



# 1. Discussion Group on Impacts on Human Health

Moderator: Dr. Paul Scheepers, Note-taker: Martien Graumans

**Attendance:** Amongst the participants, 1 represented governance, 1 input supply, 2 production and 2 consumers.

**Content:** Using both Miro Boards (online white board for collaborative working) and mentimeter polls, the participants worked on several questions pertaining to human health assessments. An introductory talk on what human health assessment will encompass during SPRINT was given by Dr. Paul Scheepers.

**Results from the Miro-Board discussion** ([https://miro.com/app/board/o9J\\_l9IXsEk=](https://miro.com/app/board/o9J_l9IXsEk=)):



### **Main take-aways from the mentimeter poll and discussion:**

- Stakeholders are concerned about mixtures effects=> something SPRINT is going to research
- Stakeholders worry about vulnerable subgroups
- Question was asked about why SPRINT is not testing hair. We explained that urine and blood does contain loads of information both metabolites, pesticides and biomarkers.
- The majority (8) of participants argues that pesticides should be monitored through measurement. A minority thinks it can be done through self-reporting (2) or modelling (1)
- According to participants, the health impact of pesticides should be monitored by the government (8). 2 participants saw academic and citizen science and 1 the agricultural sector most suitable
- Concerning the prioritisation of health effects in pre-market evaluations, participants' opinions were distributed between cancer (3), fertility and reproductive outcome (4) and neurodegenerative diseases (3)
- To the question "should all data from pre-market safety assessment of pesticides be publicly available for full transparency?", 10 responded with 'yes' and 1 with 'no'
- According to the majority (8), a post-market safety assessment should cover population-based surveys. A minority (2) argued for laboratory testing (according to replacement, refinement, reduction principles)
- Post-market safety assessments should primarily target mixtures relevant to a crop (7). 3 participants would focus on individual products.



## 2. Discussion Group on Impacts on Environmental Health

Moderators: Violette Geissen, Nelson Abrantes Note-taker: Nicoleta Alina Suci

**Attendance:** Thirty-one stakeholders were present in the session, divided in 11 from governance, 2 from input supply, 1 from production and 1 consumer. Several participants see themselves as part of a science group, but this wagon is missing in the SPRINT train. The train must be updated (also to incorporate banks and insurance companies).

**Content:** Using Miro Boards (online white board for collaborative working), the participants worked on four questions.

**Miro Board link:** [https://miro.com/app/board/o9J\\_l9Ixsig=/](https://miro.com/app/board/o9J_l9Ixsig=/)

### Question 1: How can the real risk of pesticide mixtures be assessed?

Barriers:

- It is difficult to assess the toxicity of mixtures to non-target organisms without actual study data. In addition, the number of possible combinations is enormous making the generation of such data difficult to plan.
- Risk not currently assessed for the microbiome
- Difficulty: It would be a very long-term study taking into account the number of substances and their concentration
- Since there are over a million organisms in the soil, it is not possible to assess the real risks
- It would already be a huge study to assess just which mixtures are used across countries
- This is already done for all authorised plant protection products which might contain more than one active substance.
- Are all mixtures equal when it comes to risk?
- To get a definitive answer, all mixtures would need to be identified and to be tested. Since this is not possible, we need to live with compromises
- Magnitude of the risk regarding quality and quantity of each component within each mixture should be defined
- We have to define common assessment groups ideally based on common modes of action groups

Suggestions:

- Monitoring
- In many environmental standards you see a part about testing in the lab and testing the field.
- Comprehensive soil monitoring but linked to plot specific management information
- By defining the mixture found in the food in markets
- Comparing environments with high concentration of pesticides versus environments with no/low concentration of pesticides.
- Need to assess them in how they are used in situ, including mixtures, include environmental impact assessments
- Start with a basic concentration-addition hypothesis?
- Maybe you can predict the influences of a mixture by knowing the influences of the different components. This is currently under study in our measurements
- Health/environmental impact assessment
- Asking about which PPP are used
- Comparing situations with different pesticide pressure



## Question 2: Which kind of monitoring programs do we need to assess exposure? Are the fate/transport/exposure models reflecting the reality in a sufficient way?

- All monitoring should be based on the same standard, so that the results are reliable and the results are comparable with other labs → "Very important to work with the same protocols"
- We need to look at soils from small, medium & large farms across a range of farming models and geographies. We also need to sample "control" soils from adjacent farmed areas and unfarmed areas
- Fate/transport/exposure models are doing a reasonably good job, at least at smaller spatial scales, but what is urgently missing is precise information about emissions of PPP. Why not setting up a database like in DK where PPP usage is available for farmer/small spatial unit?
- Yes, if we calibrate the models with known mixture and real data
- The existing models may be overly conservative but appropriate to risk assessment.
- Post-registration monitoring of all environmental compartments is necessary. The models are not able to predict real exposure accurately.
- Monitoring programmes: try to make the link between input and output
- Programs/models that cover broad conditions across variations in soil type and geology, climate, crop, management/tillage operations etc.
- Regular monitoring over time
- TIER1-Models in soil can only cover 0.5-1 year after application (works well). Look for models that run longer.
- Monitoring of water is carried out in a comprehensive way, as is food. Also investigate areas in which you expect exposure to be low/as a "control"
- Regular soil monitoring of agricultural soils
- Besides monitoring you can also think about measurements that can be taken in specific situations to improve the current situation
- Monitoring of wild vegetation all over Europe in every 100 square km box with LOQ (limit of quantification) of 1 microgram per kg dry matter and of water bodies as well with an LOQ of 1 ng/L. At least 700 active ingredients to be monitored. Air to be monitored as well by filter methods with LOQ of 1 ng/m<sup>3</sup>
- Many models seem not to consider crop rotations
- Need to check we are measuring biologically available residues and not bound residues that are not biologically available
- Start with soil and water. In our protected area, we determinate 29 pesticides in soil and 27 pesticides in dropping water in the caves. It would be interesting to see the impact of pesticide mixture for soil microorganism and water invertebrates

## Question 3: Which challenges have to be addressed to meet the needs of end users?

- People who are followed up in this know about the purpose of the study; how do you prevent bias?
- Knowledge about what are the needs of the end users. What do they want/what do they buy? What are they willing to pay for specific products?
- Minor crops to be included in a solution driven approach, e.g. herbicide solution in hemp
- Concrete measures available to reduce risks, e.g. buffer zones
- It can be useful if it is financially attractive to use products that are not harming the environment. Maybe setting up a certification scheme including a reward system can be helpful. A certification scheme needs to be developed by an independent organisation.
- How reliable are the results?
- So many different environmental influences on health (confounders)
- Transparent testing and risk assessment procedures; reproducible risk assessments. Not only risk assessment but also support for a safe use
- To meet economic performance of the sustainable transition pathways
- Are we including amateur use here as well? Large numbers of public using plant protection products, but not regulated in same way as professionals. Especially herbicides
- Farmers need appropriate alternatives to chemical PPP's
- It is necessary to share the experience of effective agronomic practices with low risk pesticides



- We need to understand the significance of effects or findings observed. Is a perturbation of a microbiome or observation of meaningful to assess impact on risk assessment? What is "normal/natural" variation across geographies, climate and ecosystems?
- We must give producers the necessary tools to protect their crops
- Signposting users to alternatives, biocontrols, biostimulants, mechanical weeding machinery etc.
- Measures to reduce the use of pesticides. For example, organic production

#### **Question 4: Which endpoints should be considered for ecotox risk assessment?**

- Very complex as situation different for different products and end uses! Regulations often arbitrary because there is not enough detailed knowledge.
- Do not focus on only one fix set. Do for the weakest endpoint. Keep it dynamic.
- Microbiome
- Check if standards that are currently used can be useful.
- No effect levels after 5 generations of 100 test organisms (aquatic and terrestrial)
- Resilience is a great concept, but may be difficult to approach in a quantitative and reproducible way, but I cross my fingers it will work. Apart from this, indirect effects of mixtures, accumulation in food-chains could be addressed.
- Endpoints agreed in EU peer-review of pesticides should be used in the risk assessment.
- An endpoint should be adverse, shown to be directly treatment related and reproducible for it to be relevant to risk assessment
- Non-target organism, protected species to have arguments for farmers to change their mind and help us to protect the environment.
- When evaluating a particular active substance for EU approval or indeed an individual PPP for a MS authorisation, you should not consider the possible use of other active substances/PPPs.



### 3. Discussion Group on Designing the Global Health Risk Assessment Toolbox

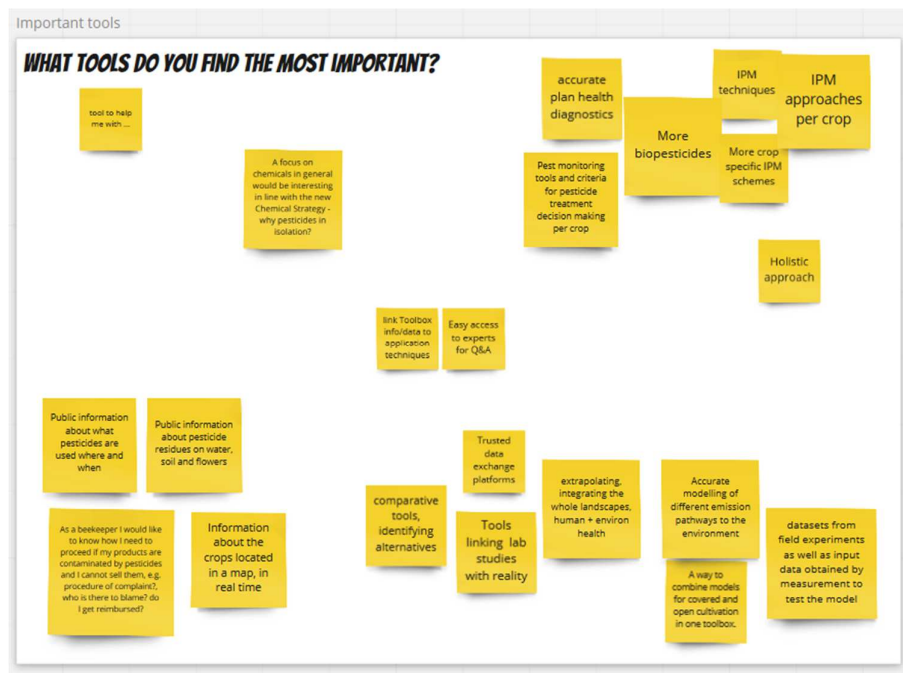
Moderator: Daniel Figueiredo; Notetaker: Joao Carvalho Nunes

**Attendance:** 15 participants attended this breakout session, of which 2 represent governance bodies and 6 input supply representatives. Governance: 2

**Content:** Three main questions were pursued during the session.

**Miro-Board link:** [https://miro.com/app/board/o9J\\_l9I\\_4\\_Q=](https://miro.com/app/board/o9J_l9I_4_Q=/)

#### Question 1: Tools that the stakeholders find important include:



- Public information on PPP use/residues;
- IPM approaches per crop and when to use them; access to information and to experts;
- Trusted data exchange platforms; and accurate emission models.
  - Several countries have phytopharmacological information systems which could be made available or reproduced at the EU scale.
  - Existing decision support systems could be used and expanded on.
  - Trust is important: the quality of data and tools should be ensured.
- Plant health diagnostics, pest monitoring tools and IPM approaches per crop
- Easy access to data on application techniques and experts
- Accurate models of emission pathways
- Small issues: upscale to other chemicals; holistic approach

#### Discussion:

- Information about crops/pesticides located in a map? (Eugenia) Pesticides are authorized for specific uses against specific problems by country. France has a phytopharmacology information system with the monitoring exercises (<https://www.anses.fr/fr/content/fiches-de-phytopharmacovigilance-ppv>). (Bolette) similar system in Denmark





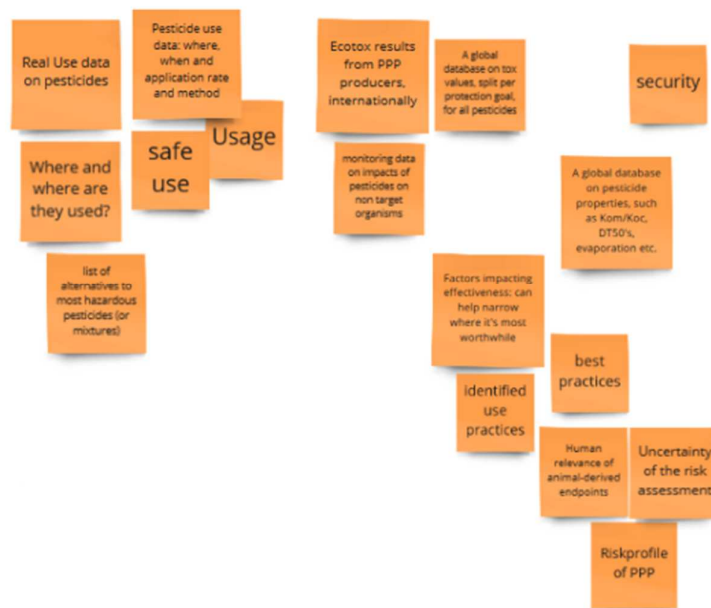
(<http://pesticidvarsling.dk/?lang=en#top>). (Noa) models are not useful for this as farmers change application (Marco) similar system for Italy.

- Trusted data exchange platforms? How do you ensure data quality? Very important question to discuss.

### Question 2: Stakeholders would like PPP-related information on:

- best practices and safe use (when, where);
- ecotoxicology;
- risk assessment (including uncertainty).
- It is important to ensure that this information is understandable by stakeholders, as many information exists which e.g. farmers cannot use.
- Data on use, where, and when, and safe use
- Ecotox data on PPP
- Smaller issues: global pesticide database, list of alternatives to hazardous pesticides, pesticide security

### WHAT INFORMATION WOULD YOU LIKE READILY AVAILABLE ON PESTICIDES?



### Discussion:

- Much of the information already exists, but is not well known/used; how to get this key information to users? Databases are designed for researchers, should be understandable by stakeholders, perhaps in own language.
- Decision Support Systems for pesticide application are available, e.g. in the Netherlands, based on meteo conditions etc. They could be expanded..
- many information already available, but it is not understandable for farmers. Information in the toolbox should be useful for managers and farmers





### Question 3: Stakeholders are concerned with:

- Clear end-user identification so toolbox can be tailored;
- Clear assumptions and information/user manuals;
- Keeping information up-to-date; information which can be used to improve decision-making;
- The overall coordination of different toolbox elements.
  - Policy-makers and farmers have different needs (more high-level vs more practical), so the end users must be identified early.
  - There is much existing information and some already available tools, which can be compiled, harmonized and turned into a practical decision-making tree for PPP application (how, and when).
- Clarify assumptions, train users, avoid misinterpretation
- Translate information into decision-making
- Translate information to improve the supply chain
- Coordinated approach to different elements of the toolbox
- Smaller issues: involve authorities early to improve acceptance, science-based, account for farmer demands, measurable indicators, harmonize database, data security
- who will be the users? large-scale target audience.
- suggestion from beekeeping: check the existing tools/information and harmonize/coordinate/simplify in a way which is useful to farmers, e.g. a PPP decision tree. to be valuable, collate also information on application practices.
- identify crucial users, policy makers and farmers have different needs for different tools. agreed, farmers need very a practical DSS.



#### 4. Discussion Group on Transition Pathways

Moderator: Ana Frelieh-Larsen. Notetaker: Jane Mills

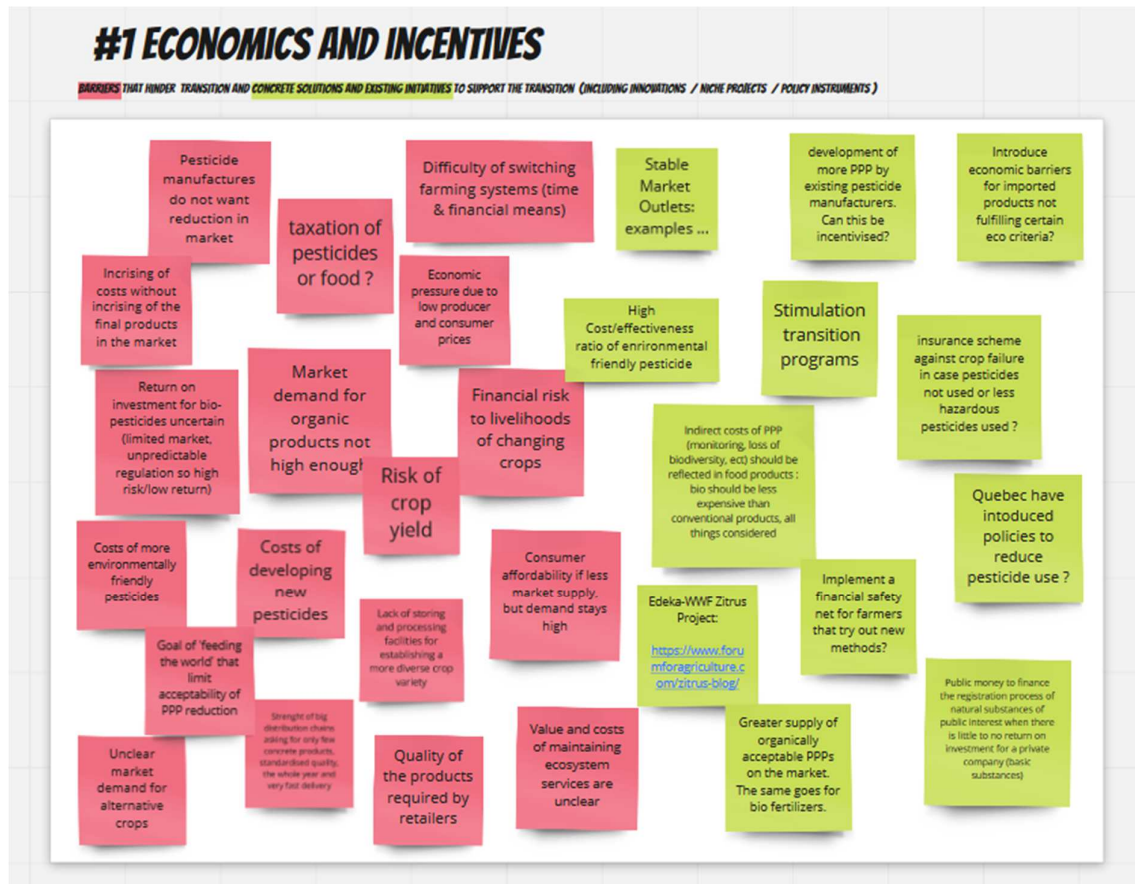
**Attendance:** Around 32 in attendance in the group, around 3 from input supply, 3 from civil society, none from processing, a few farmers and advisers.

**Content:** The participants brainstormed on barriers and solutions concerning the transition towards sustainable plant protection. Four Miro Boards facilitated the group discussion by providing a space in which participants entered their thoughts and expertise.

**Miro-Board link:** [https://miro.com/app/board/o9J\\_l9IxsKA=](https://miro.com/app/board/o9J_l9IxsKA=/)

The boards focused on economic, agronomic, knowledge and regulation/authorization aspects.

#### Board 1: Economic barriers and solutions to the transition



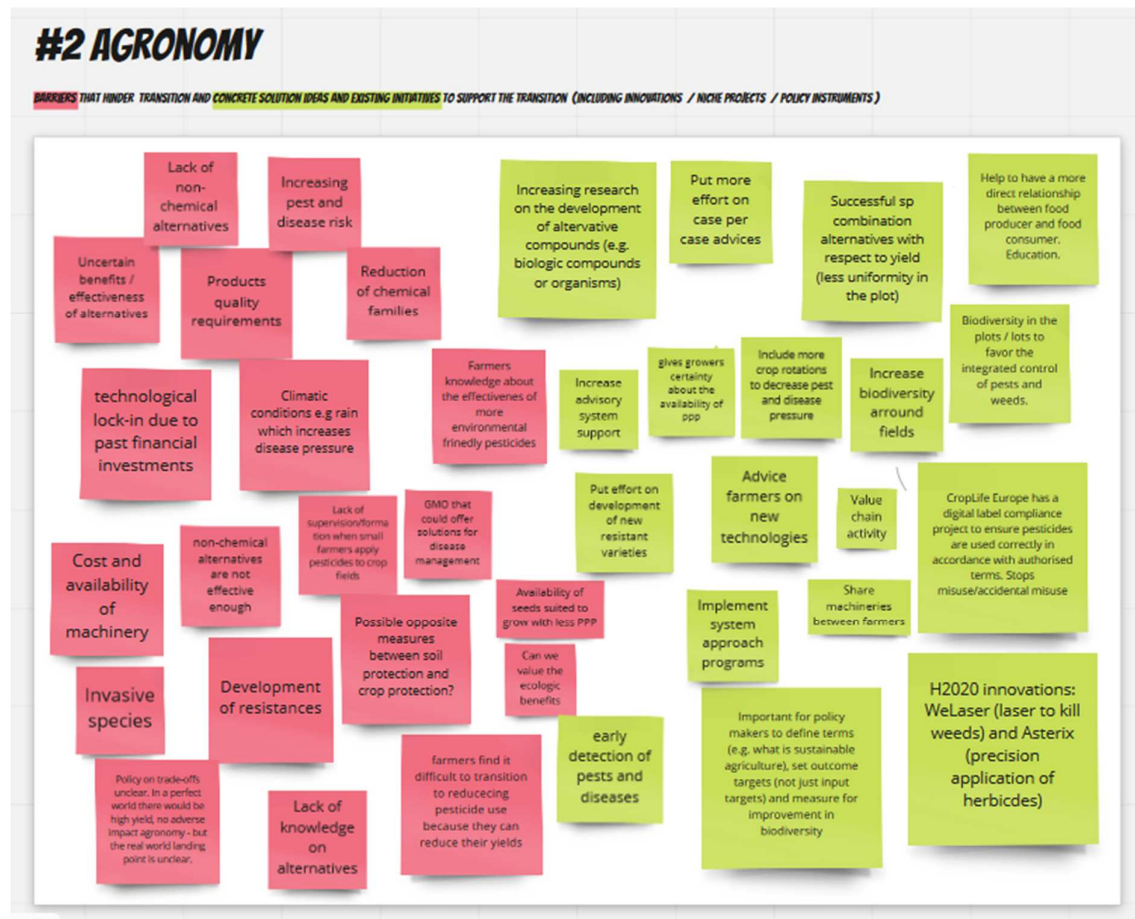
- **Insurance schemes** against crop failure if pesticides are not used. This is something that governments or retailers might support.
- How do you provide farmers with a financial safety net? → Need for stimulating **transition programmes** to help support farmers through risky 2 years of transition.
  - Example : In the Netherlands a transition programme is being supported by the Government. The programme is trying to scale up sustainable initiative pilots undertaken in research institutes.



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- **Incentivising alternatives** : At the moment alternative products to chemical pesticides, such as biopesticides are subject to the same rigorous and expensive registration assessments and legislation as chemical pesticides. This is a deterrent for businesses in bringing these products to the market. The solution is to change the regulatory requirements. The industry is keen to produce these products, but the challenge is getting them to the market.

## Board 2: Agronomic barriers and solutions to the transition

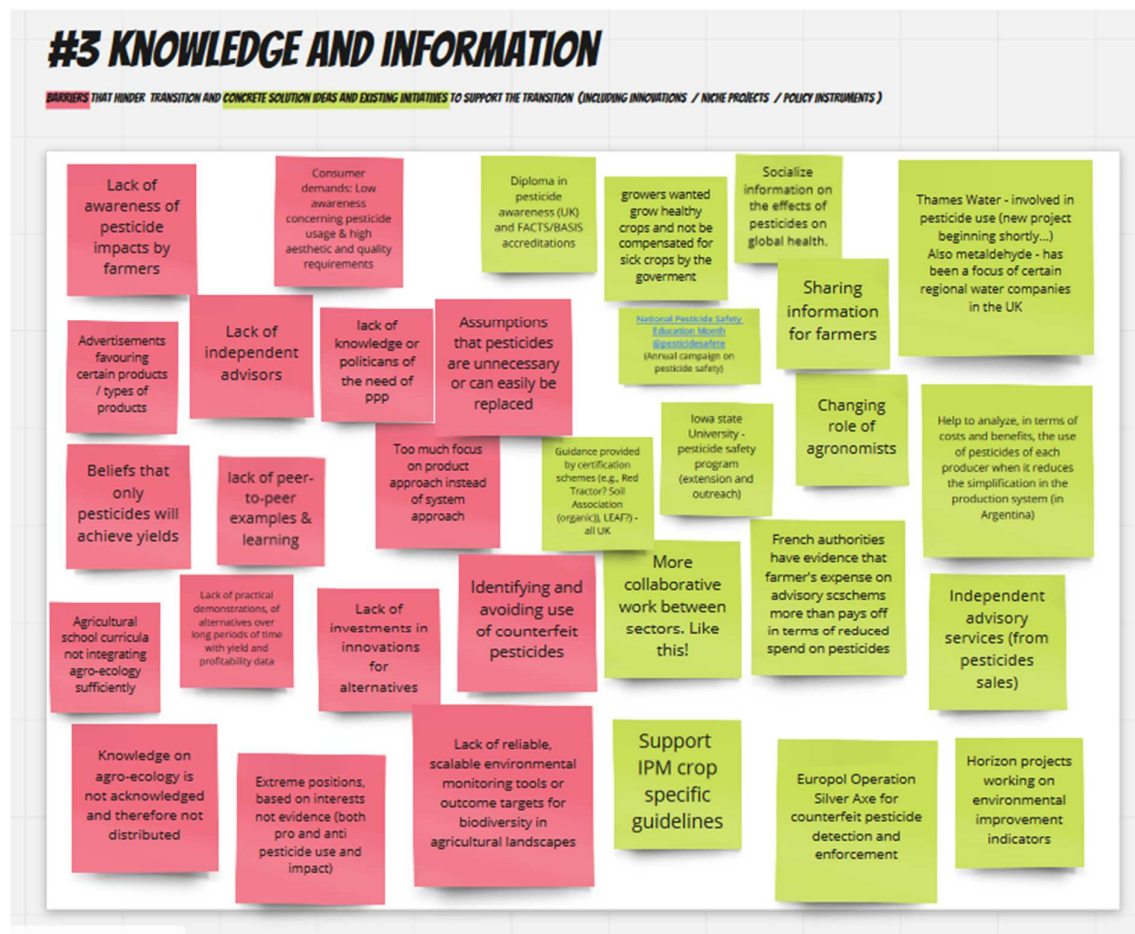


- Possible conflict in measures between soil protection and crop protection e.g. min-till. Need to develop alternatives to use of chemicals for min till.
- **Cooperations** : Farmers can share machinery to reduce investment costs.
- There is currently investment by machinery companies in **mechanical alternatives to chemical pesticides**, such as the use of lasers, high voltage electrical equipment, fire, automated weeding machines. However, some of these will have their drawbacks which will need to be assessed e.g. fire has a fire risk and high voltage electrical equipment is not as efficient as manual or mechanical weeding.
- There is a need to avoid lock-ins with particular technologies and therefore a **mix of alternatives** is required and this will depend on agronomic conditions, market demand etc. There is no simple solution!
- Need to look at management **practices that have been lost from the past**. It is not just about new products and innovations, but also new or revived management practices.



- There is a need to **educate farmers** in their application of fertilisers. Some do not know the required doses or even use banned substances that have been kept over long periods.
- There are small producers in urban areas that are misusing pesticides which are then polluting water that is being used in the villages.
- **Purchase of pesticides should be controlled** by technicians, rather than generally available for purchase. In this way, farmers can get advice about the correct pesticide applications.
- Mandatory education should be tied to the sales of pesticides – this links in with Sustainable Use Directive.
- CropLife project is developing a digital label compliance tool to stop the misuse of products.

### Board 3: Issues concerning knowledge & information as barriers and solutions to the transition



- French authorities have evidence that advisory schemes that reduce pesticides pay financially → this **existing knowledge needs to be spread among farmers**
- **Advice for farmers is needed** on the economic impact of changing pesticide use in the short and long terms.
- Links with the work of the water companies and some of the pollution issues addressed in the WFD.





## Board 4: Issues concerning regulation & and authorization barriers and solutions to the transition



- Regulatory **policy mix** is required.
- **Pull legislation** is required, regulatory intervention that pulls new products into the market.
- IPM should not just be promoted because of regulatory need, but **the interests and needs of the farmers should be taken into account.**
- Innovation by SMEs is being blocked by the regulatory process which is extensive and expensive. This deters SMEs from pushing through with their products and will need to rely on multi-nationals to develop new products for the market. However, even the multi-nationals are struggling.
- Polluter pays is already embedded in EU law. What is needed is monitoring and enforcement to reach the targets.
- The challenge is to combine mandatory and voluntary measures to achieve a just transition for all.
- Example of solutions : Quebec has introduced long-standing policies to reduce pesticides. We will look into the example of these.

