

BRINGING NEW IDEAS INTO PRACTICE

Experiments with
agricultural innovation



Royal Tropical Institute



Research Into Use

LEARNING FROM RESEARCH INTO USE IN AFRICA



Pig producer, Malawi

Research Into Use

African smallholder farmers continuously seek to improve their agricultural enterprise, to improve their food security and to increase their income by making more efficient use of their assets. Farmers have to adapt to continuous, often unforeseen and sudden, changes in their production and marketing environments, and this requires continuous innovation.

Research Into Use (RIU), a United Kingdom Department for International Development (DFID) funded programme, explored different approaches for promoting innovation in agriculture. KIT studied a selection of projects from the RIU Africa portfolio: the Nyagatare maize platform in Rwanda; the cowpea platform in Kano state, Nigeria; the pork platform in Malawi, the Farm Input Promotions (FIPS) Best Bet in Kenya, and the Armyworm Best Bet in Kenya and Tanzania. Through a mix of quantitative and qualitative methods the change in capacity to innovate, the household level poverty impact, the main lessons learned and the value for money were assessed.

RESEARCH INTO USE IN AFRICA

The objective of RIU was to enable innovation in agriculture in Africa and Asia. The Africa country programmes in Malawi, Nigeria, Rwanda, Sierra Leone, Tanzania and Zambia aimed to improve the capacity to innovate, through strengthening collaboration between public, private, farmer and civil society organisations. The Best-Bet facility funded innovative business ideas to bring promising ideas into commercial use in Ghana, Kenya, Tanzania and Uganda.

Table 1 Summary of Results of the Five Cases

Case	Major Results	Current household impact	Future household impact	Capacity to innovate
FIPS Best Bet	<ul style="list-style-type: none"> • Measurable income improvement • Food security improvement • Improved research extension farmer linkages • Alternative agricultural service provision system at scale • Better access of producers to improved technology 	+	+	+
Armyworm Best Bet	<ul style="list-style-type: none"> • Community-based forecasting adopted within ministries • Public extension/local government linkages improved • Change in perception of role of producers in agricultural services • Private biotech laboratory initiated 	-	+/-	-
Pig Platform Malawi	<ul style="list-style-type: none"> • Farmer-run pig slaughtering and marketing facilities built 	-	-	-
Maize Platform Rwanda	<ul style="list-style-type: none"> • Multi-stakeholder platform functional • Farmer-run maize trading company built • Inventory credit system piloted • Improved maize production popularised 	-	+/-	+
Cowpea Platform Nigeria	<ul style="list-style-type: none"> • National Agricultural Research Council adopted platform approach • Triple bagging technology popularised and commercialised • Multi-purpose, Striga-resistant varieties popularised • Improved fodder bailing technology developed and promoted 	+	+	+/-

FIPS-AFRICA BEST-BET

RIU supported Farm Inputs Promotions – Africa (FIPS-Africa) to further develop its network of Village Based Advisors (VBAs), which provide local agricultural extension services and market inputs as private entrepreneurs. FIPS supports the advisors with training and facilitates their access to new promising agricultural technology and inputs required for intensification of farm management. The impact assessment compared food security and farm-derived income between intervention and non-intervention households. The months of food self-sufficiency in FIPS villages increased from 7 to 12, and estimated revenues from production surplus increased five-fold. Considering this success, but at the same time the relatively low income generated by the VBAs and the prominent role of the donor-funded FIPS headquarters, continued investment of public resources in FIPS is required and justified.

Current and Future Impact

Looking at the five cases, one can be cautiously optimistic about the overall results obtained, and the prospects for accumulating future impact. In the case of cowpea in Nigeria and FIPS in Kenya, there is a clear current impact on household income and food security, while in the case of the maize platform in Rwanda, and to a lesser extent the armyworm Best Bet, there is the promise of future impact based on the work already done. FIPS in Kenya and the Nyagatare maize platform improved the capacity to innovate and the cowpea platform improved this capacity to some extent, while the armyworm Best Bet and the pork platform did not have an effect on the capacity to innovate. The five cases studied form only a subset of the RIU programme in sub-Saharan Africa, and these results cannot be considered representative of the entire programme.

The Process of Agricultural Innovation

The linear 'transfer of technology' model of thinking about change in agriculture has been replaced by innovation system thinking. Innovation is context-specific and usually involves a re-ordering of relationships and interactions between

stakeholders. As a consequence, successes cannot simply be 'copied'. What is lacking is a vision of how to use promising practices that have been proven in one environment in an effective manner to realize change on a larger scale.

Based on the five case studies, without resorting back to the linear transfer of technology model, three different processes in agricultural innovation can be distinguished (see figure 1):

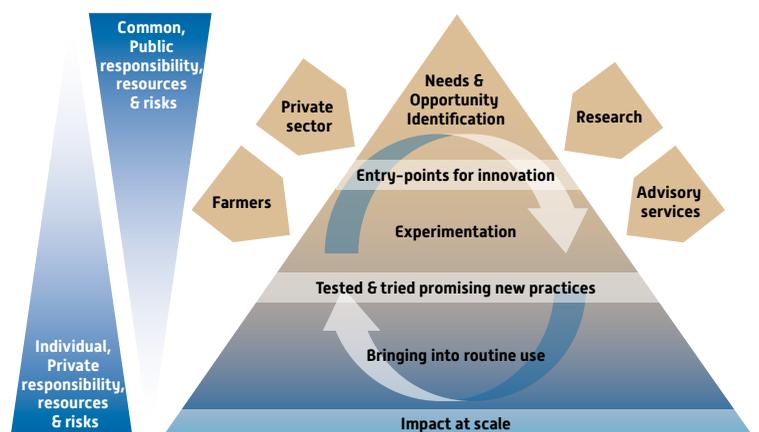
- 1 Needs and opportunity identification;
- 2 Experimentation;
- 3 Bringing into routine use.

Although depiction of innovation in a two-dimensional figure does carry the risk of oversimplification, it is found helpful to distinguish between components of agricultural innovation for process. There is a general flow from identifying opportunities to bringing into routine use, but the three processes can take place simultaneously. There is a trend of shifting from pre-competitive collaboration for the common interest, using dominantly public resources, at the top of the figure, to a multitude of more competitive efforts during the process of bringing into routine use, with an increasing importance for private resources.

Farmer in his field with maize and sweet potato varieties



Figure 1: The Deliberate Process of Agricultural Innovation for Impact at Scale



RIU COUNTRY PROGRAM NIGERIA

As part of the RIU country programme in Nigeria, a cowpea innovation platform was established which brought together various actors from six states. The platform aimed to: 1) increase production through the promotion of Striga resistant varieties; 2) reduce post-harvest losses by weevils through popularising the use of triple bagging; 3) improve the efficiency of use of cowpea residues as fodder; and 4) support cowpea value chain development through institutional changes. The cowpea platform contributed effectively to the popularisation and commercialisation of proven effective technologies. Whether the intervention sustainably improved capacity of the cowpea sector to innovate is debatable.

The basis of the process of agriculture innovation is the identification of needs and opportunities. The objective of a needs and opportunity assessment is to identify entry points for innovation. Needs and opportunities can originate from multiple sources, who may be farmers, private entrepreneurs, researchers or others, and they are meant to trigger the initiation of local experimentation with new practices.

Experimentation can focus on farming technologies, but also on new market relations, services or collaboration models. The objective is to arrive at tried and tested promising new practices. One characteristic that distinguishes experimentation from 'bringing into routine use' is that the process

of experimentation is often 'pre-competitive', in the public interest, and provides information and experience to a wider audience. A second important characteristic is that experimentation includes room for failure and consequently carries higher risk.

'Bringing into routine use' aims at moving from promising new practices to impact at scale. This process also requires experimentation, risk-taking and local adaptation, much like the experimentation phase, but it differs in the levels of risks that need to be taken, and the amount of room for failure. The process of 'bringing into routine use' is characterised by competitiveness, which provides the pressure needed to assure efficient use of resources and quality of production and service delivery. There is less emphasis on developing public benefit, the focus is on assuring sustainable and lasting, cost-effective or profitable service delivery and production.

Implications for Policy and Practice

Next to an immediate and measurable objective of realizing impact at scale during the lifespan of a project, improving the capacity to innovate should be considered an objective of equal, or even higher, importance. Thus, an intervention programme would do well to invest in assuring impact at scale in the short run, while simultaneously investing in the capacity to innovate.

Seeking a direct linear relation between agricultural research results and agricultural development can easily lead to an unnecessary limitation of options being considered as entry points for innovation. Research is an important source of potential entry points, but not the only source. Therefore, a distinction needs to be made between funding research initiatives, which aim at enriching our knowledge through developing and testing theory, and promoting agricultural innovation. With respect to the process of agricultural innovation it is important to acknowledge the three interrelated processes that underlie agricultural innovation: needs and opportunity identification, experimentation, and bringing into routine use. Focusing on one only or two of these processes does not necessarily mean no impact can be achieved; however, this would assume that the other functions are well taken care of. Research organisations have an important role to play in agricultural innovation, but they are not the essential drivers of the process.

PHOTO: GENEVIÈVE AUDET-BÉLANGER



Mini workshop with platform cooperative members in Rwanda

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