

## ***Case study: Moc Chau vegetable farmers' use of data-aided decision-making, traceability, quality assurance, and access to higher value markets***

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### **Abstract**



Farmers in the Son La region of north-west Vietnam are working together with ACIAR to produce high quality vegetables, supplying emerging retail markets in Vietnam. The market for high quality vegetables in Vietnam is expanding rapidly. Project farmers in Moc Chau supplied 690 tonnes of VietGAP-accredited safe-to-eat vegetables in 2016. That was 65% more than in the previous year. ACIAR

projects AGB/2009/053 and AGB/2014/035 have identified the smart use of data as a key factor in helping Vietnamese farmers supply emerging retail vegetable markets. Data management has been used for:

1. Maintaining farm records. Farmers must keep records about agronomy and use of chemicals so they can trade VietGAP-certified vegetables to lucrative retail markets.
2. Value chain reporting. Analysis of vegetable input costs, prices and throughput data using specific software (MonQi® Fresh Studio) is used to inform farmers of the most profitable crops and when to produce them, and to measure their net farm income.
3. QR codes. Farmers are now using QR codes to help trace the origin of vegetable crops supplied to retailers back to the individual farms where they were produced. QR codes are ideal for developing countries because they do not require special barcode readers and software systems.

Farmers in the Moc Chau region of north-west Vietnam are working together with ACIAR-funded projects to produce high quality vegetables for supplying to emerging retail markets to improve their income. During 2011–2016 the project farmers produced and supplied almost 1,735,000 tonnes of accredited quality vegetables to Ha Noi market, significantly improving their living conditions.

ACIAR has funded four vegetable projects in the north-west region of Vietnam: two in Lao Cai and two in Son La province. This presentation focuses on only the two in Son La: projects AGB/2009/053 and AGB/2014/035. Involved in their implementation are Australian and Vietnamese institutions, including ARH (Applied Horticulture Research) and NOMAFSI (Northern Mountainous Agriculture and Forestry Science Institute) which is one of the long-term partners of ACIAR.

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Paper derived from the spoken presentation, including some Powerpoint slides presented.



Figure 1: The project area, Moc Chau region in Son La province.

In 2009, from a market study, we realised that there are great opportunities for Moc Chau farmers to improve their income through becoming involved in vegetable supply chains to Ha Noi. This region (Figure 1) has advantageous conditions for temperate vegetable production also in summer (off-season) when Ha Noi and its nearby areas are too hot. Ha Noi consumers are ready to pay higher prices for high quality vegetables, and nowadays the road conditions have been improved and transportation of fresh vegetable from Moc Chau to Ha Noi is relatively easy.

However, for farmers in Moc Chau to produce high quality vegetables to supply the Ha Noi market, we need to organise them into sustainable groups and to link them to the market, because their production is very small in scale. Their vegetable plots range from a few tens to a few hundreds of square metres in area. Separately they would not be able to produce a big enough volume of vegetables for the Ha Noi market.

To this end, farmer groups need data for:

- (i) vegetable production planning & volume forecast,
- (ii) vegetable certification & traceability, and
- (iii) cost–benefit analysis.

The data they need include:

- Individual farmer records, which include production areas and dates (sowing, planting, harvesting); fertiliser type, rate and application date; pesticides type, pest, rate and application date; and use of labour.
- Group records of each crop and harvest, which include crop type, total production (kg), date of harvest, farmer names and codes, date of delivery, and volume provided to each retailer (kg).

- Retailer and consumer data, including volumes of each vegetable crop ordered by each retailer, requirements (packaging, labels...) and feedback from consumers.

All this data is compiled and analysed such that farmer groups as well as individual farmers are able to use the information for making their production plans, and for harvesting, packaging and labelling their vegetables so as to meet the consumers' requirements (Figure 2).

The cost–benefit analysis could be carried out manually by farmers themselves or by a project partner, Fresh Studio, using the MonQi® program, developed also by Fresh Studio.

### Identifying Moc Chau produce in the market

We also supported the development of the Certification Mark of 'Moc Chau Safe Vegetables' (Rau An Toan Moc Chau) and development of QR codes for traceability of the vegetables (Figure 2).

The QR code includes all information about the products, and anyone can use a smartphone or a hand scanner to scan a QR code (Figure 3). It includes the name of the household that produced the vegetable, the dates it was planted and harvested, the area (m<sup>2</sup>) of the vegetable plot that the household planted and harvested on those dates, the name of the collector and of the transporter, the means of transportation, and even a map showing how to reach the location of the farmer group.

To use a QR code involves additional cost, and therefore at present the project farmers use two different labels. One includes the QR code and is used for vegetables supplied to retailers who require QR codes. The other label, which does not have the QR code, is used for vegetables supplied to other retailers who do not require QR codes.

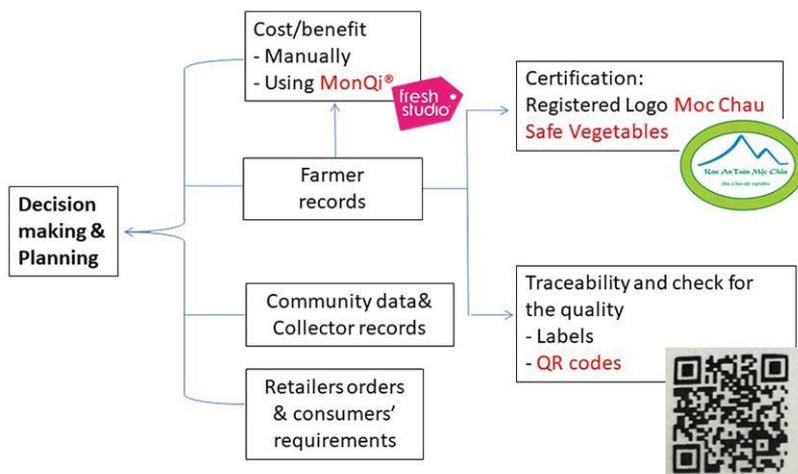


Figure 2. How the data is used.

### QR codes: easy access to data



Figure 3. QR codes can easily be scanned to identify the source of the produce.

### Next steps and acknowledgement

The success of these projects has built up over six or seven years so far. The next steps are to support farmers in the effective use of the Certification Mark 'Moc Chau Safe Vegetables' to further promote and strengthen the trust of Ha Noi retailers and consumers in the farmers' products. This will involve designing, printing and managing the use of this logo and suitable labels.

We also intend to simplify the record-keeping and the cost–benefit analysis such that farmers can easily do those jobs. We want to assess the social and economic impacts, including also the impacts on gender, to see if the benefits apply to both men and women, fairly and equally. We are sharing our experience also with a college in Myanmar.

I would like to add that our project also enjoys great support from the Embassy of Australia in Vietnam, specifically Craig Chittick, the Australian Ambassador, in Ha Noi. He has visited our project site and he said he buys vegetables from our projects' farmers.

Dr Pham Thi Sen is a researcher from Northern Mountainous Agriculture and Forestry Science Institute (NOMAFSI) in Vietnam where she plays a key role in efforts aimed at sustainably managing agricultural systems, landscapes and environments in the Northern Mountainous Region (NMR), which is the poorest region in Vietnam, characterised by diverse, complex and challenging topographical, soil, climate and socio-economic features. Dr Pham Thi Sen has extensive experience in working with farming communities and local partners, and with her NOMAFSI team she has engaged in participatory R&D activities. The NOMAFSI team's goal is to restore and protect the beauty and diversity of natural resources of the NMR, while sustainably reducing poverty in local farming communities. The team has provided support to farmers in different locations to restore local rice varieties, to develop farm rice seed production and supply, to conduct participatory varietal selection, and to adopt integrated crop management, conservation agriculture, and climate-smart practices.