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Agroscope
Nachhaltigkeitsbewertung und Agrarmanagement (NBA)

Katja Heitkämper | 28 August 2025

Proposal for working group (AKAL/ISWA)

Shifting Structures: The impact of Technological Change and Digitalization on Agri-Food Labour and Production Systems

Person/Institution
Katja Heitkämper
Socioeconomics Research Group, Agroscope, Switzerland
E-Mail: katja.heitkaemper@agroscope.admin.ch

Contributors
Marianne Cockburn
Equidae Research Group, Agroscope, Switzerland
E-Mail: marianne.cockburn@agroscope.admin.ch

Topic

Innovations such as precision farming, automation, artificial intelligence, and digital supply chain management are changing the way food is produced, processed, and distributed. These technologies have the potential to improve productivity, resource efficiency, and traceability while reducing environmental impact. However, the transition also poses significant challenges, particularly for labor dynamics. Automation risks displacing traditional agricultural jobs, creating skills mismatches and employment instability in rural areas. In addition, unequal access to digital tools may exacerbate existing socioeconomic inequalities among smallholder farmers, particularly in developing regions. The integration of digital systems requires not only investment in infrastructure, but also policy frameworks that ensure inclusive growth, labor protection, and sustainable development. This working group focuses on the double-edged impact of digitalization on agricultural and food systems and looks for holistic approaches to address the changing landscape of work and production in the agricultural and food economy.

This working group directly contributes to the conference theme *Dynamics of Work*, specifically addressing challenges caused by technological transitions and digitalization.

Objectives

- Present current research results on technological advances and digitalization in agriculture.
- Promote dialogue between scientists, practitioners, and policy makers.
- Develop recommendations for action: Best practices and policy recommendations for improving working conditions.
- Identify research gaps and opportunities for future collaboration.

Agroscope
Katja Heitkämper
Tänikon 1, 8356 Ettenhausen / Switzerland
T: +41 58 480 32 66, M: 079 244 82 14
katja.heitkaemper@agroscope.admin.ch
www.agroscope.ch | good food, healthy environment

Format

The working group will be organized into two sessions. The duration of the first session depends on the number of contributions.

- Session 1: Presentations and discussion
    - Presentations (20 minutes each) on the topics of precision farming, automation or policy frameworks.
    - Followed by a moderated discussion (20 minutes).
- Session 2: Interactive
    - Group work on specific challenges (depends also on presentations in session 1), for example:
        - Limited localized solutions: Many digital tools are developed for large-scale, industrial agriculture, not for smallholder or region-specific needs; inadequate local language support; inadequate customization for different climates, crops, or farming styles
        - Regulatory and policy gaps: Outdated or unclear regulations on digital agriculture tools, including drones, data use, and AI; lack of government support or incentives for digital adoption
        - Cultural and behavioral barriers: Resistance to change and mistrust of new technologies; preference for traditional farming methods
        - Environmental and ethical concerns: risk of over-dependence on technology, ignoring ecological knowledge; use of digital surveillance can lead to ethical concerns, especially when used by large agribusinesses
        - …
    - Final discussion: Consolidation of results and development of recommendations for action.

The working group will be conducted in English and optional in German, if contributors from AKAL network prefer so.

Expected outcome

- Produce a report with key findings and recommendations
- Establish a network of experts for future collaboration
- Develop ideas for joint publications and projects

Collaboration with other convenors in the field are welcome!