Scaling the Uptake of Agricultural Innovations: The Role of Sustainable Extension and Advisory Services

Speakers

Suzanne Poland, USAID Bureau for Food Security
Paul McNamara, University of Illinois at Urbana - Champaign
Brent M. Simpson, Michigan State University

Facilitator

Julie MacCartee, USAID Bureau for Food Security

November 20, 2013
Upcoming Agrilinks Events:

• Learning Event | November 21 | Women’s Empowerment in Agriculture Index

• #AskAg Twitter Chat | November 26th | Development Credit Authority

• Ag Sector Council | December 11th | Farmer 2 Farmer
Paul McNamara
University of Illinois at Urbana-Champaign

Paul E. McNamara serves as Director of the USAID-funded Modernizing Extension and Advisory Services (MEAS) Project. McNamara is an Associate Professor in the Department of Agricultural and Consumer Economics, the Division of Nutritional Sciences, and the Department of Family Medicine at the University of Illinois at Urbana-Champaign. He also serves as an Extension Specialist with University of Illinois Extension. McNamara holds a Ph.D. from the Department of Applied Economics at the University of Minnesota and an M.P.P. from the Harvard Kennedy School. He received his B.A. in Economics from Wheaton College (Illinois).
Brent M. Simpson
Michigan State University

Brent M. Simpson is an Associate Professor in International Development, Department of Agriculture, Food and Resource Economics at Michigan State University. He currently serves as the Deputy Director of the USAID MEAS Project, manages MSU’s involvement in two USAID funded projects in Senegal, and is leading an agricultural climate change adaption study for USAID in the Sahel. Prior to joining MEAS he worked for the Africa Rice Center, the Institute of Social Studies in The Hague, and has carried out consultancies and advisory work with the CGIAR, DFID, FAO, MCC, USAID, World Bank, and WWF.
Major Themes Covered

- Issues to think about
- Important concepts
- Application of extension principles in practice
Key Questions

- How do we define \textit{scale} when thinking about the adoption of agricultural technologies and practices?
- How do we design for the potential of \textit{scaling} the up-take of agricultural innovations?
- How do we \textit{sustain} the momentum of scaling behavior change once it is initiated?
Place-based Nature of Agriculture

Natural site: Where species are able to grow.

Socio-economic site: Where species are allowed to grow

- Elimination
- Addition
- Manipulation of the environment

Source: von Maydell, 1990
The Farming Environment

Source: adapted from Shaner et al., 1982
Farming System Characteristics

Source: adapted from Shaner et al., 1982
Adoption Domain

“recommendation domain”
Every innovation has its natural scale of expression.

No innovative change is permanent.

Image Source: http://www1.eere.energy.gov/solar/sunshot/seeds_sandia.html
The Diffusion of Innovations

- Innovators: 2.5%
- Early Adopters: 13.5%
- Early Majority: 34%
- Late Majority: 34%
- Laggards: 16%

20%
CONSUMPTION SPREADS FASTER TODAY

Source: Felton in Cox and Alm, 2008
ADOPTION PROCESS
• Awareness
• Interest
• Evaluation
• Trial (adaptation)
• Adoption

Q: How many dissemination efforts are explicitly designed to facilitate individual adoption as part of their theory of change?

Source: Rogers, 1964
Q: How many projects are designed to allow adoption to take place, let alone takeoff?

Source: Rogers, 1995
Essential Nature of Scale in Agriculture

Source:http://www1.eere.energy.gov/solar/sunshot/seeds_sandia.html
Rates and Extent of Diffusion

INNOVATION CHARACTERISTICS
• Perceived advantage
• Complexity
• Riskiness
• Trialability (lumpiness)
• Observability

Q: How many interventions incorporate the essential characteristics of the innovation into their diffusion strategy?

Source: Rogers, 1963
A Scaling (learning) Process Approach

Effective
Efficient
Scaling-up

Source: Korten, 1980
Scaling the Update of Innovations through Sustainable Agricultural Extension

- Using what we know about human behavior to support behavior change;
- Using what we know about the diffusion of innovations to design projects;
- Sustaining efforts long enough to allow ‘scaling’ to happen;
- Working at scale, to achieve impacts of scale.

Not either, or...it’s all, and.

Applying what we already know is itself an innovation.
This presentation was given by:

Brent M. Simpson
Michigan State University
on behalf of the Modernizing Extension and Advisory Services (MEAS) Project
Modernizing Extension and Advisory Services

Sustainable Financing of Extension Services for the Scaling of Agricultural Innovations: Approaches and Issues

Dr. Paul E. McNamara

AG Sector Council ~~ USAID Agrilinks
MEAS Webinar

Wednesday, 20 November 2013

Associate Professor, Department of Agricultural & Consumer Economics, University of Illinois at Urbana-Champaign; Project Director, Modernizing Extension and Advisory Services Project (MEAS); and, Extension Specialist, University of Illinois Extension.
• “The quality of spending to agriculture is more important than the overall level of spending.”
  Akroyd and Smith, 2007, “Review of Public Spending to Agriculture,” p. 20

• “...most donors have a strictly ahistorical view of development and they lack an institutional memory.”
Outline

• Extension in Large-Scale Agricultural Innovations
  – Two examples
• Three Stylized Facts on Extension in Large-Scale Agric Innovations
• Conceptual Framework
• Best Fit Approaches and Examples
• Conclusions
Extension in Agricultural Innovations – Adoption of Mechanization in US

• Farm tractors in the US
  – 1930  920,000
  – 1940  1,567,000
  – 1950  3,394,000
  – 1960  4,688,000

• Dramatic substitution of mech power for farm labor

• US ag productivity increases
  – 1930s  11%
  – 1940s  25%
  – 1950s  20%
  – 1960s  17%

• Extension provided training, advocacy, links between researchers and companies and farmers, experimentation
Extension in Agricultural Innovations – Green Revolution in Asia

1943—1980, a package and program of new technologies for rice and wheat including improved varieties, fertilizer and irrigation and other inputs, extension support, supportive public policies, and rural infrastructure (roads and water infrastructure).

Extension allowed linkages between researchers and farmers, training and support on application of technology.

Significant levels of public support (15.4% of Asian public spending was on ag in 1972).

Wheat yields in developing countries:
- 1950: 500 kg/Ha; 2000: 2500 kg/Ha

Extension helped the Asian Green Revolution target and pull along small-holder farmers in order to reduce poverty.
Innovations at Scale - Three Stylized Facts

- Institutional base of extension and complementary services and inputs along with enabling environment (policy)
  - Many components of a functioning Ag Innovation System
  - Think system and process (treadmill, iterating) rather than one-time push

- Longish time scale of major agricultural innovations

- Audience – the people and their assets
  - Green revolution targeted best regions for irrigated rice and for wheat production (not more difficult rain-fed uplands and more marginal zones)
  - US agric productivity built on base of literate farm population, secure property rights, functioning cooperatives, access to credit, commercial agribusiness involvement and investment, infrastructure, substantial public funding
Extension is human capital enhancing education and training, usually delivered in non-formal settings for adult learners.

Includes a wide variety of activities:
- T&V, extending technologies and methods
- Advisory services to answer farmer questions
- Non-formal education such as FFS
- Facilitation extension – organizing groups and then into associations and then businesses

Definition –
The Pluralistic and Varied Nature of Extension Services

• Much of the economic discussion of extension appears to ignore facilitation extension and domains like NRM

• Extension services as toll goods
  – Farm specific information – soils, drainage advice
  – Farmer group specific work

• Wide variety of extension services
  – A continuum from broadcasting information and messages to highly interactive, personalized, services delivered by a trusted intermediary

• Extension services necessarily involve face-to-face or personal communication with farmers, a high degree of discretion
  – Challenges for ensuring performance and quality (Pritchett and Woolcock, 2004)
In many countries extension has a targeting dimension of a merit good

- Terms like “poverty reduction” and the “rural poor”, “marginalized groups” all are evidence of merit good type targeting
- Chile, an upper middle income country, differential efforts to reach poorer farmers in a contracting scheme
Social investors (donors, governments) need to know what sort of benefits relative to costs extension programs could generate.

Birkhauser, Evenson, & Feder report a range of rates of return, most between 13% to 80%.

Alston et al. estimate a median rate of return on extension of 62.9% (focus: staple crops extension).

Holloway and Ehui find that 65 of 168 farm hhs studied would be wtp to pay a fee equal to the cost.

Keynan, Olin and Dinar studied farmer payments of bonuses designed to increase quality and responsiveness of extension.

- All the 17 farmer groups paid the bonuses and continued with the program the following year.
Long tail of success: when assessing the impacts of facilitation extension that develops new farmer groups, farmer business associations, cooperative marketing associations, etc. examine the long tail of impact from the successes.
Conceptual Framework – Political Economy

• Recurrent cost problem
• Projectization of extension
• Derived nature of extension policy in practice (Bates, political economy framework)
  – Important groups include: civil servants, small-scale farmers, large scale and commercial farmers, agro-industries, political parties
A multitude of alternatives
(modified from Birner and Anderson, 2007 and others)

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<th>Delivery Organization</th>
<th>Source of Financing</th>
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<td>Private Sector:</td>
<td>Contracting</td>
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<td>Companies</td>
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Best Fit Approaches

• Public sector financed and delivered
  – Important approach, at scale
  – Decentralized -- funds going to local level
• Can introduce co-pays/user fees, bonuses, coupons, prizes to strengthen farmer voice in programming
• Explore performance reporting, e-tracking, i-M&E
• Need to examine performance-contracting approaches to decentralization
  – Recent work on public health and primary care relevant to ag extension
  – Community and farmer group mobilization for services
Best Fit Approaches

• Public sector financed and contractor delivered
  – Common in projects
  – Role for INGOs, local NGOs, private sector contractors, independent extension agents

• Performance contracting

• Coupons

• Need to ensure access for poor farmers and targeting

• Public sector needs capacity building to contract and to serve coordinating role
Best Fit Approaches

• User-financed and private provider delivered
  – Underway in East and Southern Africa
• Private farm advisor model
• Need to examine targeting and access for poor farmers
• Can be combined with coupons
• Registration/certification role for national association or public sector
Best Fit Approaches

• Marketing margins financed and private provider delivered
  – Common in export crops and outgrower schemes
  – Often combined with inputs and financing (One Acre Fund and others)
  – Usually not offering advice on other crops and livestock – very focused
  – Impact on farm productivity and incomes needs careful study
  – Targeting and poverty impact?

• Trained input dealers – MANAGE

• Importance of competitive policy and infrastructure so farmers receive benefits
Conclusions

• Role for public sector extension at scale: financing, staffing, coordinating, delivering
• Need a focus on quality, performance, and the system
• Information and control and reporting systems to match financial flows
• Evidence on value, return, impact, poverty reduction, and agricultural productivity increasing outcomes
• Research and experimentation on alternative forms of contracting, coupons, prizes
• Research on extension provided through agro/vets, outgrower schemes, hub/spoke relationships, export marketers
Conclusions

• A broad understanding of finance raises a number of considerations and connections
  – How we finance extension shapes the programs and outputs we receive
  – Finance connects to management (control, reporting, budgeting) and to advocacy and resource mobilization

• Where are the good investments in extension in your country or your extension system?

• How can the finance perspective be used to sharpen system performance and mobilize needed resources?
This presentation was given by:

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Associate Professor, Department of Agricultural & Consumer Economics, University of Illinois at Urbana-Champaign; Project Director, Modernizing Extension and Advisory Services Project (MEAS); and, Extension Specialist, University of Illinois Extension.

on behalf of MEAS

at the Webinar “Scaling Ag Innovations through Extension & Advisory Services”

AG Sector Council

USAID

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Contact Us:
agrilinks@agrilinks.org

OR

Julie MacCartee, USAID/BFS
jmaccartee@usaid.gov

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