An approach for disseminating improved nutrient management for rice in the Philippines

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Site-specific nutrient management (SSNM) for rice was developed from 1997 through a partnership of IRRI
Rice production in Iloilo

- Iloilo Province is a major rice growing area of the Philippines
- Yield per unit area remains low
  - Average = 3.8 tons per ha
- Yield is constrained by crop management
  - Improper timing and amounts of fertilizer
  - Excessive seed rates for direct wet-seeded rice
  - Use of low quality seeds
Indicator of successful dissemination of SSNM

Many farmers quickly obtain and use a science-based, best nutrient management guideline tailored to their specific field, crop, and season.

Steps in the pathway from research to successful dissemination

1. Develop and validate SSNM-based principles for nutrient management.
Use the principles of SSNM for rice established from a decade of research across Asia

**PhilRice:**
- 1996 - 2004: Field research to develop SSNM principles from 1996 to 2004

**WVSU:**
- 2005 - 2006: Research to further develop SSNM principles
- 2007 - 2008: On-farm research to evaluate SSNM

Can be downloaded at this website: [http://tinyurl.com/6lp8zj](http://tinyurl.com/6lp8zj)
Steps in the pathway from research to successful dissemination

1. Develop and validate SSNM-based principles for nutrient management
2. Develop locally adapted decision tools to facilitate dissemination

How to reach many farmers fast?

Challenges

1. SSNM is knowledge intensive because guidelines are specific for a field
2. Extension workers and farmers often receive differing information from various organizations
How to reach many farmers fast?

Opportunity

Quickly provide a farmer with an SSNM-based guideline for their specific rice field

- Use information available from the farmer
- Give guideline to farmer within 15 minutes
- Minimize risk for the farmer
- Ensure high likelihood of increased profit

Nutrient Manager for Rice software developed in 2008 for Philippines

- A computer-based decision tool to rapidly provide best nutrient management for a specific rice field
- Totally consistent with SSNM principles and current science
- Targeted for extension workers and field technicians
- Translated into local dialects
The Role and Benefits of Potassium in Improving Nutrient Management for Food Production, Quality and Reduced Environmental Damage.

Rapidly provides a printable guideline based on reply to ~10 simple questions for a rice field or rice-growing area.

**Example for the Philippines**

**Steps in the pathway from research to successful dissemination**

1. Develop and validate SSNM-based principles for nutrient management
2. Develop locally adapted decision tools to facilitate dissemination
3. Establish partnerships and confidence in disseminating SSNM through decision tools
Establishing confidence in SSNM guidelines in decision tools through consultations and training

- 14 May 2008: Meeting with key organizations: WVSU, GMA Rice, PhilRice, WesVI ARRC, Atlas Fertilizer, and IRRI (24 participants)
  - Developed plan for implementing dissemination of new fertilizer guideline for Iloilo
- 28 May 2008: Training of Municipal Agricultural Officers on new nutrient management guideline (57 participants)
  - Arranged by Provincial Agriculturist, with representatives from PhilRice and IRRI
- June to December 2008: Orientation and training on use of Nutrient Manager for Rice
  - Oriented Agricultural Technicians in twenty municipalities
  - Conduct regional training and orientation

Established in 2008 a framework for collaboration in Iloilo Province with West Visayas State University (WVSU)

Including SSNM in college teaching

WVSU-IRRI Project

Facilitating information flow, training, and consensus on technology

Facilitating implementation of dissemination

2008: Partial support from IRRI

2009: Fully supported by national agricultural research budget

IRRI

WVSU

Agricultural Colleges and Universities in Visayas

WVSU-IRRI Project

Provincial Agriculture Office

Region VI GMA Rice Program

PhilRice, Negros

WESVI ARRC

Provincial GMA Rice Program

WVSU

Municipal Agricultural Officer

Extension workers

Fertilizer Companies

Technical and Marketing Staff

Field Agronomists

Farmers

- Demonstrations of technology
- Training

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- Demonstrations of technology
- Training
Widespread use of the Nutrient Manager was facilitated by training of trainers.

Training video and PowerPoint on use of Nutrient Manager developed in the Philippines.

Comparable material can be developed for each Nutrient Manager.

Videos for farmers

Example from the Philippines on youtube

Tagalog version
http://www.youtube.com/watch?v=KnuvhXm7-8

English version
http://www.youtube.com/watch?v=tkVNnZcF07o
Developed locally adapted quick guides for fertilizing rice

• Developed using the Nutrient Manager for Rice software
• Tailored for most common rice growing conditions in a province
• Totally consistent with SSNM principles

Guideline for wet and dry seasons for Iloilo

<table>
<thead>
<tr>
<th>Field stage</th>
<th>Fertilizer source</th>
<th>Days after seeding</th>
<th>Fertilizer application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early growth</td>
<td>130-150 cavans/ha</td>
<td>0-10 DAS</td>
<td>1.5 bags MOP (0-0-60)</td>
</tr>
<tr>
<td>Early growth</td>
<td>100-130 cavans/ha</td>
<td>10-20 DAS</td>
<td>2 bags 14-14-14 (with S)</td>
</tr>
<tr>
<td>Active tillering</td>
<td></td>
<td>20-30 DAS</td>
<td>3 bags 16-20-0 (with S)</td>
</tr>
<tr>
<td>Panicle initiation</td>
<td></td>
<td>30-40 DAS</td>
<td>1 bag 16-20-0 (with S)</td>
</tr>
<tr>
<td>Harvesting</td>
<td></td>
<td>40-50 DAS</td>
<td>1 bag 16-20-0 (with S)</td>
</tr>
</tbody>
</table>

0.5 bag = 12 kg
1 bag = 24 kg
1.5 bags = 36 kg
1 cavan = 42 kg

This quick guide is applicable for rice fields with:
• Sufficient supply of water to avoid drought
• An average level of soil fertility
• No input of nutrient through deposition of sediment from flooding
• No return of rice straw after threshing
• No use of organic inputs other than rice stubble

For fields with other crop-growing conditions, please use ‘Nutrient Manager for Rice’ to develop a field-specific guideline. Consult Agricultural Technicians in the local DA office or in your municipality about the ‘Nutrient Manager for Rice’. You can also consult the Office of the Provincial Agriculturist (Tel. no. 033 337 3062).
Steps in the pathway from research to successful dissemination

1. Develop and validate SSNM-based principles for nutrient management
2. Develop locally adapted decision tools to facilitate dissemination
3. Establish partnerships and confidence in disseminating SSNM through decision tools
4. Ensure farmers receive and understand guidelines for their fields

Established partnerships in 2008 for enabling contact with numerous farmers

- Conducted demonstration plots of the new fertilizer guideline in farmers’ fields: 20 municipalities
- Conducted field days
- Distributed >1000 laminated one-page guidelines
- Prepared and promoted Ilonggo version of Nutrient Manager for Rice
- Trained and oriented Municipal Agriculture Officers, technicians, and farmer groups
- Used Nutrient Manager to formulate field specific recommendations for farmers
• 2009- Department of Agriculture Regional Office and National Rice Program
  - Funded the research on development and dissemination of SSNM recommendation for rice in region (6 provinces)
  - Designated a focal person for SSNM

Tools made available from 2009 to facilitate dissemination
What is current status of dissemination (October 2009)?

- Dissemination tools are with the local government units (LGUs)
- Municipal Agriculturists (MAs)/Agricultural Technicians (ATs) have exposure on the use of dissemination tools
- Only a number of LGUs/ MAs/ ATs initiate dissemination activities
- Only few farmers were reached by the technology

Continue to ensure farmers receive and understand guidelines for their fields

- Agricultural Technicians / extension workers need to be motivated
  - Motivation in terms of:
    - Continuous capability building activities
    - Access to available tools
    - Recognition by local government units (e.g. awards)
    - Entitlement to updated technology tools via text messaging and website
- Expand partnerships to include farmers’ cooperatives, farmer associations, and farmer technology (FITS) centers
This presentation was made at the IPI-OUAT-IPNI International Symposium, 5-7 November 2009, OUAT, Bhubaneswar, Orissa, India. The Role and Benefits of Potassium in Improving Nutrient Management for Food Production, Quality and Reduced Environmental Damage.

Reaching 25,000 farmers or more by 2010 and beyond in Panay Island

- 250* motivated extension workers (AT) (~3 per municipality in Panay Island) proficient on the use of quick guides, Nutrient Manager, videos, etc.)
- 100 farmers/AT
- 100,000 empowered farmers in 2012
- 3 farmers per empowered farmer

Municipal agriculturists assist in identifying probable Agricultural Technicians (AT)

- 25,000 empowered farmers in 2010

Assumption: There are 94 municipalities in Panay with an average of 10 ATs per municipality

Role of partners in 2010

- WVSU/ Dept. of Agric.
  - Provide technical assistance
  - Conduct capability building activities
  - Empower LGUs to conduct dissemination
  - Conduct follow-up activities
  - Monitoring uptake of technology

- Local government units (LGUs)
  - Assist in identifying ATs/farmers
  - Mobilize ATs/farmers
  - Spearhead dissemination
  - Follow-up uptake of technology

Key agents for dissemination:

- Agricultural Technicians and Lead Farmers

*Assumption: There are 94 municipalities in Panay with an average of 10 ATs per municipality
Lesson #1: Develop a science-based decision tool for extension and farmers

Example from NM Rice Philippines

Lesson #2: Develop locally adapted tools to facilitate dissemination

Example from Philippines
Lesson #3: Establish partnerships with public and private sector

In 2008, partial support from IRRI. In 2009, fully supported by national agricultural research budget.

WVSU-I RRI Project

Key agents for dissemination:
Agriculture Technicians and Lead Farmers

Lesson #4: Formulate dissemination plan based on a predetermined target for number of farmers

250 motivated extension workers (AT) (~3 per municipality in Panay Island) proficient in the use of quick guides, Nutrient Manager, videos, etc.

25,000 empowered farmers in 2010

100 farmers/AT

100,000 empowered farmers in 2012

3 farmers per empowered farmer

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New SSNM web site to be released soon

http://beta.irri.org/ssnm