Summary of 3rd e-conversation
e-conversation #3:

Is smart farming raising justifiable expectations?

E-conversation framework:
One prodigy child associated with digital agriculture is smart farming. It carries the promise of optimising resource use and minimising costs in the production of agricultural goods, making use of on-farm and remote sensors often enabling mechanisation and automation.

But is there enough evidence that the services offered are reliable and trustworthy, namely in their advisory role? Which smart farming solutions to trust? How to determine the quality of data and models behind them, especially when it comes to LMICs and small-scale farming? Shouldn't we manage expectations very carefully?

Moreover, it seems that a lot of smart farming solutions are developed from a global North perspective and then framed to the smallholder context to get funding of, often, "tech eager" donors. If not properly researched this may create an illusion of scientific rigour which can generate mistrust in farmers. Mistrust which, once established, is very difficult to remove.

Starting date	Closing date	Number of posts	Unique contributions	New members	Geographic spread of contributors
27 March 2023	31 March 2023	15	10	24	Africa, Europe, Latin America and Southeast Asia

Some takeaways

- Smart farming depends on smart technologies (IoT, sensors, etc) and primary on the data such technology do generate. In the North, such data are controlled by the farmer, in LMICs, intermediaries are usually controlling these.
- Are the technologies behind smart farming sufficiently proven? Yes and no (or rather, quoting Ednah, it depends...).
- In the global North, a driver of smart farming is the increasing cost and shortage of labour force.
- In Asia, smart farming intended as precision agriculture especially in the domain of mechanisation, are already spreading quickly and bringing economic and productivity improvements even to small holders.
- With reference to LMICs, are the prospects of mechanical precision production greater than digital agriculture being offered in production agriculture (i.e smart farming)? Probably yes according to Scott Justice, as he argues "mechanical machinery is complicated but is easier to learn, understand, maintain and repair compared to many of the digital solutions being offered in the domain of smart farming" although even in this case, it really depends. The FAO SOFA Report 2022 and the background studies e.g., by Mariette McCampbell, provide a few more elements and some reasons for caution: https://www.fao.org/documents/card/en/c/cc2914en
- Caution should be taken when promoting smart solutions and or technologies developed in the global North for adoption by smallholder farmers in the South as growing discontent of the European farmers themselves towards some "sight unseen" (i.e., without inspection or appraisal) precision farming solutions promoted by big players e.g., in the digital, agtech sectors.

Way forward

- The evaluation of smart farming solutions and technologies should be done by unbiased entities such as research organizations or academia which could tailor these to the specific contexts of LMICs and small-scale farming. Such organisation should have a strong orientation towards real-world application of the solutions, otherwise their evaluations may risk being too theoretical.

Shared resources

- Ceccarelli, T., Chauhan, A., Rambaldi, G., Kumar, I., Cappello, C., Janssen, S. & McCampbell, M. 2022. Leveraging automation and digitalization for precision agriculture: Evidence from the case studies. Background paper for The State of Food and Agriculture 2022. FAO Agricultural Development Economics Technical Study No. 24. Rome, FAO.
- FAO. 2022. The State of Food and Agriculture 2022. Leveraging automation in agriculture for transforming agrifood systems. Rome, FAO.
- Ranveer Chandra and Stewart Collis. 2021. Digital agriculture for small-scale producers: challenges and opportunities. Communications of the ACM, Volume 64, Issue 12, December 2021, pp 75–84
- McCampbell, M. 2022. Agricultural digitalization and automation in low- and middle-income countries: Evidence from ten case studies. Background paper for The State of Food and Agriculture 2022. FAO Agricultural Development Economics Technical Study No. 25. Rome, FAO.
- On 27 March 2023, the Digital Agri Hub database accounted for close to 300 solutions tagged as 'smart farming' deployed in 112 LMICs.