P04: Tillage and crop residue cover practices	
Maturity score	
Mean: 2.1	**STD:** 0.83

Constraints and limitations

- Cloud presence
- The lack of local in-situ data to train the models.
- Machine learning model uncertainty
- The effectiveness of the product can be affected by environmental conditions such as heavy rain, snow cover, or flooding, which can obscure the view of the land surface or modify tillage and residue patterns.
- Different crops and crop varieties may have varying residue cover practices, making it challenging to establish a one-size-fits-all monitoring system.

Relevant user needs

UN18: Need to monitor crop productivity.

R&D gaps

- Limited training data.
- Smallholder farming remains an issue because of the small size of farms where intercropping happens very often. (This comment may not apply in the case of large commercial farms).

Potential improvements drivers

- Methodology for the retrieval of ground data for model training and validation.
- Increasing spectral resolution by using hyperspectral data.

Utilisation level review	
Utilisation score	
Mean: 1.8	**STD:** 0.40

No utilisation:

Users' lack of EO knowledge and skills to utilize the EO product.

Low utilisation

- Unawareness of the existence of commercial EO products with better specifications
- Higher cost of using the commercial EO product
- Higher cost in terms of internal training and resources to use the data that comes from this process/data source.

Medium utilisation

High utilisation

Critical gaps related to relevant user needs

Guideline gap

UN18: Need to monitor crop productivity