Moc Chau vegetable farmers’ use of data-aided decision-making, traceability, quality assurance, and access to higher value markets

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NOMAFSI (Northern Mountainous Agriculture and Forestry Research Institute)
ACIAR vegetable projects in Northwest Vietnam (From 2009)

Moc Chau:
- Moc Chau (800 m asl.) can grow temperate vegetables in Summer when too hot in Ha Noi.
- 200 km (4 hours) from Ha Noi.
- Adequate arable land (40,000 Ha).
- Small scale and scattered producers.

Ha Noi:
- High demand for quality vegetables.
- Consumers pay higher prices for certified safe, high quality vegetables.
- Retail markets expanding rapidly.
What Moc Chau farmers need to supply Ha Noi

- Quality certification → *Viet Gap* and *safety*
- Recognition by Ha Noi retailers & consumers via *Trademark* and *traceability*

**To link to Ha Noi markets**
- Sustainable farmer groups
- Strong farmer ↔ retailer communication

**To need data for:**
- Production planning & volume forecasts
- Certification & traceability
- Cost-benefit analysis
Individual farmer and farmer group records

Individual farmer records
• Areas, dates (sowing, planting, harvesting)
• Seeding and transplanting records
• Fertilizer type, rate and date
• Pesticides type, pest, rate and date
• Use of labour

Group records of each crop and harvest date
• Crop type
• Total yields (kg)
• Date of harvest
• Farmer names and codes
• Date of delivery
• Retailer(s) (kg)
Retailer and consumer data shared to farmers

- Volumes of each vegetable crop ordered
- Requirements (packaging, labels...)
- Feedback from consumers
How the data is used

- Cost/benefit
  - Manually
  - Using MonQi®

- Farmer records

- Community data & Collector records

- Retailers orders & consumers’ requirements

Certification:
- Registered Logo Moc Chau Safe Vegetables

Traceability and check for the quality
- Labels
- QR codes
MonQi analyses data at the farm and co-operative levels

1 General information

Report requires MonQi export tables: AE, LA, FLOW.LA, FLOW.PESTICIDE_A1

<table>
<thead>
<tr>
<th>Farm:</th>
<th>TAN_01: Nguyen Van Duyen</th>
</tr>
</thead>
<tbody>
<tr>
<td>LU:</td>
<td>LU04: Bang phang - Dat set cat</td>
</tr>
<tr>
<td>LA:</td>
<td>19: Tomato</td>
</tr>
<tr>
<td>Area:</td>
<td>Area: 500 m²</td>
</tr>
<tr>
<td>No. plants</td>
<td>1,500</td>
</tr>
<tr>
<td>Dates:</td>
<td>Planting: 7/6/2014</td>
</tr>
<tr>
<td></td>
<td>First harvest: 9/10/2014 (66 days)</td>
</tr>
<tr>
<td></td>
<td>Last harvest: 10/29/2014 (115 days)</td>
</tr>
<tr>
<td>Yield:</td>
<td>1.47 kg/plant</td>
</tr>
<tr>
<td></td>
<td>4.42 kg/ha</td>
</tr>
</tbody>
</table>

ID = 5,966

2 Financial

Table 1: Summary Net Cash Flow and Gross Margin

<table>
<thead>
<tr>
<th>Cash Expenses</th>
<th>1,086,500 VND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash Receipts</td>
<td>15,463,000 VND</td>
</tr>
<tr>
<td>Net Cash Flow</td>
<td>14,376,500 VND</td>
</tr>
<tr>
<td>Net Cash Flow/ha</td>
<td>287,529,999 VND/ha</td>
</tr>
<tr>
<td>Cost price</td>
<td>492 VND/kg</td>
</tr>
</tbody>
</table>

Note: 1 mo = 10,000 m²

Table 2: Input costs; specification of cash expenses (as in table 1)

<table>
<thead>
<tr>
<th>Type/name</th>
<th>Quantity</th>
<th>Unit</th>
<th>Price per unit</th>
<th>Cash expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed/planting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tomato</td>
<td>1,500.00</td>
<td>so cay</td>
<td>106.6667</td>
<td>160,000.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>total 160,000</td>
</tr>
<tr>
<td>Pesticides</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daconil 75WP</td>
<td>45.00</td>
<td>gr</td>
<td>533</td>
<td>24,000</td>
</tr>
<tr>
<td>Dupont TM Kocide</td>
<td>50.00</td>
<td>gr</td>
<td>1,400</td>
<td>70,000</td>
</tr>
<tr>
<td>Man 80Wp</td>
<td>60.00</td>
<td>gr</td>
<td>800</td>
<td>48,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>total 142,000</td>
</tr>
<tr>
<td>Fertilizer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPK 5.10.3</td>
<td>40.00</td>
<td>kg</td>
<td>4,938</td>
<td>197,500</td>
</tr>
<tr>
<td>NPK Binh Dien 13.13.13</td>
<td>20.00</td>
<td>kg</td>
<td>15,750</td>
<td>315,000</td>
</tr>
<tr>
<td>Supe Lan Lam Thao</td>
<td>50.00</td>
<td>kg</td>
<td>5,000</td>
<td>250,000</td>
</tr>
<tr>
<td>Tro bep</td>
<td>20.00</td>
<td>kg</td>
<td>1,100</td>
<td>22,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>total 784,500</td>
</tr>
</tbody>
</table>

Note: MonQi software was developed by Fresh Studio
QR codes: easy access to data

Scanner: Bar Code Reader QR Code Reader ($32)

Mobile phone app (Free)

http://pin.htx.vn/b/mc/237-cm24-7-2017
QR code header information

Scanning the QR codes provides information on:

Information about the farm co-operative
*Tu Niet village in Moc Chau*
Typical information in a QR code

**PRODUCT INFORMATION**
Product Name: Hmong cabbage
Origin: Moc Chau
Packing: 0.5kg bag
Type of packaging: tied
Preservation: Normal storage
Date of planting: 09-06-2017
Date of harvest: 24-07-2017
Lot number: RMCTT....
Production process: VietGAP
Planted area: 200 m
Season: July
Date of issue Viet Gap: 22-12-2015
Weight: 20kg

**MANUFACTURER INFORMATION**
Name of Unit: Cooperative Safe Vegetable Tu Nhien
Representative: Nguyen Thi Luyen
Phone: 01695 438 180 or 01674 943 800
Address: Ban Tu Nhien, Xa Dong Sang, Moc Chau, Son La
Website: www.htxrauantoantunhien.com.vn

**TRANSPORTATION INFORMATION**
Type: Road Transport
Vehicle: Car
Driver: Nguyen Van
Distance: 210 km

This information is required for traceability of the consignments for VietGAP.

Can be achieved cheaply using QR codes compared to Bar code systems used in more developed retail systems.
Current project priorities

- Wider use of the Moc Chau logo
- QR codes for traceability
- Simplification of record keeping
- Scalable farmer groups
- Measure social and economic impact
- Share with Myanmar
## Business case for safe vegetables: Moc Chau

<table>
<thead>
<tr>
<th>Production system</th>
<th>Typical Net Income M VND (per ha per yr)</th>
<th>AUD equivalent (per ha per yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional household income (Moc Chau)</td>
<td>120</td>
<td>$7,560</td>
</tr>
<tr>
<td><strong>Certified safe vegetables</strong></td>
<td>300</td>
<td><strong>$18,900</strong></td>
</tr>
<tr>
<td></td>
<td><strong>(150% more income)</strong></td>
<td></td>
</tr>
<tr>
<td>Rice / Maize</td>
<td>20 (or less)</td>
<td>$1,260</td>
</tr>
</tbody>
</table>

### Certified Safe vegetable supply Moc Chau to Hanoi (tonnes)

- 2012: 31 tonnes
- 2013: 233 tonnes
- 2014: 361 tonnes
- 2015: 420 tonnes
- 2016: 691 tonnes
The Australian ambassador to Vietnam buys his vegetables from the ACIAR Rau an Toan Moc Chau project!