in a more participatory research approach. Although agronomic research is much of what is needed in organic research, it is also important not to include organic processing issues as well as social and economic aspects of organic agriculture (e.g. markets and policies).

In terms of organizing the integration of organic agriculture into public extension services, the main challenge remains the state of mind of extensionists in the public system. Some may have the status of public servants (employed by the Ministry of Agriculture) and have life-long positions. If they have been advising on conventional methods for the past 20-30 years, they may be unlikely to welcome a change towards more organic advice (and also are unlikely to be competent in providing this advice). Therefore, inclusion of organic advice in public extension services often means the recruitment of new additional staff, and therefore an increase in budget (and not a simple re-allocation of resources to different priorities), at least in the short-medium term until some of the advisors retire. Another challenge is that the farmer training provided by extension services in their classical form (more academic-like training) are sometimes not so well suited to the needs of organic farmers, where farmer-to-farmer knowledge exchange is more important. (p 64)

### **Copenhagen - A city focused on sustainability**

Copenhagen has set incremental targets aiming for 90% organic procurement by 2016. 89% of the food consumed in the City of Copenhagen’s public canteens, such as day-care centres, nursing homes, and schools, is organic. This transition has reshaped the public food system as well as the meals that the citizens of Copenhagen enjoy. The municipality achieved this impressive figure without increasing the budget for the canteens – instead they focused on training the kitchen staff and supporting the development of organic supply chains.

Copenhagen has long been famous for combining sustainable solutions with growth and a high quality of life. The City of Copenhagen was the European Green Capital in 2014, and it aims to become the world’s first CO2 neutral capital by 2025. Denmark has the [second-highest per-capita consumption of organic food](#) in the world, after Switzerland. The average Dane spend 227 euros per year on organic food, and in Copenhagen, organic produce has successfully moved into the mainstream. Organic food makes up [24% of the total food sales](#) in Copenhagen.

A national effort from [Organic Denmark](#) was crucial to this success that includes public financing for conversion and education in public kitchen, and intensive collaboration among organic farmers, food companies and wholesalers in Organic Denmark to expand organic supply to public canteens.

### **Aarhus, Denmark: Plan for the protection of drinking water by phasing out pesticides**

**(2013) Summary in** Wilkie, I.N. 2018. Future Policy Award 2018 Brochure. World Future Council Foundation, Hamburg Germany. Available at: <https://www.worldfuturecouncil.org/future-policy-award-2018-agroecology-brochure-2/>

The municipality of Aarhus has put in place a range of measures to ensure abstraction of clean water from groundwater reservoirs. The approach of Aarhus adopts a *unique long-term strategy to phase out pesticides*, first on public owned land and then on private farmland located in highly sensitive water abstractions areas. The nominated plan is the first action plan worldwide which imposes bans to phase out pesticide use in order to secure clean drinking water for future generations.

### **Italy: linking agro-tourism and organic agriculture**

From the report [Guidelines for Public Support to Organic Agriculture](#) IFOAM Organics International, September 2017 (p 118-120)

A slightly different approach, but interestingly linking agro-tourism and organic agriculture, is the concept of Biodistrict as implemented in Italy. It involves cooperation between local governments and municipalities with local private actors to link the development of organic agriculture to the territorial development and the promotion of the territory as an eco-tourism destination. In biodistricts, restaurants and tourist resorts are encouraged to offer local organic products. In the National Organic Plan adopted in 2014, the Italian Ministry of Agriculture recognized the Biodistrict as an important tool for organic sector development. Currently, there are 12 bio-districts in Italy. The region of Calabria has the first biodistrict that was implemented, the Cilento Biodistrict, operational since 2011. The region of Liguria has a regional law on biodistricts, which involves, among others, criteria for eligibility of districts to qualify as “bio-districts”, in which case the districts receives financial support for tourism promotion, support payments to farmers are increased and use of pesticides in public area is prohibited, amongst other measures.

The Biodistrict/Bioregion concept has been replicated elsewhere and an international network of Eco Regions called INNER was created in 2014, with regions in **Italy, France, Austria, Spain, Slovakia and Portugal**. (p 117)

### **Best Practice Example: organic agro-tourism in the bio-district of the Vara Valley, in Italy**

The Vara Valley (Val di Vara) is a small territory of 345 km<sup>2</sup> comprising 8 municipalities within the coastal region of Liguria in Northern Italy. The Valley, characterized by woodland and marginal farmland, had been facing decades of agricultural decline due to an aging population and land exodus. Organic farming started developing in the Valley at the end of the 90s, primarily with organic cattle farming. The idea of a bio-district dates back to 1998 when a local mayor pushed the idea with the support of the Regional Council. AIAB, the Italian Association for Organic Farming, also played an important role in promoting the idea of the bio-district and encourage involvement and commitment of the various territorial actors—a process that has required many years of incubation. In 2009, the Liguria region passed legislation that provided the framework for recognition of bio-districts. It is to-date a unique example of such legislation. Inside its regional law on organic agriculture LR 66/2009, the region identifies criteria for a territory to qualify as a bio-district. Among others, the number of organic operators must be at least 13% of total operators in the territory, and the territory must have a minimum area of 250 km<sup>2</sup>. A bio-district is a geographical area where farmers, citizens, tour operators, associations and public authorities enter into an

agreement for the sustainable management of local resources based on organic production and consumption. In bio-districts, the promotion of organic produce is inextricably linked with the promotion of the land and its special characteristics, and agro-tourism is a key element. After long efforts to organize the various stakeholders, including seven municipalities, four farmer associations operating (and competing) in the area and two local farmer cooperatives, the bio-district of the Vara Valley obtained formal and legal recognition in 2013 through a resolution by the Regional Government. In 2014, the bio-district association was founded and started a membership campaign towards single farms and operators to join the bio-district. Restaurants, hotels, B&B, agro-tourism actors, and food shops can also become members of the organization, provided they sell or use local organic products. Through its legal recognition as a bio-district, the territory gains several policy benefits, such as premium payments and priority support for organic farmers, and no use of agrochemicals in public areas. The bio-district was also able to attract substantial project funding from the region and EU sources in order to finance its tourism promotion activities and implement local development strategies.

The approach has shown clearly positive impacts: while in the region of Liguria as a whole, between 2000 and 2010, 57% of livestock farmers have ceased their activities, only 10% have done so in the Vara Valley. Moreover, between 1999 and 2014, local cooperatives producing cheese and meat in the Vara Valley have doubled their turnover. Organic agriculture now represents 22% of the farms in the bio-district (against a regional share of 1,9% in Liguria) and 50% of the utilized agricultural area (against a regional share of 8%)<sup>93</sup>. In parallel, regional tourism increased by 126% between 2000 and 2010<sup>94</sup>. (p 118-119)

#### **Vermont, USA:**

The state of Vermont has provided support for the increase of agriculture and culinary tourism, part of which has gone into the Farm-to-Plate initiative, the state plan to strengthen Vermont's food system. In Vermont, about one third of farms derive some income from agro-tourism and Vermont ranks as the first state in the US in terms of the percentage of organic farms.

#### **Norway**

- Tax pesticides based on environmental load in seven tax "categories" rather than for each pesticide individually
- In Norway all conventional farmers wanting to convert to organic have access to free advice from the Norwegian Advisory Service (NLR).

#### **Netherlands**

[https://www.pan-europe.info/old/Activities/Conferences/AGM09/Pesticides\\_policy\\_in\\_NL.pdf](https://www.pan-europe.info/old/Activities/Conferences/AGM09/Pesticides_policy_in_NL.pdf) Review of impact of voluntary policies. Main findings:

- On political level: 'Green front' farming is still in charge and happy to keep farming performances as they are
- Government finds image building (policy is successful) more important than content (environmental problems solved)
- Farmers don't see so much of an environmental problem or a need for change
- Regulation for sure most effective route to pesticide use reduction (soil fumigants, buffer zones)
- Beware of risk reduction indicators
- Supply chain separated world and fighting their own battle
- Need of creating new 'sense-of-urgency' on importance of pesticide use reduction (involve citizens)
- Need of combining forces of market and government (regulation, subsidising, supply chain management)

Netherlands has focused its agricultural production on intensive, "scientific" type of farming, often indoor (greenhouses, etc.) to account for their small land mass and varied weather. Within this

intensive agriculture setting, their policies are supportive of and promoting low-pesticides, using Integrative Pest Management. However, there's critique that the government provides little education and support for alternatives to pesticides, despite pushing for a reduction.

### **Andhra Pradesh State, India**

The Indian state of Andhra Pradesh officially “adopted” “[Zero Budget Natural Farming](#)” (“ZBNF”) in 2015. Zero Budget Natural Farming (ZBNF) is a type of agroecological farming without use of any synthetic chemicals, combining the latest scientific discoveries with some traditional Indian farming practices. It is estimated that about 100,000 farmer households may be practicing ZBNF in the state of Karnataka already. It is also being practiced in the Indian states of Kerala Himachal Pradesh, Uttarakhand and Chhattisgarh.

Andhra Pradesh (AP) piloted ZBNF with about 100,000 farmers and is now planning to invest more than \$2.3 billion to help transition 6 million farmers to ZBNF between 2018-2026, reaching approximately 8 million hectares. The Government of AP is partnering with Sustainable India Finance Facility (SIFF) promoted by UNEP, to achieve the objectives of universalization of ZBNF to cover 6,000,000 farmers and 8,000,000 hectares.

ZBNF farmers see improvements in yield, soil conservation, seed diversity, quality of produce, household food autonomy, household income and household health. Farmers make a profit even when yield is less because the cost of inputs is so much less and because they are able to derive income from many crops, not just one. Additional benefits of ZBNF include: little input cost, zero synthetic chemical usage, use of local seeds, less water required, facilitates income throughout the year due to polycrop and trees, can improve nutritional security, can withstand longer dry spells better and also handle a wet spell after a long dry spell better, it's climate friendly and carbon neutral, and increases consumer access to healthy food.

Objectives of the program are to promote climate resilient, chemical free, ecological agriculture, to provide small and marginal farmers with profitable livelihoods from agriculture, and to cover farmers in villages spread across all agro climatic zones.

### **Four pillars of ZBNF:**

1. **Application of a fermented microbial culture 2x/month on crops** (made up of water, cow dung, aged cow urine, brown sugar, pulse flour and soil from the bund of the farm). Promotes the activity of microorganisms in the soil and increases earthworm activity. Only needed for the first 3 years of transition, after which the system becomes self-sustaining.
2. **Seed protection mixture for any crop** (made up of cow dung, cow urine, lime, soil). Effective in protecting young roots from fungus as well as from soil-borne and seed-borne diseases.
3. **Mulching:**
  - a. Soil Mulch: protects topsoil; promotes aeration and water retention. No deep ploughing.
  - b. Straw Mulch: can be dead material of any living being. Will form humus.
  - c. Live Mulch: symbiotic intercrops and mixed crops. Develop multiple cropping patterns of monocots and dicots for improved nutrition and income from multiple crops.
4. **Moisture:** Idea is that plant roots don't need a lot of water. What they need is water vapor where there are both air molecules and water molecules present in the soil. Founder encourages only irrigating at noon in alternate furrows. ZBNF farmers report a significant decline in need for irrigation under ZBNF.



The ZBNF method provides soil aeration, minimal watering, inter-cropping bunds and top soil mulching and discourages intensive irrigation and deep ploughing. Additional pest management concoctions include using neem leaves and pulp, tobacco and green chilies.

There are limited studies on the income growth ZBNF can result in or its impact on productivity. Some on-field studies are being conducted at various levels and in various universities, including by the Indian Council of Agricultural Research to understand the methods, value and viability for farmers in various agro-climatic conditions; none has reached any definite conclusions so far. According to a brief prepared by the Council on Energy, Environment and Water (2018), groundnut farmers in Andhra Pradesh had 23% higher yield than their non-ZBNF counterparts, while ZBNF paddy farmers had an average of 6% higher yield. A survey of 97 ZBNF farmers found increased health among all households, greater soil conservation and seed autonomy, increased quality of produce for more than 90% of households, greater household food autonomy and income for more than 85% of households, increased yield and seed diversity for more than 75% of households, increased selling price for more than 58% of households, decreased pest attacks for 84% of households, decreased production costs for 91% of households and decreased need for credit for 93% of households.

#### **Additional Resources:**

World Bank report (2019) "[Ecologically Sound, Economically Viable Community Managed Sustainable Agriculture in Andhra Pradesh, India](#)" captures the implementation processes as well as key lessons related to design and implementation of big ag transition programs. The current Andhra Pradesh ZBNF program builds upon the experiences of CMSA that ran from 2005 to 2014.

["Zero Budget Natural Farming: Are This and Similar Practices The Answers"](#) by Srijit Mishra, Working Paper No. 70, Choudhury Centre for Development Studies (an ICSSR institute in collaboration with the Government of Odisha) Bhubaneswar, Odisha, June 2018

FAO Profile: [52 Profiles on Agroecology: Zero Budget Natural Farming in India](#)

["Does 'Zero-Budget Natural Farming' Actually Work?"](#) A Reality Check by Vivian Fernandes, The Quint, May 7, 2019,

["Is Zero Budget Natural Farming Working?"](#) by A Narayanamoorthy / P Alli, The Hindu Business Line, September 13, 2019

#### **Cuba**

**Summary:** The Cuban agricultural sector was forced to transition to low-fossil fuel system due to outside political events (namely, with the collapse of the Soviet Union). While a forced transition is not desirable, Cuba's subsequent programs and policies were highly effective in producing a high amount of fresh produce and food for its citizens. Of note was their refocusing of agriculture research and education toward organic/agroecological/no-petroleum practices-- Integrative Pest Management, crop rotation, intercropping, and small-scale urban farming. They boosted the incentives for cooperatives, small family farms, and urban farming launching a "Agrarian decentralization" systems that resulted in higher yields and fewer chemicals than ever before seen since the reliance on fossil fuels in agriculture.

#### [Cuban Agriculture, Green and Red Revolution 2003](#)

- Treats land, cattle, etc. as social shared good. Distributed the 80% of government-owned land to 50% into community cooperatives managing agroecologically farmed plots
- Education, research, etc. to promote agroecological farming
- Country-wide reform: "...imagine for a moment that your local college of agriculture reoriented its entire curriculum, research, and extension programs to agroecology...now imagine that all the universities as well as all national agricultural policies in your country were reoriented to agroecology."
- *Results:*

- “Production of tubers and plantains tripled and vegetable production quadrupled between 1994 and 1999, bean production increased by 60% and citrus by 110%. Potato production increased by 75%, and cereals increased by 83% between 1994 and 1998. Calorie intake rose to 2,580 per capita per day—just under the minimum recommended by the World Health Organization. This is despite Cuba being the second poorest country in the Americas.”
- Urban agriculture rose dramatically
- Meat/dairy industry --was hard hit because these industries were highly dependent on fuel for machinery for managing feed etc.
- “The loss of petroleum meant that animal traction became a strategy to reduce reliance on farm machinery. Animal traction is also better for soil management, particularly given the smaller farm size after land was redistributed.”
- “Cuba simply does not have the widespread hunger, destitution, and suffering that are commonplace in countries with much higher GDP per capita.”

[IPM and biological control in Cuba](#). One widespread successful practice has been the use of entomophagous and entomopathogenous organisms. Reproduction centers for entomophagous and entomopathogenous organisms (CREEs) were created rapidly once the depression hit Cuba and established at local levels across the island. CREEs provide services to state farms, cooperatives and private farms. Their main objective is to provide a low priced product for local farmers (Nicholls, 2002.)

[Paradox of Cuban Agriculture](#), Altieri, 2012

- Boosted cooperative farms and credit services, small farmers, urban and suburban farms, farmed state land, small scale farmer organizations etc. (ANAP)
- *Small scale cooperative organic farms*
  - 25% of ag land, 65% of country’s food, w/ 72% fewer chemicals in 2007 to 1988
  - Average of 1.5m tones food/hectare produced without use of synthetic chemical inputs

## New Zealand

[Bionet.nz](#)

- Each region has its own IPM approach (16)

[Auckland Regional Pest Management](#)

- Based off of the Biosecurity Act 1993 --> not required to undertake IPM, but most (all) do, as a way of fulfilling the act’s requirement for regional councils to make/approve RPMSs (Regional Pest Management Strategies)
- Some acts interfere w/ IPM approaches/acts, making it difficult
- Specifics for Auckland policy for IPM-- LOT of regional input, culminating this info
  - Focus on education -- community forums etc. to raise awareness for why it’s good to do

**Summary:** Little promotion of alternatives/ organic/small scale farming at the national level, however all are required to have some sort of approach to Regional Pest Management, and most regions implement a type of IPM, some focusing heavily on community multi-stakeholder involvement when developing their IPM approaches.

**International Federation of Organic Agriculture Movements (IFOAM):** Analyses of Policy Measures Supporting Transition to Organic. [Guidelines for Public Support to Organic Agriculture](#) IFOAM Organics International, September 2017.

**Chapter V: Array of possible support measures** (subdivided into these categories: political justification; suitable contexts; possible modalities of implementation; country examples; best practice example(s); pitfalls and challenges)



## **Supporting development/expansion of organic:**

### **a. Support to organic research and extension (p 49)**

A study done in France in 2010, comparing various regions with very different levels of public spending in organic extension, suggests a strong link between funds invested in organic extension and the number of conversions over the period 2001-2008. (p 50)

Support to organic research (including long-term trials) and extension (organic, transition, conventional, farmer field schools, etc.) is a type of policy support that does not require a lot of extra financial resources, but rather a shift of priorities to progressively include organic issues and knowledge into the work of agronomists, researchers and extension agents. Organic research should consider, document and validate traditional and indigenous knowledge, as it can be highly relevant for organic farming.

**Switzerland** is one of the world leaders in organic agriculture research, thanks to its organic research institute FiBL, which was established in 1974. FiBL is a private research institute, but operating with about half of its budget from public funds, which represented around 8 million Euros of public funding support for the year 2014. Additionally, 3 federal research centers have been involved in organic farming for many years.

The **USA** has historically dedicated a very low percentage of its public research funds to organic research (in 1997, less than 0,1% at the Federal level). The first research funding to include organic projects was the Sustainable Agriculture Research and Extension Program –SARE which began with the 1985 Farm Bill. The funds were small at the time, but nevertheless unleashed interest in doing organic research and in starting organic activities in academic institutions. In recent years, as a result of strong advocacy from the organic sector, the situation has improved and support to organic farming research is now roughly proportional to the sector's size. The US has invested nearly EUR 228.5 million over the period 2009-2015 in organic research (64). The main US Federal program for organic research now is the Organic Research and Extension Initiative (OREI).

In **Brazil**, there are several research institutions working on organic agriculture or agroecology research, both at the federal and state level. The 2013-2015 National Plan for Agroecology and Organic Production (PLANAPO) allocated around EUR 18Million for research and technology development and another EUR 215million for extension services. A national program for technical assistance and rural extension is dedicated to family and traditional agriculture and puts a strong focus on ecological agriculture. The management of this program includes non-governmental actors. (p 60)

### **b. Support for organic input development and use**

Some countries have given grants to support companies in doing R&D on organic inputs (e.g. in **France**), or dedicated special research funds to develop organic inputs identified as most needed (e.g. **France, Germany**). Some governments take on the role of organic input developers and providers directly, whereby they produce the inputs and distribute them to farmers free of charge or at very subsidized costs (e.g. the **Philippines, the State of Sikkim, Bhutan**).

Some countries have exempted organic inputs from certain tax and import duties (e.g. Tunisia). Some governments subsidize the purchase or the self-production of organic inputs by farmers (e.g. **Mexico, India, South Korea**). This can be either in the form of ongoing subsidies for purchase or of investment grants. For more information on the subsidies for organic fertilizers and organic pesticides, see Chapter VI, section 1.

In **Thailand**, the government launched, in 2005, the National Agenda's Organic Agriculture, a 5-year program aiming to support 4.25 million farmers to use organic inputs instead of agro-chemicals covering an area of 13.6 million ha, reducing total import of agro-chemicals by 50% as well as

boosting organic export by 100% annually. A total of 23 public agencies were involved and the government allocated around EUR 31 million in 2006 for this program. (p 67-68)

Best Practice Example: **Sikkim's** support for organic input development. Assisting farmers to access organic inputs was a key objective of Sikkim's Organic Mission, which was launched in 2010 with the aim of converting all agriculture land of the Indian State to organic by 2015 (see box in Chapter III). To implement its Mission, including measures on access to inputs, Sikkim drew financial support from several national sustainable agriculture programs including the National Mission for Sustainable Agriculture (NMSA) and the Mission for Integrated Development of Horticulture.

### **c. Support for certification**

One reason for government to cover certification costs, in part or full, is to help ensure equal access of all operators to the service, across the territory and across all farming systems. Most often, private certification bodies charge operators for travel costs to their location, as well as time spent on their audit, etc. This can result in unequal access to certification.

Studies have shown that organic certifiers, and public support to organic certifiers, play a major role in enabling organic development at a local level. For example, a study published by the US Organic Trade Association in 2016 (67) looking at factors of development of organic agriculture in various localities, concluded "The prevalence of outreach services by organic certifiers is found to play one of the strongest roles in organic hotspot formation. Also, whether a certifier is government-sponsored, by a state department of agriculture for example, is another key factor in enabling organic hotspots." (p 71-72)

### **Organic agriculture boosts local economies (May 25, 2016)**

Research links economic health at the county level to organic agriculture, and shows that organic food and crop production—and the business activities accompanying organic agriculture—creates real and long-lasting regional economic opportunities.

Organic activity was found to have a greater beneficial economic effect than that of general agriculture activity, and even more of a positive impact than some major anti-poverty programs at the county level. "We know that organic agriculture benefits our health and our environment," said Laura Batcha, CEO and Executive Director of OTA. "This significant research shows organic can also benefit our livelihoods and help secure our financial future." "Organic agriculture can be used as an effective economic development tool, especially in our rural areas," said Batcha. "The findings of this research show organic certifiers and the transfer of knowledge and information play a critical role in developing organic. And it provides policymakers with an economic and sound reason to support organic agriculture and to create more economy stimulating organic hotspots throughout the country."

Organic is one of the fastest-growing sectors of the U.S. food industry. Organic food sales in 2015 jumped by 11 percent to almost \$40 billion, far outstripping the 3 percent growth rate for the overall food market. Organic crops command a significant price premium over conventionally grown crops.

Three research papers discussed that investigated [organic agriculture hotspots](#) in the U.S. and systematically assesses the impact of organic agriculture on local economies. It identifies 225 counties across the United States as organic hotspots, then looks at how these organic hotspots impact two key county-level economic indicators: the county poverty rate and median household income. Organic hotspots are as diversified as the organic industry, and represent the various kinds of organic agricultural activity and accompanying businesses: crop production, livestock production, organic processors. Organic hotspots are found throughout the country, but specific examples of organic hotspots include **Monterey County in California**.

- Counties within organic hotspots have lower poverty rates and higher median annual household incomes. Organic hotspots were found to have a greater positive impact at the county level than such major anti-poverty programs as the Supplemental Nutrition Assistant Program and the Special Supplemental Nutrition Program for Women, Infants, and Children.
- Outreach and knowledge transfer are critical in creating organic hotspots. The prevalence of outreach services by organic certifiers is found to play one of the strongest roles in organic hotspot formation. Also, whether a certifier is government-sponsored, by a state department of agriculture for example, is another key factor in enabling organic hotspots.
- Organic agriculture can be used as an economic development tool. Policymakers at all levels—local, state and national—have a proven economic reason to support organic agriculture and to create more economy-stimulating organic hotspots.

The research contained five policy recommendations as a result of the findings:

- Promote organic agriculture at the federal, state and local level.
- Focus on rural development, organic transition, capital structures and barriers to investment.
- Expand outreach efforts and facilitate network effects.
- Target specific geographic areas for development.
- Build broader coalitions to help promote organic agriculture.

#### **d. Support for organic vocational training and academic programs**

The ideal scenario is to combine mainstreaming of organic agriculture through compulsory courses in all agricultural education programs with offering specialized organic agriculture diplomas and degrees. That way, all agriculture students will achieve a basic level of understanding of organic agriculture, while some students can specialize further in organic agriculture.

The creation of special organic agriculture departments within existing agricultural universities is a best practice to ensure a stable pool of organic experts, who can work both on organic education and on organic research. This is common practice in EU countries and in a few other countries (e.g. **Tunisia**). Certain governments have gone a step further and established fully organic agriculture universities (e.g. recently **Gujarat state in India**).

**A dedicated university or university department** offering a specialized MSc in Organic Agriculture (or agro-ecology or similar terms) such as at the **university of Kassel, Witzenhausen/Germany, the University of California Berkeley USA or the Azad University, Karaj, Iran**, is a real asset for the country, but it is also very important to offer organic specializations in lower-level education programs, such as diplomas and even school programs in areas where many school students will end up working in agriculture. Austria, for example, offers excellent organic vocational education with many 3-year vocational school programs specializing in organic available around the country.

#### **e. Conversion and maintenance area payments for organic production**

Conversion and maintenance area payments have been the cornerstone of public support to organic farming in Europe and an important driving force for the expansion of organic farming over the last two decades. This type of government support for organic farming began in the late 1980s, with national initiatives in countries like **Denmark, Austria and Switzerland**, as well as programs in a few EU member states under the framework of the 1988 EU Extensification Program. After organic farming was legally defined at the EU level in 1991, payments to organic farmers for conversion to organic or maintenance of organic management became widespread across EU countries under the “agri-environmental payments” scheme in the successive Rural Development Plans (75). All EU member states, except the Netherlands, now provide area conversion and/or maintenance payments, which is the most important type of support to organic farming in financial terms in the EU. (p 91)

**f. Support for agri-environmental practices compatible with organic production**

Agri-environmental measures should not be a replacement for more general support to organic agriculture. . . . Indeed, a system of payment for small indicator performance may only encourage “subsidy optimization” behaviors on single environmental aspects leading to a segregation of ecosystem services and production, and not to holistic sustainable farming management systems like organic agriculture. (p 103)

**g. Tax breaks for organic operators**

In the USA, the first state-funded tax credit for organic farmers was created in June 2016 with the approval of the **Hawaii’s** (House) Bill 1689 CD 1 that allocates EUR 1.8million to offset, in the form of tax credits, the 25% of the cost of organic certification not covered by the federal certification cost share program and for any organic farming equipment, materials, or supplies. The bill gives farmers up to EUR 44,800, in tax credits for qualifying expenses. The legislative goal is encouraging a younger generation of farmers in Hawaii, as many farmers approach the age of retirement.

**h. Support for organic farm investment**

In the EU, the Rural Development Program of the Common Agricultural Policy, Measures 311 and 313 in the 2007-2013 CAP and measures 6, 7 and 16 in the 2014-2020 CAP aimed to diversify the rural economy through grants for the introduction or expansion of service activities (e.g. bed and breakfast), craft activities (e.g. production of local produce), trade activities (e.g. creation of farm shops where self-made products are sold directly to consumers) as well as tourism activities (e.g. information centers or recreational infrastructure). (p 116-117)

Some of the EU countries have recognized the added value of organic farming to achieve those objectives, and have therefore granted preference to organic applicants for such measures (e.g. Czech Republic). In the case of the **Czech Republic**, projects related to organic farming are awarded higher points, which may increase the likelihood of receiving support. Projects are supported in a municipality with not more than 2,000 inhabitants. The minimum total eligible expenditure is about EUR 2,000 per project. Grant levels differ depending on the size of the enterprise and region and range from and 30-60 % of the eligible expenditure.

Bali, in **Indonesia**, has defined agro-tourism development as one of the strategies to improve sustainable agricultural production and to reduce carbon emissions. Since as early as 1995, local governments in Bali have been supporting community-based agro-tourism projects and allocated funds for capacity building activities as well as the building of facilities and communication materials related to agro-tourism. The government is encouraging tour operators to create new tourism packages highlighting the Bali’s Simantri program of organic farming, which is in line with the island’s efforts to become a green and eco-friendly province. Visitors who purchase the packages will have the opportunity to visit villages where organic farming and green small industries are being developed.

## SECTION II. PESTICIDE POLICIES

### [EU Pesticides Policy \(on “sustainable use” of pesticides\)](#)

- EU official policy on agriculture is to promote IPM as of 2009
- The Sixth Environment Action Programme (6th EAP) is a programme of Community action on the environment with key objectives covering a period of ten years. The priorities of the 6th EAP are climate change, nature and biodiversity, environment, health and quality of life, and natural resources and waste: (i) to minimise the hazards and risks to health and the environment stemming from the use of pesticides; (ii) to improve controls on the use and distribution of pesticides; (iii) to reduce the levels of harmful active substances used, in particular by substituting the most dangerous with safer alternatives; (iv) to encourage low-input or pesticide-free cultivation; (v) to establish a transparent system for reporting and monitoring the progress made in achieving the objectives of the strategy.

### [USA lags behind other agricultural nations in banning harmful pesticides.](#) *Environmental Health* volume 18, Article number: 44 (2019)

The study provides a detailed analysis of status agricultural pesticides approved for use in the U.S. that are banned or in the process of being phased out in the **European Union** (72 banned/phased out pesticides), **Brazil** (17 banned/phased out pesticides) and **China** (11 banned/phased out pesticides). According to additional research - outside this study - by Californians for Pesticide Reform (CPR), 63 of these agricultural pesticides are still used in California.

From a **global** perspective, the **policy and regulatory decisions by the EU, Brazil and China to ban or phaseout harmful pesticides are important elements in a coherent policy framework to support a transition towards least-toxic, diversified farming, best exemplified by agroecology.**

## 2. EU Pesticide Policies

### France

**2008-2018 [Ecophyto Plan I](#) (2015) plan, launched in 2008, focused on pesticide reduction, with the intention of reducing pesticide use by half by 2018.** The plan:

- included banning 40 of the most hazardous pesticides, requiring additional notification of use near sensitive sites, and banning of most aerial applications. It also sought to incentivize *voluntary* pesticide reduction among farmers;
- created farm demonstration network (FERME), which now includes 3,000+ farms with 250+ advisors working on in-farm solutions, all agricultural sectors represented;
- created experimental network (EXPE), which now includes 200+ sites testing new ambitious low-pesticide farming systems;
- established the [Ecophyto PIC](#) website listing biocontrol product alternatives (in French);
- created national pest observation system with weekly updates to alert farmers of pest and disease outbreaks and to help them be more precise and narrow in any pesticide applications and provides information to farmers on-line and in newsletters;
- created a tool to measure the agroecological status of farms; this tool is now public for anyone to use to see how their farm is measuring up to agroecological standards; and
- provided trainings along whole production chain (distributors, advisors, users), with timely information, etc.

The plan is being rolled out in phases, to make implementation of each component place specific, with directors for each region.

Despite France's goal of reducing pesticide use by 50% by 2018, between 2008 and 2018 national pesticide use in France actually *went up* by 12%; *however*, on 3,000+ farms that were part of the demonstration network (FERME), pesticide use *went down* by 18%, most without sacrificing profits.

A few of the reasons why Ecophyto Plan I was not *more* successful in reducing pesticide use across the nation:

- taxes on pesticides were not high enough to influence buying decisions;
- reticence of farmers to adopt new practices when they fear potential loss of profit or crop;
- funding for Ecophyto Plan I (~\$79 million dollars/year since 2016) was too low.

**Rather than abandoning its aspirational goals, France is doubling down and has introduced a new [Ecophyto Plan II](#) (and [here](#)).** The new plan includes:

- includes a new goal of 50% reduction in pesticide use in 2 stages: 25% reduction by 2020, 50% reduction by 2025;
- whereas pesticide use reduction is still voluntary with farmers, the new Ecophyto plan includes *requiring* pesticide retailers to inform farmers about 36 alternatives to spraying any time they offer a pesticide option; the goal is to reduce the # of pesticide doses they sell by 20% by 2021; dealers that miss this goal will face penalties;
- monitoring. The plan created a [Treatment Frequency Indicator \(IFT\) tool](#) to help farmers track their pesticide reduction practices - based on region and crop type; ground-truthed through pesticide purchase invoicing

## [EU Pesticide Taxation](#)

### [European Pesticide Tax Schemes in Comparison: An Analysis of Experiences and Developments](#), Thomas Böcker and Robert Finger, April 2016, *Sustainability* 8(4):378

**Main findings:** Policy measures are needed to reduce the risks associated with pesticides' application in agriculture, resulting in more sustainable agricultural systems. Pesticide taxes can be an important tool in the toolkit of policy-makers and are of increasing importance in European agriculture. However, little is known about the effects of such tax solutions and their impacts on the environment, farmers, and human health. We aim to fill this gap and synthesize experiences made in the European countries that have introduced pesticide taxes, i.e., France, Denmark, Norway, and Sweden. The major findings of our analysis are: (1) overall, the effectiveness of pesticide taxes is limited, but if a tax on a specific pesticide is high enough, the application and the associated risks will be reduced significantly; (2) in all countries, hoarding activities have been observed before a tax introduction or increase. Therefore, short-term effects of taxes are substantially smaller than long-term effects; (3) differentiated taxes are superior to undifferentiated taxes because fewer accompanying measures are required to reach policy goals; (4) tax scheme designs are not always in line with the National Action Plan targets. Low tax levels do not necessarily lead to a reduction of pesticide input and differentiated taxes do not necessarily lead to fewer violations of water residue limits.

### [Pesticide tax in Denmark:](#)

From 2013 a reformed tax was implemented, changing the pesticide tax to a tax based on environmental load. Furthermore, tax levels were increased on average. Approximately 93% of Danish pesticide use is agricultural. Expected revenue of the reformed tax is DKK 650 million annually (EUR 87 million). The full revenue is reimbursed to the agricultural sector –primarily through reduced land value tax. For many years Danish pesticide policies aimed at reducing the so-called treatment frequency index (TFI). As part of the latest pesticide tax reform, an environmental load indicator was introduced to substitute the TFI indicator. The current aim of the Danish Government is to reduce environmental load by 40% during the period from 2011 to 2016. Some main drivers for the development of the Danish pesticide tax have been the Danish green tax reforms

of the 1990's and a strong norm among Danes (citizens and politicians) for having untreated tap water from groundwater sources. In general, farmers and agricultural organisations are against the pesticide tax, but the reimbursement mechanism have eased resistance. Over the years, the pesticide tax have only had small effects on pesticide use. Expectations are that the reformed tax will have more significant effects, since those pesticides with largest environmental load now face substantially higher price levels. The reformed tax will be evaluated in 2017-18. Replicability is a possibility for other Member States based on a prior assessment of which indicators are relevant for the country in question.

### **EU Civil Society Petition to phase out pesticides**

Civil society organisations submitted a proposal to the European Commission for a European Citizens Initiative (ECI) calling for new legislation to phase out pesticides, restore biodiversity and support farmers to transform our food and farming system. [1]

Background: International scientists have called for an urgent “transformative change” to stop the collapse of nature. A quarter of Europe's wild animals are severely threatened, half of our nature sites are in an unfavourable condition, and ecosystem services are deteriorating. [2] Scientists are calling for a cut in the use of pesticides, together with a move to ecologically-based farming, in order to halt or reverse the massive decline in insect populations. [3] In addition, four million small farms disappeared between 2005 and 2016 in the EU and have since been replaced by large agroindustrial businesses exacerbating the crisis even further. [4]

[1] Once an initiative gathers 1 million signatures, the Commission decides on what follow-up action to take. [https://ec.europa.eu/info/index\\_en](https://ec.europa.eu/info/index_en)

[2] Global Assessment Report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) <https://www.ipbes.net/news/Media-Release-Global-Assessment>

[3] <https://www.sciencedirect.com/science/article/pii/S0006320718313636>

[4] [http://www.foeeurope.org/sites/default/files/publications/nyeleni\\_eca\\_-\\_more\\_farmers\\_better\\_food\\_25.03.2019\\_0.pdf](http://www.foeeurope.org/sites/default/files/publications/nyeleni_eca_-_more_farmers_better_food_25.03.2019_0.pdf)