Agriculture Extension

Dissemination of expert agriculture information and technology to farmers

“Training & Visit” extension popularized by the World Bank in 1970s
  - Face-to-face interactions of extension officers and farmers

100,000 extension officers in India
  - Extension agent-to-farmer ratio is 1: 2,000
  - 610,000 villages in India with average 1,000-person population

Extension officer “commuting” between farms
Agricultural Social Networks

Main source of information about new technology and farm practices over the past 365 days (India: NSSO 2005)
How can the speed and effectiveness of agriculture extension be improved at a reasonable cost?
Video provides...

- Resource-savings: human, cost, time
- Accessibility for non-literate farmers
Early Experimentation

Parameters Varied

Over 200 days of surveys, ethnographic investigation, and iterative design.
Digital Green System

Participatory Content Production

Introduction to innovations
- Standard extension procedure

Rough “storyboarding”
- Repetitive pattern; easy to learn
- Minimize post-production

Local farmers on their own fields
- Reduce perception of “teachers”
- Promote “local stars”
Digital Green System

Video Database

Online video database
http://www.digitalgreen.org

>4,000 videos, 28 languages, 8-12 minutes each

Quality-control, minor video editing, and metadata tagging

Indexed by type, topic, locale, season, crop, etc.

Distributed via memory cards
Digital Green System

Mediated Instruction

Local mediator
- Performance-based honorarium

Human engagement
- Field questions, capture feedback, encourage participation
- Balance genders

On-demand screenings
- Choice time and place
- Not “stand-alone” kiosk

Support and monitoring
- Daily metrics and feedback
- Official extension staff
Digital Green: Early Results

**7 times more adoptions** over classical extension

- Sustained local presence
- Mediation
- Repetition (and novelty)
- Integration into existing extension operations
- Social homophily between mediator, actor, and farmer
- Desire to be “on TV”
- Trust built from identities of farmers and villages in videos

![Cumulative Adoption Rate Chart](chart.png)
## Cost-Benefit

<table>
<thead>
<tr>
<th>System</th>
<th>Cost (USD)</th>
<th>Adoption (%)</th>
<th>Cost/Adoption (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classical GREEN</td>
<td>$840</td>
<td>11</td>
<td>$38.18</td>
</tr>
<tr>
<td>Digital Green</td>
<td>$630</td>
<td>85</td>
<td>$3.70</td>
</tr>
<tr>
<td>Poster Green</td>
<td>$490</td>
<td>59</td>
<td>$4.15</td>
</tr>
</tbody>
</table>

Note: Decreasing amortized cost of hardware with time and scale.

Digital **Green** is **at least 10 times** more effective per dollar spent than classical extension!
Geographies

Context specificity:
• Farmer/marketing group cohesiveness
• Existing extension system investments
• Competition from other media channels
• Localized technical advisory committees
• Electricity and data connectivity
• Efficiency in remote training and QA support
Integrated Delivery

- Generalized
  - Literature Reviews
  - Research Trials
- Localized
  - Extension interventions
  - Content library
- Personalized
  - Analytics Data
  - Community Feedback

Agriculture
Health
Nutrition

Development Group
Savings/Credit
Raised Bed
Nursery
Seed Treatment
Exclusive/early
Breastfeeding

... Cooperative
Linkages
Government
Schemes
Digital Green Technology

Analytics

Key Statistics
- Adoption rate: 32.48%
- Average adoption per active viewer: 1.46
- Average adoption per screening: 1.53
- Total number of adoptions: 69,963
- Average adoption per video: 61.59 adoptions/video
- Total unique viewers adopting a practice: 29,375
- Total Videos Adopted: 715
- Probability of adoption by a viewer: 11.29%
- Ratio of viewers with repeat adoption: 17.99%

Graphs
- Geographic distribution of adoptions
- Number of adoptions per month

analytics.digitalgreen.org
Digital Green Technology

Video Courseware

digitalgreen.org/discover
Digital Green & Microsoft Research Technology

Video Kheti (Web App)

Multimodal interface

Responsive Design

videokheti.digitalgreen.org
Voice Services

Digital Green & Awaaz.De Technology

AGRI-SP/CSP/FARMER

UNNATI KISAN SEVA

Question → Answer

Review

Approve, Assign

Question → Answer

CMS

MODERATOR