

UPSCALE

Upscaling the Benefits of Push-Pull Technology for Sustainable Agricultural Intensification in East Africa



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The UPSCALE Project https://upscale-h2020.eu/



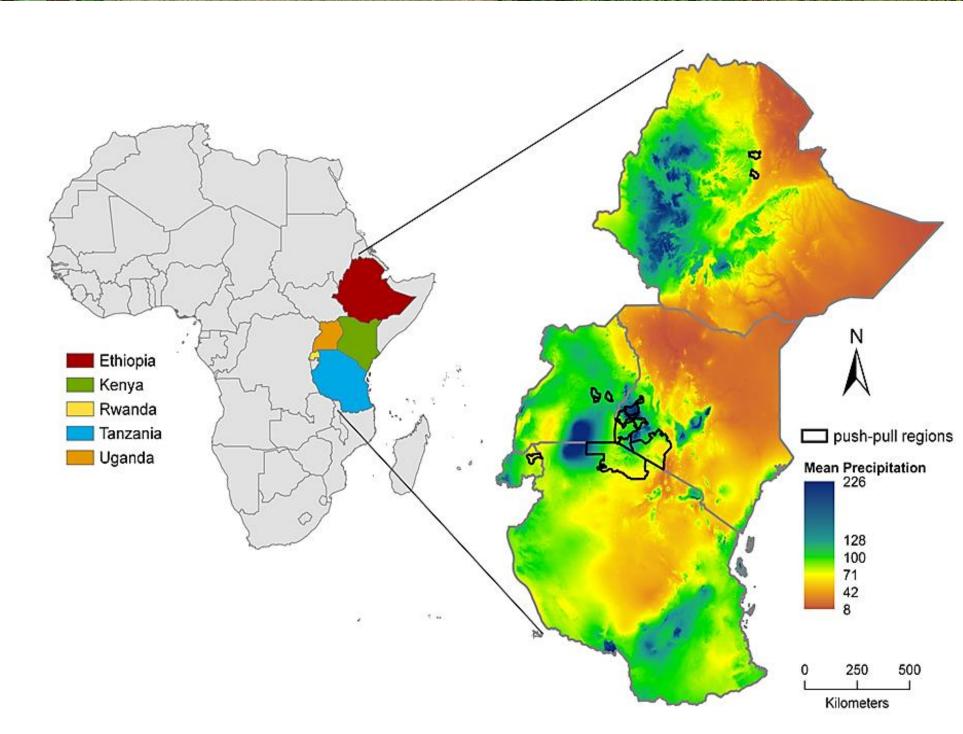
Aims to support smallholder farmers in sub-Saharan Africa improve food security, livelihoods and climate change resilience by fostering nature-based solutions inspired by push-pull technology.

UPSCALE is an EU-Funded H2020 Sustainable Agricultural Intensification research project that aims to achieve the transformative potential of the push-pull cropping system from field, to landscape and regional scales, and from cereal to other crops and cropping systems.

Implemented across 15 study regions with different biophysical and farming systems characteristics in 5 East African countries.

Brings together 18 cooperating partners from 4 European countries and 6 African countries, ensuring interdisciplinary and multi-actor approach.

Employs a knowledge exchange hub and multi-actor communities as key pillars for stakeholder engagement.



UPSCALE focal study regions supported by national infrastructure

The Push-Pull Technology

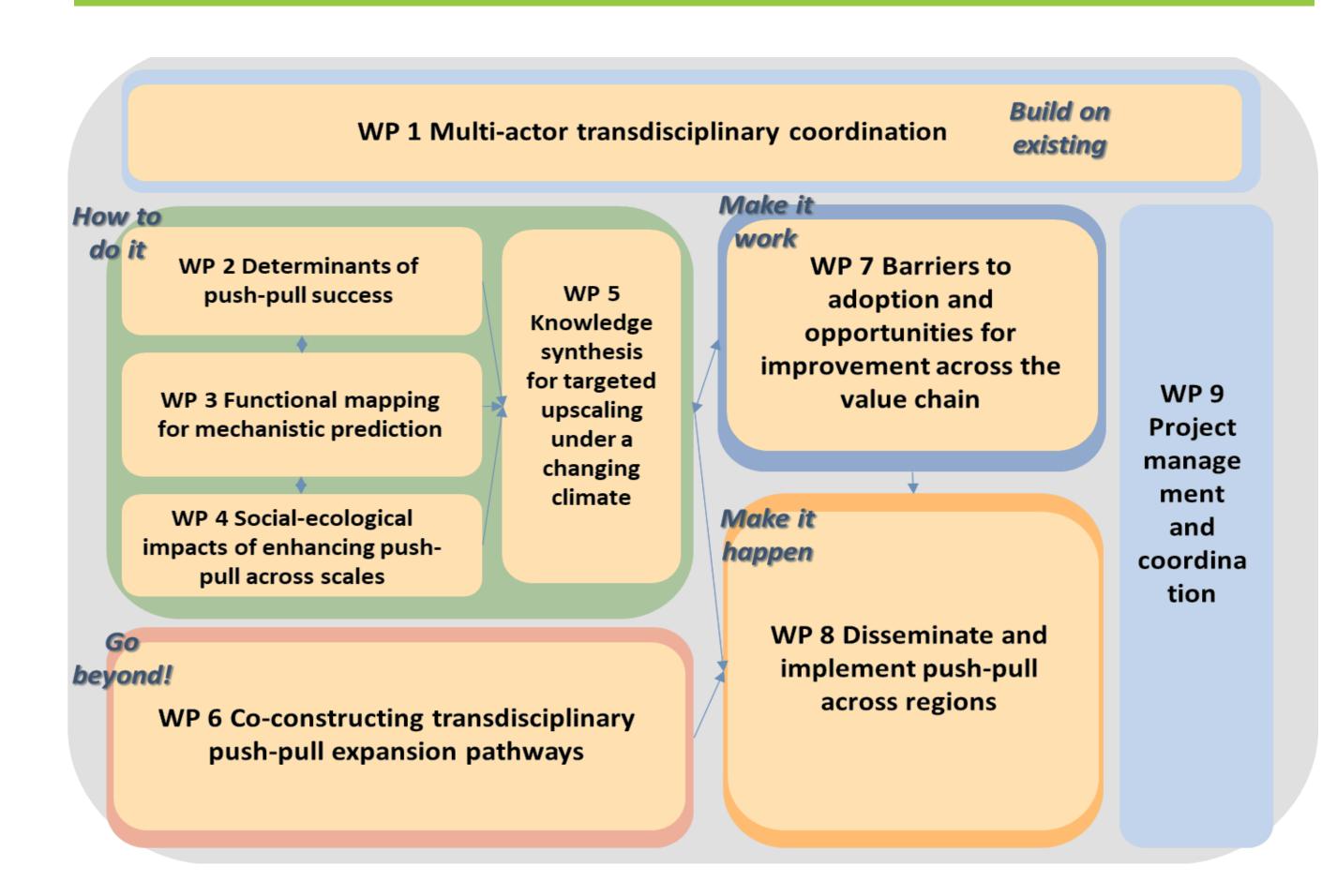
Push-pull is an integrated cropping system that involves driving pests away from the main crop using volatile chemicals from a repellent intercrop (the push) while attracting them out of the crop with border trap plants (the pull) http://www.push-pull.net/.

Volatile chemicals from desmodium intercrop 'Pull' repel stemborers and fall armyworm, and attract their natural enemies Volatile chemicals from border plants attract stemborers to lay eggs Desmodium roots fix atmospheric Chemicals secreted by desmodium roots control striga and deplete nitrogen in the soil; shoot and root striga seed bank in the soil biomass increases soil organic matter

Key benefits

- Increase crop yield
- Fodder for livestock
- Natural pest control
- Improved soil health
- Higher income
- Gender empowerment
- Biodiversity conservation
- o Reduce GHG emission
- Averts land degradation

UPSCALE Structure and Workflow



UPSCALE Concepts and Methodologies

Co-constructing push-pull expansion pathways and participatory analysis of socioeconomic impacts and feedbacks Capturing and mobilising the Multi-Actor Community of Practices for stakeholder innovation potential among engagements and knowledge farmers to stimulate longlasting engagement and further development **Novel Application of** ecological methods, modelling tools and socialecological approaches Developing and adapting innovative dissemination Unlocking the Potential of toolboxes: knowledge hub, mobile app, interactive maps push-pull technology for other regions and cultivation for spatial targeting of dissemination efforts systems

Sustainable intensification of smallholder agriculture using push-pull cropping system as a template

Participatory needs

assessment

- o Establishment of test-fields. o Evaluation of yield, Pest and disease,
- o Chemical ecology, o Soil health,
- o Farmer knowledge, perception.

Field experimentations for targeted upscaling

Co-developing innovation in existing push-pull and codesigning synergies with other sustainable intensification practices



(onions, kales)





Legume integration (pigeon pea)

UPSCALE impacts

Contact:

- Provides farmers with viable nature-based solutions for agroecological management delivery essential sustained ecosystem services.
- Boosts crop yields and resilience of local and regional food systems to exogenous shocks.
- Enhances household livelihood and social wellbeing.
- Reduces inequalities by supporting women, youths and farmers with special needs.
- Reinforces EU-Africa multi-lateral joint research initiatives.



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