Mungbean and Soybean

Priority statement

Soybean and Mungbean sub-sectors represent a **MEDIUM** priority for pro poor development. Soybean is in high demand both domestically and on the world market, particularly in China, and current supply cannot keep up. Similarly mungbeans offer good potential as a cash crop in addition to the staple production of rice. There is good potential for increasing yields and incomes through improved variety selection, agronomic practices and supply chain co-operation.

Table 1. Mungbean and Soybean production statistics for selected provinces in Indonesia

Basic Statistics	East Java	West Nusa Tenggara (NTB)	East Nusa Tenggara (NTT)	Indonesia
Area of Production (ha)	255,000 (S) 68,000 (M)	75,000 (S) 47 000 (M)	1,000 (S) 12,000 (M)	630,000 (S) 290,000 (M)
Volume of Production (tonnes)	360,000 (S) 80,000 (M)	83,000 (S) 52,000 (M)	1,500 (S) 11,000 (M)	870,000 (S) 330,000 (M)
Yield (t/ha)	1.4 (S) 1.17 (M)	1.11 (S) 1.12 (M)	1.01 (S) 0.84 (M)	1.38 (S) 1.15 (M)
Value of Production (US$)[1]	220 million(S) 18 million(M)	52 million(S) 12 million (M)	850 000(S) 2 million (M)	555 million(S) 75 million(M)
People Employed	-	-	-	-

Source: Badan Pusat Statistik 2011 production data

[1] FAOStat 2009 - $US638/tonne Soybean: $US225/tonne Mungbean

Poverty and sustainability

Is there potential to reach large numbers of poor households in production and post-production?

- There is a high potential to reach a large number of poor household involved in production and post-production activities associated with this sector.
- Similar to peanuts, soybeans and mungbeans offer additional income streams to farmers often in the post-rice harvest season, when a short-term legume can be rotated with rice in order to utilise residual moisture after the rice crop.
- There are estimated to be over 3 million rural poor in Indonesia.

What is the potential to increase income for producers?

- Productivity and profitability of both crops are severely constrained by a number of issues including access to good quality seed, new improved varieties, awareness about seed quality, poor management practices, and lack of access to crop loans or irrigation water.

- ACIAR trials have shown improvements in soybean yield of 25% with the use of new variety and a 170% increase from adoption of improved agronomic practices.
- Market price for soybean has soared in accordance with high world demand particularly from China. Recent import duties have also contributed to price rises, which is positive for producers.
- Impact in NTT of improved variety selection and agronomic practices on mungbean production is estimated on a hypothesised yield improvement of 0.2 t/ha over the current average yields of 0.8 t/ha, (a conservative estimate of 25% yield improvement within 5 years). Assuming penetration of these technologies to 40% of the 23,000 ha and the current average price of mungbean in the Indonesian market (IDR 3.5 million per tonne @ $410 per tonne), an additional income of US $0.8 million/annum can be expected.
- The use of a co-operatives model for mungbean farmers in NTT has been very successful in facilitating the dissemination of technology and best management package information so that yields of 950kg/ha were achieved, in comparison to 470kg/ha under traditional systems.
- The co-operatives were also successfully attracting micro-financing options from local banks.

Does the chain/commodity fit with the focus of Government programs and priorities?

- The Indonesian government is seeking to increase the supply of locally grown soybeans and mungbeans due to concerns about rising imports of these commodities.
- NTB provincial government in particular has initiated a “soybean field school” program to promote improved crop management strategies.
- The Indonesian Legume and Tuber Crops Research Institute (ILETRI) have been very active with programs to develop new varieties for high yields and disease and pest tolerance.

How project-crowded is the sector? (To what extent are sector needs addressed by current donors?)

- ACIAR SADI is strongly represented in the grain legume sector with projects to develop new varieties and cost effective management practices; more efficient and sustainable seed system strategies and build collaboration between national and provincial government agencies.

What is the agro-ecological feasibility?

- The agro-ecological requirements are similar for soybean, mungbean, peanuts and to some extent maize and they are suitable for growing after rice harvest if sufficient water is available.
- To some extent in the higher rainfall regions soybean and mungbean follow a similar cropping system to peanuts in that it is part of a rotation with rice.

- Soybean is of less significance in terms of area planted in NTT and this may be as a result of a higher dependence on maize as a staple in the region.

Sustainability (economic and environmental)

- Soybean is a major part of Indonesian cuisine and demand for soybean is well in excess of domestic supply. Currently Indonesia runs a large trade deficit in soybean (over 1.3 million tonnes) and small deficit in mungbeans (11,000 tonnes)[1].
- The high demand from China and current price for soybean at approximately $US 660/tonne indicates that prices are likely to remain high. This is positive news for the economic sustainability of the sector but affects negatively the trade balance by increasing the value of imports.
- Soybeans and mungbeans are often grown in the rotation with rice or on upland alfisols. A grain legume produced in rotation with a rice crop will provide some additional nitrogen to the proceeding crop so long as it is correctly inoculated with the appropriate rhizobia. There is potential for inappropriate chemical usage in the quest for higher yields through insect and fungicide management.

External risk

- One major risk is the limited availability of quality seed for planting by smallholders.
- Farmers also have limited awareness of new high yielding varieties and good crop management techniques (programs outlined above to address these issues).
- Inter-island transport costs may limit the trade of soybean and mungbean within the region. Climate variability is also a risk particularly in the drier province of NTT.

Structure of the chain

Is there potential for post-harvest productivity / value-added?

- There is potential for value adding with soybeans but there are limited opportunities for value-adding at the producer level with mungbeans.
- Soybean is used to produce tofu and tempeh. Many small scale merchants are engaged in this value-adding activity.
- Soybean has a large list of uses such as oil, animal feed, flour and milk substitute.
- Mungbeans are commonly used for a variety of cultural dishes.
- The greatest return to the farmer can come through yield improvement and crop management.

What is the potential for improving market access?

- If education programs for farmers, such as the “soybean field school” can be expanded and include mungbeans and further encouragement and support of farmer groups can be achieved, then market access will be enhanced.

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[1] *FAOStat 2009 – Indonesia trade data for soybean and mungbean (Bean -Dry) 2009*

Is there sufficient infrastructure availability?

- Since 2002 the Government of Indonesia (through the Ministry of Transportation) has increased shipping costs. This increase has affected the prices of goods that are transported between islands, including soybean from Surabaya to Kupang and from Ngada to Kupang.
- Soybean and mungbean have the advantage of not being highly perishable and can be transported to distant markets; however freight costs directly impact trade.

What is the scalability and transferability potential?

The scalability potential for the improvements to varieties and management techniques is high, as success will drive further farmer interest in the region.