The science of scaling: enhancing the impact of agricultural innovations

The uptake, use and impact of agricultural research innovations in developing countries — often referred to as ‘scaling’ — has not always lived up to expectations. A key bottleneck is the gap between research and development, fields that operate under different mandates and have different time frames, needs and incentive structures.

Research refers to designing and testing innovations with a small group of stakeholders. Those innovations may be new technologies (crop varieties or crop management practices), new ways of collaborating (e.g. public-private partnerships), incentive systems, provision of services or marketing. Research takes a relatively long time to translate findings into practical and adapted solutions.

Development refers to scaling innovations and their outcomes to reach a large group of stakeholders. Development interventions implemented by international agencies, public institutions and the private sector operate with a logic and short time frame that don’t always coincide with the slower, methodological pace of research.

The science of scaling seeks to bridge this gap through a step-wise change process to: (1) diagnose an innovation’s scaling readiness, constraints in the enabling environment, and entry points for scaling strategies with a high potential environmental, economic and/or social return on investment; (2) engage strategic partners for scaling and design, implement, and monitor compatible stakeholder engagement strategies; and (3) systematically assess the efficacy and outcomes of scaling processes.

The science of scaling requires an understanding of the interdependencies between technical, social, economic and political dimensions of scaling, a strong interdisciplinary team and a systemic approach.

The CGIAR Research Program on Roots, Tubers and Bananas (RTB) is putting the science of scaling at the heart of its work, and has teamed up with Wageningen University, the Netherlands, to create a scaling flagship project (Flagship 5 – see About RTB Flyer). This team provides guidance and backstopping to help groups of researchers within RTB to scale their innovations. The following activities are underway:

1. Developing approaches that support critical reflection and learning about scaling. This includes an index to assess and improve the scaling readiness of an agricultural innovation (see Nine stages of scaling readiness) and assess the readiness of the enabling environment. The assessment guides the design, implementation and monitoring of theories of scaling, as well as scaling partnerships.
2. Fine tuning the scaling strategies through four contrasting case studies to better understand what it takes to (i) strengthen partnership arrangements and (ii) improve monitoring systems to generate findings and evidence that can be used to promote scaling.

3. Launching a dedicated Scaling Fund that has already awarded three grants to support and accelerate scaling of the most promising RTB innovations.

4. Developing an evidence base for stepwise thinking about innovation and scaling trajectories to support decision-making on the type of research, capacity development and partnership investments needed for effective scaling. This will draw on case studies of innovations at different stages in scaling.

5. Exploring the opportunities and obstacles associated with using information and communication technology, big data and citizen science for managing the scaling of RTB innovations (see http://bit.ly/2hUt3Vj).

We anticipate that this will lead to more successful scaling through:

- Better matching innovations with the diverse needs and interests of end-users (e.g. farmers of different gender and age, policymakers, private sector);
- Strengthened capacity for assessing scalable innovations and of developing evidence-based, impactful scaling strategies;
- Enhanced engagement of development agencies as they see the potential impact of well-designed scaling strategies;
- Initiation of strategic innovation and scaling partnerships that have a high return on investment in terms of matching objectives, timelines and incentive systems in research and development;
- Feedback to researchers for innovations that are truly scalable;
- Accelerated uptake and broader impact of innovations.

MORE INFORMATION on the scaling readiness project can be found here: