

**RISK MITIGATION AND VULNERABILITY ASSESSMENT OF NAM  
DOK MAI MANGO (*Mangifera indica* L. cv Nam Dok Mai) SUPPLY  
CHAIN USING RAPID AGRICULTURAL SUPPLY CHAIN RISK  
ASSESSMENT (RAPAGRISK)**

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**ABSTRACT**

Mango is one of the important commodities in Thailand. As a perishable product, a deterioration in the quality of mango can cause losses both in terms of quality and quantity throughout the supply chain. Therefore, this study aims to identify the structure of the mango supply chain, identify risks and determine vulnerabilities that occur in each tier, and mitigate the risks that occur in the supply chain.

Data in this study were collected by purposive and snowball sampling through in-depth interviews with risk owners throughout the supply chain. This research focused on Nam Dok Mai mangoes produced by Ban Haet Community Mango Enterprises, Ban Haet District, Khon Kaen Province. Supply chain risk in commodities that are examined and analyzed using Rapid Agricultural Supply Chain Risk Assessment (RapAgRisk).

The results showed that the mango supply chain consisted of four tiers, namely farmers, community enterprises, wholesalers and retailers. We identified several risks, i.e. weather, biological and environment, market, logistics, and operational risks. Farmers have a vulnerability to high temperature, strong winds, pests and diseases, price fluctuation, and management operational. Community enterprises have a vulnerability to price change and management operational. Wholesalers have a vulnerability to demand change and obtaining rotten mangoes from farmers. Retailers have a vulnerability to rotten mango obtained from wholesalers. Mitigation was carried out to the farmer, they were using a proper equipment, setting the distance of the cropping pattern, recording their farm activity, making an initial agreement with the buyer and proper production planning, establishing windbreak, and giving training about weather change adaptation and Integrated Pest Management. In community enterprise, they were making an initial agreement with the buyer, using social media, attending fruit festival, and making a database. In wholesaler, they were recording of sales, sorting the mango, and making an agreement with the supplier. In retailer level, they were sorting the mango and making an agreement with the wholesaler.

Keywords: mango, RapAgrisk, risk management, supply chain

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**MITIGASI RISIKO DAN PENILAIAN KERENTANAN PADA RANTAI PASOK MANGGA NAM DOK MAI (*Mangifera indica* L. cv Nam Dok Mai) MENGGUNAKAN RAPID AGRICULTURAL SUPPLY CHAIN RISK ASSESSMENT (RAPAGRISK)**

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**ABSTRAK**

Mangga adalah salah satu komoditas penting di Thailand. Sebagai produk yang mudah rusak, penurunan mutu mangga dapat menyebabkan kerugian baik dari segi kualitas maupun kuantitas sepanjang rantai pasoknya. Karenanya, penelitian ini bertujuan untuk mengidentifikasi struktur rantai pasok mangga, mengidentifikasi risiko dan menentukan kerentanan yang terjadi pada setiap tier, dan mengurangi resiko yang terjadi pada rantai pasoknya.

Data dalam penelitian ini dikumpulkan dengan purposive dan snowball sampling melalui wawancara mendalam kepada pemilik risiko di sepanjang rantai pasok. Penelitian ini difokuskan pada mangga Nam Dok Mai yang dihasilkan oleh Ban Haet Community Mango Enterprises, Ban Haet District, Provinsi Khon Kaen. Risiko rantai pasok pada komoditas diteliti dan dianalisis dengan menggunakan *Rapid Agricultural Supply Chain Risk Assessment* (RapAgRisk).

Hasil penelitian menunjukkan bahwa rantai pasok mangga terdiri dari empat tier yaitu petani, community enterprise, wholesaler dan retailer. Teridentifikasi adanya risiko cuaca, biologis dan lingkungan, pasar, logistik, dan operasional. Petani rentan terhadap risiko suhu tinggi, angin kencang, hama penyakit, fluktuasi harga, dan pengelolaan operasional. *Community enterprise* rentan terhadap perubahan harga dan pengelolaan operasional. *Wholesaler* rentan terhadap risiko perubahan permintaan dan memperoleh mangga busuk dari petani. *Retailer* rentan terhadap mangga busuk yang diperoleh dari wholesaler. Mitigasi yang dilakukan petani antara lain menggunakan peralatan yang tepat, mengatur jarak pola tanam, membuat catatan aktivitas pertanian, membuat kesepakatan awal dengan pembeli, membuat perencanaan produksi yang tepat, membuat penahan angin, dan memberikan pelatihan tentang adaptasi perubahan cuaca dan pengendalian hama terpadu. Pada *community enterprise*, membuat kesepakatan awal dengan pembeli, menggunakan media sosial, menghadiri festival buah, dan membuat database. Pada tingkat *wholesaler*, membuat catatan penjualan, melakukan penyortiran, dan membuat kesepakatan dengan pemasok. Di tingkat *retailer* melakukan penyortiran mangga dan membuat kesepakatan dengan *wholesaler*.

Kata kunci: manajemen risiko, mangga, RapAgrisk, *supply chain*

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