Agricultural systems
by design

8th International Farming System Design Conference
Palaiseau – 25-29 August 2025

AgroParisTech

INRAE

ideas
INITIATIVE FOR DESIGN
IN AGRIFOOD SYSTEMS

Agricultural systems by design

Conclusive Session

Thank you to all who made FSD8 happen!

Gentiane, Marion and Sophie !

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And Jeanne, Thibault, Herminie, Lisa




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Gentiane, Marion and Sophie ! Jeanne, Thibault, Herminie, Lisa

The local organizing committee: 20 people from 3 Research Units: UMR Agronomie, UMR SADAPT, UMR SAYFOOD

The international scientific committee: 52 people from many countries

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The **7 organisors** of the Training Course and Side-events:

Chloé

Lorène

Gatien

Chloe

François

Marianne

Quentin

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The **4 chairmen** of the key-note sessions: Eric, Boelie, Shalander, Hatem

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The **4 chairmen** of the key-note sessions

The **53 convenors** of the sessions

All speakers, especially the **9 key-note speakers**

Everyone who contributed, with special thanks to Saclay's young students & junior scientists

Outputs from sessions

Outputs of plenary sessions: main debated topics with consensus

- **Diversification** is one of the main ways to increase sustainability of agricultural production
- Farmers networks and **participatory approaches** are essential for improving AET. Farmers empowerment and leadership from some actors are necessary
- Link with **local knowledge and cultural characteristics** make the changes more legitimate for local actors
- There is often **tensions** (different visions) **among the main actors**, which needs to be solved through building consensus, either on the target, or on the transition process, or on the working method
- There are several challenges in **combining actions at different scales**, with particular difficulty in incoporating the meso scale (regional) and impacting on global policies, nevertheless essential !
- It is important to **produce indicators and research evaluation** to incentivate and orient changes, incl in the making
- **System analysis is difficult but necessary** if we acknowledge the complex structure of agricultural production systems and their embedding in society at large.
- Although various methods/frameworks exist today to describe how to **co-design** sustainable/resilient farming systems, there is a **consensus on the main steps to follow**.
- The design must integrate **all spatial scales**, from the field to the territory, as well as all technical and socio-economic dimensions/disciplines (including food systems, breeding, etc).
- Importance to **include timeframe and risk** (market, climate, institutional) as a part of the codesign

Outputs of plenary sessions: main debated topics with controversies

- Is the real impact of **AE sufficient** to **take away from poverty** the major part of African farmers?
- We need **money to support changes**, they cannot be solved only by the market: Who is going to pay ? To support what?
- Do we take efficiently the **time scale tension**: solve the problems is urgent but changes/transition takes time
- Is the **concept of sufficiency**, that seems clear for Northern countries, adapted to southern countries and necessary?
- a warning to be specific: be clear about the **boundaries of the system** that you analyse or seek to work in, but they can change along the design process.
- Don't put ourselves too much in the middle of a project or initiative. **Take others, esp. farmers, as the primary actors** involved and act accordingly.
- Still no so clear agreement on **resilience, efficiency, robustness**, and the way to consider these properties when designing sustainable systems. How to measure resilience ?
- The way to **Out-scaling socio-technical niches** supported by System approach

Outputs of plenary sessions: main take-away messages

- **AE** is a very important way to **improve sustainability** of agriculture in many contexts
- Before (re-)designing systems, be clear about the **boundaries of the system** you seek to change.
- It is possible (necessary !) to have the **cohabitation of different types of systems** in the same regions and it would be benefic to think in their positive complementarity
- It is important that scientists **contibute actively to the social debate** and reach policy makers
- **As scientists / researchers, we can play very different roles**. Working in local (design) projects and bottom-up initiatives, we can largely be 'independent', to secure our acceptability as facilitator for various actors involved. If we are working on upscaling, we also need to interact with (big) corporations, policy-makers and politicians: here we need to drop at least part of our independence and take a position. We need to be clear to ourselves and to the other stakeholders about our position and the role we aspire to play.
- **AE** leads to a **deep change of doing research for agronomists** : conducting participatory projects, orchestra conductor, addressing the agrifood system: new questions, new objects, new methods, new scales…
- Combining food systems, agronomy, breeding, economics and social sciences is crucial for FSD for the sustainable agri-food system. Promoting agroecological transitions and systems approaches remains challenging. Building capacity on system science at different scales, institutional innovations, and influencing policies would be key.
- **Encourage our institutions to support system and design approach**, and not only technological innovations !

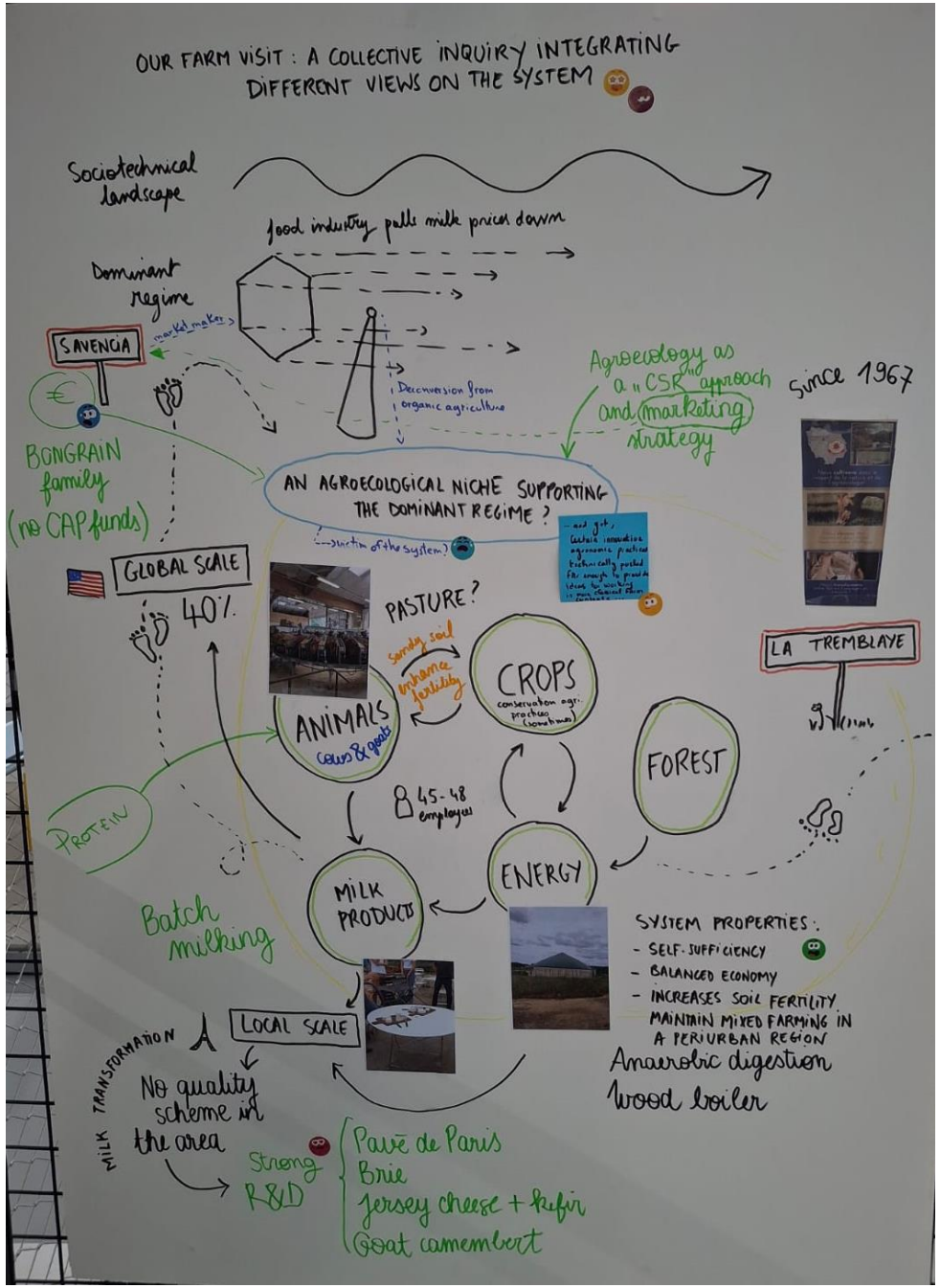
Outputs of plenary sessions: main gaps/perspectives

- We need to **incorporate more efficiently Landascape/territorial scale** in our approaches, particularly to take into account the value chain and their actors
- **Economic studies** need to be developped at farm and regional scale
- **Artificial Intelligence** permeates everything and will affect all sectors, including agriculture. AI should be higher on our research agenda
- We have many studies of local change initiatives. Now need much more attention for the **processes of scaling up / scaling out**
- Identify a **better strategy to motivate and integrate different disciplines** (including breeders, socio-economic researchers, food and nutrition, etc.) to co-design sustainable agri-food systems.
- How to **scale-up** system transformation inspired from successful initiatives ? look at various parts of the value systems, and work with scientists from various disciplines and actors from various domains
- Few abstracts on **Varieties for agroecological systems** ?
- Few abstracts on the **links between on-farm/out-farm work**, **farm structure evolution, farm diversity consideration**, and change toward sustainable agrifood systems.
- How to **enhance policies to support system approach** for agrifood systems transformation ?

Field trips

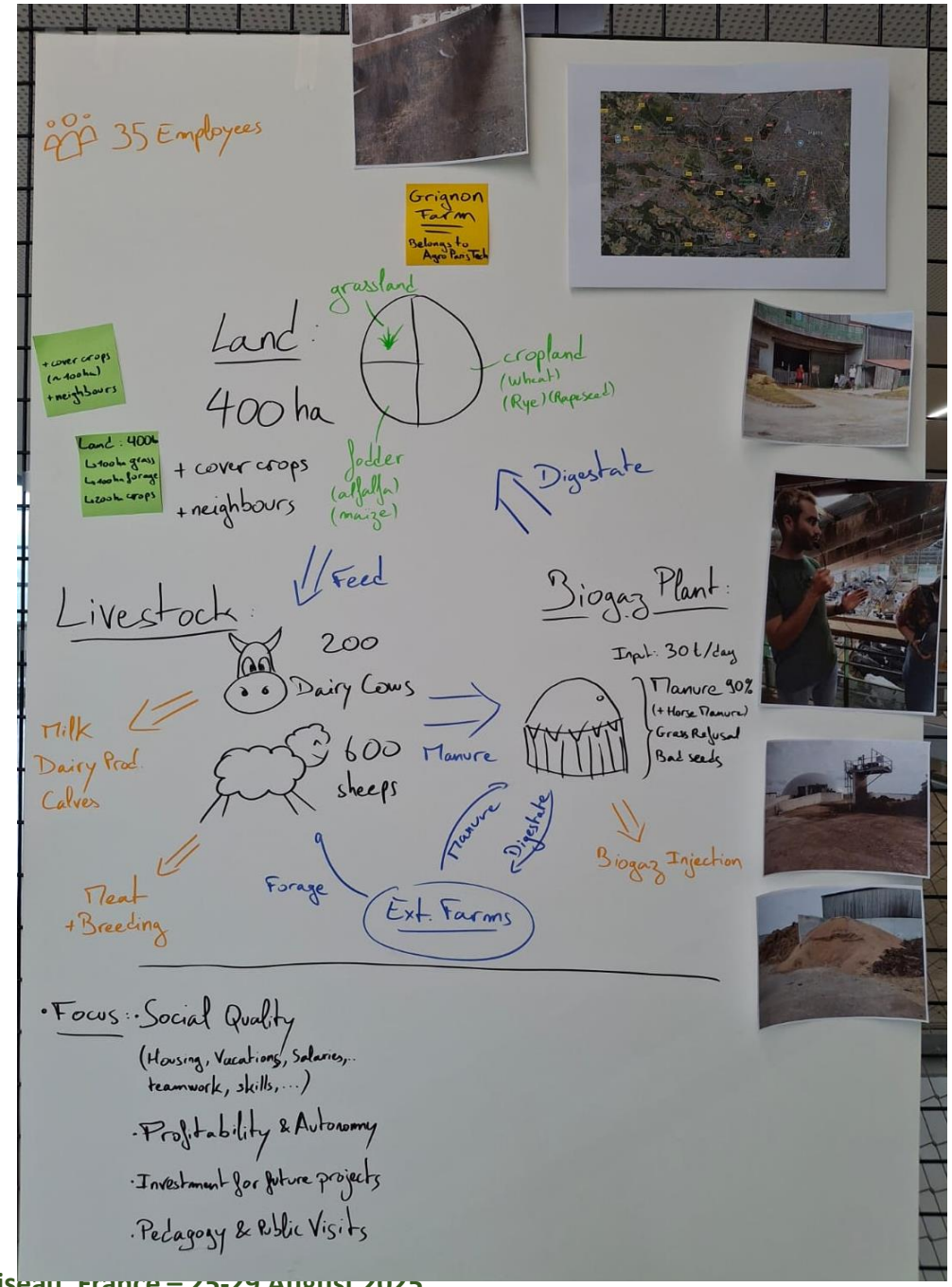
FSD8 content: Field Trip 1

La Ferme de la Tremblaye



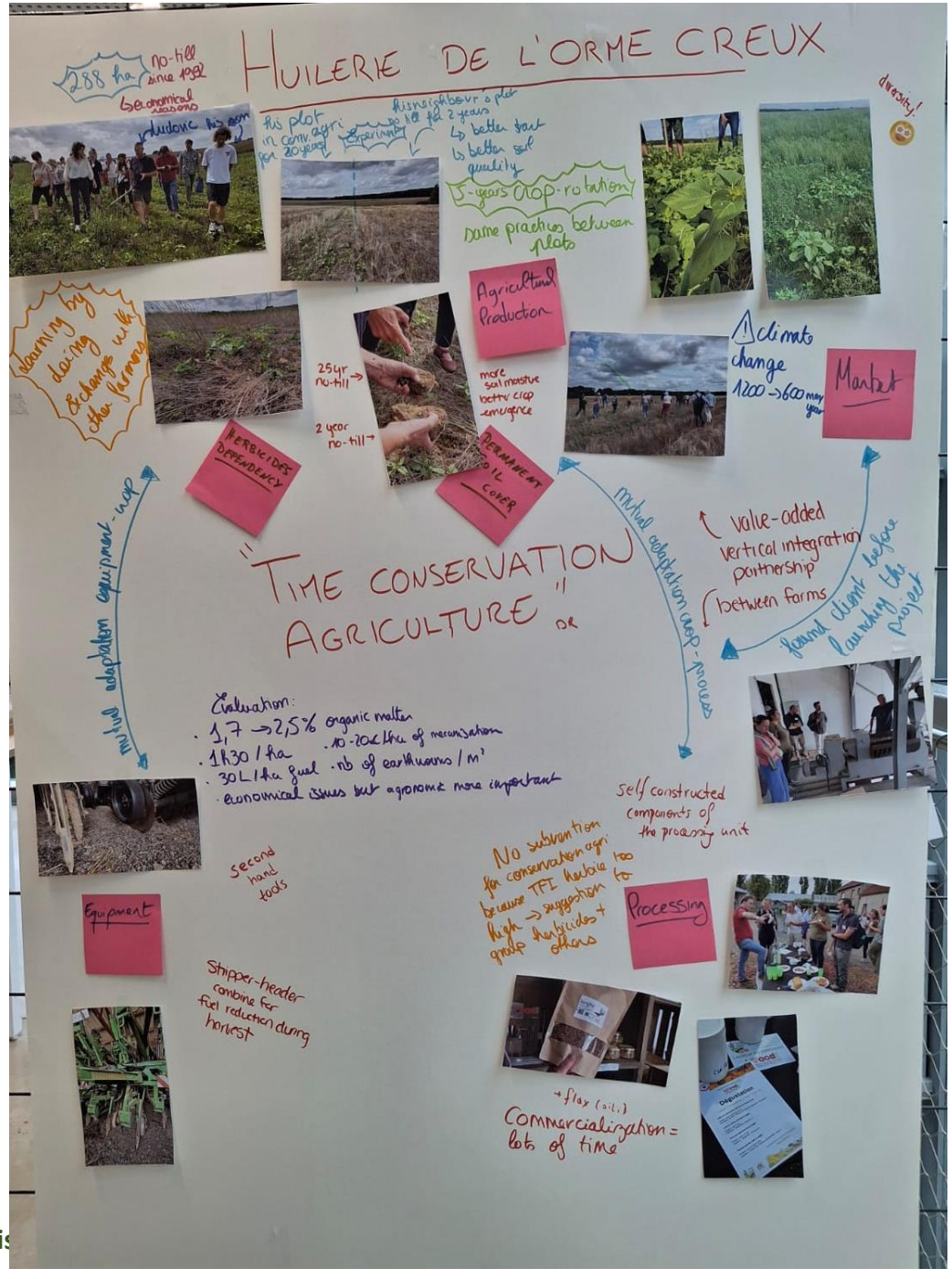
FSD8 content: Field Trip 2

La Ferme de Grignon



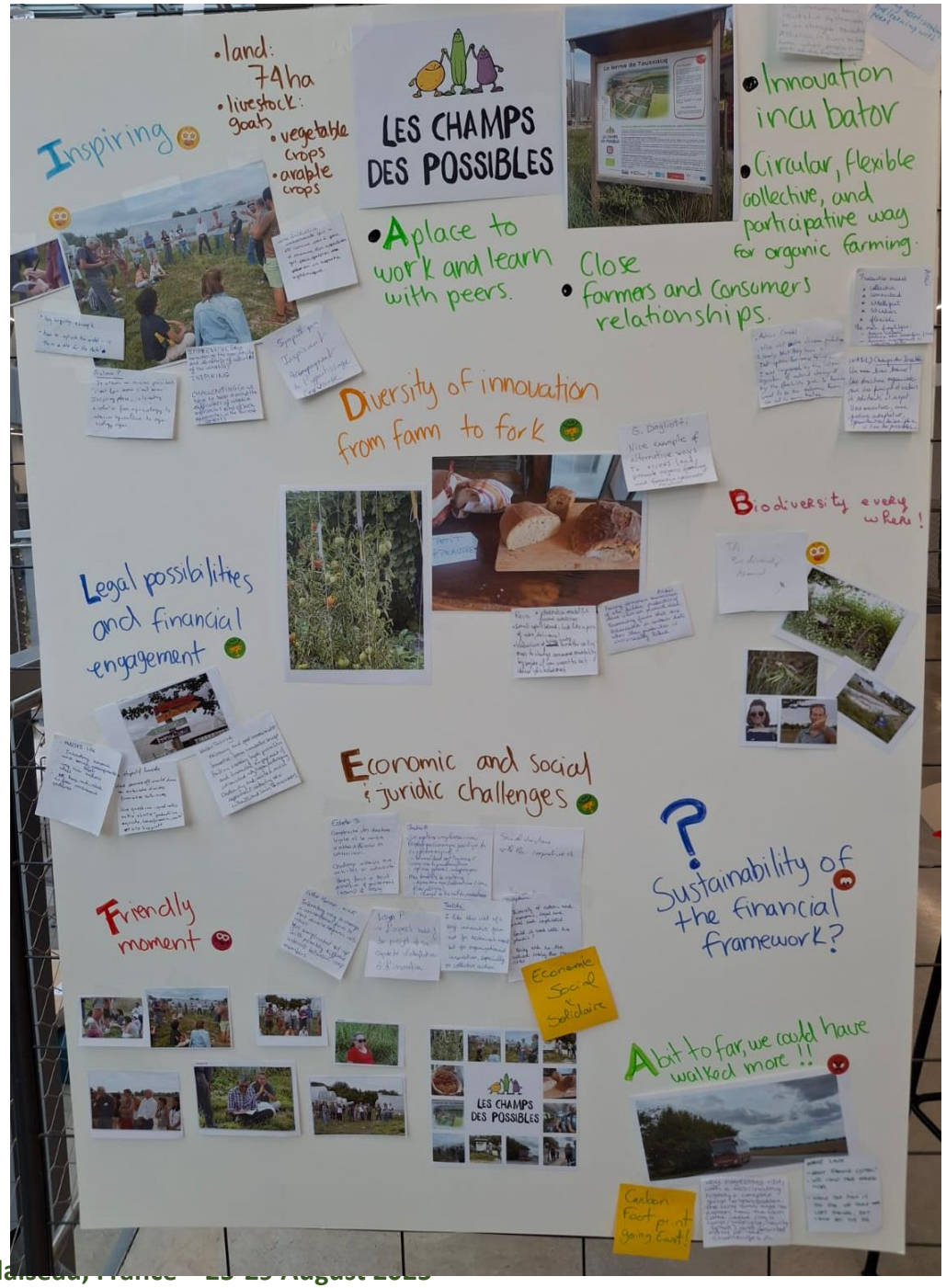
FSD8 content: Field Trip 3

L’huilerie de l’Orme creux



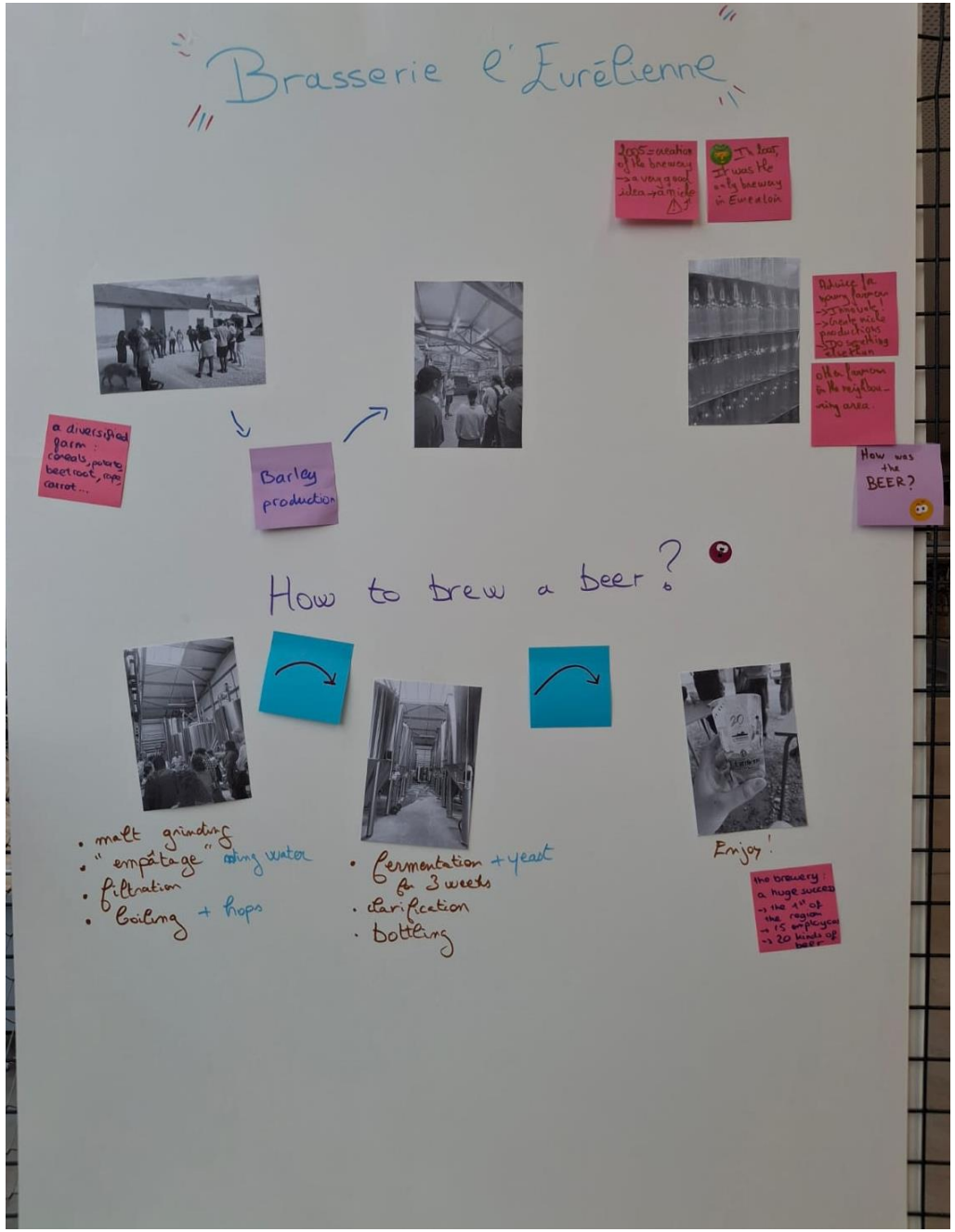
FSD8 content: Field Trip 4

L’huilerie de l’Orme creux



FSD8 content: Field Trip 5

Brasserie l'Eurélienne



FSD8 content: Field Trip 6

Les vignes de Vauhallan
Le toit d'AgroParisTech

Outputs from parallel sessions: take-home messages

TOPIC A - DESIGN AND CO-DESIGN AT PLOT & FARM SCALE

System experiments: Revealed new combinations of innovative practices improving farm and cropping system performance.

Practice sets: Performance further enhanced by knowledge from targeted innovations at the individual practice level.

Feasibility challenge: Reconciling long-term biophysical and social processes with short-term practicality.

Participatory experimentation: Engage farmers and stakeholders in designing on-farm experiments to ensure relevance and adoption.

Contextualization: Ground experiments at farm, landscape, and value chain levels to make findings practical, scalable, and useful.

Reflective scaling: Consider *what*, *for whom*, and *for what purpose* is being scaled, and reflect on the researcher's role.

TOPIC B - MULTI-ACTOR INNOVATION PROCESSES

Co-design should involve local institutions (meso level) to boost impact and capacity building

Building trust is a long-term process

Real-life successes are needed to show transformation and build social capital

formalize frameworks to build/grow system science community

Creating knowledge on coupled innovation: tracking, workshops, modelling, games; key themes: coordination, trust, cooperation

TOPIC C - PRACTICES & TRAJECTORIES ANALYSIS AT FARM LEVEL

General trends of diversification are observed in crop rotations as well as across temporal scales.

There is no silver bullet to remove barriers and actionable levers at the farm level

TOPIC D - SIMULATION AND ASSESSMENT AT VARIOUS SCALES

New indicators frameworks adapted to agroecological transition (e. g. inclusion of ecosystem services)

Models must be credible and practical, supporting stakeholder planning while clarifying underlying processes

Simulation tools guide sustainable farming but must connect scales and involve stakeholders

the scope of multicriteria assessment is broadening

MCA captures trade-offs and synergies in innovative systems, efficiently supporting policy and agrifood system design

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Sources: feedbacks from A1, A3, A5, B1, B2, B4, B5, C1, C2, D1, D2, D3 sessions

Outputs from parallel sessions: gaps &perspectives

TOPIC A - DESIGN AND CO-DESIGN AT PLOT & FARM SCALE

Step-by-step co-design: Explore strategies to support such co-design processes in future research.

Inclusive participation: Equal involvement of multiple actors remains a key constraint for co-design and scaling out

Multi-level, interdisciplinary analysis: Research spans traits, cultivars, species, and agroforestry; better integration could strengthen systems transformation.

Knowledge responsibility: Clarify who produces which knowledge—academics shouldn't do it all.

Scaling up challenges: On-farm experiments often remain small; wider adoption is limited by weak support systems.

Transparency: Make these reflections explicit in our work.

TOPIC B - MULTI-ACTOR INNOVATION PROCESSES

Impact at scale: Show systems approaches succeed beyond technology metrics and share them outside the community.

Training resources: Turn research and teaching into tools for future scientists.

Scaling initiatives: Expand successful local transitions beyond farms.

Learning & un-learning: Foster un-learning from individual to institutional levels.

Policy influence: Shape policies to support wider transitions and systems approaches.

Coordination & coupling: Optimize coupled innovation—how much coupling is needed to unlock barriers

TOPIC C - PRACTICES & TRAJECTORIES ANALYSIS AT FARM LEVEL

Account for farm diversity: Researchers, institutions, and stakeholders should consider diverse farm contexts to enhance adoption of new practices.

Integrate approaches: Combine qualitative and quantitative methods to capture trends and the logic behind farmers' practices (conditions, objectives, value chains).

TOPIC D - SIMULATION AND ASSESSMENT AT VARIOUS SCALES

MCA challenges: Difficulties at higher levels due to data, aggregation, and complexity.

Modeler-user disconnect: Gaps between modelers, users, disciplines, and between modelling and the design process; resource-intensive modeling adds to the challenge.

Trade-offs in modeling: Balancing transparency and usability for actors versus specialist-controlled models.

Broader dimensions: Models should include social, governance, and adoption aspects, alongside biophysical and economic factors.

Beyond carbon: Consider qualitative, hard-to-measure dimensions to capture trade-offs and synergies with traditional dimensions.

Social considerations: Address gender, working time, and improve reliability of interviews and qualitative data.

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Sources: feedbacks from A1, A3, A5, B1, B2, B4, B5, C1, C2, D1, D2, D3 sessions

Outputs from parallel sessions: emerging topics & surprises

TOPIC A - DESIGN AND CO-DESIGN AT PLOT & FARM SCALE

Transformative cropping systems: Often less productive/profitable; stronger links between innovations and system experiments can help.

Incumbent actors overlooked: Few mentions of agrifood system actors as simplifiers or diversifiers.

Global South-North gap: Session lacked connection between contexts; a shared framework for action is needed.

Researcher role: Focus on analyzing and understanding scaling, rather than implementing it.

TOPIC B - MULTI-ACTOR INNOVATION PROCESSE

Emotions in change: Navigate between avoiding them and using them as engagement indicators.

Vocabulary diversity: coupled innovation, systemic innovation, and innovation bundles.

Policy impact journals: Favor journals read by policymakers, even if low impact factor, to enhance societal impact.

TOPIC C - PRACTICES & TRAJECTORIES ANALYSIS AT FARM LEVEL

Farmer openness: Willing to try new practices and applications, especially with machinery.

Input challenges: Fertilizer and pesticide use can increase in innovative systems due to limited extension support.

TOPIC D - SIMULATION AND ASSESSMENT AT VARIOUS SCALES

NZ cautionary tale: Premature model use by public entities caused 5 years of unintended negative impacts.

Versatile methods: Optimisation, remote sensing, and participatory modelling worked across diverse contexts.

Plastic risk: 62.5% of 10,000–16,000 substances cannot be assessed for risks.

Farmer surprise: Brocéliande farmers realized “they don’t feed the world, they eat the world.”

Pesticide costs: Production has low energy costs.

Sources: feedbacks from A1, A3, A5, B1, B2, B4, B5, C1, C2, D1, D2, D3 sessions

What could happen after FSD8 conference ?

1 Go to wooclap.com

2 Enter the event code in the top banner dans

Event code

QPYNSZ

Download the pictures of the conference

The link will be available only 3 weeks
We will also share it by e-mail

We need your feedback on the conference!

You will soon receive an assessment questionnaire.

Please take a few minutes to complete it, as your input will help guide the upcoming meetings and conferences!

Other conferences you may find interesting

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IFSA 2026 MONTPELLIER – CALL FOR PAPERS IS NOW OPEN!

CIHEAM > AGENDAS > IFSA 2026 Montpellier – Call for papers is now open!

Posted on July 21, 2025

We are delighted to announce that **the call for papers for the 16th International Farming Systems Association Conference (IFSA-Europe group) is now open: https://ifsa2026.sciencesconf.org**

IFSA 2026 **will take place in Montpellier, France**, and is organised by the **Mediterranean Agronomic Institute of Montpellier (CIHEAM-IAMM) from 29 June to 3 July 2026**.

Thank you for the wonderful times together !

Have a safe trip home!

Please remember to collect your badges.

We look forward to seeing you at **the next FSD Conference**